HARBORS OF SAFE REFUGE (HSR) GUIDE

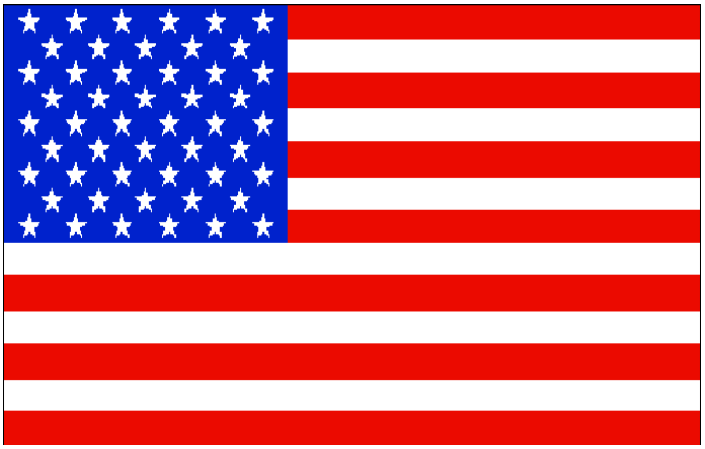
for the

Houston-Galveston Area

(including Freeport and Texas City)

Developed through the Collaborative Efforts of:

- HOGANSAC (Houston-Galveston Navigational Safety Advisory Committee)
- The US Coast Guard, Sector Houston-Galveston
- The Texas General Land Office (TGLO)
- Texas Parks and Wildlife (TPWD)
- The Texas Commission on Environmental Quality (TCEQ),
- Central Texas Coastal Area Committee (CTCAC), and
- Industry Stakeholders



Executive Summary

This document is designed to provide plans, procedures, options, and decision aids consistent with IMO Resolution A.949(23) (see Appendix A) for conducting risk assessment and facilitating decision-making when a vessel is in distress and/or seeks safe refuge to minimize the overall impact to the vessel and shipboard personnel, the community, the marine transportation system, and the environment of Sector Houston-Galveston.

After deliberate consideration, the working group focused its efforts on a guide for the Houston-Galveston Captain of the Port Zone. The product and its methodology support expansion into other jurisdictions, albeit with significant coordination.

Harbor of Safe Refuge decision-making requires a shift in mind-set, not least because it is largely a matter of selecting from among an array of bad options and requires recognition that some of the required decisions will be irrevocable. A timely initial decision may become critical to reducing the magnitude of an incident, but to be timely, initial decisions must be made on incomplete and/or inaccurate information.

This document is intended to provide a decision-making process and the requisite background information to assist principal decision-makers in achieving the best available outcome.

We recommend that the Area Committee incorporate these findings and processes into the Area Plan, and develop appropriate training materials to develop the resources and logistic support necessary to implement this planning.

This document is intended solely as guidance. It does not constitute rulemaking by any agency and may not be relied upon to create a right or benefit, substantive or procedural, enforceable by law or in equity, by any person. Any agency or person may take action at variance with this guide or its internal implementing procedures. Mention of trade names, commercial products, or commercial companies does not constitute endorsement or recommendation for their use by any agency of the United States Government or the State of Texas.

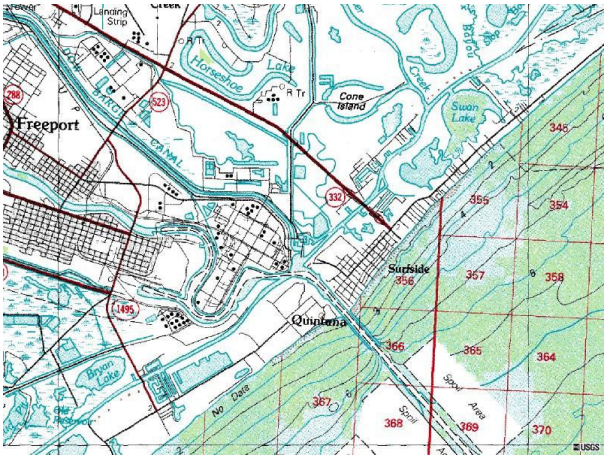
Conclusions

This document is designed to provide the reader with a thorough background into HSR issues as they pertain to the Houston-Galveston area, the thought process the Subcommittee members took as they developed this guide, and additional information that might be useful during an incident. Each incident must be thoroughly assessed based on the actual situation and facts at the time. The final decision lies with the Federal On-Scene Coordinator (FOSC), based on his assessment in conjunction with the support of unified command, local industry, other agencies, and available experts. One of the major challenges to overcome in an HSR situation is the NIMBY factor ("Not in my backyard"), which will undoubtedly be raised when an HSR vessel is allowed into port. Throughout the evaluation process, the HSR Subcommittee has focused on the benefit to the overall Houston-Galveston area, realizing that there were no "simple" solutions to the problem of bringing a leaking tanker into port. Special emphasis was placed on the protection of the mariners who might be impacted onboard the HSR vessel.

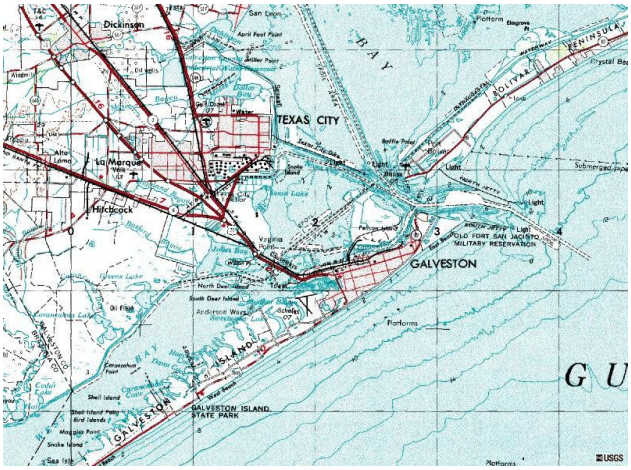
Primary Recommended Locations

- **Oil Tankers:**
  - Inshore - The primary recommended locations are the Ports of Freeport and Texas City, based on seasonal fish and wildlife considerations, the ability to contain and mitigate the release, and availability of port facilities to discharge the vessel.

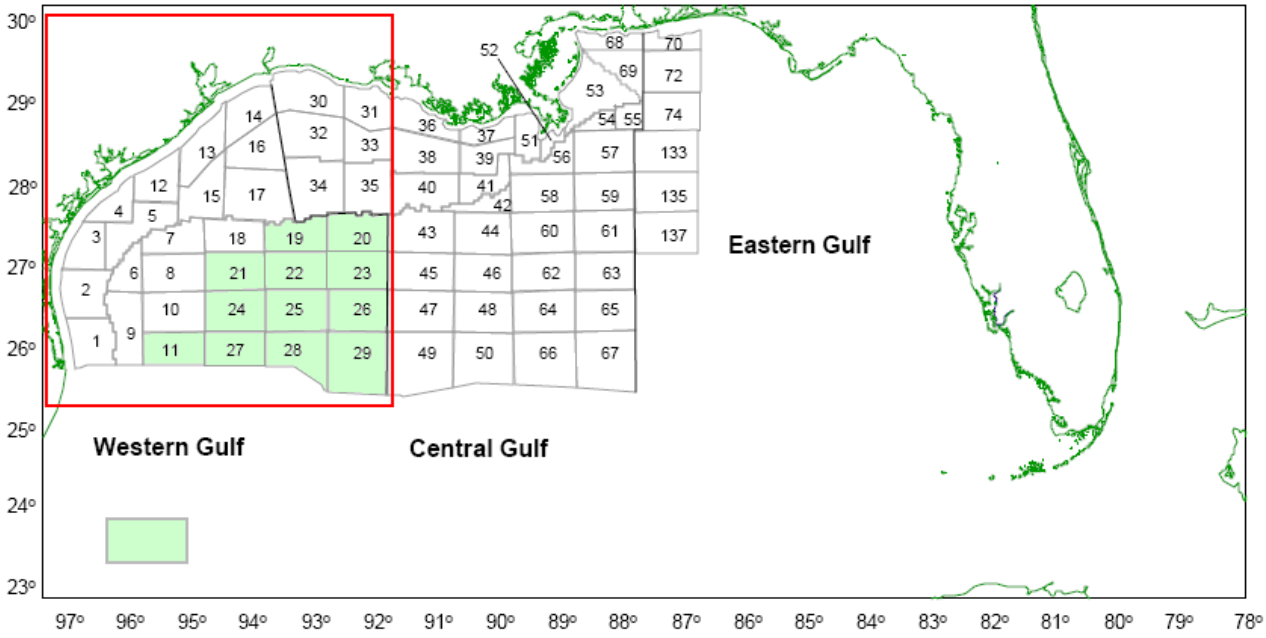
Freeport



Texas City



- Offshore – Oil tankers that are unable to come into port due to their size, or those that are suffering from significant leaks and/or at risk of foundering should initiate immediate salvage and recovery effort and/or flee as the circumstances dictate.

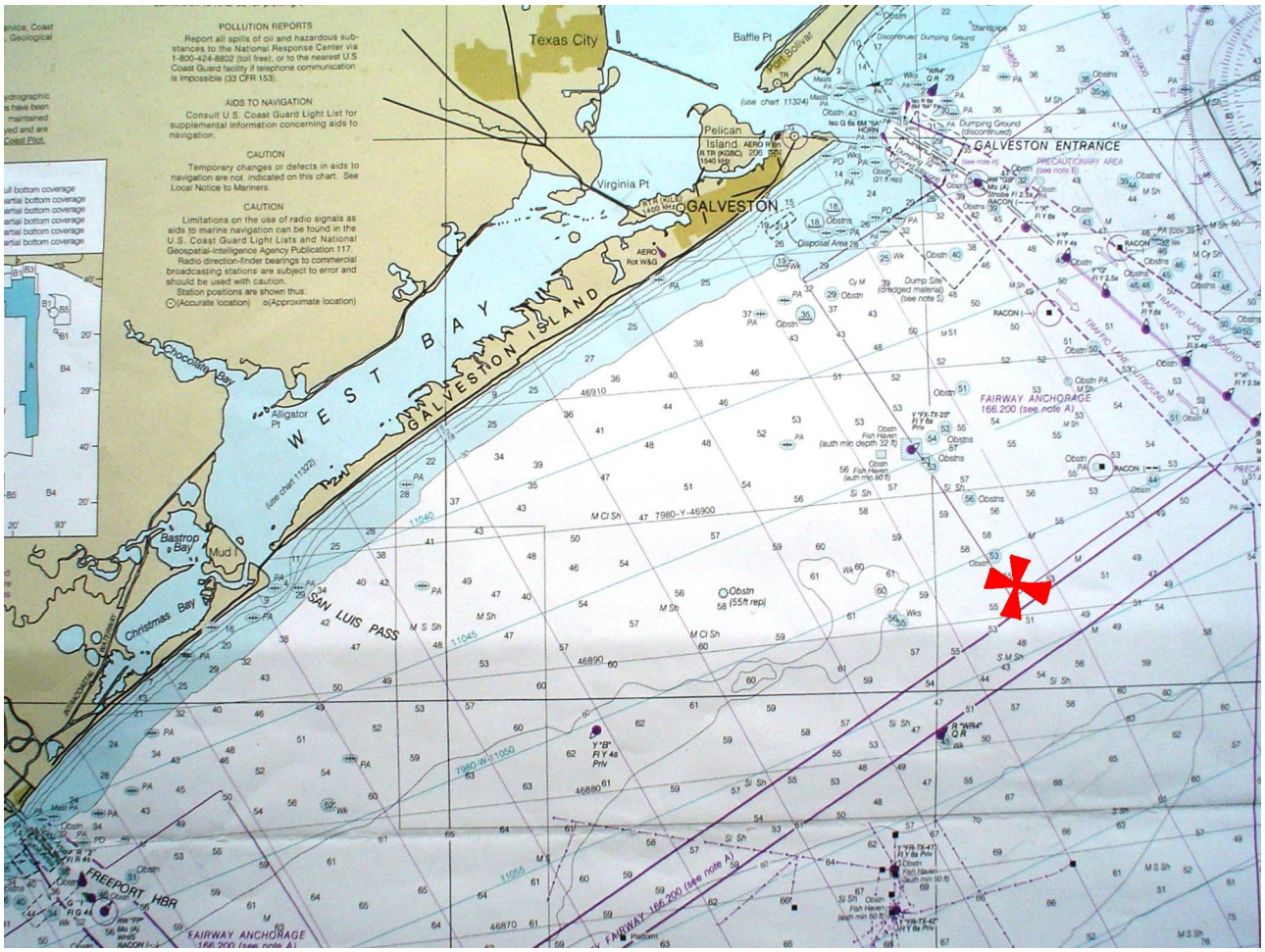


- **Chemical and Gas Vessels:**

  - Planned discharge berth – If toxic or flammable materials are not being released

  - Galveston Southern Offshore Fairway Anchorage – If toxic of flammable materials may be released.

    Note: A vessel may be first brought to the Anchorage, and once the situation is stabilized, other in-port locations can be considered.



- **Radiological Incidents:**

  - Assessing these types of incidents would require access to classified information that the Subcommittee did not have. However, the general guidance would be to send the vessel south posthaste to avoid dispersion based on prevailing winds over heavily populated areas, similar to the logic used with chemical and gas tanker scenarios.

Items for Further Action

This document is designed to provide the reader with a thorough background into HSR issues. Some further work is necessary to fully implement the HSR Guide. Those items include:

- The HSR Subcommittee should develop a presentation on this HSR Guide and conduct training for senior decision-makers and industry contacts who might be involved in an HSR situation.
- The HSR Subcommittee should work with the Area Committee personnel to develop a port entry plan for the primary locations identified in the HSR Guide, including logistics and resources that may be needed.
- The US Coast Guard should work with Minerals Management Services (MMS) to identify additional suitable offshore locations for vessels involved in an HSR incident.
- The US Coast Guard should also work with MMS to develop protocols for identifying manned or temporarily manned platforms at the time of an HSR incident so that either those platforms are not impacted by the potential release or personnel are evacuated.

Acknowledgements

We would like to recognize the following individuals for the major contributions they have made to streamline the decision-making process for Harbor of Safe Refuge methodology in Houston-Galveston, the largest petrochemical port in the United States. Without their time and expertise, this HOGANSAC project would have not been possible. We express our deepest appreciate to the individuals for their hard work and the benefit of their experience and expertise. In addition, we thank their employers for allowing them the time to participate in this important endeavor.

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CAPT Tom Pace	Houston Pilots
CAPT Jim Teeter	Freeport Pilots
Tom Marian	Buffalo Marine
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CAPT Rich Russell	AET
Andy Tirpak	TPWD
Steve Nerheim	VTS Houston
Jim Indest	TCEQ
Niels Aalund	West Gulf Maritime Association

Introduction

A vessel in need of assistance may require a temporary place of refuge with adequate water depth for lightering or repairs in order to protect the marine environment. The master of the vessel has control of the vessel and is responsible for requesting a place of refuge to the Captain of the Port. The master provides details on the status of the vessel and justification for needing a place of refuge per the IMO Guidelines on Places of Refuge. Vessels may need to be brought into a harbor, anchored or moored in protected waters, or temporarily grounded in order to safely make repairs and stop the loss of oil or other hazardous substances. In some situations, it may be better to leave the vessel where it is currently located or send the vessel out beyond the EEZ in order to minimize the chance of damage to the near-shore environment.

There is no single place of refuge for all vessels and all situations. Decisions relating to places of refuge encompass a wide range of environmental, social, economic, and operational issues that vary according to each situation. The initial decision to permit a vessel to seek a place of refuge, as well as the decisions and actions implementing that decision, are inherently based upon an assessment of the risk factors involved and the exercise of sound judgment and discretion.

While information on potential HSR sites may be pre-inventoried, this does not imply that any of these sites will be the location of choice in a future event. Selection of a place of refuge by the US Coast Guard Captain of the Port, in consultation with other agencies and stakeholders, will always be made on a case-by-case basis.

These guidelines incorporate the Guidelines on Places of Refuge for Vessels in need of Assistance adopted by IMO, and assume the use of the NIMS Unified Command System to manage the incident.

When safety of life is involved, existing search and rescue conventions and protocols should be used. When a vessel is in need of assistance but safety of life is not involved, these guidelines should be followed to evaluate whether a vessel should remain in the same position, continue on its voyage, be brought into a place of refuge or taken out to beyond coastal waters.

While the primary focus of the document is on issues related to the IMO convention and incidents such as the Prestige and the Erika incidents in Europe, the intent is to also deal with other safe refuge issues, such as those that occur prior to a hurricane making landfall (see Appendix R).

Jurisdictional Issues

Jurisdiction - US Coast Guard

The US Coast Guard has authority to represent and protect federal government interests for incidents within federal waters, which includes all Navigable Waters of the United States (33 CFR 2.05-25). Under 33 CFR 6.04, the US Coast Guard Captain of the Port (COTP) has authority to order vessels into and out of ports and harbors in order to protect the public, the environment and maritime commerce. The COTP is the designated Federal On-Scene Coordinator (FOSC) for the U.S. coastal zone per the National Contingency Plan (40 CFR 300)(a)(1). There may be some maritime homeland security situations where the COTP, acting as the Federal Maritime Security Coordinator, may have access to Sensitive Security Information (SSI) and/or classified information - not readily shareable with other stakeholders - that may impact on the final disposition of a vessel requesting "Force Majeure" or permitting a vessel to seek a place of refuge or approval of a salvage plan.

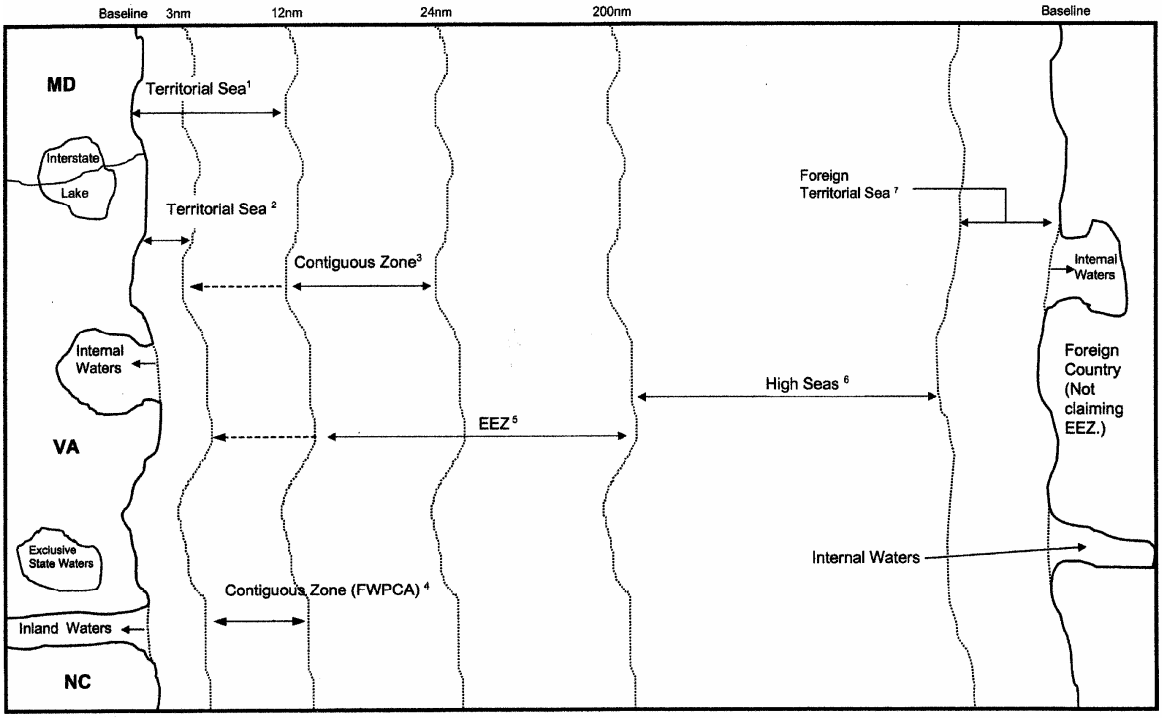
Further detailed information regarding jurisdiction, definitions, jurisdictional limitations, and other key information can be found in Appendix B.

Jurisdiction – State of Texas

Offshore waters, for the State of Texas, begin at an inshore baseline defined as the “coastal line” and extend seaward for three marine leagues (3 marine leagues = 9 nautical miles). The coastal line demarcation excludes waters behind barrier islands and many inshore waterways.

The drawing on the following page comes from the Federal Register, and provides a good overview of the various jurisdictional areas.

FIGURE 2.1. JURISDICTIONAL AREAS



[1] Territorial sea for purposes identified in §2.22(a)(1).
[2] Territorial sea for purposes identified in §2.22(a)(2).
[3] Contiguous zone as described in §2.28(b), varies with territorial sea width for particular purpose involved.
[4] Contiguous zone as described in §2.28(a), for Federal Water Pollution Control Act purposes.
[5] Exclusive Economic Zone (EEZ) is measured from the seaward limit of the territorial sea, as variously defined in §2.22(a), to a distance of 200 nautical miles from the baseline. The inner (shoreward) boundary of the EEZ will vary for particular purposes..
[6] High seas as defined in §2.32(d). When a nation has not proclaimed an EEZ, the high seas begin at the seaward edge of their territorial sea
[7] The U.S. recognizes territorial sea claims of other nations up to a maximum distance of 12 nautical miles from the baseline.

Intervention on the High Seas Act

This Act authorizes measures to prevent and mitigate oil pollution and other noxious damage on the high seas that affects U.S. coastlines and related interests. The Act implements the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other Than Oil. The Act authorizes the Secretary of the department in which the Coast Guard is operating to take measures on the high seas to protect the coastline or related interests of the U.S. from pollution incidents expected to result in major harmful consequences. When a collision, stranding, navigation incident or other occurrence damages or threatens to damage a vessel or her cargo, the Secretary may determine that the pollution or threat of pollution caused by the occurrence creates a grave and imminent danger to the coastline or related U.S. interests. In this event, the Secretary may take measures on the high seas to prevent, mitigate or eliminate the danger in accordance with the Convention, the Protocol and the Act. The Act also provides that the Secretary acts without liability for any damage to the owners or operators of the vessel, the cargo and crew, underwriters and other interested parties. The pollution addressed in this provision is pollution of the sea caused by Convention oil and pollution of the sea or the atmosphere caused by substances other than Convention oil.

Further detailed information regarding the Intervention on the High Seas Act can be found in Appendix C.

Definitions

A vessel is defined as any vessel (self propelled or non self propelled) that can be used for the commercial carriage of cargo or passengers, as well as non-commercial applications, including but not limited to freight vessels, tank vessels, deck barges, tank barges, and large yachts.

Vessel in need of assistance means a vessel in a situation, apart from one requiring rescue of persons on board, which could lead to loss of the vessel or an environmental or navigational hazard.

Place of refuge means a place where a vessel in need of assistance can take action to stabilize its condition in order to protect human life and preserve the environment. Places of refuge can be harbors, ports, or offshore waters.

Maritime Assistance Service (MAS) is defined in the International Maritime Organization's resolution. PLEASE NOTE: In the US, the United States Coast Guard is the agency responsible for receiving reports and serving as the point of contact for the vessel master while notifying other agencies in the event of an incident.

Force Majeure provides a vessel with limited immunity from the laws and directives of a coastal state when it is forced into waters of a sovereign state by virtue of distress, whether a result of natural or man-made causes.

In Extremis Doctrine: A situation/event when the decisions of the Captain are to be leniently judged when his or her vessel is put in sudden peril through no fault of its own. More than just a "hindsight is 20-20" clemency, the doctrine takes into account the true circumstances of an imminent catastrophe at sea.

Average Most Probable Discharge: 33 CFR 155 definition - Average most probable discharge means a discharge of the lesser of 50 barrels or 1 percent of the volume of the worst case discharge.

Maximum Most Probable Discharge: 33 CFR 155 definition - Maximum most probable discharge means a discharge of (1) 2,500 barrels of oil for vessels with an oil cargo capacity equal to or greater than 25,000 barrels; or (2) 10% of the vessel's oil cargo capacity for vessels with a capacity of less than 25,000 barrels.

Worst Case Discharge: 33 CFR 155 definition - Worst case discharge means a discharge in adverse weather condition of a vessel's entire oil cargo.

Sector Houston-Galveston AOR typical vessel sizes

The profiles of tankers shown on the following page are provided courtesy of INTERTANKO, the International Association of Independent Tanker Owners. It provides a general overview of the various tanker types, and has been provided to aid the reader in understanding terminology utilized throughout this document.

Types of modern oil tanker

Panamax tankers

Ships in the 55-70,000 dwt size range, 70,000 dwt being the maximum size tanker able to transit the Panama Canal. The need to pass through a series of Canal locks dictates a maximum length of 274.3 metres and maximum breadth of 32.3 metres. In the Atlantic Basin trades Panamax vessels have a competitive advantage over larger tankers due to physical trading and local port depth restrictions. North American imports of crude and fuel oil comprise the bulk of Panamax tanker business.

Typical double hull ship of 60,000 dwt. 228.6 m length overall x 32.2 m breadth x 12.6 m draft - Lightship: 11,000 tons of steel

Aframax tankers

Tankers in the 75,000-120,000 dwt size range. AFRA is Average Freight Rate Assessment. At one time Aframax was used to refer to ships up to 79,999 dwt, the upper limit of one of six deadweight groups for which the the AFRA rate is assessed. Aframax has since become a general term for ships in this overall size range. Aframax ships are traditionally employed on a wide variety of short and medium-haul crude oil trades. The biggest tanker that can be accommodated fully laden in the ports of the US - the world's largest importer of oil - is 100,000 dwt, and this only at a limited number of ports. Many of the more modern ships in the Aframax size range are built as long-haul product tankers, with epoxy-coated tanks.

Typical double hull ship of 100,000 dwt. 253.0 m length overall x 44.2 m breadth x 11.6 m draft - Lightship: 14,850 tons of steel

Suezmax tankers

Suezmax tankers are ships in the 120,000-200,000 dwt size range and are generally identified as those capable of lifting one million barrel cargoes. The name was originally bestowed on such ships because from 1980, when a development project which deepened the waterway to 16.1 metres was completed, the largest tankers able to transit the Suez Canal fully laden were those of 140,000-150,000 dwt. This association will effectively become redundant later this year when a project to deepen the Canal to 18.9 metres is completed. The Canal may be further deepened to 20.1 metres by 2005 and 22.0 metres by 2010.

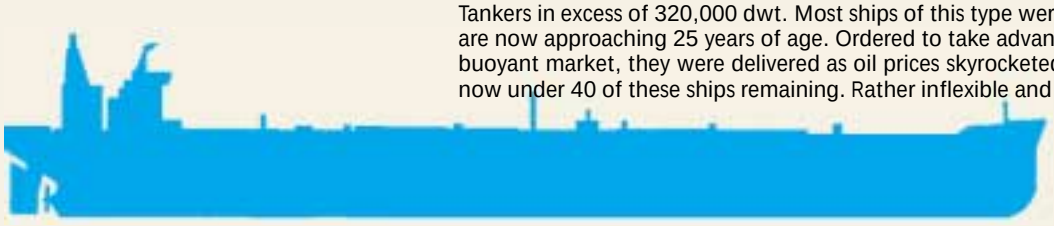
Typical double hull ship of 150,000 dwt. 274.0 m length overall x 50.0 m breadth x 14.5 m draft - Lightship: 20,000 tons of steel

Very large crude carriers (VLCCs)

VLCCs are tankers in the 200,000-320,000 dwt size range. Ships of this size were prompted by the rapid growth in global oil consumption during the 1960s and, in 1967, closure of the Suez Canal, necessitating voyages around the Cape of Good Hope. Today, VLCCs are the most effective way of transporting large volumes of oil, including 2-million barrel cargoes, to customers over relatively long distances. Relatively simple ships, VLCCs are subdivided into a number of cargo tanks by two longitudinal and several transverse bulkheads.

Typical double hull ship of 280,000 dwt. 335.0 m length overall x 57.0 m breadth x 21.0 m draft - Lightship: 35,000 tons of steel

Ultra large crude carriers (ULCCs)



Tankers in excess of 320,000 dwt. Most ships of this type were built in the mid to late 1970s and are now approaching 25 years of age. Ordered to take advantage of the economies of scale in a buoyant market, they were delivered as oil prices skyrocketed and demand collapsed. There are now under 40 of these ships remaining. Rather inflexible and limited to serving a few deepwater ports, ULCCs never achieved their full potential. In early 2000 a tanker owner ordered two 440,000 dwt ULCCs, with 2 options, the first ULCC order in 20 years.

Typical double hull ship of 410,000 dwt. 377.0 m length overall x 68.0 m breadth x 23.0 m draft - Lightship: 45,000 tons of steel

General Findings & Conclusions

The following conclusions are based on the analysis conducted by the Harbor of Safe Refuge Subcommittee, which was created by the Houston-Galveston Area Navigational Safety Advisory Committee (HOGANSAC). The Subcommittee was composed of a cross-section of experts in maritime affairs, including vessel owners/operators, facility operators, vessel agents, Federal and State government agencies, emergency responders, local pilot organizations, maritime legal experts and maritime trade associations. It represents the culmination of a significant effort to understand the issues related to a Harbor of Safe Refuge request, and the development of best practices to handle that situation using the knowledge and expertise of the work group members. It also builds upon the cooperative relationship that all maritime stakeholders in the Houston-Galveston Area have developed over many years, and their desire to take the most appropriate and effective steps to minimize the impact on the maritime community and all other users of the waterways.

Considerations and Assumptions for Decision-Making

- All inshore safe havens will be located within 15 nautical miles of the COLREG Demarcation Line, unless vessels (not in extremis) are seeking general shelter from the weather.
- The primary purpose of this document is to address vessels that are outside the COLREG Demarcation Line. Vessels already inside this line are considered in port, and will be handled internal to the port area. While the document is not designed for vessels in port, the guide should be used in determining appropriate steps to be taken. Many of these same provisions are applicable to other types of situations, including vessels seeking safe refuge from approaching hurricanes.
- The final decisions on directing a vessel to safe havens rests with the COTP and his use of the Unified Command. It is recommended that the COTP also consult with appropriate stakeholders to aid in decision-making.

Port Facts

The following is a general summary of information regarding each major port in the Houston-Galveston area that would be considered for an HSR destination, based on the factors and assumptions listed above. A more detailed listing of each port and an assessment for its use based on various types of vessels is included in Appendix L.

Texas City

Galveston

The largest vessels brought into Texas City anchorage were the Ulan (1,089' length) and the Zafrio Producer (1,088' length). These vessels were not brought into the port, but only into the anchorage.

To bring a vessel into Galveston, specifically Pier 36 and 37, the maximum length is 700' with beam limitations. In addition, there are considerations for currents in excess of 1 knot.

Freeport:

The Freeport Channel is 400' wide, and current project depth is 45'. Due to silting, the port is currently draft restricted, and the local pilots must be consulted for current conditions.

Offshore current across the Freeport Jetties can run up to 2 knots, and can be located from the mouth of the Jetties up to 1 ½ miles offshore. There are seasonal reversals to the near-shore currents, but normal flow is typically to the southwest. Larger vessel (i.e. those over 800' long) can crab up to 12 degrees as they come in the Jetties. Flow across the Freeport Intersection can run 3 knots.

Only one berth at TEPPCO is suitable for Aframax vessels. Maximum size for the vessel is approximately 920' length and 150' beam. It is possible to boom off the vessel itself and allow other vessels to continue transiting the port. There are about 2.8 vessels per day calling the Port Freeport facilities.

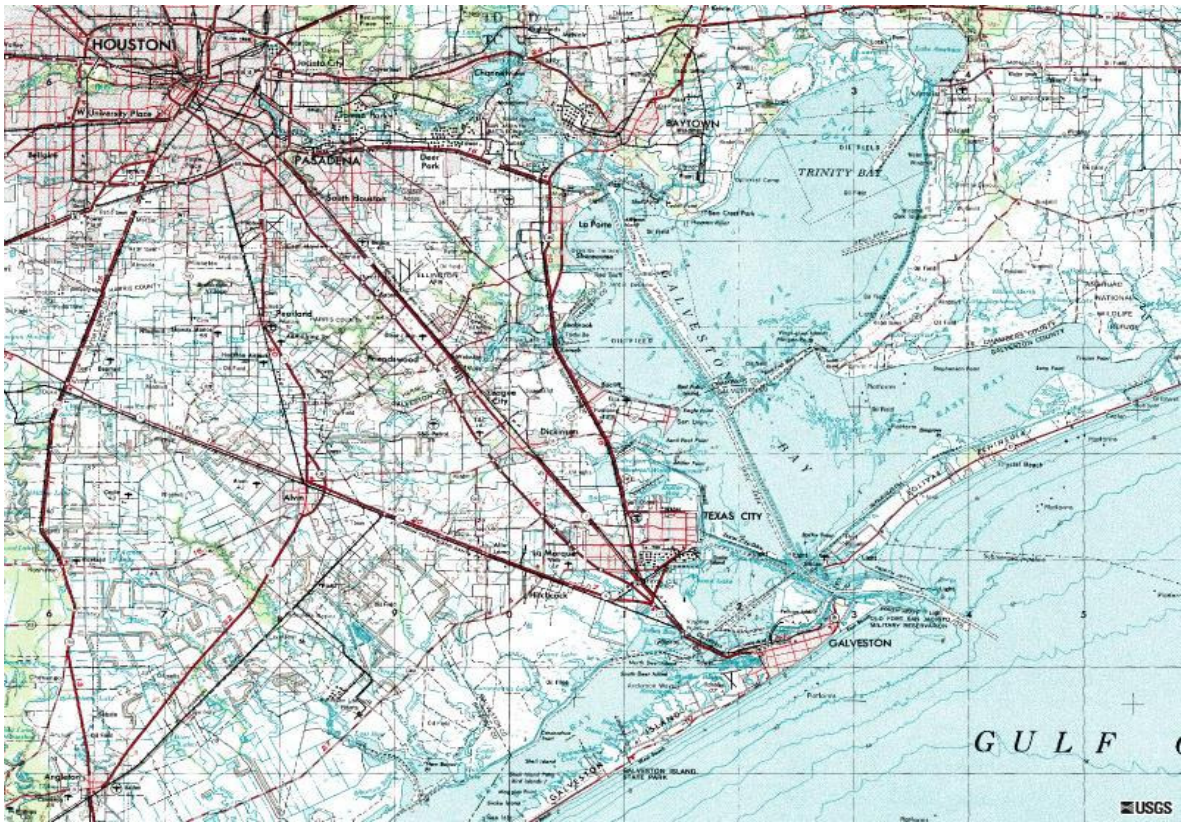
There is a "deep hole" located near the Rock Dock at the Port Freeport facilities. There are some tie-off structures in the area, and barges can be used for spacers as needed. In an emergency, the Brazos Pilots would consider vessels up to 950' long, and in favorable conditions, even longer. Barges are normally available locally.

There are normally 2 tugs available in Freeport, and others can be sourced out of Houston/Galveston if needed. It will be extremely difficult to bring a vessel in/out of the port "dead ship". General pilot rules for dead ship movements are that winds must be under 15 knots and less than ½ knot for the near shore current.

Inside the Old River (inwards from the Dow A-5 Dock), there is essentially no current (strictly tidal flow).

In the Freeport Lightering Zone, current flows southwest.

Economic Impact to Area Ports



The data shown below was provided by West Gulf Maritime and represents a rough estimate of the typical throughput of vessels through a particular port area. Due to variability in traffic and record-keeping methods, it is difficult to fully assess the potential economic impact that an incident may have. In the data shown below, which covers January 1 through November 30, 2006, vessels are counted if they required a Pilot (i.e. inland barges, OSVs and other similar vessels are not included in the data). In addition, it is expected that the Port of Houston numbers shown below do not include the impact to all of the local industry (i.e. oil, chemical, etc.), but most likely only takes into account the Port's own business.

Number of vessel calls

Ports covered by this work product:

- Houston - 6994
- Texas City – 1056
- Freeport – 777
- Galveston – 524

Other Texas Ports for the same time period:

- Sabine - 1711
- Corpus, including Ingleside - 1121
- Point Comfort – 279
- Brownsville – 201

Synopsis of HSR Committee Findings

- There are major 3 options for a Vessel Master and/or Authorities to consider, absent other factors:
  1. ***"Fight" to enter port:*** Allow the vessel to come into the port assuming a minor leak rate or safety threat, (either to the nearest Harbor of Safe Refuge, or the original intended terminal or destination).
  2. ***"Flee" from the US EEZ:*** Leave US EEZ waters posthaste, or
  3. ***"Stay":*** Send support vessels offshore to transfer cargo, repair the vessel, and/or conduct clean-up operations in place.
- During a typical incident with a vessel offshore, the following items must be established:
  - Leak rate has to be identified
  - A Classification Society may have to come out on scene to assess the integrity of the vessel, which may significantly extend the time it takes to determine the next step due to travel time and time for the assessment.
  - All pollution response actions must be approved through the USCG FOSC
  - Financial security may have to be put in place to insure payment for any damage from pollution and/or salvage
  - Determine if cargo may be transferred to ballast tanks. Internal liquid transfers to non-cargo carrying spaces should be permitted after considering safety requirements (i.e. cargo to ballast tanks).
    - Most vessels have forepeak and aftpeak tanks for ballast. Many vessels also have either Segregated Ballast Tanks (SBT) or Dedicated Ballast Tanks (DBT) on the vessel. As such, it might be possible for the vessel to reduce the amount of material leaked by moving cargo into the ballast tanks (provided it doesn't negatively affect stress/stability). For most vessels, it will take some time to line up to move the cargo, but it is something that can be considered. If the ballast tanks have goose necks rather than relief valves (the typical situation on most tankers), it may be necessary to install temporary flame screens on the goose necks. When possible, the ballast tanks should be inerted, and in order to maintain that atmosphere, pressure relief valves should be installed. There could be an issue related to materials of construction, etc.
- When considering various types of damage, a side impact to a tanker will typically (in the worst case) result in the breach of at least 2 tanks, while damage on the bottom plating could result in damage to 4 tanks (assuming the damage occurs at the point where 2 sets of tanks come together).
- On a typical Aframax, a rough calculation suggests that a 1 cm drop in a cargo tank is roughly equivalent to a 50 bbl release, which is the OPA '90 AMPD defined quantity. 1 cm is roughly the minimum amount that large tanker systems can identify (within tolerances) using radar or other gauging systems, (taking into account wave action, trim/list, etc.). As such, with a small leak rate, it can take some time to identify which tank is actually losing product.

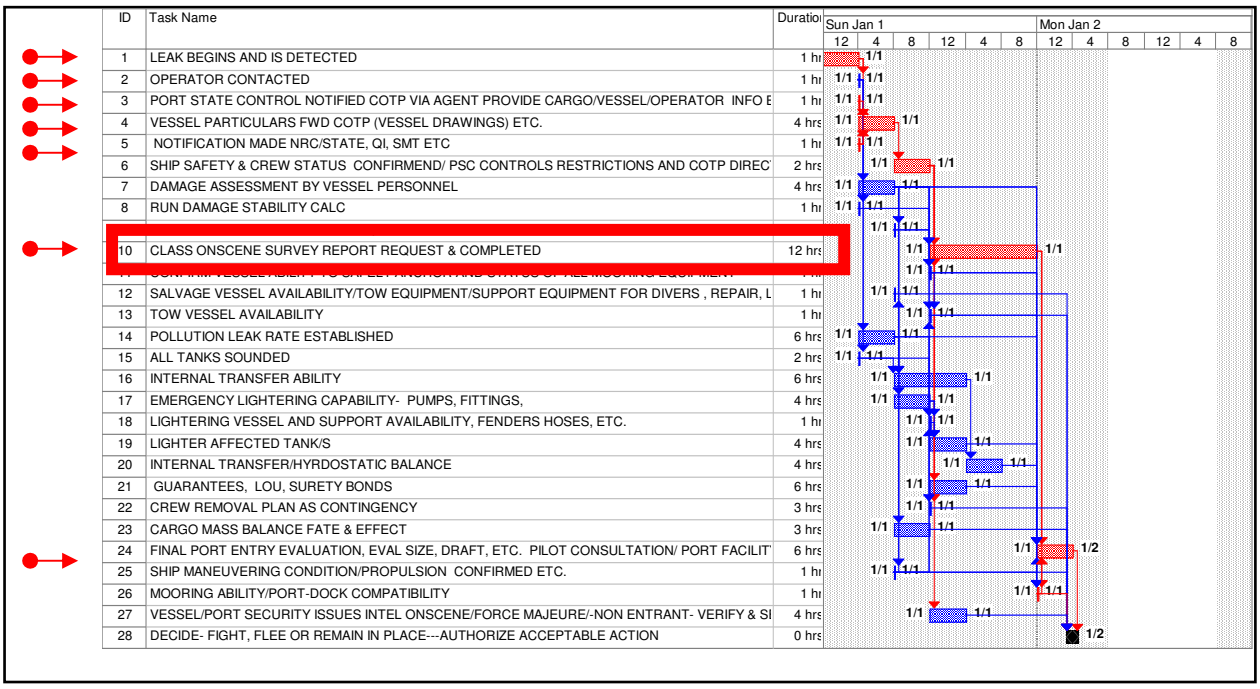
- The relationship of AMPD/MMPD is used in this guide as a trigger in the decision-making process for slow leaking tankers, since these are defined regulatory terms already recognized throughout the industry. In addition to AMPD, there are established USCG definitions for inshore and offshore oils spills. The offshore spill definitions are as follows:
    - USCG definitions for offshore leak:
        - Minor: <10,000 gallons
        - Medium: >10,000 and <100,000 gallons
        - Major: >100,000 gallons
    - **Note that "inshore" volumes would differ from "offshore" volumes**
- With a non-catastrophic leaking tanker, the release of oil is spread out as the vessel moves further out to sea. The environmental impact is often minimized based on cargo type, leak rates (often low), fate and effect, and mass balance experience. However, if consideration is given to bringing the vessel into port, we have to go through additional decision making steps (i.e. approval up the expanded chain of command, survey reports, getting surety bonds/guarantees in place, etc.). This could result in the vessel waiting in excess of 24~48 hours to start moving, which will then result in a much larger spill in closer proximity to land. <u>The objective of this guide is to reduce the decision-making time needed in order to minimize the near-shore impact</u>.
- VLCCs and ULCCs size tankers are too large to call on any Texas Gulf coast port.
- Generally speaking, in the Houston-Galveston lightering area, there should be an available tanker capable of lightering oil from an oil tanker seeking safe refuge within a reasonable period of time.
- To bring 2 VLCC's or ULCC's together requires large fenders and support vessels. In an emergency, an option may be to use locally available fenders, a minimum of 6, and this may require the use of additional support vessels. The local Industry Taskforce On Lightering (ITOL) should be contacted for resource availability, and can be contacted through the local USCG Port Coordination Team (PCT).
- Based on computerized oil spill modeling by MMS (and provided by the TGLO), the most likely suitable places for a vessel wanting to move outside the 200 mile EEZ would be near the border with Mexico or due South of Houma, LA., outside the respective EEZ of each country.
- **Use of route restricted vessels** - If a US vessel is route restricted and needed to assist in an incident, the USCG should consider a deviation from its normal Certificate of Inspection approval, provided it is safe to do so. This may also require approval from another COTP zone/sector if the vessel is coming from a different area.
- **Jones Act** - A Jones Act waiver should be considered when coastwise cargo and trade restrictions impede the HSR mitigation efforts. This can be time consuming, and many operators will not have the knowledge to address this issue on their own. The Subcommittee recommends that the Coast Guard work with industry and other federal agencies to develop the protocols for addressing Jones Act issues.

Development of the Fight, Flee or Stay Decision Model

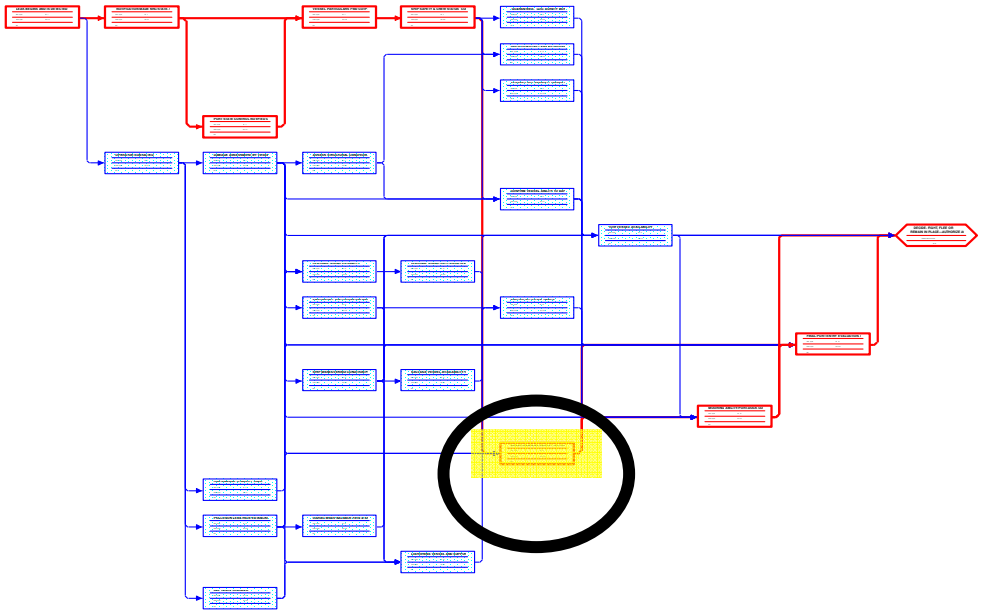
During any incident, there are a number of activities that must take place in order to assess the situation, evaluate options, determine appropriate steps, and implement an action plan. In some cases, a series of steps may be taken simultaneously, while in others, a step or series of steps cannot be started until other activities are completed. A critical path model was developed to address the key activities that may be appropriate during a variety of HSR incidents. It is not "all inclusive", and can be modified as necessary as new information becomes available or in order to tailor the model for a specific situation or incident. This model has been dubbed the "Fight, Flee or Stay Decision Model".

The benefit of the model is that it provides a quick visual estimate of the time it may take to mitigate an HSR incident, and identifies those items that are most critical to minimizing the time it will take to address the situation.

An example of the Decision Model is shown below.



Shown below is a slightly different view of the same data. In this view, it is easy to identify the critical path items (those in “red”) that are driving the projected length of the incident. Within the software, it is possible to view additional details, conduct simulations, and adjust timing as the incident progresses. As an item is changed, the impact of those changes on the overall incident length can be seen.



This model was primarily created to aid Unified Command in understanding the impact that each step in the process has on the overall incident duration, particularly the steps that occur before actions begin to directly address the ongoing release. It has been titled a “Decision Model” as the focus is on assessing the time it will take to make decisions and begin implementation.

Once the Unified Command has assessed the leak rate, available resources and response options, and a preliminary decision has been made, the “Fight, Flee or Stay Consequence Model” may be used to determine the amount of product loss. The “Consequence Model” is designed to further quantify the potential size of the release that occurs based on the information provided in the “Decision Model”. It also serves to “truth” the decisions that were made by providing an estimate of the size of release under various scenarios.

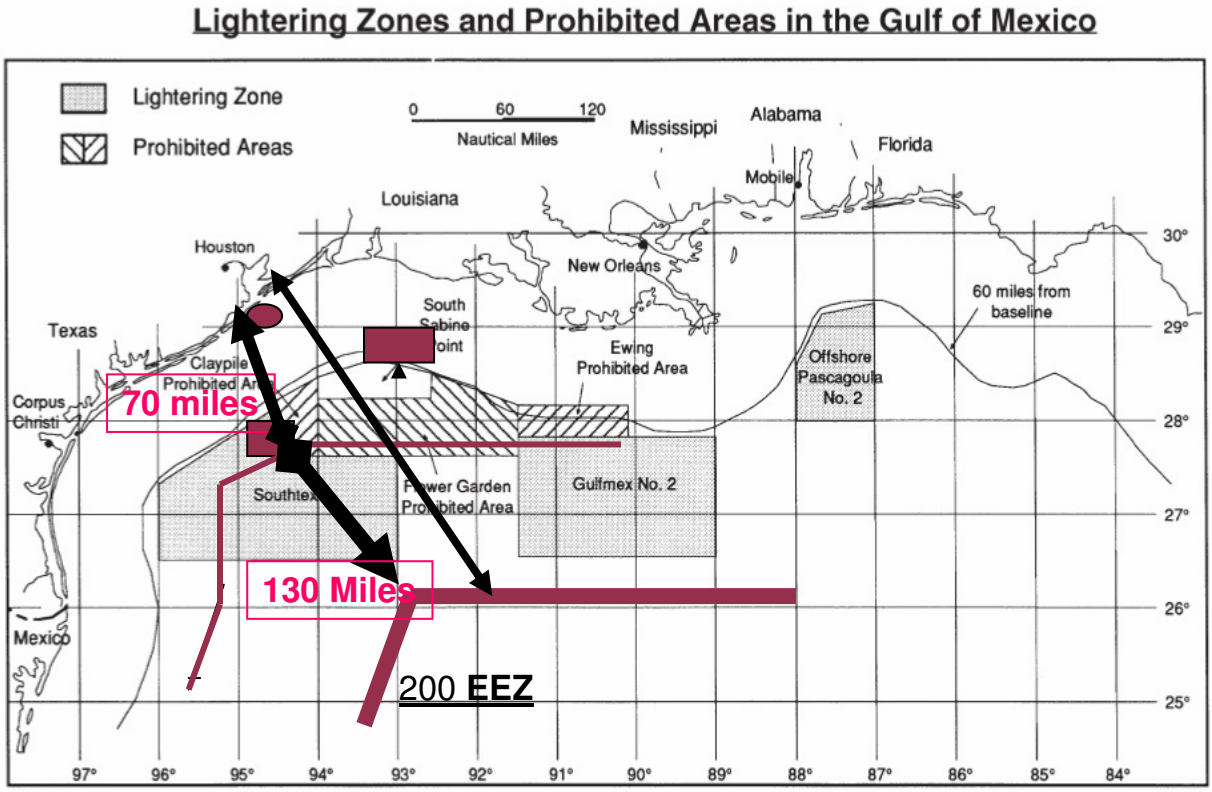
Fight, Flee or Stay Consequence Model

Using this information as an input into the Consequence Model, the unified command can determine the amount of material that will be released into the coastal zone and/or inland waters during the final transit to the HSR, if that is one of the options being considered. The ultimate "fate and effect" and environmental impact will have to be gauged by unified command, utilizing the resources of the scientific support coordinators and environmental representatives, in order to determine whether the best option is to "fight, flee or stay".

Open the Fight, Flee or Stay Consequence Model in Microsoft Excel

Examples of the Fight, Flee or Stay Consequence Model

In the following 2 examples, a vessel is sitting 70 miles offshore of the coast of Texas. The graphic below shows a physical explanation of the situation:



Example 1:

For a large offshore tanker, it is expected that the level in a particular tank must change by at least 1 centimeter in order for the vessel to identify that the tank may have a leak. The following example is based on a vessel where 50 barrels of cargo loss would result in a 1 cm change in ullage within a tank:

Assume a scenario where a vessel is sitting 70 miles offshore, and begins leaking at 10 bbl/hour. It's taken roughly 5 hours to identify the leak and leak rate, so 50 bbls have been lost (AMPD quantity). This quantity is not expected to make it to shore due to fate, effects and trajectory. There are 3 options to consider:

1. Leave US waters (5 hours have passed, another 6 hours to get the OK from USCG to proceed, and based on a 10 knot transit, there is another 13 hours to get outside of US waters, yielding a total loss of 240 bbls, which is roughly equivalent to a minor spill)
2. Allow the vessel to come into the US (5 hours have passed while identifying the spill and source, 6 hours for decision-making, 7 hours transit offshore, and another 2 hours to get into port, which results in a 200 bbl total spill, with only 20 bbls spilled in-shore. A 20 bbls spill in-shore is still a minor inland spill)
3. Send response vessels offshore to conduct clean-up

The model calculation for this scenario is shown below:

Location	70	miles to Port (HSR)
Distance to EEZ	*130*	miles to EEZ
Leak Rate	10	bbl/hr
Time Period	11	hours (decision)
Speed	10	knots
Inland Transit Time	2	hours
AMPD	50 bbls	

Minor Spill Offshore	< 238 bbls	< 10,000 gal
Medium Spill Offshore	238 - 2,380 bbls	= 10,000 - 100,000 gal
Major Spill Offshore	> 2,380 bbls	> 100,000 gal
Minor Inland Spill	< 23.8 bbls	< 1,000 gal

Critical

	Decision Loss	In-Transit Loss		Total Loss	
Flee (Outside EEZ)	**110**	**130**	**=**	**240**	**bbls**
Fight (to HSR)	**110**	**90**	**=**	**200**	**bbls**
		Inland Loss:		**20**	**bbls**

Example 2:

If you take the same scenario, and start with a 100 bbl/hour spill, it gets more complicated, and we could expect decision-making to take even longer (expect 24 hours, including detection) due to more serious damage to the vessel.

1. If the vessel leaves right away, we'll lose 2400 bbls for decision making and 1,300 bbls during sailing, resulting in a total spill of 3,700 bbls, or 155,400 gallons, which is a major spill. The quantity of material lost just for the decision-making is over 100,000 gallons (a major spill in itself), which points out the need for rapid decisions.
2. For coming into port, 2,400 bbls would be lost for decision-making, another 900 bbls to come into port, with 200 of that in-shore. This results in a major spill off-shore, and some beach impact. 200 bbls would be lost inshore, which would be a medium spill. Again, this points out how critical it is to make a quick decision with the best available information in order to minimize the impact of the spill. The tools provided in this HSR Guideline are designed to enable a faster response and better informed decisions.

The model calculation for this scenario:

Location	70	miles to Port (HSR)
Distance to EEZ	*130*	miles to EEZ
Leak Rate	100	bbl/hr
Time Period	24	hours (decision)
Speed	10	knots
Inland Transit Time	2	hours

AMPD 50 bbls

Minor Spill Offshore	< 238 bbls	< 10,000 gal
Medium Spill Offshore	238 - 2,380 bbls	= 10,000 - 100,000 gal
Major Spill Offshore	> 2,380 bbls	> 100,000 gal
Minor Inland Spill	< 23.8 bbls	< 1,000 gal

Critical

	Decision Loss	In-Transit Loss		Total Loss	
Flee (Outside EEZ)	**2400**	**1300**	**=**	**3700**	**bbls**
Fight (to HSR)	**2400**	**900**	**=**	**3300**	**bbls**
		Inland Loss:		**200**	**bbls**

Therefore, the model not only provides an assessment of the potential time it may take to make decisions, it also estimates the quantity of material that could be released while decisions are made and while in transit.

Industry "Resource Experts"

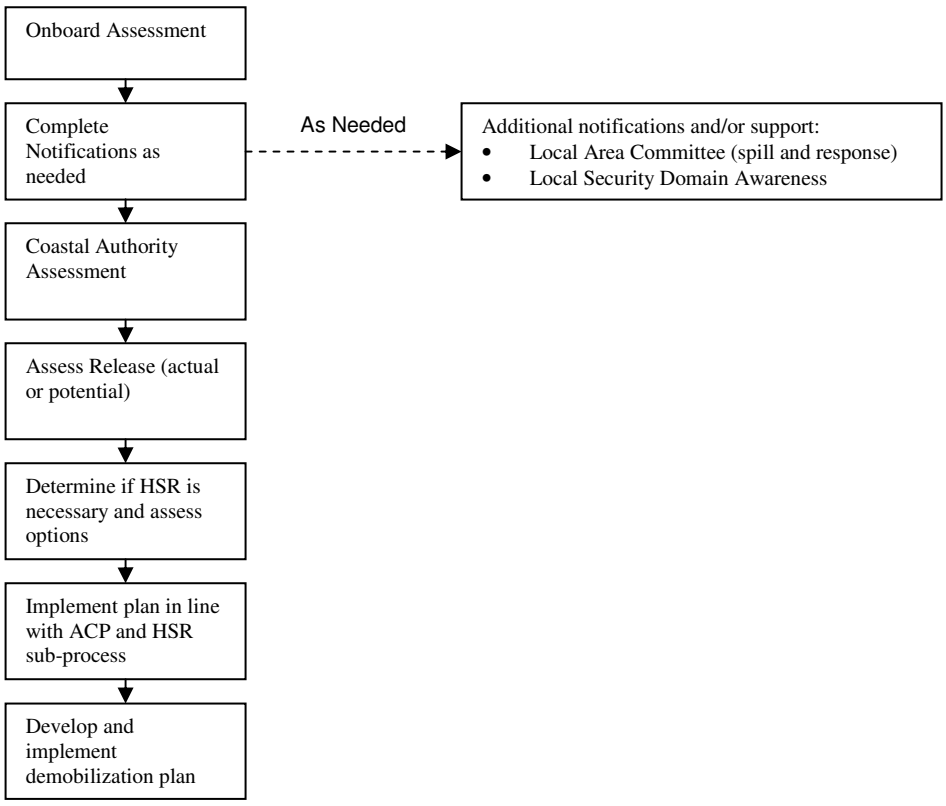
The most effective response requires the support of individuals and companies with expertise in the situation, vessel type, product, and any other number of factors. The Houston-Galveston area is fortunate to have a wide array of support that can provide expertise to the Unified Command to arrive at the best course of action. Many resource experts for an HSR incident can be reached through the members of the local USCG Port Coordination Team (PCT). Additional experts can be contacted through their specific industry segment or the local port authorities. The following companies have been identified as a sample of possible resources that are currently based in the Houston area and could be contacted for this support should the need arise:

1. HSR Contacts – HOGANSAC members and members of the HSR Subcommittee
2. Port Coordination Team (PCT) and industry contacts
3. Gas Tankers
    a. BW Gas
    b. Maersk
    c. Unigas
    d. Norgas
    e. Norbulk
4. Chemical Tankers
    a. Odfjell USA LP
    b. Stolt Parcel Tanker Services
    c. JO Tankers
    d. Laurin Maritime
5. Oil/Product Tankers
    a. Heidmar
    b. Skaugan
    c. American Eagle Tankers
    d. OMI
    e. Teekay
6. Container Vessels
    a. Maersk
    b. Evergreen
    c. OOCL
7. Car Carriers/RoRo
    a. NYK
    b. Maersk
8. Offshore Barges
    a. US Shipping LP
9. Inland Barges
    a. AWO
    b. Kirby
    c. ACL

10. Offshore rigs and MODUs
    a. Minerals Management Service
    b. ExxonMobil
    c. El Paso Exploration & Production
    d. Schlumberger
11. Chemical Manufacturers/Shippers
    a. The Dow Chemical Company
    b. Shell
    c. CHEMTREC
12. Oil Companies
    a. BP
    b. Exxon
    c. Shell
13. Pipeline Companies
    a. DOT
    b. Railroad Commission (Guy Grossman)
    c. MMS
    d. National Pipeline Safety Office
    e. RSPA
14. Port Authorities
    a. Port of Houston
    b. Port of Galveston
    c. Port of Texas City
    d. Port Freeport

Flow Chart of HSR

The following flowchart depicts a simplified sequence of steps for use during a typical HSR incident. It is not all-inclusive, but is designed to provide a high-level overview of the activities that must take place to properly assess and manage the situation. Further detailed information regarding the items in the flowchart can be found on the following pages.



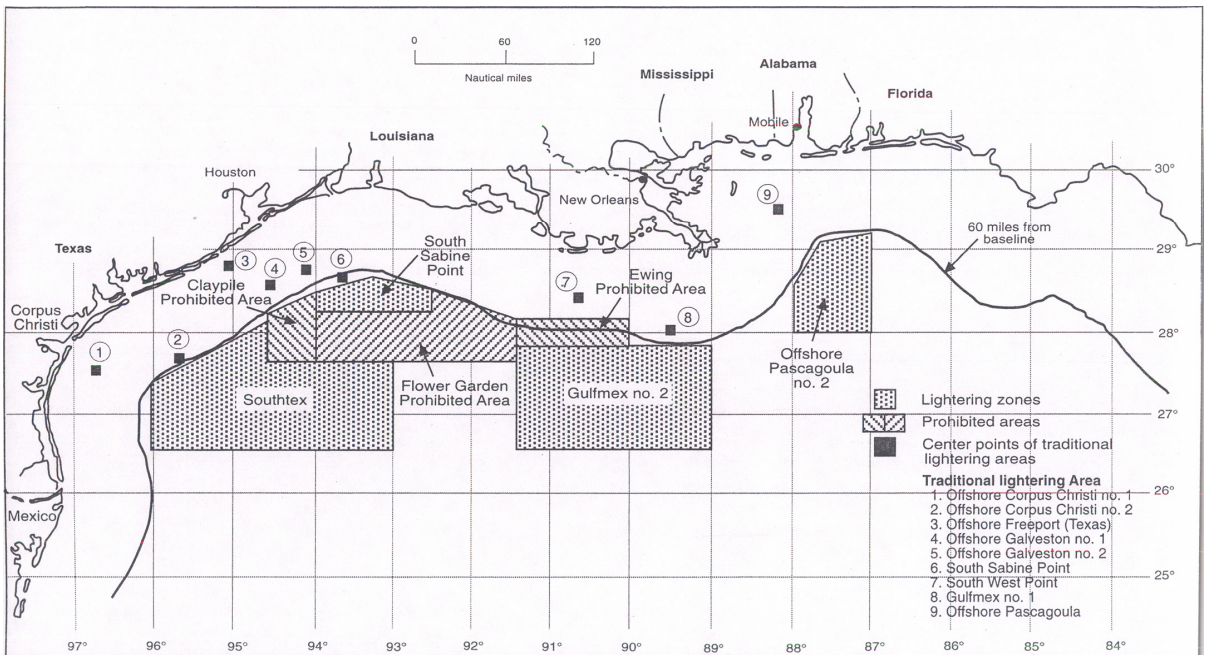
Components of HSR Flowchart

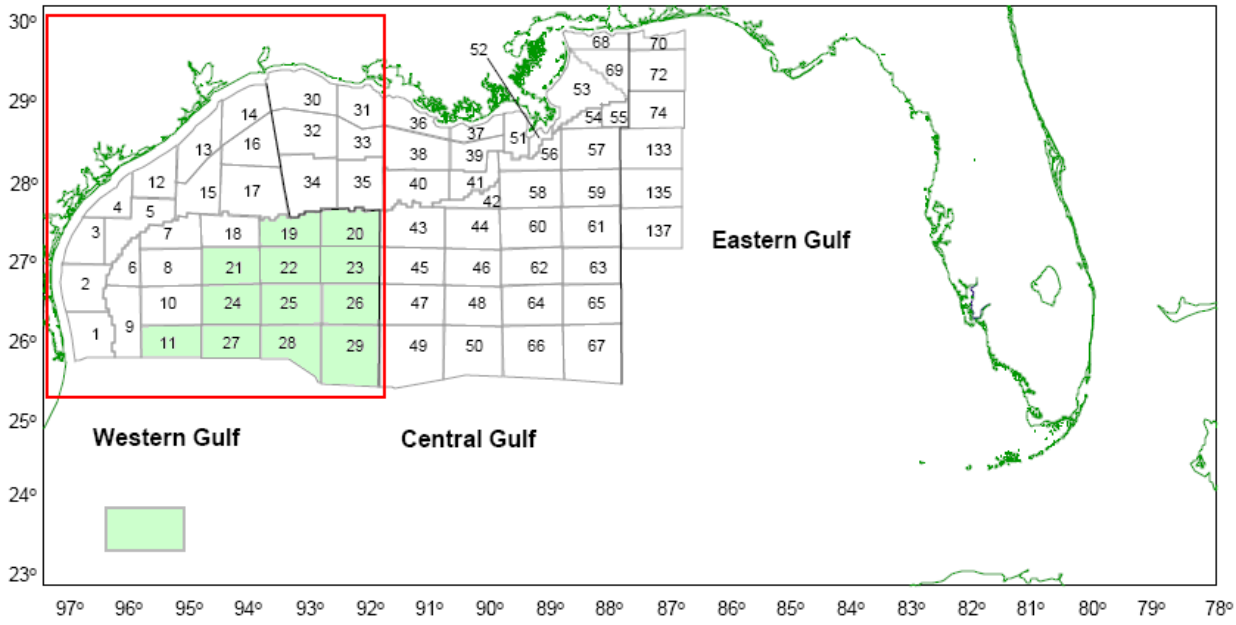
1. Conduct Onboard Assessment
2. Complete notifications as needed
    a. Pollution (actual or threat of) – Notify NRC (See IMO Notification Form in Appendix M)
    b. Other than pollution/threat – Notify USCG RCC (Rescue Coordination Center) and if required, the NRC for
        i. Security
        ii. Force majeure
    c. Owner/Operator
    d. P&I
    e. Contractors as needed (salvage and firefighting, QI, etc.)
3. Coastal Authority Assessment
    a. Location
    b. Incident type (terrorism, SAR, loss of vessel or potential sinking if problem not addressed, release, collision/allision or fire, etc.)
    c. Pollution (oil versus HAZMAT or other)
    d. Impact (air/water/other)
    e. Health and safety implications (sensitive areas, public, manned platforms, other vessels in vicinity, etc.)
    f. Weather and forecast
    g. Type of vessel (recognized versus non-recognized state, port accessibility due to vessel size and/or port constraints, can vessel block port, etc.)
    h. Notify other impacted agencies such as CBP, Immigration, other state and federal agencies, etc.
4. Assess Release (actual or potential)
    a. Materials involved
        i. Manufacturer's product information (behavior, exposure limits, physical info, etc.)
        ii. Chemicals: Toxicity and Flammability
        iii. Oils: Flammability, potential toxicity, trajectory, subsurface models (if applicable), etc.
    b. Conduct modeling (i.e. liquid, vapor, surface/subsurface, ALOHA, TOXNET, etc.) and sampling (i.e. air, water, pH) as needed, and determine "fate and effects"
    c. Utilize ACP to assess impacts and notify other impacted segments of industry and agencies
        i. Notify/Activate support personnel as needed
            1. PCT
            2. ACP
            3. Other agencies
            4. Other experts as appropriate
        ii. Assess impacts
        iii. Identify possible contingency plans
        iv. Consider notification/activation of MTSR (Maritime Transportation System Recovery) Team

        v. Consider evacuations and/or safety notices to potentially impacted offshore industries, including rigs/manned platforms, pipelines, fairways, etc.

5. Determine if HSR is necessary and assess options
    a. Port compatibility (can vessel get into port, etc.)
    b. Oil – FF or S Model (Fight, Flee or Stay) and MMS oil-spill probability study (recommended sections to park a vessel offshore to minimize impact to land)
    c. Critical Path Model
    d. Oil – Seasonal environmental port impact
    e. Risk Assessment - Port Option Matrix (i.e. Cougar Ace)
    f. Trans-shipments (identify alternative vessels, Jones' Act, alternative berths/facilities, etc.
    g. Risk of failure (potential for significant failure, and threat/consequences if it does)
    h. Potential duration and impact on the area (environmental, economic, commercial, etc.)
    i. Mitigation strategies for the expected course of action and any highly probable contingency activities.
6. Implement plan in line with ACP and HSR sub-process
    a. Consequence management and pre-positioning of equipment if needed
    b. Restrictions as needed (i.e. traffic management, evacuations, etc.)
    c. Monitor and adapt/adjust as conditions warrant
7. Develop and implement demobilization plan

Recommended “Flee” Locations for Offshore Anchorages, lightering zones and vessels in coastal transit





In most situations, a leaking oil tanker should not be brought into a nearshore anchorage as a HSR location because of environmental sensitivity, potential impact to tourism, strong and erratic nearshore currents, difficulty in cleaning oil in the barrier island environment, and economic impacts to other industries. The Subcommitee recommends that in most cases, damages could be minimized by bringing the leaking oil tanker into a sheltered port where it can be immediately boomed and discharged as quickly as possible.

For vessels that are directed to go outside of the EEZ, the following locations are recommended (see Appendix G for further details):

- For vessels needing possible logistical support from Mexico, recommend going South of Lease Areas 9 and 11
- For vessels seeking support from the area of Morgan City, recommend going South of Lease Areas 50 and 66
- For vessels South of Galveston, recommend going South of Lease Areas 28 and 29.

Lightering Zone (source Houston-Galveston ITOL representative):

- A VLCC and ULCC will never be able to come into a Texas US Gulf port. They are too large/deep to come in.
- Generally speaking, 50% of the time, there should be an available vessel to start lightering from another oil tanker.
- To bring 2 VLCC's or ULCC's together, large fenders are required, and the nearest ones are likely on the West Coast. As such, it would take some time to ship the fenders to the Gulf and dispatch them to the vessel.
- The most likely suitable places for a vessel wanting to move outside the 200 mile EEZ would be near the border with Mexico, and due South of Houma, LA.

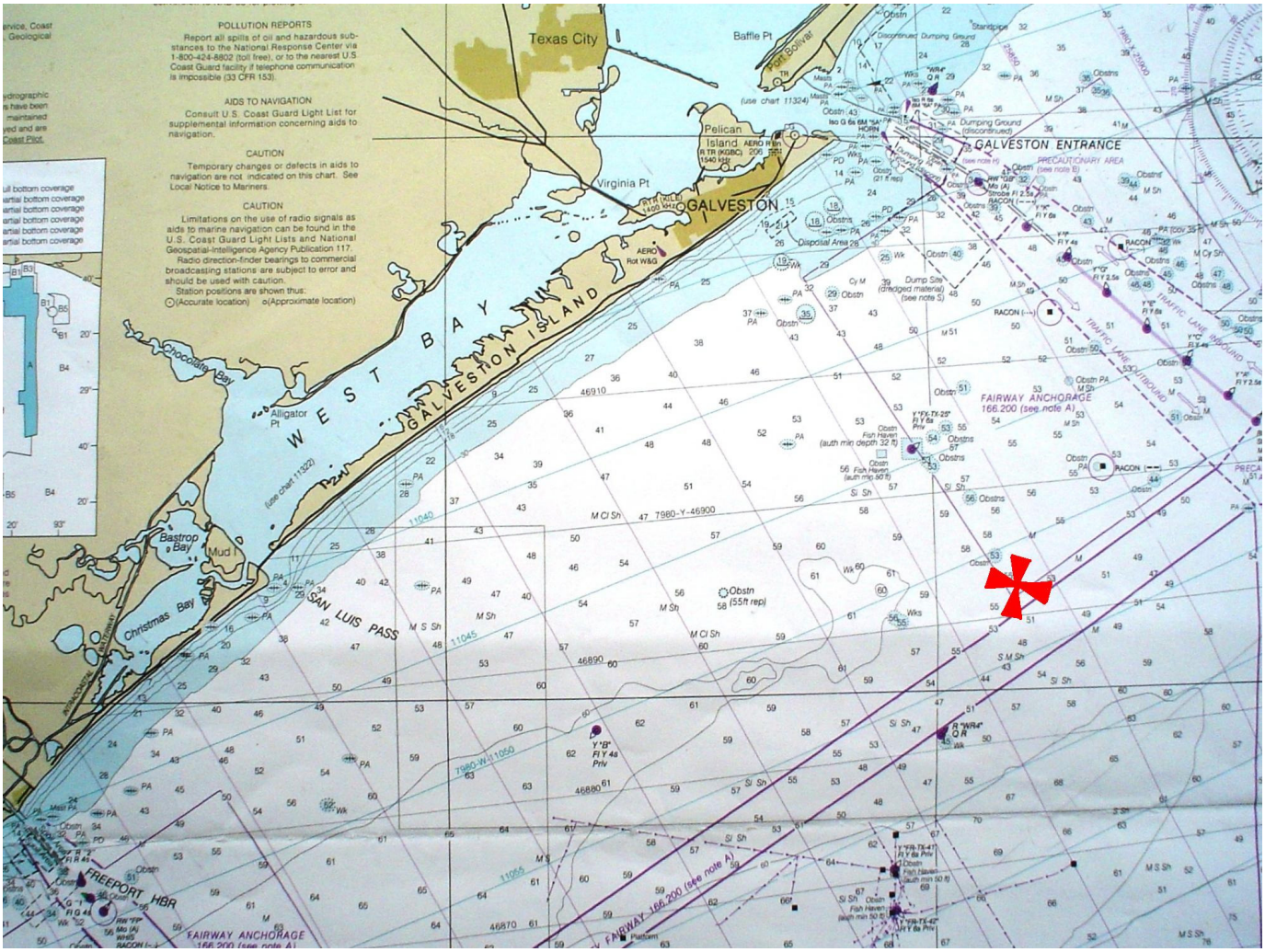
Recommended Nearshore HSR Location for Hazmat Vessels:

In some situations, a vessel seeking safe refuge may not be suitable for entry into port due to public safety concerns, potential pollution, or other factors. In these situations, it is important to allow the vessel to enter into isolated anchorage area where port logistical resources are available and the vessel is subject to less severe conditions. As such, with the help of the Texas Commission on Environmental Quality, the HSR committee looked at various HAZMAT scenarios and, based on the anticipated worst-case scenario, developed "rules of thumb" for Hazmat materials that can be utilized in order to identify the most appropriate nearshore anchorage for providing a safe refuge for a vessel. The worst case scenario identified was based on the release of vinyl chloride monomer, a product carried on gas tankers as a liquefied gas, and exhibiting both toxic and flammable characteristics, and release modeling was utilized to determine the downwind effects from the incident. Scenarios for bulk liquid chemical carriers and container vessels were expected to have smaller hot zones, and as such, the selected location is appropriate as an initial HSR location until further information and modeling provides justification for allowing the vessel to move even closer to shore or into port.

Container and bulk cargo vessels require specialized logistical support offshore in order to lift containers or offload cargo (i.e. pallets, etc.). Vessels and equipment will need to be identified that can provide this support that can be used to remove or isolate the threat.

Based on the modeling and a review of the area, the Subcommittee selected a nearshore safe refuge taking into account shoreside population density, prevailing winds, offshore vessel shipping lanes, established anchorages, nearby manned and unmanned platforms and resource availability. The rule of thumb that was developed established a hotzone of 10 miles for toxicity and 0.5 miles for flammability downwind of the vessel. Southern anchorages are preferred based on the areas of highest population density (Galveston) versus prevailing wind conditions (prevailing wind is predominately from the East and South, up to 10 months of a year). The current recommended nearshore anchorage HSR location is at position 94 37 W, 29 03 N, which is more than 10 miles offshore and insures that the hotzone does not reach shore or populated areas. This location is depicted on the chart shown on the following page.

The chart shown below depicts the current recommended HSR Location
(94 37 W, 29 03 N)



During any incident, additional steps should be taken when appropriate to verify the potential impacts of the release and other factors that may have changed since the Subcommittee developed these guidelines. This includes:

- Current and projected weather conditions
- Modeling specific to the materials involved, the release rate and vessel assessment
- Verify no new manned platforms or unmanned platforms (with workers present) are in the hotzone
- Creation of a safety zone and/or restriction of air space near the incident.

In addition to the NOAA SSC (Scientific Support Coordinator), local modeling resources are available through:

- TCEQ (Texas Commission on Environmental Quality)
- Environmental Protection Agency (EPA)
- US Coast Guard National Strike Team
- Local industry

Further information regarding the modeling conducted by the Subcommittee as well as additional details regarding manned and unmanned rigs in the area of this location can be found in Appendices P and Q.

Incident Management considerations & Checklists

- Assurances
- Guarantees (establish an agreeable target guarantee for a vessel to come into the US port – i.e. value of vessel + cargo x 2) (if the vessel is from a non-recognized or non CLC signatory Flag State), must also get pollution coverage on top that. May require a bond or "letters of undertaking" to be put in place
    - Claims notification process
    - Includes time to get monetary resources moving
- Third party claims (insurance, P&I, Hull and Machinery, Lloyds Open Forum)
    - Hull and Machinery (LOF vs. strict "time and material" contract requiring bids)
    - P&I (possible multiple reps to cover pollution, personal injury and cargo)
    - Identify resources and time needed to be on-scene
- Vessel disposition
    - Vessel yard (major repair facility)
    - Layberth
    - Near-shore anchorage
- Geopolitical issues
    - Innocent passage
    - Unrecognized Flag State and foreign relations impact
    - Force majeure
- Media/Public Relations
    - Joint Information Center (JIC)
    - Sara Title III Community (have local notifications been made)

Decision-making Process:

To the extent possible, the COTP/Unified Command should perform an objective analysis of the advantages and disadvantages of allowing or not allowing a vessel in need of assistance to proceed to a place of refuge. This analysis should identify the locations that meet the operational requirements of the vessel and identify the potential environmental, social, economic, and security impacts at each site. The decision-makers will consider these multiple factors to determine the appropriate course of action to prevent and mitigate the short- and long-term impacts to public health and the environment, local commerce, the vessel, and the vessel/cargo owners.

Decision-makers should evaluate the consequences to the vessel and the environment:

- If the vessel reaches a place of refuge (Fight);
- If the vessel is taken out to sea (Flee); or,
- If the vessel remains in the same position (Stay).

The decision-making process should evaluate all appropriate items below to determine the best place of refuge for the vessel that is in need of assistance. This checklist has been provided to cover those items that are most pertinent to the typical HSR incident. These items are not in prioritized order, but should be addressed as part of a total assessment for each of the options above.

Search and Rescue:

- Medical issues, deaths, or need for evacuation of crew and/or passengers;
- Needs or requirements once the vessel is in a place of refuge.

Human Health & Safety:

- Safety of personnel at or near the place of refuge with regard to risks of
- explosion, fire and pollution
- Available fire-fighting and security needs
- Other impacted operations in vicinity (i.e. manned rigs, etc.)
- Potential risks to populations along the coasts with regard to explosion, fire and pollution; availability of evacuation routes
- General information on coastal vessel traffic patterns

Vessel Specifics:

- After safety concerns have been addressed, if there is an actual or threat of a cargo/bunker release within US jurisdictional waters, the following information should be forwarded to the local US Coast Guard Captain of the Port (COTP).

  Note: The COTP should be informed of all parties that have been notified thus far regarding the incident:

Vessel Information: (Forwarded to the local Port State Control (COTP) authority)

- All contact numbers and vessel communication info available through agent
- Local agent contact information
- Local hazards, safety concerns
- Vessel particular checklist forwarded to COTP, via agent
- Cargo particulars API, SG, etc. MSDS info
- IMO Pollution checklist completed and submitted
- OPA '90 VRP notifications
- Vessel plans and drawing available shoreside (local, print/digital, etc.)
- On-scene Weather (fog , sea state, crew fatigue, safety) Forecast
- Ability to control on scene- support vessels, media, Port State control needed.
- Vessel operators' intentions within the next 24 hours, 48 hours, vessel movement plan
- Vessel Helicopter capability?
- Communicate the urgency of the situation and the likelihood the incident could escalate

If there has been any obvious or suspected physical damage advise the COTP of the following items:

Vessel Physical Assessment:

- Damage assessment if any. Collision/grounding etc.
- Other vessels involved. Status.
- Damage stability/stress calculations run and satisfactory
- Vessel structural condition. Stable. Improving. Deteriorating.
- Salvage plan activated.
- Onboard dewatering capability.
- Survey report/Classification society requested.
- Verify condition of vessel propulsion and damage stability
- Local ability to anchor. Anchoring restrictions.
- Salvage vessel availability
- Tow vessel availability, Vessel towing equipment.
- Emergency cargo pumping capability.
- Status of safety equipment, including firefighting equipment and inert gas.

After safety considerations have been resolved and the condition of the vessel has been determined, provide the following pollution information the COTP:

Pollution Factors:

- Leak rate. TPC/TPI at arrival mean draft.
- All tanks sounded double bottoms/hull. Water cuts taken.
- Cargoes and tanks possibly affected.
- Internal transfer ability.
- Number of slack tanks (Cargo, ballast, and slop).
- Ability to transfer to slack tanks, time of transfer and time to rig.
- Emergency lightering capability. Portable cargo pumps transfer rate (if needed).
- Lightering vessel and support availability. Availability of Fenders. Time on-scene.
- Transfer capability to other vessels. All necessary equipment.- transfer rate.
- Check sea chests and sea chest vents for oil.
- Current vessel trim. Trim prior to leak. Solid bilge keels.
- Isolation valves in piping systems, closed as necessary to reduce external loss.
- Internal transfers conducted/ongoing.
- Estimated time to hydrostatic balance.
- Status of inert Gas system. Other transfer system monitors intact. Vapor systems intact.
- Dive survey
- Identifying dispersant capability and availability
- Are temporary repairs possible on-scene

Conduct Assessment of HSR locations:

Docks and Piers (for each site):

- Site name
- Site location (descriptive and latitude/longitude coordinates)
- Water depths at mean low tide
- Beach/shoreline types and generally accepted cleaning methods
- Bottom types
- General wind/wave/current information
- Openness of the site to ocean waves/currents
- Source for real-time tide/wind/wave/current information
- Standard navigational approach, including vessel traffic patterns and associated risks
- Nearby port operations and potential impacts
- Brief description of port facilities
- Brief description of repair facilities/capabilities/skilled labor
- Mooring capability
- Availability of cargo transfer and storage facilities
- Land and/or air access
- Risks to persons at or near the location with regard to explosion, fire and pollution; availability of evacuation routes
- Description of sensitive resources/areas at the site and along potential access routes to that site, including fisheries, aquaculture sites, cultural and historic sites, Threatened and Endangered species, subsistence use, recreation/tourism, or specially designated lands or waters
- Existing resource protection strategies
- Requirements for permission from area landowners/managers
- Financial assurance requirements of port authorities
- Liability and compensation issues and limits
- Required notifications such as Immigration or Customs
- Identification of stakeholders including 24/7 contact information

Anchorages and Moorings (for each site):

- Location name
- Location (descriptive and latitude/longitude coordinates)
- Water depths at mean low tide
- Beach/shoreline types and generally accepted cleaning methods
- Bottom types
- General wind/wave/current information
- Openness of the site to ocean waves/currents
- Source for real-time tide/ wind/wave/current information
- Seasonal conditions
- Standard navigational approach, including vessel traffic and associated risks
- Pilotage requirements
- Nearby port operations, if any, and potential impacts

- Brief description of facilities (if any)
- Availability of cargo transfer and storage vessels
- Land and/or air access
- Risks to persons at or near the location with regard to explosion, fire and pollution; availability of evacuation routes
- Description of sensitive resources/areas at the site and along potential access routes to that site, including fisheries, aquaculture sites, cultural and historic sites, Threatened and Endangered species, subsistence use, recreation/tourism, or specially designated lands or waters
- Existing resource protection strategies
- Availability of salvage, spill response, and emergency response resources including police and firefighting, and their potential access to the site
- Security measures in place
- Requirements for permission from area landowners/managers, if applicable
- Financial assurance requirements of local port authorities, if applicable
- Liability and compensation issues and limits
- Required notifications such as Immigration or Customs
- Identification of stakeholders including 24/7 contact information

Other pertinent information and considerations:

- Consult local industry experts
- Activate the ACP (Area Contingency Plan) pollution team members
- Activate PCT
- Port threat for Safety: Toxicity, Fire, Sinking and Waterway Obstruction
- Port threat for Security: Scuttle (obstruct waterway), WMD (weapon of mass destruction)
- Need for an “administrative order”/”COTP Order”
- Port closure and commercial impacts on port
- Ability to control safety/security zones
- Flood tides (tide cycle advantageous to vessel entry and pollution abatement)
- Logistical capabilities
- Escorts (port state control, security, salvage and pollution)
- Seasonal and meteorological variances (i.e. hurricanes, “blue norther”, etc.)
- Seasonal environmental variances (migrating or nesting wildlife, endangered species)
- Weather (fog, high seas, fatigue and safety)
- Social impacts (tourism and NRDA)
- Vessel structural condition (Support from Marine Safety Center, Salvage Contractors and Class Society)
- VRP/Salvage plan
- Flag Administration/Class Survey report
    - Time to mobilize and get to the vessel
    - Time to conduct the survey and issue a report regarding damage, stability, etc.

- Vessel maneuvering condition
- Tow vessel availability
- Intervention on the High Seas Act (Vessel destruction capability, scuttling)
- Cargo storage ability (shore-side or interim vessel onboard storage capacity)
- Special equipment needs (Toxic cargo) and shoreside monitoring
- Notification of other regulatory authorities (NTSB, Justice Department, State Department, etc.)
    - Internal notification to inspectors, investigators
- Can the vessel be hydrostatically balanced, or can cargo be shifted to reduce the potential size of the release.
- Current status of vessel (COC, TVE, Force Majeure, non-Recognized Flag State, etc.)
- Location relative to environmentally sensitive areas, fairways, etc.
- Based on above, consider notification of salvage resources (and verification that resources needed are available, including Jones Act issues)
- Is there a local US rep for the vessel (other than Vessel Agent), and ability of that rep to make decisions on behalf of the owner
- Suitability for transferring the cargo (are all cargo systems operable, are tanks inerted if needed, etc.)

APPENDICES OF SUPPORTING REFERENCE MATERIALS

Appendix A	IMO Resolution A.949(23) – Guidelines on Places of Refuge for Ships in Need of Assistance
Appendix B	USCG Jurisdiction and Terms
Appendix C	Force Majeure – From USCG Marine Safety Manual
Appendix D	Intervention on the High Seas Act
Appendix E	USCG Vessel Removal and/or Destruction Policy
Appendix F	Guidelines for Control of Vessels in an Emergency (IMO MSC 1 / Circ 1251)
Appendix G	Lightering Zone Graphs
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Appendix A

IMO Resolution A.949(23)

Guidelines on Places of Refuge for Ships in Need of Assistance

INTERNATIONAL MARITIME ORGANIZATION

IMO

E

ASSEMBLY
23rd session
Agenda item 17

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Resolution A.949(23)

Adopted on 5 December 2003
(Agenda item 17)

GUIDELINES ON PLACES OF REFUGE FOR SHIPS IN NEED OF ASSISTANCE

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO the obligations and procedures for the master to come to the assistance of persons in distress at sea, established by regulation V/33 of the International Convention for the Safety of Life at Sea, 1974, as amended,

RECALLING FURTHER that the International Convention on Maritime Search and Rescue, 1979, as amended, establishes a comprehensive system for the rescue of persons in distress at sea which does not address the issue of ships in need of assistance,

CONSCIOUS OF THE POSSIBILITY that ships at sea may find themselves in need of assistance relating to the safety of life and the protection of the marine environment,

RECOGNIZING the importance of and need for providing guidance for the masters and/or salvors of ships in need of assistance,

RECOGNIZING ALSO the need to balance both the prerogative of a ship in need of assistance to seek a place of refuge and the prerogative of a coastal State to protect its coastline,

RECOGNIZING FURTHER that the provision of a common framework to assist coastal States to determine places of refuge for ships in need of assistance and respond effectively to requests for such places of refuge would materially enhance maritime safety and the protection of the marine environment,

HAVING CONSIDERED the recommendations made by the Maritime Safety Committee at its seventy-sixth and seventy-seventh sessions, by the Marine Environment Protection Committee at its forty-eighth session, by the Legal Committee at its eighty-seventh session and by the Sub-Committee on Safety of Navigation at its forty-ninth session,

1. ADOPTS the Guidelines on places of refuge for ships in need of assistance, the text of which is set out in the annex to the present resolution;

2. INVITES Governments to take these Guidelines into account when determining and responding to requests for places of refuge from ships in need of assistance;

3. REQUESTS the Maritime Safety Committee, the Marine Environment Protection Committee and the Legal Committee to keep the annexed Guidelines under review and amend them as appropriate;

4. REQUESTS the Legal Committee to consider, as a matter of priority, the said Guidelines from its own perspective, including the provision of financial security to cover coastal State expenses and/or compensation issues, and to take action as it may deem appropriate.

ANNEX

GUIDELINES ON PLACES OF REFUGE FOR SHIPS IN NEED OF ASSISTANCE

Table of Contents

1 General

Introduction

Objectives of providing a place of refuge

1.1 Where the safety of life is involved, the provisions of the SAR Convention should be followed. Where a ship is in need of assistance but safety of life is not involved, these guidelines should be followed.

1.2 The issue of "places of refuge" is not a purely theoretical or doctrinal debate but the solution to a practical problem: What to do when a ship finds itself in serious difficulty or in need of assistance without, however, presenting a risk to the safety of life of persons involved. Should the ship be brought into shelter near the coast or into a port or, conversely, should it be taken out to sea?

1.3 When a ship has suffered an incident, the best way of preventing damage or pollution from its progressive deterioration would be to lighten its cargo and bunkers; and to repair the damage. Such an operation is best carried out in a place of refuge.

1.4 However, to bring such a ship into a place of refuge near a coast may endanger the coastal State, both economically and from the environmental point of view, and local authorities and populations may strongly object to the operation.

1.5 While coastal States may be reluctant to accept damaged or disabled ships into their area of responsibility due primarily to the potential for environmental damage, in fact it is rarely possible to deal satisfactorily and effectively with a marine casualty in open sea conditions.

1.6 In some circumstances, the longer a damaged ship is forced to remain at the mercy of the elements in the open sea, the greater the risk of the vessel's condition deteriorating or the sea, weather or environmental situation changing and thereby becoming a greater potential hazard.

1.7 Therefore, granting access to a place of refuge could involve a political decision which can only be taken on a case-by-case basis with due consideration given to the balance between the advantage for the affected ship and the environment resulting from bringing the ship into a place of refuge and the risk to the environment resulting from that ship being near the coast.

Background

1.8 There are circumstances under which it may be desirable to carry out a cargo transfer operation or other operations to prevent or minimize damage or pollution. For this purpose, it will usually be advantageous to take the ship to a place of refuge.

1.9 Taking such a ship to a place of refuge would also have the advantage of limiting the extent of coastline threatened by damage or pollution, but the specific area chosen may be more severely threatened. Consideration must also be given to the possibility of taking the affected ship to a port or terminal where the transfer or repair work could be done relatively easily. For this reason the decision on the choice and use of a place of refuge will have to be carefully considered.

1.10 The use of places of refuge could encounter local opposition and involve political decisions. The coastal States should recognize that a properly argued technical case, based on a clear description of the state of the casualty, would be of great value in any negotiations which may take place.

1.11 At the international level, the Conventions listed in Appendix 1, as may be amended, constitute, *inter alia,* the legal context within which coastal States and ships act in the envisaged circumstances.

Purpose of the Guidelines

1.12 The purpose of these Guidelines is to provide Member Governments, shipmasters, companies[1] (particularly in connection with the ISM Code and procedures arising therefrom), and salvors with a framework enabling them to respond effectively and in such a way that, in any given situation, the efforts of the shipmaster and shipping company concerned and the efforts of the government authorities involved are complementary. In particular, an attempt has been made to arrive at a common framework for assessing the situation of ships in need of assistance.

1.13 **These Guidelines do not address the issue of operations for the rescue of persons at sea**, inasmuch as the practical difficulties that have given rise to the examination of the issue of places of refuge relate to problems other than those of rescue. Two situations can arise:

- the ship, according to the master's assessment, is in need of assistance but not in a distress situation (about to sink, fire developing, etc.) that requires the evacuation of those on board; or

- those on board have already been rescued, with the possible exception of those who have stayed on board or have been placed on board in an attempt to deal with the situation of the ship.

1.14 **If, however, in an evolving situation, the persons on board find themselves in distress, the rules applicable to rescue operations under the SAR Convention, the IAMSAR Manual and documents arising therefrom have priority over the present Guidelines (and procedures arising herefrom).**

1.15 In any case the competent MRCC should be informed about any situation which may develop into a SAR incident.

1.16 Even though a "rescue" operation, as defined in the International Convention on Maritime Search and Rescue (SAR) is not the case, the safety of persons must nevertheless be constantly borne in mind in the application of these Guidelines, particularly in two respects:

- if the ship poses a risk (explosion, serious pollution, etc.) to the life of persons in the vicinity (crews of salvage vessels, port workers, inhabitants of the coastal area, etc.);

- if persons voluntarily stay (master, etc.) or go (fire-fighters and other experts, personnel of marine salvage or towage companies, etc.) on board to attempt to overcome the difficulties experienced by the ship.

[1] As defined in the ISM Code.

1.17 These Guidelines do not address the issue of liability and compensation for damage resulting from a decision to grant or deny a ship a place of refuge.

Definitions

1.18 **Ship in need of assistance** means a ship in a situation, apart from one requiring rescue of persons on board, that could give rise to loss of the vessel or an environmental or navigational hazard.

1.19 **Place of refuge** means a place where a ship in need of assistance can take action to enable it to stabilize its condition and reduce the hazards to navigation, and to protect human life and the environment.

1.20 **MAS** means a maritime assistance service, as defined in resolution A.950(23), responsible for receiving reports in the event of incidents and serving as the point of contact between the shipmaster and the authorities of the coastal State in the event of an incident.

2 GUIDELINES FOR ACTION REQUIRED OF MASTERS AND/OR SALVORS OF SHIPS IN NEED OF A PLACE OF REFUGE

Appraisal of the situation

2.1 The master should, where necessary with the assistance of the company and/or the salvor, identify the reasons for his/her ship's need of assistance. (Refer to paragraph 1 of Appendix 2.)

Identification of hazards and assessment of associated risks

2.2 Having made the appraisal referred to in paragraph 2.1 above, the master, where necessary with the assistance of the company and/or the salvor, should estimate the consequences of the potential casualty, in the following hypothetical situations, taking into account both the casualty assessment factors in their possession and also the cargo and bunkers on board:

- if the ship remains in the same position;
- if the ship continues on its voyage;
- if the ship reaches a place of refuge; or
- if the ship is taken out to sea.

Identification of the required actions

2.3 The master and/or the salvor should identify the assistance they require from the coastal State in order to overcome the inherent danger of the situation. (Refer to paragraph 3 of Appendix 2.)

Contacting the authority of the coastal State

2.4 The master and/or the salvor should make contact with the coastal State in order to transmit to it the particulars referred to in paragraphs 2.1 to 2.3 above. They must in any case transmit to the coastal State the particulars required under the international conventions in force. Such contact should be made through the coastal State's Maritime Assistance Service (MAS), as referred to in resolution A.950(23).

Establishment of responsibilities and communications with all parties involved

2.5 The master and/or the salvor should notify the MAS of the actions that are intended to be taken and within what period of time.

2.6 The MAS should notify the master and/or the salvor of the facilities that it can make available with a view to assistance or admittance of the ship to a place of refuge, if required.

Response actions

2.7 Subject, where necessary, to the coastal State's prior consent, the shipmaster and the shipping company concerned should take any necessary response actions, such as signing a salvage or towage agreement or the provision of any other service for the purpose of dealing with the ship's situation.

2.8 The master, the company and, where applicable, the salvor of the ship should comply with the practical requirements resulting from the coastal State's decision-making process referred to in paragraphs 3.12 to 3.14.

Reporting procedures

2.9 The reporting procedures should be in accordance with the procedures laid down in the safety management system of the ship concerned under the ISM Code or resolution A.852(20) on Guidelines for a structure of an integrated system of contingency planning for shipboard emergencies, as appropriate.

3 GUIDELINES FOR ACTIONS EXPECTED OF COASTAL STATES

3.1 Under international law, a coastal State may require the ship's master or company to take appropriate action within a prescribed time limit with a view to halting a threat of danger. In cases of failure or urgency, the coastal State can exercise its authority in taking responsive action appropriate to the threat.

3.2 It is therefore important that coastal States establish procedures to address these issues, even if no established damage and/or pollution has occurred.

3.3 Coastal States should, in particular, establish a Maritime Assistance Service (MAS).[2]

Assessment of places of refuge

Generic assessment and preparatory measures

3.4 It is recommended that coastal States endeavour to establish procedures consistent with these Guidelines by which to receive and act on requests for assistance with a view to authorizing, where appropriate, the use of a suitable place of refuge.

3.5 The maritime authorities (and, where necessary, the port authorities) should, for each place of refuge, make an objective analysis of the advantages and disadvantages of allowing a ship in need of assistance to proceed to a place of refuge, taking into consideration the analysis factors listed in paragraph 2 of Appendix 2.

[2] Unless neighbouring States make the necessary arrangements to establish a joint service.

3.6 The aforementioned analysis, which should take the form of contingency plans, is to be in preparation for the analysis provided for below when an incident occurs.

3.7 The maritime authorities, port authorities, authorities responsible for shoreside safety and generally all governmental authorities concerned should ensure that an appropriate system for information-sharing exists and should establish communications and alert procedures (identification of contact persons, telephone numbers, etc.), as appropriate.

3.8 The aforementioned authorities should plan the modalities for a joint assessment of the situation.

Event-specific assessment

Analysis factors

3.9 This analysis should include the following points:

- seaworthiness of the ship concerned, in particular buoyancy, stability, availability of means of propulsion and power generation, docking ability, etc.;
- nature and condition of cargo, stores, bunkers, in particular hazardous goods;
- distance and estimated transit time to a place of refuge;
- whether the master is still on board;
- the number of other crew and/or salvors and other persons on board and an assessment of human factors, including fatigue;
- the legal authority of the country concerned to require action of the ship in need of assistance;
- whether the ship concerned is insured or not insured;
- if the ship is insured, identification of the insurer, and the limits of liability available;
- agreement by the master and company of the ship to the proposals of the coastal State/salvor to proceed or be brought to a place of refuge;
- provisions of the financial security required;
- commercial salvage contracts already concluded by the master or company of the ship;
- information on the intention of the master and/or salvor;
- designation of a representative of the company at the coastal State concerned;
- risk evaluation factors identified in Appendix 2; and
- any measures already taken.

Expert analysis

3.10 An inspection team designated by the coastal State should board the ship, when appropriate and if time allows, for the purpose of gathering evaluation data. The team should be composed of persons with expertise appropriate to the situation.

3.11 The analysis should include a comparison between the risks involved if the ship remains at sea and the risks that it would pose to the place of refuge and its environment. Such comparison should cover each of the following points:

- safeguarding of human life at sea;
- safety of persons at the place of refuge and its industrial and urban environment (risk of fire or explosion, toxic risk, etc.);
- risk of pollution;
- if the place of refuge is a port, risk of disruption to the port's operation (channels, docks, equipment, other installations);
- evaluation of the consequences if a request for place of refuge is refused, including the possible effect on neighbouring States; and
- due regard should be given, when drawing the analysis, to the preservation of the hull, machinery and cargo of the ship in need of assistance.

After the final analysis has been completed, the maritime authority should ensure that the other authorities concerned are appropriately informed.

Decision-making process for the use of a place of refuge

3.12 When permission to access a place of refuge is requested, there is no obligation for the coastal State to grant it, but the coastal State should weigh all the factors and risks in a balanced manner and give shelter whenever reasonably possible.

3.13 In the light of the outcome of the assessment provided for above, the coastal State should decide to allow or refuse admittance, coupled, where necessary, with practical requirements.

3.14 The action of the coastal State does not prevent the company or its representative from being called upon to take steps with a view to arranging for the ship in need of assistance to proceed to a place of refuge. As a general rule, if the place of refuge is a port, a security in favour of the port will be required to guarantee payment of all expenses which may be incurred in connection with its operations, such as: measures to safeguard the operation, port dues, pilotage, towage, mooring operations, miscellaneous expenses, etc.

APPENDIX 1

APPLICABLE INTERNATIONAL CONVENTIONS

At the international level, the following Conventions and Protocols are in force and constitute, *inter alia,* the legal context within which coastal States and ships act in the envisaged circumstances[3]:

- United Nations Convention on the Law of the Sea (UNCLOS), in particular article 221 thereof;[4]
- International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (the Intervention Convention), 1969, as amended;
- Protocol relating to Intervention on the High Seas in Cases of Pollution by substances other than Oil, 1973;
- International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as amended, in particular chapter V thereof;
- International Convention on Salvage, 1989 (the Salvage Convention);[5]
- International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (the OPRC Convention);
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78);
- International Convention on Maritime Search and Rescue, 1979 (SAR 1979), as amended.
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972

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[3] It is noted that there is at present no international requirement for a State to provide a place of refuge for vessels in need of assistance.

[4] "1. Nothing in this Part shall prejudice the right of States, pursuant to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences.

2. For the purposes of this article, "maritime casualty" means a collision of vessels, stranding or other incident of navigation, or other occurrence on board a vessel or external to it resulting in material damage or imminent threat of material damage to a vessel or cargo."

[5] Parties to the International Convention on Salvage, 1989 (Salvage 1989), are obliged under article 11 of the Convention when considering a request for a place of refuge, to take into account the need for co-operation between salvors, other interested parties and public authorities to ensure the efficient and successful performance of salvage operations. Article 11 of the Salvage Convention states:

"A State Party shall, whenever regulating or deciding upon matters relating to salvage operations such as admittance to ports of vessels in distress or the provision of facilities to salvors, take into account the need for co-operation between salvors, other interested parties and public authorities in order to ensure the efficient and successful performance of salvage operations for the purpose of saving life or property in danger as well as preventing damage to the environment in general."

- Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971

- Convention on Limitation of Liability for Maritime Claims (LLMC), 1976

- International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969

- International Convention on Civil Liability for Oil Pollution Damage (CLC), 1992

- International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND), 1992.

APPENDIX 2

GUIDELINES FOR THE EVALUATION OF RISKS ASSOCIATED WITH THE PROVISION OF PLACES OF REFUGE

When conducting the analysis described in paragraphs 3.4 to 3.8, in addition to the factors described in paragraph 3.9, the following should be considered.

1 Identification of events, such as:

- fire
- explosion
- damage to the ship, including mechanical and/or structural failure
- collision
- pollution
- impaired vessel stability
- grounding.

2 Assessment of risks related to the identified event taking into account:

.1 Environmental and social factors, such as:

- safety of those on board
- threat to public safety
  What is the nearest distance to populated areas?
- pollution caused by the ship
- designated environmental areas
  Are the place of refuge and its approaches located in sensitive areas such as areas of high ecological value which might be affected by possible pollution?
  Is there, on environmental grounds, a better choice of place of refuge close by?
- sensitive habitats and species
- fisheries
  Are there any offshore and fishing or shellfishing activities in the transit area or in the approaches to the place of refuge or vicinity which can be endangered by the incoming ship in need of assistance?
- economic/industrial facilities
  What is the nearest distance to industrial areas?
- amenity resources and tourism
- facilities available
  Are there any specialist vessels and aircraft and other necessary means for carrying out the required operations or for providing necessary assistance?
  Are there transfer facilities, such as pumps, hoses, barges, pontoons?
  Are there reception facilities for harmful and dangerous cargoes?
  Are there repair facilities, such as dockyards, workshops, cranes?

.2 Natural conditions, such as:

Prevailing winds in the area.
Is the place of refuge safely guarded against heavy winds and rough seas?

Tides and tidal currents.

- weather and sea conditions
  Local meteorological statistics and number of days of inoperability or inaccessibility of the place of refuge.
- bathymetry
  Minimum and maximum water depths in the place of refuge and its approaches.
  The maximum draught of the ship to be admitted. Information on the condition of the bottom, i.e., hard, soft, sandy, regarding the possibility to ground a problem vessel in the haven or its approaches.
- seasonal effects including ice
- navigational characteristics
  In the case of a non-sheltered place of refuge, can salvage and lightering operations be safely conducted?
  Is there sufficient space to manoeuvre the ship, even without propulsion?
  What are the dimensional restrictions of the ship, such as length, width and draught?
  Risk of stranding the ship, which may obstruct channels, approaches or vessel navigation.
  Description of anchorage and mooring facilities in the place of refuge.
- operational conditions, particularly in the case of a port
  Is pilotage compulsory and are pilots available?
  Are tugs available? State their number and horsepower.
  Are there any restrictions? If so, whether the ship will be allowed in the place of refuge, e.g. escape of poisonous gases, danger of explosion, etc.
  Is a bank guarantee or other financial security acceptable to the coastal State imposed on the ship before admission is granted into the place of refuge?

.3 Contingency planning, such as:

- competent MAS
- roles and responsibilities of authorities and responders
  Fire fighting capability
- response equipment needs and availability
- response techniques
  Is there a possibility of containing any pollution within a compact area?
- international co-operation
  Is there a disaster relief plan in the area?
- evacuation facilities

.4 Foreseeable consequences (including in the media) of the different scenarios envisaged with regard to safety of persons and pollution, fire, toxic and explosion risks.

3 Emergency response and follow-up action, such as:

- lightering
- pollution combating
- towage
- stowage
- salvage
- storage.

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Appendix B

USCG Jurisdiction and Terms

JURISDICTION

Many of the terms and jurisdictional concepts used in this chapter are drawn directly from the 1982 Law of the Sea (LOS) Convention. The concepts from that convention discussed in this Title are almost universally considered to be "customary international law" and apply whether or not a state is a party to the LOS Convention.

Subpart 3(C), "Navigation of Vessels and Aircraft," sets forth certain well-recognized limits, such as innocent passage and force majeure, to the exercise of jurisdiction by a coastal state.

THE U.S. COAST GUARD

Generally, the Coast Guard must determine on a case-by-case basis whether it has jurisdiction. Besides determining whether it has the domestic authority to assert jurisdiction, it often must also determine whether an assertion of jurisdiction is consistent with international law. In many cases involving a foreign vessel, the Coast Guard decides whether it has jurisdiction over the vessel and its personnel based on three elements: the activities of the vessel and personnel, the location of the vessel, and the nationality of the vessel.

The phrase "waters subject to United States jurisdiction" encompasses more than United States territorial waters; it also extends to those waters where the United States, pursuant to an agreement with a foreign government, has been authorized to take law enforcement action involving United States or foreign vessels. Such waters could, and in actual practice do, include foreign territorial waters.

INTERNATIONAL LAW

When moving maritime law enforcement from the domestic to the international realm, the complexities multiply dramatically. There are three basic international principles which govern a state’s ability to assert jurisdiction over a vessel or over areas of water. First, under international law, the flag state, the nation in which a vessel is registered, has the obligation to regulate and ensure the safe and lawful operation of a vessel flying its flag. The second principle is that all nations have an equal and untrammeled right to navigate on the high seas (termed the freedom of the high seas). To ensure this principle of the freedom of the high seas, international law generally prohibits, with certain carefully delineated exceptions, any nation from asserting jurisdiction over foreign vessels on the high seas. Thus, unless one of the few exceptions is applicable, a vessel on the high seas is said to be subject to the exclusive jurisdiction of the flag state. Finally, the third principle is that a vessel in the territorial waters of a state other than its flag state is ordinarily subject to the concurrent jurisdiction of the coastal state and the flag state; the nature and extent of the coastal state’s jurisdiction vary with the particular circumstances.

Definitions of Jurisdictional Terms.

Baseline. The "baseline" is the marking the seaward limit of the internal waters of [State] and from which the outer limit of the territorial sea and other coastal state zones contiguous zone, exclusive economic zone) are measured. The baseline forms the boundary between internal waters and the territorial sea. [LOSC 5-16]

Claim of nationality or registry. Includes only:

(A) possession on board the vessel and production of documents evidencing the vessel's nationality;

(B) flying a nation's ensign or flag; or,

(C) a verbal claim of nationality or registry by the master or person in charge of the vessel.

Contiguous zone.

(A) For [State], "contiguous zone" means the belt of high seas, [number] nautical miles wide, contiguous to and seaward of the territorial sea of [State]. [LOSC 33]

(B) For a foreign state, "contiguous zone" means the belt of high seas designated as such by that state adjacent to and seaward of that state's territorial sea, as recognized by [State].

Continental Shelf. "Continental shelf" means the seabed and subsoil of the submarine areas, as delineated or recognized by [State] according to the definition in the 1982 Law of the Sea Treaty, that extend beyond the territorial sea of a state. [LOSC 76]

Exclusive economic Zone (EEZ).

(A) With respect to [State], "exclusive economic zone" means a belt of sea beyond the territorial sea that extends seaward to a distance of [number] nautical miles from the baseline. [LOSC 56]

(B) With respect to any foreign state, "exclusive economic zone" means a belt of sea beyond the territorial sea that extends seaward to a distance no greater than 197 nautical miles from the baseline, as recognized by [State]. [LOSC Part V]

High seas. "High seas" means all waters which are neither territorial seas nor internal waters of [State] or of any foreign state. [LOSC Part VII]

Internal waters.

(A) With respect to [State], "internal waters" means the waters landward of the territorial sea baseline. [LOSC 8]

(B) With respect to any foreign state, "internal waters" means the waters landward of the baseline of its territorial sea, as recognized by [State].

Territorial seas.

(A) For [State], "territorial seas" means the waters within the belt, [number] nautical miles wide, that is adjacent to its coast and seaward of the baseline. [LOSC PART II]

(B) For any foreign state, "territorial seas" means the waters within te belt that is adjacent to its coast and whose breadth and baseline are recognized by [State].

Waters Subject to Jurisdiction of [State]. "Waters subject to jurisdiction of [State]" means: [State's] internal waters, [archipelagic waters], territorial sea, continental shelf, contiguous zone, and exclusive economic zone for those subject areas over which [State] has jurisdiction.

Jurisdictional Limitations

Territorial Sea Jurisdiction.

(A) The sovereignty of [State] extends beyond its land territory and internal waters [and, in the case of an archipelagic state, its archipelagic waters] to its territorial sea.

(B) This sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil.

(C) The sovereignty of [State] over its territorial sea is exercised subject to this Title and other rules of international law. [LOSC 2]

Contiguous Zone Jurisdiction. In the contiguous zone, [State] has jurisdiction:

(A) to prevent violations of its customs, fiscal, immigration or sanitary laws and directives within [State's] territory or territorial sea; and,

(B) to punish violations of laws and directives committed within [State's] territory or territorial ea. [LOSC 33]

Exclusive Economic Zone Jurisdiction.

(A) In the exclusive economic zone, [State] has jurisdiction:

(1) for the purpose of exploring and exploiting, conserving and managing the natural resources of the water superadjacent to the seabed and of the seabed and its subsoil;

(2) over marine scientific research;

(3) for the protection and preservation of the marine environment; and,

(4) as otherwise allowed by international law or treaty to which [State] is a party. [LOSC 56]

(B) In the exclusive economic zone, [State] may exercise the control necessary to:

(1) prevent the violations of its rights enumerated in Article 3.7(A)(1) through (A)(4) above; and,

(2) punish violations of laws and directives committed on or over the continental shelf. [LOSC 37]

(C) This jurisdiction and control shall be exercised in conformity with the applicable sections of Chapter 8 (Living Marine Resources Preservation) of this Title.

Continental Shelf Jurisdiction.

(A) [State] exercises sovereign rights over the continental shelf for the purpose of exploring and exploiting the shelf's natural resources. [LOSC 77]

(B) The rights referred to in Article 3.8(A) are exclusive to [State] and may not be exercised by any other state without the express consent of [State].

(C) On the continental shelf, [State] may exercise the control necessary to:

(1) prevent the violations of its rights enumerated in subsection (A); and,

(2) punish violations of laws and directives committed on or over the continental shelf. [LOSC 37]

Navigation of Vessels and Aircraft

Recognition of the Right of Innocent Passage.

(A) **Passage Defined**.

(1) Passage means navigation through the territorial sea for the purpose of:

(a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or,

(b) proceeding to or from internal waters or a call at such roadstead or port facility.

(2) Passage shall be continuous and expeditious. However, passage includes stopping and anchoring, but only as incidental to ordinary navigation, or rendered necessary by force majeure or distress, or for the purpose of rendering assistance to persons, ships, or aircraft in danger or distress. [LOSC 18]

(3) In the territorial sea, [State] may exercise the control necessary to:

(a) prevent passage that is not innocent; and,

(b) punish violations of the laws and directives of [State] committed on, over, or beneath the territorial sea. [LOSC 37]

(B) **Innocent Passage Defined**. A vessel's passage is innocent so long as it is not prejudicial to the peace, good order, or security of [State]. Passage of a foreign ship is prejudicial to the peace, good order, or security of [State] if it engages in any of the following activities:

(1) any threat or use of force against the sovereignty, territorial integrity, or political independence of [State];

(2) any exercise or practice with weapons of any kind;

(3) any act aimed at collecting information to the prejudice of the defense or security of [State];

(4) any act of propaganda aimed at affecting the defense or security of [State];

(5) launching, landing, or taking on board aircraft or any military device;

(6) loading or unloading any commodity, currency, or person contrary to the customs, fiscal, immigration, or sanitary laws and directives of [State];

(7) any act of willful and serious pollution;

(8) any fishing activities;

(9) carrying out research or survey activities;

(10) any act aimed at interfering with any systems of communications or any other facilities or installations of [State]; or,

(11) any other activity not having a direct bearing on passage. [LOSC 19]

(C) **Right of Innocent Passage**. Subject to this Title and other applicable international agreements, vessels of all states enjoy the right of innocent passage through the territorial sea of [State]. [LOSC 17]

(D) **Foreign Vessels.** Foreign vessels exercising the right of innocent passage through [State's] territorial seas shall comply with all [State] laws and directives and all generally accepted international directives relating to the prevention of collisions at sea.

(E) **Reservation of Rights.** [State] expressly reserves the right to take affirmative actions in its territorial sea to prevent passage that is not innocent, including, where necessary, the use of force.

Innocent Passage: Laws and Directives.

(A) The Minister may adopt laws and directives, in conformity with the provisions of this Title and other rules of international law, relating to innocent passage through the territorial sea of [State], in respect of all or any of the following:

(1) the safety of navigation and the regulation of maritime traffic;

(2) the protection of navigational aids and facilities and other facilities and installations;

(3) the protection of cables and pipelines;

(4) the conservation of the living resources of the sea;

(5) the prevention of violations of the fisheries laws and directives of [State];

(6) marine scientific research and hydrographic surveys; and,

(7) the prevention of violations of the customs, fiscal, immigration, or sanitary laws and directives of [State].

(B) Such laws and directives shall not apply to the design, construction, manning, or equipment of foreign vessels unless such rules and directives give effect to generally accepted international rules or standards.

(C) The Minister shall give reasonable publicity to all such laws and directives.

Duty to Permit Innocent Passage.

(A) [State] shall not hamper the innocent passage of foreign vessels through its territorial sea except in accordance with this Title or other international law. In particular, in the application of this Title or any laws or directives adopted by [State], [State] shall not:

(1) impose requirements on foreign vessels which have the practical effect of denying or impairing the right of innocent passage; or,

(2) discriminate in form or in fact against the vessels of any state or against vessels carrying cargos to, from, or on behalf of any state.

(B) The Minister shall give appropriate publicity to any danger to navigation, of which it has knowledge, within its territorial sea.

Rights of Protection of [State].

(A) In the case of vessels proceeding to the internal waters of [State] or a call at a port facility outside internal waters, [State] has the right to take the necessary steps to prevent any breach of the conditions to which admission of those vessels to internal waters or such a call is subject.

(B) The Minister may, without discrimination in form or fact among foreign vessels, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign vessels, including passage for weapons exercises, if such suspension is essential for the protection of [State's] security. Such suspension shall take effect only after having been reasonably published.

Transit Passage.

(A) **Scope of Article.** This article applies to straits used for international navigation. [LOSC 37]

(B) **Right of Transit Passage.** The right of transit passage means the exercise of the freedom of navigation and overflight for the purpose of continuous and expeditious transit of the strait between one part of the high seas or exclusive economic zone and another part of the high seas or exclusive economic zone. The requirement of continuous and expeditious transit does not preclude passage through the strait for the purpose of entering, leaving, or returning from [State].

(C) **Duties of Vessels and Aircraft During Transit Passage**. Vessels and aircraft, while exercising the right of transit passage, shall:

(1) proceed without delay through or over the strait;

(2) refrain from any threat or use of force against the sovereignty, territorial integrity, or political independence of [State]; and,

(3) refrain from any activities other than those incident to their normal operations or as occasioned by distress.

Freedom of the High Seas. [State] affirms its commitment to the freedom of the high seas in all areas of the sea not included in the exclusive economic zone, the territorial sea, or the internal waters of [State]. These freedoms include:

(A) freedom of navigation;

(B) freedom of overflight;

(C) freedom to lay submarine cobles and pipelines, subject to international agreements;

(D) freedom of fishing, subject to applicable conditions contained in this Title and other relevant international agreements; and,

(E) freedom of scientific research, subject to applicable conditions contained in this Title and other relevant international agreements.

Force Majeure.

(A) **Force Majeure Defined**. "Force Majeure" provides a vessel with limited immunity from the laws and directives of a coastal state when it is forced into [State's] waters by virtue of distress, whether a result of natural or man-made causes.

(B) **Application of Laws.** A vessel entering [State's] waters under claim of force majeure shall not be liable for the breach of [State's] laws because of the condition requiring the vessels' entry under force majeure during a period of time reasonably necessary to remedy such distress, but remains otherwise subject to all laws and directives of [State].

(C) **Authority of the Maritime Force During Claim of Force Majeure**.

(1) The Maritime Force, at the direction of the Minister, may board any vessel entering [State's] territorial waters under a claim of force majeure for the purpose of verifying the claim. A claim of force majeure shall not apply where the distress is contrived (e.g., untrue or intentionally created).

(2) The Maritime Force shall, where a violation of [State's] pollution, living resources preservation, or submerged archaeological objects protection laws is involved, board any vessel entering [State's] territorial waters under a claim of force majeure for the purpose of enforcing any provision of those chapters of this Title.

(3) A vessel entering [State's] territorial waters under a claim of force majeure is subject to the direction of the Captain of the Port in order to protect port safety.

Civil and Criminal Jurisdiction

Authority of the Maritime Force to Exercise Criminal Jurisdiction Aboard a Foreign Vessel.

(A) **Circumstances Under Which Jurisdiction May be Exercised**. [State] will not exercise its criminal jurisdiction (to arrest any person or to conduct any investigation in connection with any crime committed on board the vessel) on board a foreign vessel passing through its territorial seas unless:

(1) the consequences of the crime extend to [State];

(2) the crime is of a kind to disturb the peace of [State] or the good order of the territorial sea;

(3) the assistance of law enforcement personnel in [State] has been requested by the master of the vessel or by a diplomatic agent or consular officer of the flag state of the foreign vessel; or,

(4) such measures are necessary for the suppression of illicit traffic in narcotic drugs or psychotropic substances. [LOSC 27]

(B) **Jurisdiction Authorized Where Vessel Has Previously Been in [State's] Internal Waters**. The provisions do not affect the right of the Maritime Force to take any steps authorized by law for the purpose of an arrest or investigation on board a foreign vessel passing through the territorial sea after leaving [State's] internal waters (or archipelagic waters). [LOSC 27]

Authority of the Maritime Force to Exercise Civil Jurisdiction Aboard a Foreign Vessel.

(A) **Civil Jurisdiction Authorized in Special Circumstances**. Subject to direction from the Minister, the Maritime Force may levy an execution against or arrest a foreign vessel for the purpose of any civil proceeding arising out of obligations or liabilities assumed or incurred by the vessel itself in the course or for the purpose of its voyage through [State's] waters.

(B) **Civil Jurisdiction Over Persons On Board Foreign Vessels**. [State] shall not stop or divert a foreign vessel for the purpose of exercising civil jurisdiction over a person on board the vessel.

Law Enforcement Authority and General Provisions

Law Enforcement - General Authority. The Maritime Force shall enforce or assist in the enforcement of all applicable [State] laws on, under, and over the high seas and waters subject to the jurisdiction of [State].

Authority to Enforce International Treaties. The Maritime Force shall enforce or assist in the enforcement of all applicable international treaties recognized by [State] as being in force on, under, and over the high seas and waters subject to the jurisdiction of [State].

General Duties.

(A) The Maritime Force may make inquiries, examinations, inspections, searches, seizures, and arrests upon the high seas and waters over which [State] has jurisdiction, for the prevention, detection, and suppression of violations of laws of [State]. The Maritime Force may maintain water, land, and air patrols for these purposes.

(B) For the purposes enumerated in section (A), officers with general law enforcement authority may at any time go on board any vessel subject to the jurisdiction, or to the operation of any law of [State], and may address inquiries to those on board, examine the vessel's documents and papers, as well as examine, inspect, and search the vessel. The use of all necessary force to compel compliance is authorized.

(C) When from such inquiries, examination, inspection, or search it appears that a breach of the laws of [State] rendering a person liable to arrest is being or has been committed by any person, such person shall be arrested or subject to other lawful appropriate action.

(D) If it appears that a breach of the laws of [State] has been committed so as to render such vessel or its merchandise liable to forfeiture, such vessel or such merchandise shall be seized or a bond posted.

Consequences of the Failure to Stop Vessel.

(A) Any vessel which, at any authorized place, is directed to come to a stop by officers with general law enforcement authority, or is directed to come to a stop by signal made by any vessel or aircraft employed in the service of the Maritime Force and displaying the proper insignia, shall come to a stop. Any vessel failing to comply shall become subject to pursuit, and the master, owner, operator, or person in charge thereof shall be [appropriate sanction].

(B) Whenever any vessel liable to seizure or examination does not stop on being ordered to do so or on being pursued by an authorized vessel or authorized aircraft, the person in command or in charge of the authorized vessel or authorized aircraft may, after a gun has been fired by the authorized vessel or aircraft as a warning signal, fire at or into the vessel which does not stop.

> Note: Firing at or into a foreign vessel for violation of [State] law is not permitted under certain circumstances. [LOSC 301]

(C) For purposes of this article, an authorized vessel or authorized aircraft must display the pennant or other identifying insignia prescribed for an authorized vessel or authorized aircraft.

(D) The person in command of an authorized vessel or authorized aircraft and all persons acting under that person's direction shall be indemnified from any penalties or actions for damages for firing at or into a vessel pursuant to Article 3.27(B).

Assaulting, Resisting, or Impeding Maritime Force Personnel. Whoever forcibly assaults, resists, opposes, obstructs, impedes, intimidates, or interferes with a member of the Maritime Force while engaged in or on account of the performance of official duties, shall be [appropriate sanction].

Appendix C

Force Majeure – From USCG Marine Safety Manual

F. Force Majeure

1. General. Force Majeure is a doctrine of international law which confers limited legal immunity upon vessels which are forced to seek refuge or repairs within the jurisdiction of another nation due to uncontrollable external forces or conditions. This limited immunity prohibits coastal state enforcement of its laws which were breached due to the vessel's entry under force majeure.

2. Definition. Emergency entry, or force majeure, is defined as an overwhelming force or condition of such severity that it threatens loss of the vessel, cargo or crew unless immediate corrective action is taken. Force majeure is based upon the historical premise in international law that, if a vessel is compelled to move into the waters of a foreign state by some uncontrollable external force, then the vessel should be excused from compliance with domestic laws which prohibit such entry.

3. Burden of Proof. The burden of proof that a vessel has a valid claim of force majeure rests with the vessel, its master and owner. A claim of force majeure is supported only by the existence of overwhelming conditions or forces of such magnitude (e.g., severe storm, fire, disablement, mutiny) that they threaten the loss of the vessel, crew, or cargo unless immediate action is taken. Conversely, an invalid claim of force majeure has no effect on the authority of the coastal state to take all appropriate law enforcement action against an entering vessel.

4. COTP Authority. Each Coast Guard COTP, and the District Commander, has the authority to verify and then accept or reject claims of force majeure for the purposes of enforcing applicable laws. Even if a vessel exhibits a valid force majeure claim, the COTP may nevertheless take action to remove a hazard to life or property under the authority of the Ports and Waterways Safety Act (33 USC 1221, et seq.). For example, in the event of fire, flooding, or collision damage which may affect the safety of a vessel or its cargo the COTP would ascertain the condition of the vessel, determine the existence of any hazard to the port, and make any COTP order consistent with the right of entry under force majeure and the protection of the port. The COTP may direct the vessel to a specific location and not to the port of their choice. However, once a force majeure claim has been validated, the Coast Guard alone is the Federal agency responsible for granting or denying vessel entry.

Appendix D

Intervention on the High Seas Act

INTERVENTION ON THE HIGH SEAS ACT

33 U.S.C. §§ 1471-1487, February 5, 1974, as amended 1978, 1982, 1990 and 1992.

Overview. This Act authorizes measures to prevent and mitigate oil pollution and other noxious damage on the high seas that affects U.S. coastlines and related interests. The Act implements the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other Than Oil.

Selected Definitions. A substance other than Convention oil: those oils, noxious substances, liquefied gases and radioactive substances enumerated in the Protocol or otherwise determined to be hazardous under § 1473 of this Act. Convention: International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969, including annexes. Convention oil: crude oil, fuel oil, diesel oil and lubricating oil. Secretary: Secretary of the department in which the Coast Guard is operating. Protocol: Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other Than Oil, 1973, including annexes thereto. § 1471.

Grave and Imminent Danger to the Coastline from Oil Pollution. The Act authorizes the Secretary to take measures on the high seas to protect the coastline or related interests of the U.S. from pollution incidents expected to result in major harmful consequences. When a collision, stranding, navigation incident or other occurrence damages or threatens to damage a ship or her cargo, the Secretary may determine that the pollution or threat of pollution caused by the occurrence creates a grave and imminent danger to the coastline or related U.S. interests. In this event, the Secretary may take measures on the high seas to prevent, mitigate or eliminate the danger in accordance with the Convention, the Protocol and the Act. The Act also provides that the Secretary acts without liability for any damage to the owners or operators of the ship, the cargo and crew, underwriters and other interested parties. The pollution addressed in this provision is pollution of the sea caused by Convention oil and pollution of the sea or the atmosphere caused by substances other than Convention oil. § 1472.

Determination of Hazards. The Secretary, after consultation with the Administrator of the Environmental Protection Agency (EPA) and the Secretary of Commerce, must determine when a substance other than those enumerated in the Protocol is liable to create a hazard to human health, to harm living resources, to damage amenities or to interfere with other legitimate uses of the sea. In determining whether there is grave and imminent danger of major harmful consequences to the coastline or related interests of the U.S., the Secretary must consider the directly threatened or affected U.S. interests, including human health, fish, shellfish, and other living marine resources, wildlife, coastal zone and estuarine activities, and public and private shorelines and beaches. § 1473.

Federal Intervention. Upon a determination under § 1472 of a grave and imminent danger to the coastline or related interests of the U.S., the Secretary may: coordinate and direct all public and private efforts pertaining to the removal or elimination of the threatened pollution damage; directly or indirectly undertake all or any part of these efforts; remove and if necessary destroy the ship and cargo which is the source of the danger. § 1474.

Before taking any action, the Secretary must: consult, through the Secretary of State, with other countries affected by the marine casualty, and particularly with the flag country of any ship involved; notify without delay the Administrator of the EPA and any other persons who have interests which can reasonably be expected to be affected by the proposed measures; consider any views submitted in response to the consultation or notification required by this section. In cases of extreme urgency requiring immediate action, the Secretary may take necessary measures without prior consultation or

notification. No measures may be taken against any warship or other ship owned or operated by a country and used, for the time being, only on government noncommercial service. §§ 1475, 1476 and 1483.

The measures directed or conducted under the Act must be proportionate to the actual or threatened damage to the coastline or related interests of the U.S. and may not go beyond what is reasonably necessary to prevent, mitigate or eliminate that damage. In determining whether measures are proportionate to the damage, the Secretary must consider: the extent and probability of imminent damage if the measures are not taken; the likelihood of effectiveness of the measures; the extent of the damage which may be caused by the measures. The Secretary must use best efforts to: avoid risk to human life; not unnecessarily interfere with rights and interests of others, including the flag state of any ship involved, other foreign states threatened by damage, and persons otherwise concerned. The U.S. is obliged to pay compensation for damage caused by measures which exceed those reasonably necessary. The Act requires the Secretary of State to notify without delay foreign states concerned, the Secretary-General of the Inter-Governmental Maritime Consultative Organization and persons affected by the measures taken. §§ 1477-1480.

Violations. It is a Class A misdemeanor to: willfully violate a provision of the Act or a regulation issued under it; willfully refuse or fail to comply with a lawful order or direction given under this Act; willfully obstructs a person who is acting in compliance with an order or direction under the Act. Except in cases of willful obstruction, it is a defense that the accused used all due diligence to comply with an order or direction or had reasonable cause to believe that compliance would have resulted in serious risk to human life. § 1481.

Administrative Provisions. The Secretary, in consultation with the Secretary of State and the Administrator of the EPA, may nominate individuals to the list of experts provided for in Article III of the Convention and Article II of the Protocol and may propose amendments to the list of substances other than Convention oil in accordance with Article III of the Protocol. The Secretary of State, in consultation with the Secretary, must designate or nominate, as appropriate and necessary, the negotiators, conciliators or arbitrators provided for by the Convention and the Protocol. The President may accept amendments to the list of substances other than Convention oil in accordance with Article III of the Protocol. § 1482.

The Act must be interpreted and administered in a manner consistent with the Convention, the Protocol and other international law. Except as specifically provided, nothing in the Act may be interpreted to prejudice any otherwise applicable right, duty, privilege or immunity or deprive any country or person of any remedy otherwise applicable. § 1484.

The Secretary may issue reasonable rules and regulations for the effective implementation of the Act. The Oil Spill Liability Trust Fund is available to the Secretary for actions taken under §§ 1474 and 1476. The Act is effective on February 5, 1974, or the date the Convention becomes effective as to the U.S., whichever is later. §§ 1485-1487.

Chapter 4 - Statute Summaries
Federal Wildlife & Related Laws Handbook

Appendix E

USCG Vessel Removal and/or Destruction Policy

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

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Washington, DC 20593-0001
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G-MOR INTRANET WEB PAGE

Subj: VESSEL REMOVAL AND/ OR DESTRUCTION

Ref:
(a) 33 USC 1321 Federal Water Pollution Control Act
(b) 33 USC 1474 Intervention on the High Seas Act
(c) 42 USC 9601 Comprehensive Environmental Response Compensation and Liability Act
(d) 33 CFR 1.01-80 FWPCA and OPA 90 delegations
(e) 33 CFR 245 Removal of Wrecks and other Obstructions
(f) 40 CFR 220 Environmental Protection Agency Permits
(g) 40 CFR 300 National Oil and Hazardous Substances Pollution Contingency Plan
(h) COMDTINST Ml6465.43, Abandoned Vessels
(i) COMDTINST Ml6000.11, Volume VI, Chapter 5, Marine Safety Manual
(j) COMDTINST M16000.14, Volume IX, Chapter 5, Marine Safety Manual
(k) Memorandum of Agreement between Department of Army and U.S. Coast Guard on Responses to Marking and Removal of Sunken Vessels and Other Obstructions to Navigation (1985)

Contents:

1. Purpose. This guidance provides an overview of the most common issues arising from a removal or destruction action. References are provided for readers to seek additional guidance as necessary.

This document also provides a structured process for field units to seek approval for a vessel removal or destruction action. It is hoped that this document will reduce confusion surrounding vessel removal' destruction and make the request process quicker and easier to follow.

2. Background**.** In 1992, Congress passed the Abandoned Barge Act that made it illegal to abandon a barge of greater than 100 gross tons on the navigable waters of the U.S. This law provides for civil penalties to discourage abandonment of barges and mechanisms to remove abandoned barges with the exception of barges defined by the Abandoned Barge Act. However, there are no federal laws that make abandonment of a vessel in U.S. waters illegal. Since vessels at the end of their service life can cost more to maintain than can be gained from their operation, such vessels are prime for abandonment. Once abandoned, a vessel becomes a community nuisance, a physical threat to the public - especially children who may climb aboard, and often an environmental or public health threat due to oil and chemicals onboard. Abandoned vessels have historically been used as "midnight dumping" sites for used oil and hazardous materials, which increases the danger to community residents, wildlife, and the environment. Vessel owners that are non-U.S. citizens or who enter bankruptcy can be difficult to locate and to compel to be responsible for their vessel. Due to these issues and the large number of authorities involved, the removal/destruction of an abandoned vessel is often a complex undertaking. Vessel removal or destruction may be an appropriate response activity under the FWPCA or CERCLA or may be authorized if the vessel is an obstruction to navigation. Federal On Scene Coordinators are encouraged to use this vessel removal/destruction process when appropriate,

3. Directive Affected. None.

4. Discussion.

   a. Authorities.

      (1) The following authorities may be used under their specific circumstances to remove or destroy a vessel:

         (a) Abandon Barge Act -
         (b) Intervention on the High Seas Act -
         (c) 33 CFR 245
         (d) CERCLA
         (e) FWPCA

      (2) Vessels may be removed or destroyed for the following reasons under the below listed authority:

         (a) Vessel poses an obstruction or hazard to navigation - 33 CFR 245,
         (b) Vessel is discharging or is a [substantial] threat to discharge oil or a hazardous substance - FWPCA or CERCLA or IHSA.

(3) Vessels posing an obstruction or hazard to navigation can be removed and/or destroyed by the U.S. Army Corps of Engineers (USAGE). The District Engineer for the USAGE may conduct emergency and non-emergency vessel removal. Prior to USAGE action, the vessel must be declared abandoned per 33 CFR 245.45. Vessels removed or destroyed under 33 CFR 245 do not need Commandant approval and may be handled as a matter between the Captain of the Port and the District Engineer, For further discussion of removal or destruction under the obstruction or hazard to navigation, see reference (e), 33 CFR 245. and reference (k). DOA/USCG MOA in MSM Volume X.

(4) Removal and destruction actions are most commonly requested under the Federal Water Pollution Control Act (FWPCA) (33 U.S.C. 1321}. or the Comprehensive Environmental Response. Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601), Vessels may be removed or destroyed under either act if the vessel is discharging or posing a threat to discharge oil or a hazardous substance. This process can not be used for vessels that are simply an eyesore or a community nuisance.

(5) The Commandant must approve any vessel destruction or removal conducted under FWPCA or CERCLA authority. The request process is detailed in paragraph 5. Because a vessel removal/destruction can subject the USCG to liabilities. Commandant approval is essential. For example, additional parties besides the owner/operator may hold legal claims on the vessel or cargo. Questions regarding whether or not Commandant authority is required shall be addressed to the appropriate district legal office.

(6) In addition to the authorities listed above, state and local governments may also have established authority to remove and or destroy abandoned property that can include vessels. State and local government regulations governing abandoned property may allow for an expedient disposal of an abandoned vessel that may otherwise not fit the criteria for removal or destruction under FWPCA, CERCLA, or 33 CFR 245. Coordination with state and local officials is advised to resolve such situations.

b. Abandonment.

(1) For the purpose of removal or destruction of vessels under the FWPCA or CERCLA. an abandoned vessel is defined under COMDTTNST Ml6465,43 as any craft designed for navigation that has been moored, stranded, wrecked, sunk, or left unattended for longer than 45 days. A vessel is not abandoned if it is on private property with the permission of the owner. The above definition of abandoned should not be construed as affecting any legal rights or liabilities with respect to the vessel,

(2) Prior to removal or destruction, the FOSC must ensure that a search for an owner or operator has been conducted. If an owner/operator can be identified and contacted, he/she must be provided a reasonable opportunity to correct any vessel deficiencies. Should an owner/operator fail to correct any deficiencies within a reasonable timeframe as established by the FOSC, the FOSC can take actions to mitigate the threat or potential threat. The FOSC must notify the owner/operator (if known) in writing of the FOSC's intent to remove and/or destroy the vessel before initiating a destruction/removal request.

(3) When an owner cannot be identified or contacted, a vessel may be established as abandoned by following the guidance in reference (h). Actions to establish abandonment include using announcements via a notice to mariners and publication of a notice in an official journal of the county- where the vessel is located. A vessel does not have to be declared abandoned prior to removal or destruction. If time allows, however, establishment of abandonment per reference (h) shall be followed. The FOSC shall also consult with their district legal office regarding any removal and/or destruction action to ensure all legal issues are addressed.

(4) Other parties may also have a financial interest or specific rights relating to a vessel abandoned by the owner or operator. Financial institutions, cargo owners, lien holders, investors, and others may have an interest in the vessel. These parties, in addition to having legal rights regarding the vessel, may be able to compel the owner or operator to action or take their own legal actions to ensure the vessel does not remain abandoned. FOSC's. if time allows, should seek out and engage these parties for any abandoned vessel.

c. Ocean Dumping,

(1) The dumping of material into U.S. waters, including vessels, is regulated by 33 U.S.C. 1401. and requires an EPA permit, The EPA issues three types of ocean dumping permits that are relevant to vessel destruction and include general, emergency, and reef program permits. General permits are normally issued for disposal of vessels at sea. Requests for disposal can be simple letter requests that note such items as the object(s) for disposal, location, timeframe, and standard of cleanliness. Under a general permit, vessels are to be disposed of in designated disposal areas that are at least 300 feet deep and beyond 12 nautical miles from shore. The EPA representative to the Regional Response Team (RRT) may be helpful in assisting the FOSC to process an ocean dumping request. For charting purposes. NOAA must also be informed and provided with information regarding any ocean dumping actions.

(2) For particularly urgent situations, the EPA issues emergency dumping permits under 40 CFR 222.3, The EPA Administrator may issue emergency permits for materials, which pose an unacceptable risk to human health, and there are no other feasible solutions. Any vessel dumped under this permit type should be cleaned as best possible, and if sunk within three nautical miles from shore, the appropriate state agency must be consulted.

(3) Reef program dumping is also an option for some smaller sized vessels. Under this program, a vessel can be sunk in relatively shallow waters in order to establish habitat for marine organisms and opportunities for recreational divers. As reef dumping occurs within state waters, reef program permits are issued by the appropriate state agency. Vessels sunk under the reef program have high standards for cleanliness and safety' due to their closer proximity to shore. See Marine Safety Manual Volume IX for additional information on ocean dumping.

d. Intervention.

(1) Intervention is broadly defined as "any detrimental action taken against the interest of a vessel or its cargo without the consent of the vessel's owner or operator". Intervention on foreign vessels is used when the owner or operator is uncooperative and taking no action, or taking insufficient or unsatisfactory actions. Interventions taken against vessels located beyond the territorial seas are authorized under the U.S. Intervention on the High Seas Act (IHSA).

IHSA authority allows for actions, including removal and destruction, to be taken in regards to foreign vessels on the high seas when pollution from the vessel threatens grave and imminent danger to U.S. coastline or interests. Coast Guard guidance on intervention is provided in Volume IX of the Marine Safety Manual,

(2) For foreign flagged vessels, a statement of no objection must be obtained from the flag state as part of the destruction process. Efforts to obtain such a statement, however, should not be allowed to hold up the removal or destruction process. Crew conditions (lack of food, freshwater, or sanitary conditions) should be resolved via local humanitarian organization. The Oil Spill Liability Trust Fund (OSLTF) and the CERCLA fund may not be used for such purposes.

e. U.S. Navy & MARAD Artificial Reef Program. An important but separate program involved with vessel disposal is the U.S. Navy and the Department of Transportation's Maritime Administration (MARAD) Artificial Reef Program. This program is designed to dispose of obsolete vessels within the U.S. Navy or MARAD fleet. The title of an obsolete vessel is passed from the federal government to a state, territorial, or local government that uses the vessel as an artificial reef. The artificial reef is used mainly for fish habitat or as sites for recreational divers; MARAD awards the obsolete vessel to a non-federal government via their permitting process. Vessels are awarded in an as-is. where-is basis. The government receiving the vessel is responsible for all cleaning, transportation, sinking, and other associated costs. Federal agencies involved in this process include MARAD. U.S. Navy. U.S. Coast Guard. EPA. U.S. Army Corps of Engineers, DOI, and NOAA. The receiving government, as part of their application, must also be issued a Clean Water Act Section 404 permit from the U.S. Army Corps for the intended reef project. U.S. Coast Guard involvement in the permit process normally consist of a review of the permit by the field or district office responsible for the area where the vessel is to be sunk. Questions on this process should be addressed to USCG Headquarters (G-MOR-3).

5. Request Process.

a. Overview.

(1) The Federal On-Scene Coordinator (FOSC) makes the initial determination of whether a vessel should be removed or destroyed, but only the Commandant (G-C) may authorize such action. Field preparation of a request will normally include involvement of the EPA Regional Response Team representative, application for an EPA Ocean Dumping Permit and consultation and review by the district legal office (dl). Consultation with the National Pollution Fluids Center (NPFC) is required and the NPFC must agree that the proposed action is consistent with policies regarding use of the Oil Spill Liability Trust Fund (OSLTF) and/or the CERCLA fund.

(2) Units requesting Commandant approval for a vessel removal or destruction request shall submit a memorandum or message request through their chain of command to the Commandant via the Coast Guard Headquarters Command Center (phone number 800 323-7233). The request shall receive District (m) and Area (m) endorsements prior to submission to Coast Guard Headquarters.

The Command Center will then coordinate the review process and disseminate the request concurrently to all Headquarters offices, NPFC, G-MOC, G-MOR, G-MWP, and G-LMI will provide review of the submission for consistency prior to G-M submission to G-C. The Command Center will provide the final status of the request back to the FOSC in the most expeditious manner.

(3) The request must articulate and document the factual basis behind the action requested. The option of cleaning a vessel to remove the pollution threat without removal or destruction must be considered and discussed within the request. Removal or destruction is only authorized when such action is undertaken to ensure effective and immediate removal of a discharge or threat of a discharge into the environment, or if the vessel presents a substantial threat to public health and welfare,

b. Submission Request Elements. Requests submitted for vessel removal and/or destruction shall follow the following format:

1. Purpose

2. Vessel Condition and Background

   a. Vessel Description, Condition, Physical Location

   b. Oil and Hazardous Materials onboard and spill/release or threat of

   c. Cleanup Actions to date

   d. Vessel History (if applies)

   e. Pictures. Maps and other Graphics

3. Threats to Public Health or Welfare or the Environment

4. Proposed and Alternative Actions

5. Expected Impact Should Action Be Delayed Or Not Taken

6. Additional issues (if any)

7. Enforcement Actions Taken

c. Description of Request Elements. The following provides a description of request elements to be used in a vessel removal and/or destruction request,

1. Purpose - The purpose statement should indicate the action being requested and a brief summary of situation.

2. Vessel Condition and Background

a. Vessel Description - Describe the vessel including name, official number, flag state, owner or operator, last port of call.

Vessel Condition - Describe the vessel's condition including hull, machinery. cargo, and presence or lack of appropriate documents or certificates.

Physical Location - Identify and describe the physical location of the vessel -City, dock pier, river/bay, nearby environmentally sensitive areas or populations that may be affected

b. Oil and Hazardous Materials onboard and spill/release or threat of - Identify the type, amount, and locations of oil and hazardous materials located onboard the vessel. Describe pathway(s) of past, present, or future spills or releases. Discuss environmental, weather, or human events that may cause, spread, or accelerate a spill or release.

Examples: - *Active hurricane season is likely to damage vessel and spread pollution.*
- *Vessel contains ammonia and is readily accessed by children,*

c. Cleanup Actions to date - State any cleanup actions taken to date and their effect at reducing or eliminating existing spills release or threats of.

d. Vessel History (if applies) - Describe any relevant vessel history, past spills or releases, use of vessel as a dumping site for oil/hazmat. Etc

d. Pictures. Maps, and other Graphics - Refer to attached pictures, diagrams, maps, and/or sketches if they substantiate the condition or description of the vessel.

3. Threats to Public Health or Welfare or the Environment - Describe how this situation meets the requirements of a threat to public health or welfare or a threat to the environment. This information is required for actions under C'ERCLA and can provide amplifying information to actions under FWPCA. See National Contingency Plan section 300.415(b){2) for additional guidance.

a. Threats to the Environment: Identify and describe either –

(1) Actual or potential exposure of nearby organisms to oil/hazmat.

(2) Actual or potential contamination of sensitive ecosystems.

(3) Bulk storage of oil/hazmat that poses a threat for spill/ release.

(4) Weather or environmental (tide/'currents, etc.) that may cause spill, release, or movement of hazmat and/or oil.

(5) Other situations or factors that may pose threats to the environment.

a. Vessel Description - Describe the vessel including name, official number, flag state, owner or operator, last port of call.

Vessel Condition - Describe the vessel's condition including hull, machinery. cargo, and presence or lack of appropriate documents or certificates.

Physical Location - Identify and describe the physical location of the vessel -City, dock pier, river/bay, nearby environmentally sensitive areas or populations that may be affected

b. Oil and Hazardous Materials onboard and spill / release or threat of- Identify the type, amount, and locations of oil and hazardous materials located onboard the vessel. Describe pathway(s) of past, present, or future spills or releases. Discuss environmental, weather, or human events that may cause, spread, or accelerate a spill or release,

Examples:-Active hurricane season is Likely to damage vessel and spread pollution. - Vessel

contains ammonia and is readily accessed h\ children,

c. Cleanup Actions to date - State any cleanup actions taken to date and their effect at reducing or eliminating existing spills release or threats of,

d. Vessel History (if applies) - Describe any relevant vessel history, past spills or releases, use of vessel as a dumping site for oil/hazmat. etc

e. Pictures. Maps, and other Graphics - Refer to attached pictures, diagrams, maps, and/or sketches if they substantiate the condition or description of the vessel,

3. Threats to Public Health or Welfare or the Environment - Describe how this situation meets the requirements of a threat to public health or welfare or a threat to the environment. This information is required for actions under C'ERCLA and can provide amplifying information to actions under FWPCA. See National Contingency Plan section 300.415(b){2) for additional guidance.

a. Threats to the Environment: Identify and describe either -

(1) Actual or potential exposure of nearby organisms to oil/hazmat.

(2) Actual or potential contamination of sensitive ecosystems,

(3) Bulk storage of oil/hazmat that poses a threat for spill/ release,

(4) Weather or environmental (tide/current etc.) that may cause spill, release, or movement of hazmat and/or oil.

(5) Other situations or factors that may pose threats to the environment.

Examples: - Vessel continues to leak oil that has contaminated nearby wildlife including seals, shorebirds, and intertidal invertebrates.

- Vessel petroleum products are impacting the sensitive Padre Island National Seashore including important sea turtle nesting areas.

b. Threats to Public Health or Welfare – Describe any threats to the public health or welfare.

(1) Actual or potential exposure to nearby populations or food chain.

(2) Actual or potential contamination of drinking water supplies.

(3) Bulk storage of hazardous materials or oil that may pose a threat to nearby populations.

Examples: - Vessel contains 2,000 pounds of ammonia and is located ¼ mile from residential population; plume modeling indicates a high probability of population impact.

- Vessel is leaking petroleum products into the Mississippi River which serves as a drinking water supply for the city of New Orleans.

4. Proposed and Alternative Actions – Explain the proposed action to be taken and the alternatives considered. Provide a discussion of the pros and cons of each possible action. Indicate how the proposed action will address the threat to the public health, welfare, or the environment. The FOSC should consider the threat of pollution posed by any residual oil or hazardous material that would remain on the vessel if cleanup operations were not to include removal/disposal, as well as the historical record of the vessel as a site for illegal dumping and the substantial likelihood that the vessel will be a site for future illegal dumping. For your proposed action, include a statement that the NPFC has been briefed and that the NPFC agrees that the proposed action is an appropriate use of the fund to be used.

Examples: - Vessel hull containing residual contaminates will be pulled from grounding site and sunk at pre-approved ocean dumping site, eliminating further petroleum, hazardous material, and physical damage by the vessel to this sensitive ecosystem.

- Vessel will be removed and destroyed to eliminate continued use of the vessel as an illegal dumping site for oil and other hazardous materials, thereby eliminating the environmental threat to Baltimore Harbor.

2. Expected Impact Should Action be Delayed or Not Taken – Describe any expected impacts if the action should be delayed or not taken, such as spread of contamination, increased threats, or the need for additional response actions or increased costs. Include a worst-case scenario, if appropriate.

Examples: - Vessel oil and hazardous materials are likely to be spilled/released into the environment unless immediate action is Taken TO mitigate the threat.

- Delayed action will subject nearby populations to the risk of exposure to an ammonia release.

6. Additional Issues (if any) - Describe any additional issue*, that are relevant to the situation. This may include the condition of crew, onboard safety of life issues, cargo considerations, flag state involvement, etc

7. Enforcement Actions Taken - List all relevant enforcement action taken to date and provide copies of all documents. Before the FOSC requests Commandant approval for removal or destruction of a vessel, the FOSC must first make a concerted effort to find the vessel's owner or operator and ensure the owner/operator takes all appropriate actions. For vessels with an identifiable owner who can be contacted, the owner shall be notified of any deficiencies via a Notice of Federal Interest, verbal or written COTP orders). or Administrative Orders). A Notice of Federal Assumption of Response Activities may also be issued for actions to mitigate any threat or potential threat against an owner who is unresponsive or taking insufficient actions. For a situation involving an identified but unresponsive owner, prior to requesting permission for destruction, die owner shall be provided with a USCG letter stating our intention to destroy/remove their vessel,

   For additional information or questions on this process, please contact your district legal office or G~MOR-3 LCDR Norton.

Example Destruction Request Memorandum

16200
4 Feb 2004

From: J.K. Smith
CG MSO Puget Sound
To: COMDT(G-C)
Thru: (1) CGDTHIRTEEN (d)
(2)PACAREA (m)
(3) COMDT (G-OPF)

Subj: REQUEST FOR DESTRUCTION OF THE M/V SHEERWATER (6520470) UNDER THE FWPCA

Ref: (a) COMDTTNST M 16465.43. Abandoned Vessels

1. In accordance with references (a). I respectfully request permission for the destruction of the M/V SHEERWATER (6520470) under the authority granted in Title 33. United States Code. I321(c)(l)(B)(iii). This action is necessary in the opinion of the Federal On Scene Coordinator (FOSC) as the vessel represents a substantial pollution threat to the navigable waters of the United States

2. The M/V SHEERWATER is a U.S. flagged. 1962 steel hull fishing vessel with a registered length of 148 feet and 256 gross tons. The vessel has inoperable propulsion and electrical units and has remained moored inactive at its present location at the Concecio Fish house for the last four years, There is no identifiable owner or operator. MSO personnel have been unable to locate any current information regarding the last known owner/operator. The vessel is m a significant state of disrepair with poor watertight integrity that allows the vessel to slowly take on water. The vessel has no valid documents/certificates. The vessel is physically located at Concecio Fish house clock in the Puyallup River in the port of Tacoma. Washington. Nearby environmentally sensitive areas include the Puyallup River. Point Defiance Shoreline. Quartermaster Harbor, and Puget Sound

3. The vessel contains an estimated 400 gallons of diesel and 50 gallons of lube oil located in the vessel's engine room. The vessel's refrigeration system holds an estimated fifteen gallons of oil based paint and five gallons of solvent are located in the vessel's forward locker. The vessel also contains an estimated 850 gallons of waste oil located in the bilge which has been dumped their since the vessel was last checked by MSO personnel three months ago. The presence of additional oil aboard the vessel indicates that the vessel is now being used for illegal dumping of waste oil. Due to the vessel's poor watertight integrity, light oil sheen is visible around the hull of the vessel. Without response action, the vessel is likely to sink in the near future and spill all oil contained onboard. With the approaching winter season and associated storms, the increased wave action will further compromise the vessel's watertight integrity. No cleanup actions have been conducted on the vessel to date. The vessel has no relevant spill history. Vessel photographs and the charted location are included, as attachments.

4. The M V SHEER WATER's poor watertight integrity, significant volume of waste oil onboard, and location nearby environmentally sensitive areas represents a substantial pollution threat to the environment and the waters of the United States. If spilled, the oil onboard the M/V SHEER WATER would impact the annual migration of Puyallup River Smelt, and impact threatened Snowy Plovers on Point Defiance, and endangered marine mammals in Puget Sound. In addition, the sensitive rocky intertidal ecosystems of Quartermaster Harbor would be damaged. Actual or threatened spills of oil or releases of hazardous materials from this vessel, if not addressed by implementing the response action selected in this request, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

5. The preferred response action for the M/V SHEER WATER is to remove the oil and hazardous materials onboard via cleanup contractor and have the vessel towed to an EPA approved disposal site 12 miles offshore in the Pacific Ocean. An EPA Ocean Dumping Permit has been requested and approval is expected shortly. The NPFC Case Officer has been briefed and agrees that disposal of this vessel is consistent with use of the OSLTF. While disposal of the vessel offshore is more expensive, it will assure that the vessel does not continue to be used as an illegal dumping site. An alternative action is to remove the available oil and hazardous material onboard and leave the vessel in its present location. This action would be considerably less costly but would not remove the threat posed by illegal dumping and would allow residual oil to damage the sensitive ecosystem around the vessel.

6. Should the proposed response action not be taken or be delayed, the vessel's condition will continue to decline and will result in an eventual oil spill of approximately 1300 gallons. Tidal action during such a spill will likely spread the oil to the environmentally sensitive area and species previously noted, Cleaning such an oil spill will be considerably more costly and time consuming than responding to oil contained completely within the vessel.

7. There are no additional issues or enforcement actions taken regarding this vessel.

8. Thank you for your consideration of this very pressing matter. If you need any further information, please contact my Port Operations Department Chief. LCDR John Lockly, at (80S) 422-1622 or (902) 867-5309 after hours.

#

Appendix F

Guidelines on the Control of Ships in an Emergency

IMO MSC 1 / Circ 1251

INTERNATIONAL MARITIME ORGANIZATION
4 ALBERT EMBANKMENT
LONDON SE1 7SR

Telephone: 020 7735 7611
Fax: 020 7587 3210

IMO

E

Ref: T2-OSS/2.7

MSC.1/Circ.1251
19 October 2007

GUIDELINES ON THE CONTROL OF SHIPS IN AN EMERGENCY

1 The Maritime Safety Committee (the Committee), at its eighty-third session (3 to 12 October 2007), approved the Guidelines on the control of ships in an emergency for Member Governments, shipmasters, companies, salvors and others engaged in a maritime emergency, with a view to providing them with a framework of authority within which they would be expected to operate.

2 Member Governments are invited to bring the Guidelines to the attention of shipmasters, companies, salvors and other interested parties in the shipping industry as they deem appropriate.

3 The Committee also decided to review the annexed Guidelines in the future, with a view to improving them on the basis of new technical developments and in the light of experience gained from their application.

***

ANNEX

GUIDELINES ON THE CONTROL OF SHIPS IN AN EMERGENCY

Table of Contents

1 INTRODUCTION

1.1 It is recognized that, in an emergency, the lines of command and control must be clear and the responsibilities of each of the parties involved must be unambiguous.

1.2 There are two major issues:

.1 having a clear chain of command in an emergency is essential if efforts to save life and property and prevent pollution are to be maximized; and

.2 there has been a growing tendency for those involved in an incident to be treated as if they have committed a crime; these Guidelines will help to clarify the issues related to the fair treatment of seafarers.

1.3 Where safety of life is involved, the provisions of the SAR Convention should be followed. Where a ship is in need of assistance but safety of life is not involved, these Guidelines should be followed. However, the MRCC should always be kept informed about actions to enable the MRCC to determine if there is a need for them to declare an emergency phase.

1.4 In the event that the ship in need of assistance requires a place of refuge, these Guidelines should be followed in conjunction with the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23)).

2 PURPOSE OF THESE GUIDELINES

2.1 The purpose of these Guidelines is to provide Member Governments, shipmasters, companies, salvors and others engaged in a maritime emergency with a framework of authority within which they will be expected to operate.

3 DEFINITIONS

Ship in need of assistance means a ship in a situation, apart from one requiring an operation co-ordinated by a MRCC in accordance with one of the three emergency phases; uncertainty, alert and distress phase, that could give rise to loss of the vessel or an environmental or navigational hazard.

Company means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all duties and responsibilities imposed by the International Safety Management Code.

IAMSAR MANUAL means the International Aeronautical and Maritime Search and Rescue Manual.

UNCLOS means the United Nations Convention on the Law of the Sea, 1982.

Intervention Convention means the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil (1973).

ISM Code means the International Safety Management Code, made mandatory under SOLAS regulation XI/3.1.

Place of Refuge means a place where a ship in need of assistance can take action to enable it to stabilize its condition and reduce the hazards to navigation, and to protect human life and the environment, as defined in resolution A.949(23).

MRCC means Maritime Rescue Co-ordination Centre.

MAS means the Maritime Assistance Service as defined in resolution A.950(23).

SAR Convention means the International Convention on Maritime Search and Rescue, 1979.

4 GENERAL GUIDANCE

4.1 During the search and rescue (SAR) phase of a maritime emergency, there is an assumption within the SAR Convention that co-ordination of the SAR response will be carried out either by the MRCC or by an on-scene co-ordinator who will not normally be the Master of the ship in distress. However, the underlying premise is that the Master remains in command of the ship and co-operation with the SAR operation is assumed.

4.2 If, once the SAR phase of an emergency is over, or a ship does not require any action from SAR services but is still in need of assistance, the role and responsibilities of the various parties are less clear. Any actions at sea on salvage should be conducted in close co-operation with the responsible MRCC or other relevant authority as notified by the MRCC to enable them to assess the situation and if needed declare an appropriate emergency phase.

4.3 The ISM Code, section 5, Master's Responsibility and Authority, states that:

> "The Company should establish in the safety management system that the Master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary."

4.4 This indicates that the Master has the authority and responsibility to take decisions in an emergency and to speak with the Company as necessary. However, it does not deal with the responsibilities and duties of a coastal State which may have legislation governing the conduct of a maritime emergency in waters under its jurisdiction or which wishes to exercise its powers to intervene to avoid pollution arising from maritime casualties, in particular beyond the territorial sea.

4.5 At no time should the Master be prohibited from taking action which, in the Master's judgment, is required to protect the lives of crew and passengers or others on board.

5 GUIDELINES FOR COASTAL STATES

5.1 Resolution A.950(23) outlines the situations in which the services of the MAS are involved; they are:

.1 the ship is involved in an incident (e.g., loss of cargo, accidental discharge of oil, etc.) that does not impair its seakeeping ability but nevertheless has to be reported;

.2 the ship, according to its Master's assessment, is in need of assistance but not in a distress situation (about to sink, fire developing, etc.) that requires the rescue of those on board; and

.3 the ship is found to be in a distress situation and those on board have already been rescued, with the possible exception of those who had remained aboard or have been placed on board to attempt to deal with the ship's situation.

These are the situations which these Guidelines seek to address.

5.2 The MAS serves mainly as the point of contact during the resolution of the situation, however, the resolution recommends that national instructions should at least indicate to the organization discharging MAS functions:

.1 the authority or organization to which it transmits the information obtained from a ship; and

.2 the authority or organization from which it receives instructions concerning its action and the particulars to be transmitted to the ship.

5.3 When more than one coastal State is involved, the States concerned should agree between themselves which will co-ordinate the operation and be responsible for transmitting orders and information.

5.4 Some States have legislation which allows them to intervene more actively in the situations outlined in 5.1 when a ship is in waters under their jurisdiction. A State intending to use its powers under such legislation should ensure that:

.1 the chain of command within its shore organization is clear and each level of the chain has procedures setting out what actions it should take and the limits of its powers;

.2 the Master of the ship, the Company and any salvage team are told clearly what the shore command structure is;

.3 the flag State is informed as early as possible in the proceedings and its advice sought;

.4 the Master of the ship, the Company and any salvage team involved are told clearly what degree of responsibility remains with them and what limitations are being placed on their freedom of action;

.5 when an order is issued, it is clear to the recipient who issued the order, to whom it is addressed and under what authority;

.6 it is preferable for all orders from ashore to pass through a single focal point to ensure a consistent approach. All messages from the ship should pass through the same focal point;

.7 the freedom to take necessary action to resolve a situation is not removed from the people on the ship unless deemed to be necessary to resolve the situation; and

.8 unless time pressures make such communication impossible, the Master is allowed to speak with the Company in accordance with the ISM Code provisions.

5.5 Article 221 of UNCLOS recognizes the right of coastal States "pursuant" to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty, which may be reasonably expected to result in major harmful consequences". The right of States to intervene in the high seas to prevent or reduce pollution damage as a consequence is also regulated by the Intervention Convention. States may take measures beyond their territorial sea in accordance with customary international law of the sea.

5.6 States taking measures in accordance with paragraph 5.5 should indicate that they are doing so in accordance with UNCLOS, and/or the Intervention Convention [or international customary law as applicable through their national legislation. In doing so, States should follow the guidance in paragraph 5.4.

6 GUIDELINES FOR MASTERS

6.1 At the earliest possible stage in an emergency, the Master should inform the appropriate coastal State authorities[1], including that of the nearest coastal State, the flag State and the Company, of the nature of the emergency and what assistance is required.

6.2 Unless specifically instructed otherwise the Master has the authority and responsibilities specified in the ISM Code as in paragraph 4.3 above.

6.3 If the Company engages a salvor to attempt to save the ship, a contract will be signed which sets out the respective responsibilities of the parties involved. When a salvage Master has been appointed to supervise the salvaging of a ship, the Master should co-operate with the salvage Master to the maximum extent.

6.4 When a ship requiring assistance is in waters which are under the jurisdiction of a coastal State and that State has laws allowing it to intervene in an emergency and wishes to do so, then the Master should:

.1 ask for clarification as to who is exercising the coastal States powers;

.2 if necessary and time permits, speak with Company as in paragraph 4.3;

[1] Refer to MSC/Circ.892 on Alerting of Search and Rescue Authorities.

.3 seek clarification of the extent to which the Master can still exercise authority in relation to the operation and salvage of the ship;

.4 ask the coastal State for an expert assessment of the condition of the ship if in doubt about the actions being taken; and

.5 if still in doubt or in disagreement with the actions or instructions given by the coastal State, clearly state so.

6.5 If a State is intervening in accordance with paragraphs 5.5 and 5.6 when a ship is on the high seas, the guidance under paragraph 6.4 should be followed.

6.6 It is most important that a ship should keep the most accurate records of events possible. Where a VDR is fitted, the limitations of the period of time covered by its recording should be borne in mind. A separate chronological order of events should also be kept.

7 GUIDELINES FOR SALVORS

7.1 The first requirement of any salvor is to be provided with the most reliable information about the vessel, the nature of the casualty, the situation of the persons, cargo and bunkers on board.

7.2 In particular this information will include:

.1 vessel plans;

.2 cargo manifest, including hazardous cargo list;

.3 stowage plan and nature/position of dangerous goods on board;

.4 position and quantity of remaining bunkers on board;

.5 general casualty information relating to position, damage and condition of the vessel; and

.6 any emergency towing procedures adopted by the Organization.

7.3 The salvor's obligations are to use their best endeavours to salve the vessel and its cargo, and whilst engaged in such operations, to avoid or minimize damage to the environment.

7.4 The salvor should communicate and co-ordinate with the Master and the coastal State to the maximum extent possible.

7.5 The salvor should advise the Company/Master and the coastal State authorities as soon as possible of their salvage plan, and the personnel and equipment that will be utilized to carry out the salvage operations.

7.6 The salvor should nominate a focal point to provide 24-hour contact with the Master Company and coastal State authorities.

7.7 The coastal State exercising authority should allow the salvor access to the vessel.

7.8 The salvor should ensure that the salvage plan and actions represent the best environmental option for the Company and the coastal State(s) concerned.

7.9 In the event that the casualty needs to be taken to a place of refuge in order to carry out necessary salvage operations, such as diving, patching, transfer of cargo, etc. the salvor should comply with section 2 of the IMO Guidelines on places of refuge for ships in need of assistance, as should the Master/Company and seek similar compliance by the coastal State(s) as under section 3 of the same Guidelines.

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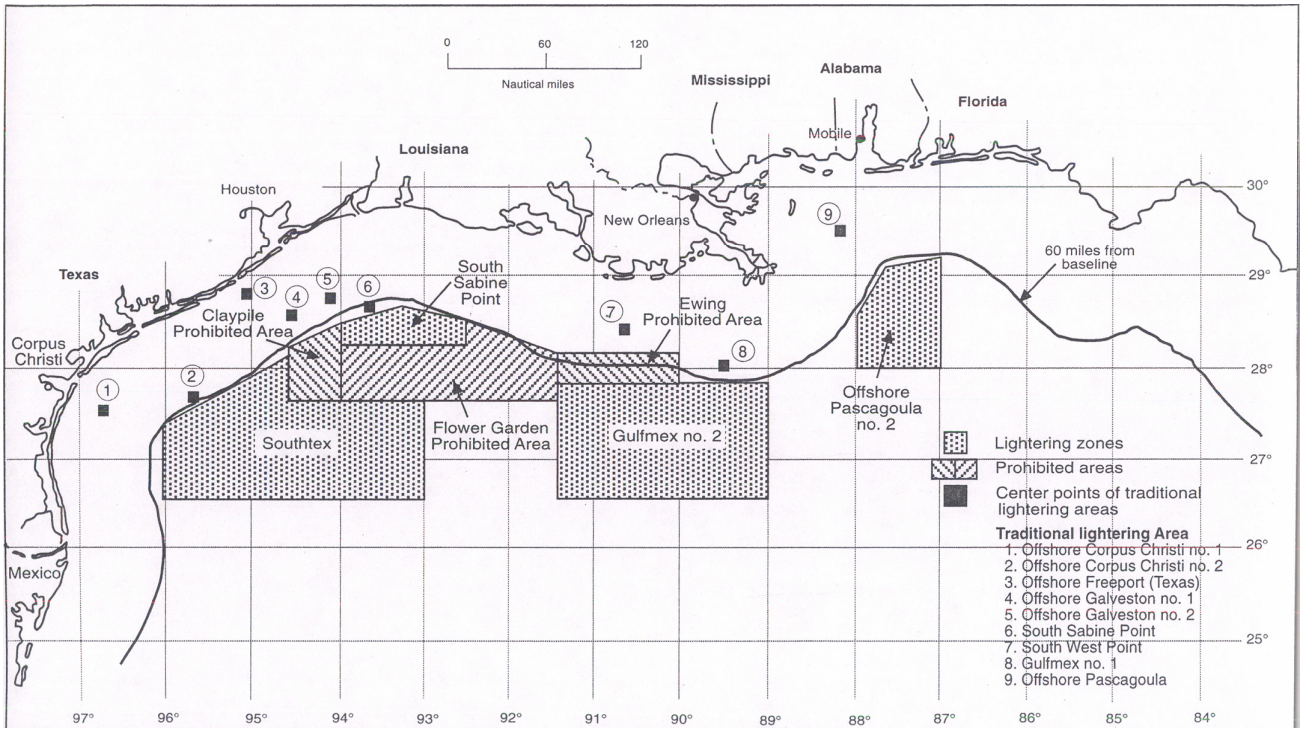
Appendix G

Lightering Zone Graph

The following graph depicts the lightering zones in the Gulf of Mexico, along with other key information. It should be reviewed in conjunction with Appendix H.



Appendix H

Harbor of Safe Refuge Oil Spill Analysis

for the Northwestern Gulf of Mexico

Appendix H: Harbor of Safe Refuge Oil Spill Analysis for the Northwestern Gulf of Mexico

This analysis was provided by the Texas General Land Office in Austin Texas on February 22, 2006. It was performed at the request of the Houston-Galveston Area Committee to assist with determining offshore locations that minimize the threat to the Texas coast posed by oil spills from vessels. This analysis is based upon extensive computer modeling work performed by the Minerals Management Service to determine the level of risk oil production and transport operations pose to the Gulf of Mexico shoreline. Special thanks to Dr. Buzz Martin of the Texas GLO for his effort in completing this analysis.

Background

The Minerals Management Service (MMS) requires that Oil Spill Response Plans (OSRP's) include the identification of land segments that could potentially be impacted by an oil spill from the Lessees, Operators, or Pipeline Right-of-Way Holder's Lease Area. To facilitate this identification, MMS provides the trajectory results from their Oil Spill Risk Analysis Model (OSRAM) for every Lease Area in the Gulf of Mexico. The results are provided as tables of probabilities that an oil spill originating within a particular launch area (Lease Area) will contact a county or parish shoreline within 3, 10, and 30 days.

The probabilities are based upon thousands of simulations of oil spills from each Lease Area for each month over a nine-year period. Currents and winds used in the simulations are representative of each month of the year. A more detailed description of the MMS Modeling effort and results can be found in the document "Oil-Spill Risk Analysis: Contingency Planning Statistics for Gulf of Mexico OCS Activities" OCS Report MMS 2004-026. This document is available for download from the MMS website at http://www.mms.gov/itd/pubs/2004/2004-026.pdf .

By looking at the probability tables from OSRAM, an offshore operator can answer two questions: (1) what is the probability that a major oil spill from a given Lease Area location will reach land and (2) what shoreline county or parish is at greatest risk for an oil spill from a given Lease Area location?

Approach

The Harbors of Safe Refuge concept asks a similar question, but from a different perspective. Simply put, "Where can I take my vessel offshore to minimize the risk of shoreline impact?" Fortunately, the answer can be found in the same probability tables developed by MMS for offshore operators. In terms of the MMS probability tables, the question for the operator of an oil-spilling vessel becomes, "which Lease Areas closest to my present location pose the least risk for shoreline impact over 3, 10 and 30 days' time?"

To answer this question, we take the maximum probability for landfall for each Lease Area from the MMS tables (Tables 1 and 2 in OCS Report MMS 2004-026) in our area of interest … regardless of county or parish. (Remember, we are interested in the probability of shoreline impact in general, not by specific county or parish.) From this subset of data representing only the maximum probabilities, we can create a new table (Table 1) and easily determine which Lease Areas (oil spill launch areas) pose the least threat to the shoreline for oil impact.

Table 1: Maximum probability (%) of shoreline impact from each Lease Area and for each time frame (3, 10 and 30 days) from the MMS OSRAM tables. Green shading in the table corresponds to green shading on the maps in Figures 1, 2 and 3.

Planning Area	Lease Area No.	3 days	10 days	30 days
Western GOM	1	10	20	23
	2	15	32	33
	3	13	21	22
	4	26	30	30
	5	4	15	17
	6	0.5	11	14
	7	0.5	12	18
	8	0.5	7	13
	9	0.5	8	17
	10	0.5	3	11
	11	0.5	1	10
	12	29	40	42
	13	11	26	28
	14	17	34	35
	15	1	20	25
	16	1	16	20
	17	0.5	7	15
	18	0.5	4	13
	19	0.5	1	8
	20	0.5	1	9
	21	0.5	1	9
	22	0.5	0.5	7
	23	0.5	0.5	6
	24	0.5	0.5	8
	25	0.5	0.5	6
	26	0.5	0.5	4
	27	0.5	0.5	7
	28	0.5	0.5	5
	29	0.5	0.5	2
Central GOM	30	27	41	43
	31	16	24	27
	32	1	13	18
	33	1	13	21
	34	0.5	4	12
	35	0.5	4	13

Note: a value of 0.5 represents a probability of 0.5% or less.

To determine the maximum 3, 10 and 30-day probabilities for an individual Lease Area, locate the Lease Area in Table 1 and read across the row to the appropriate column.

The following series of maps (Figures 1, 2 and 3) were originally created as part of the OSRAM project, but have been modified here to better represent the Harbors of Safe Refuge issue. They indicate the Launch Areas in the area of interest with the lowest probabilities of reaching a shoreline county or parish within 3, 10 and 30 days.

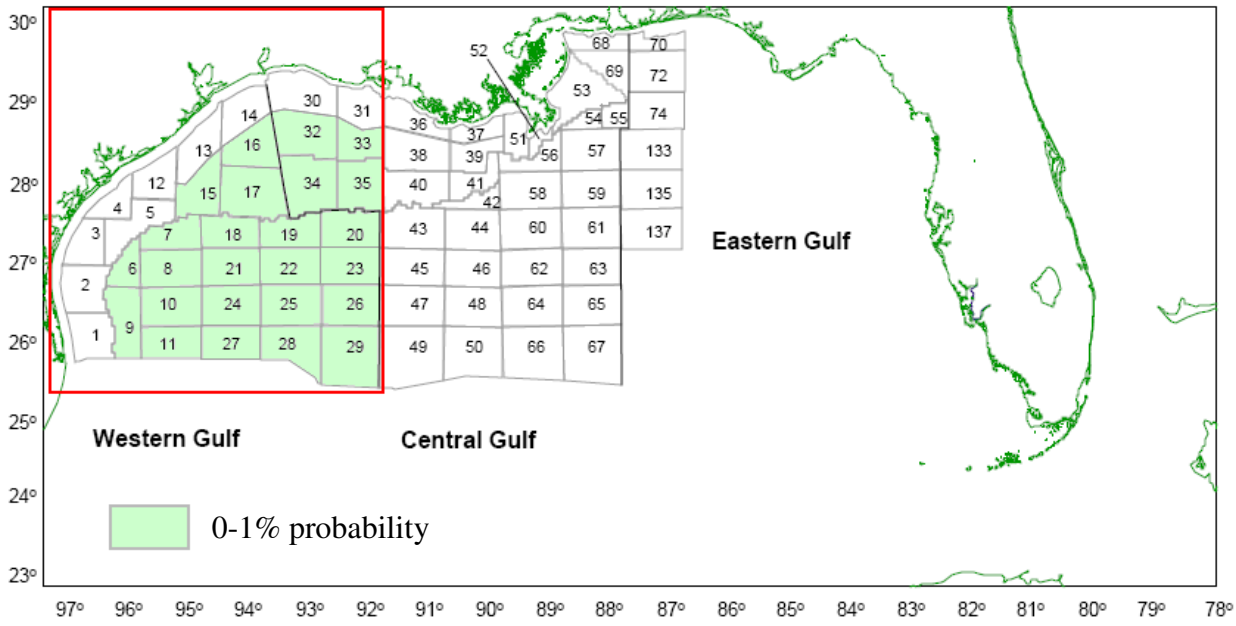


Figure 1: This map depicts all Lease Areas (green shading) in the area of interest (red box) with an oil spill landfall probability value of less than 1% within 3 days of the spill event.

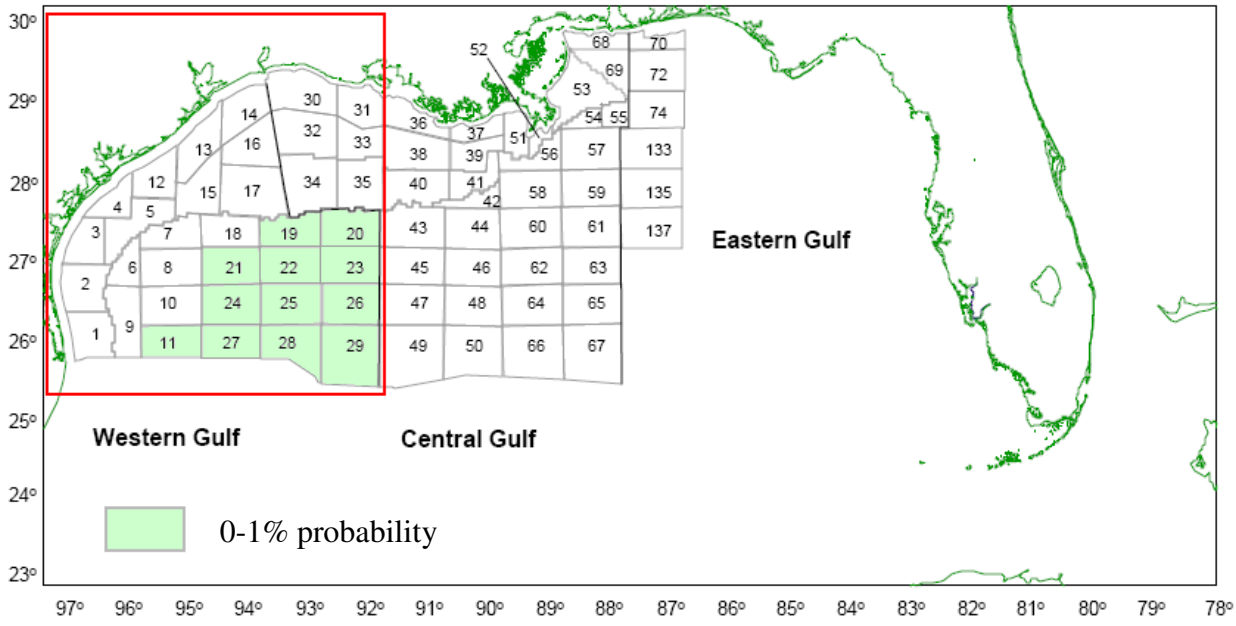


Figure 2: This map depicts all Lease Areas (green shading) in the area of interest (red box) with an oil spill landfall probability value of less than 1% within 10 days of the spill event.

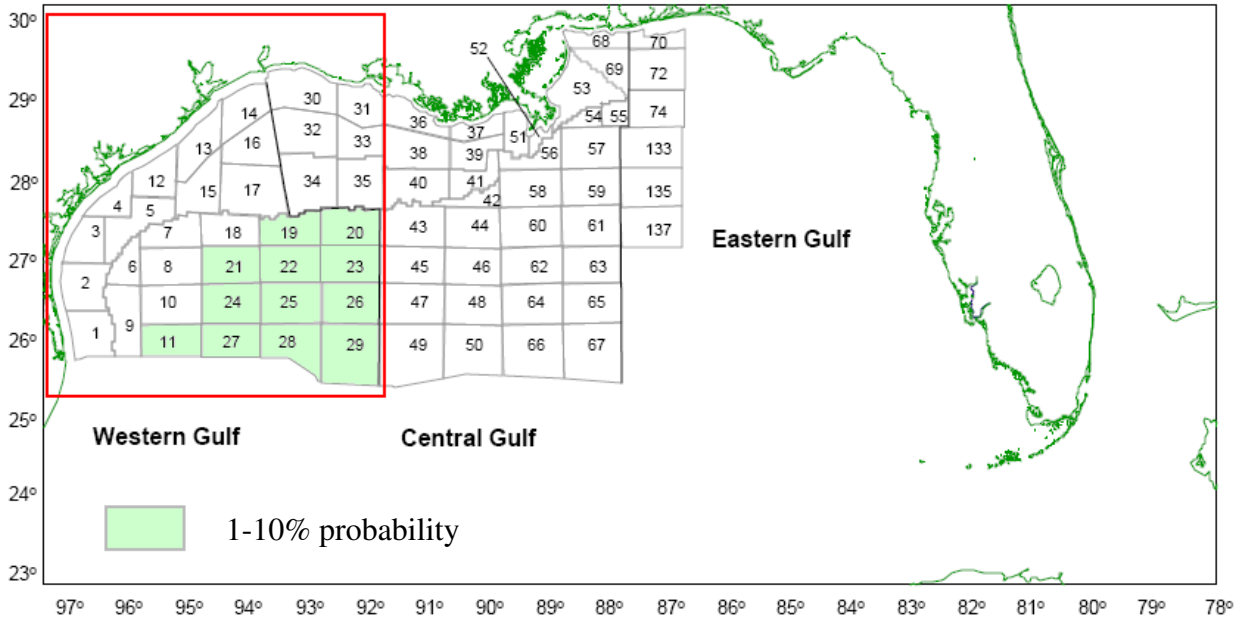


Figure 3: This map depicts all Lease Areas (green shading) in the area of interest (red box) with an oil spill landfall probability value of less than 10% within 30 days of the spill event. **Important Note:** the probability represented on this map is in the 1 to 10% range rather than the 0 to 1% range as in the previous two maps.

Discussion

The maps found in Figures 1 and 2 (the 3 and 10-day time frame, respectively) indicate those Lease Areas (shaded green) with oil spill landfall probabilities of 1% or less. The map in Figure 3 (the 30-day time frame) indicates those Lease Areas (shaded green) with an oil spill probability between 1 and 10%. The probability range for the 30-day time frame is set for a higher range than in the previous two maps because all Lease Areas had a probability of greater than 1% after 30 days.

Not surprisingly, the maps show that the farther the spill source is from land, the less likely it is that the spill will reach land. The probability increases with longer time frames because the oil has more time to travel to the shore.

Conclusion

A reasonable conclusion to be drawn from these maps and table is that a vessel operator can reduce the threat their vessel poses to the shoreline by moving their vessel farther offshore to the green-shaded areas on the maps. Specific probabilities for landfall can be read directly from Table 1.

Buzz Martin, Ph.D., State Scientific Support Coordinator, Texas General Land Office, Oil Spill Prevention & Response, P.O. Box 12873, Austin, TX 78711-2873

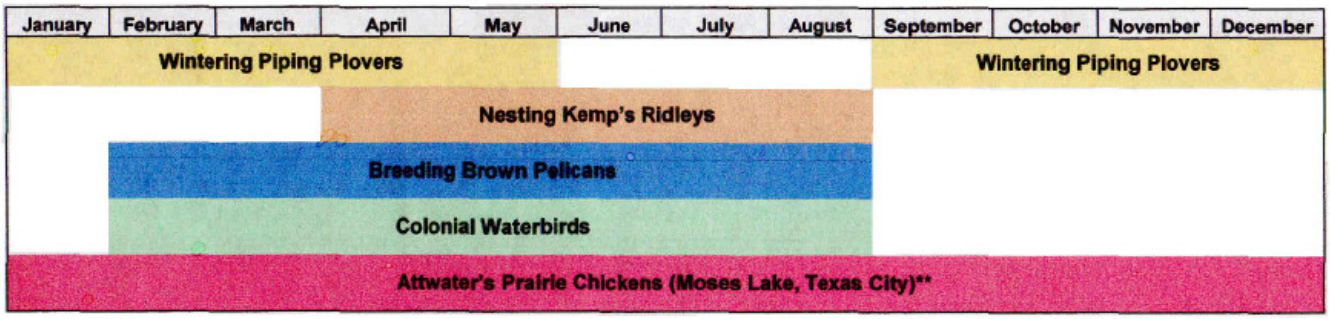
Appendix I

Critical Species and Habitats

Appendix I: Critical Species and Habitats

The following wildlife and environmental information is courtesy of Texas Parks and Wildlife. Our thanks to Andy Tirpak from Texas Parks and Wildlife for providing this information for the report.

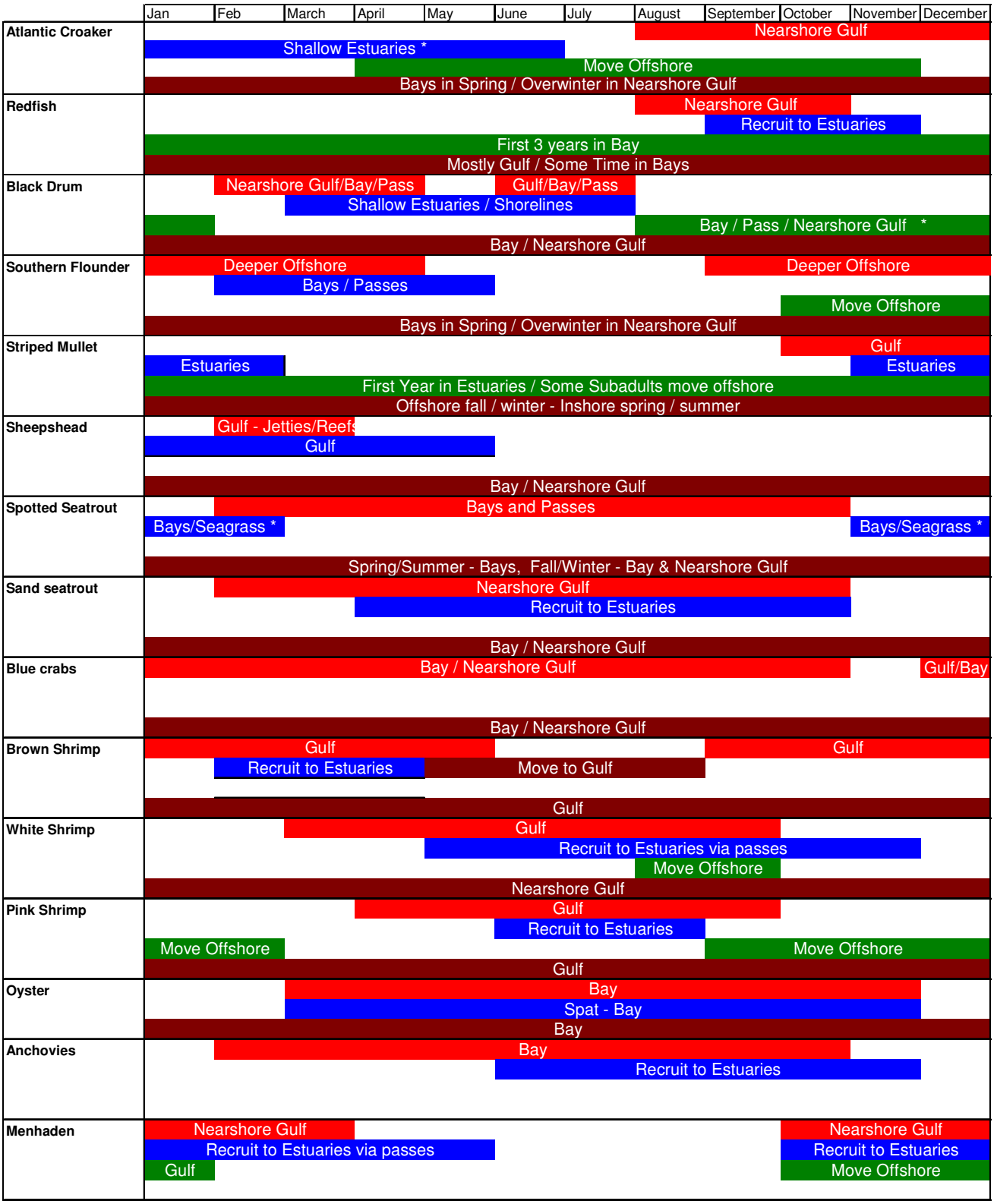
Threatened and Endangered Species Concerns by Season
Houston/Galveston/Freeport Area



** Of Concern for the Houston and Texas City Ports only.

The remaining species would be of concern for Freeport, Houston, Texas City, and Galveston ports. Specific concerns would depend on weather, size of the leak, and potential to oil the shoreline and nearshore waters.

Additional information for key species is available in the attached spreadsheet, such as the information you will find on the next page:



Species by month and location and life stage

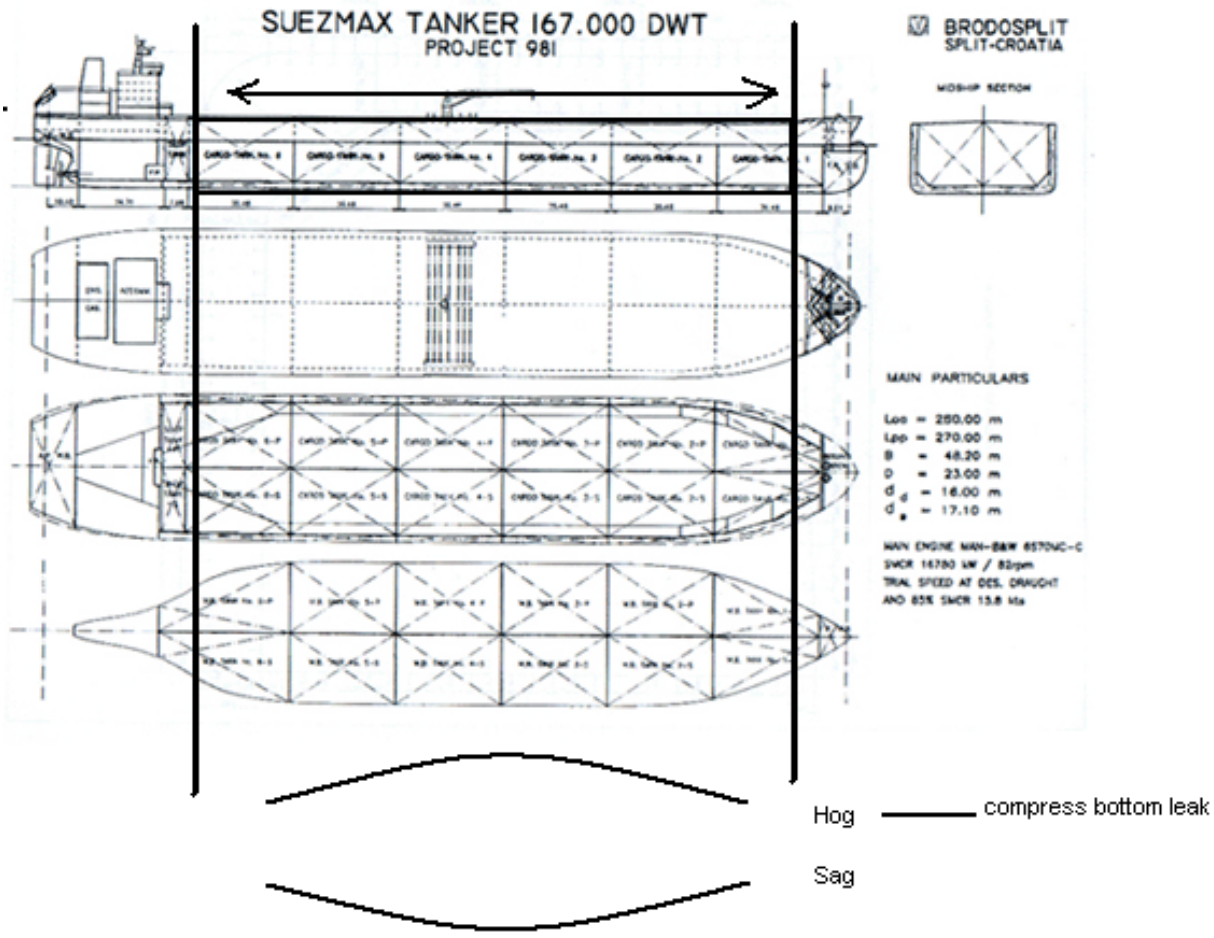
Appendix J

Vessel Diagrams

Appendix J: Vessel Diagrams

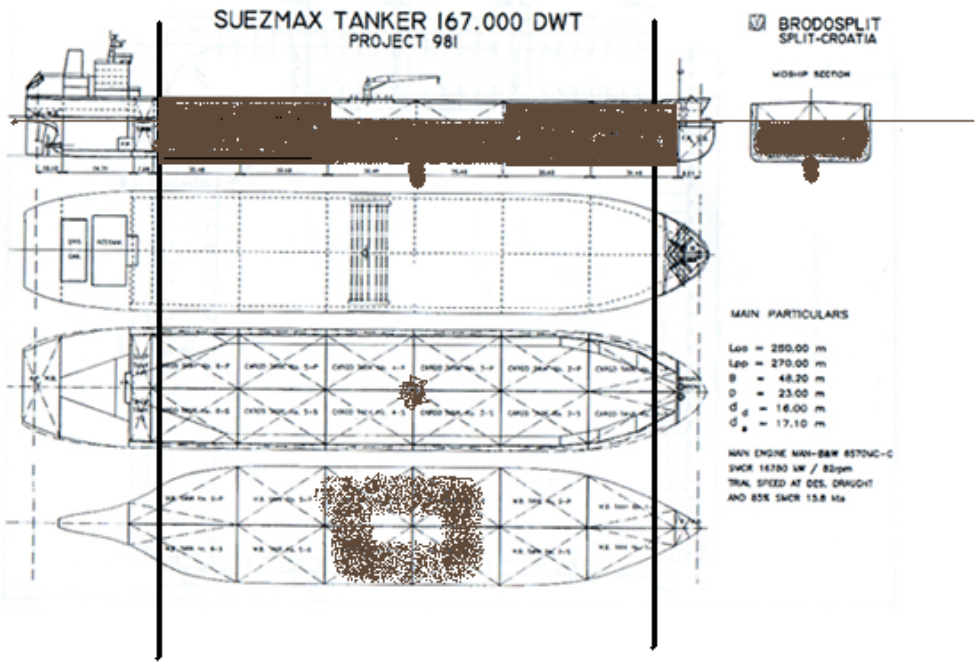
Vessel stress diagrams

Hog and Sag Effect on Vessel's 2/3 Mid-vessel Length

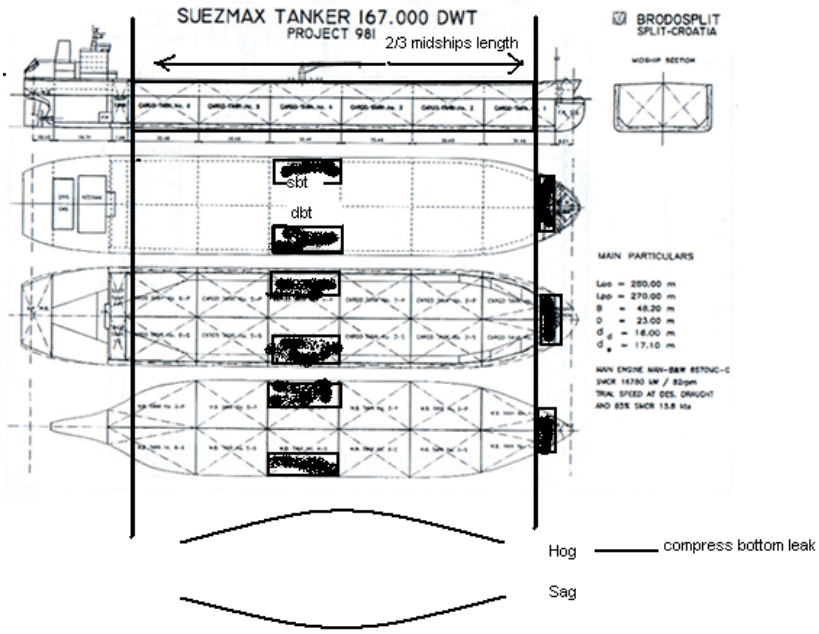


Top 4 Potential Types of Leaks:

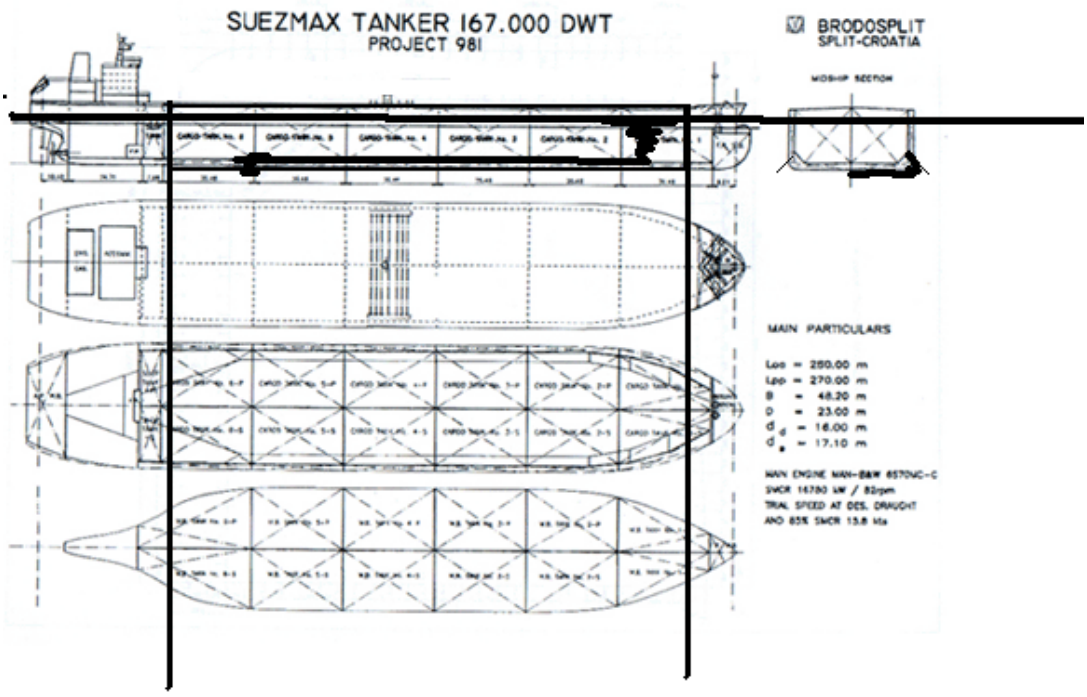
Minor Leak at the Junction of 4 Tanks With Subsequent Hydrostatic Balancing (example of worst pollution potential for a minor leak – single-hull tanker leaking at the junction of 4 tanks) - (max potential capacity of 4 largest adjacent tanks)



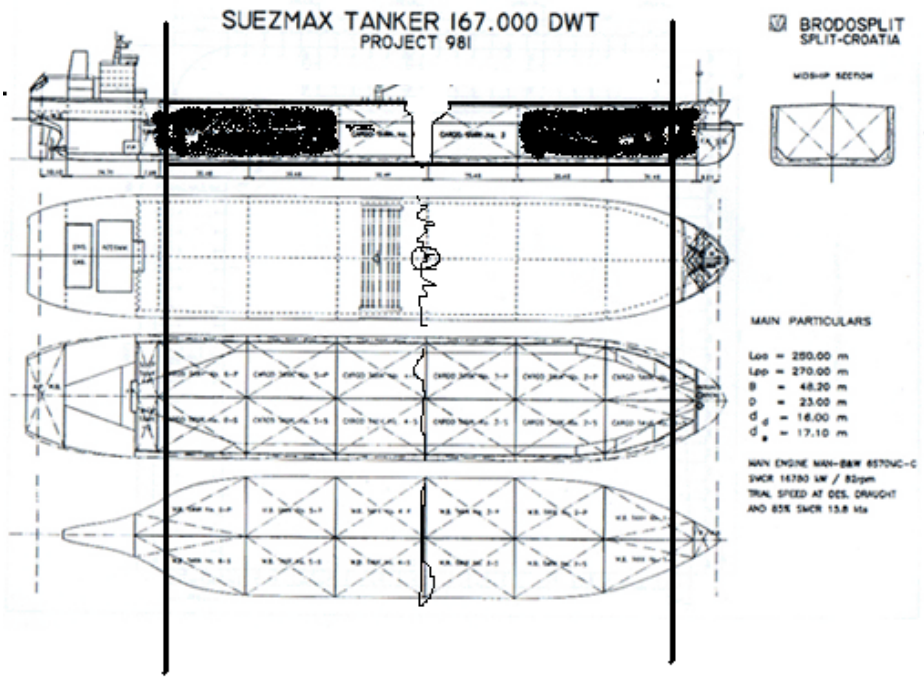
Internal Transfer of cargo from damaged cargo tanks to dedicated/segregated ballast tanks



Vessel with bottom leakage, showing that leak may surface at a point not in line with the actual leakage location due to trim and solid bilge keels



Major Structural Stress Failure with total loss of adjacent tanks, and potential loss of additional cargo and/or fuels onboard



Appendix K

Meteorological Data for the purpose of plume diagrams and Hazmat modeling to protect population centers

Appendix K: Meteorological Data for the purpose of plume diagrams and Hazmat modeling to protect population centers

1997 Coast Pilot #5

T-9

GALVESTON, TEXAS (29°16'N., 94°48'W.) Elevation 7 ft. (2.1m)

WEATHER ELEMENTS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR	YEARS OF RECORD
TEMPERATURE (DEGREES F)														
Mean	53.9	56.2	61.0	68.2	75.9	81.3	83.2	83.3	80.0	73.1	63.6	57.1	69.8	30
Mean Daily Maximum	59.4	61.5	66.0	73.3	80.0	85.2	87.4	87.5	84.5	78.0	68.8	62.7	74.5	30
Mean Daily Minimum	48.3	50.9	55.9	63.0	71.8	77.4	79.0	79.0	75.3	68.1	58.2	51.5	65.0	30
Extreme Highest	77	83	85	92	93	98	101	100	96	94	86	80	101	30
Extreme Lowest	11	9	27	38	52	57	66	67	52	41	26	18	9	30
RELATIVE HUMIDITY														
Average Percentage (0600 L.s.t.)	85	84	85	86	84	81	81	81	81	82	84	86	83	89
Average Percentage (1200 L.s.t.)	77	74	74	70	70	70	70	69	69	66	72	77	72	58
PRECIPITATION														
Mean Amount (Inches)	3.02	3.67	3.80	3.63	3.18	4.05	4.41	4.40	5.80	2.83	3.15	3.67	42.20	30
Greatest Amount (Inches)	10.39	8.29	9.48	11.04	10.79	15.49	18.74	19.06	26.01	17.76	16.18	10.28	78.39	105
Least Amount (Inches)	0.02	0.06	0.06	0.01	T	T	T	0.00	0.04	T	0.03	0.23	21.40	105
Maximum in 24 hrs. (Inches)	5.38	6.56	6.10	6.23	7.71	12.56	14.35	9.05	11.65	14.10	9.01	5.40	14.35	105
Mean Amount of Snow (Inches)	0.1	0.2	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.3	105
Maximum Snowfall in 24 hrs. (Inches)	2.5	15.4	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	15.4	105
Mean Number of Days with Snow (One Inch or More)	***	***	0	0	0	0	0	0	0	0	0	0	***	104
0.01 Inch or More, Mean Number of Days	10	9	9	6	6	6	8	8	9	6	6	10	96	104
WIND														
Mean Wind Speed (Knots)	11.5	12.0	11.5	11.5	11.2	10.9	10.1	9.5	9.4	10.0	11.4	11.0	10.9	10
Direction (Percentage of Obs.)														
North	9.0	9.2	8.3	5.7	4.8	1.4	1.8	2.1	6.4	8.0	11.2	11.4	6.7	10
North Northeast	7.5	7.8	6.8	4.4	3.4	1.9	1.2	2.4	6.7	8.5	9.8	7.9	5.8	10
Northeast	5.8	7.3	5.7	4.1	3.8	2.8	1.5	4.0	10.5	10.1	8.3	6.6	5.8	10
East Northeast	5.7	4.7	4.7	2.8	2.0	2.1	1.0	2.5	7.3	5.5	5.7	4.6	4.0	10
East	7.0	6.2	6.5	5.0	3.7	3.3	1.4	4.7	8.2	5.4	6.3	7.6	5.9	10
East Southeast	9.7	9.1	10.5	14.4	7.9	5.3	3.8	6.8	10.4	9.6	8.5	7.9	8.9	10
Southeast	11.4	10.5	13.6	19.1	16.5	12.8	8.1	11.1	12.3	13.5	9.9	10.3	12.3	10
South Southeast	11.7	9.5	13.5	18.7	21.2	20.7	15.0	11.2	10.8	10.5	8.3	9.1	13.2	10
South	7.4	8.4	11.7	11.1	18.6	27.6	28.3	21.4	11.0	9.8	7.7	8.5	14.0	10
South Southwest	3.7	4.4	4.7	4.1	5.9	10.4	16.7	14.4	3.4	3.1	2.8	3.4	6.4	10
Southwest	2.8	3.6	3.4	2.2	3.0	4.5	10.1	7.2	2.1	3.0	2.8	3.0	4.1	10
West Southwest	1.8	1.7	1.6	1.0	1.5	1.4	4.0	3.0	1.1	1.2	1.5	2.3	1.8	10
West	1.9	2.4	1.3	1.1	1.6	1.1	2.8	2.2	1.1	1.3	1.9	2.8	1.8	10
West Northwest	3.3	3.1	2.1	1.4	1.3	1.1	2.1	2.3	1.7	1.6	1.6	3.6	2.1	10
Northwest	4.7	5.2	2.8	3.5	2.2	1.8	3.2	2.3	1.4	2.3	4.3	5.3	3.1	10
North Northwest	6.3	4.3	3.4	2.9	1.7	0.8	1.0	1.8	1.8	3.3	4.8	4.9	3.0	10
Calm	0.9	0.7	1.0	0.9	1.0	0.9	0.7	0.9	1.2	1.3	1.7	1.6	1.1	10
Direction (Mean Speed, Knots)														
North	13.3	15.2	14.8	13.6	12.1	10.4	7.9	8.2	10.4	11.5	14.2	13.5	13.0	10
North Northeast	13.1	14.7	14.0	13.1	12.6	10.0	8.6	8.5	10.5	12.6	13.9	12.4	12.7	10
Northeast	13.2	12.8	11.7	11.3	10.9	9.6	8.1	8.2	10.4	10.8	12.7	11.3	11.2	10
East Northeast	12.5	12.9	11.7	11.1	11.3	11.4	9.7	8.8	13.5	10.2	11.9	10.8	11.2	10
East	11.6	12.0	10.7	11.5	11.6	9.8	8.0	9.4	13.4	9.5	10.4	10.8	10.7	10
East Southeast	10.7	11.2	10.5	11.8	12.2	10.9	8.8	9.8	9.8	10.2	9.9	10.3	10.8	10
Southeast	9.1	10.6	9.9	12.4	11.7	11.4	8.2	9.1	8.5	9.7	8.9	9.5	10.2	10
South Southeast	9.9	10.8	10.4	10.9	11.6	11.4	10.2	9.3	9.1	9.1	10.2	9.8	10.4	10
South	9.9	10.4	10.2	11.0	11.1	11.6	10.7	9.9	9.0	9.4	11.2	9.8	10.5	10
South Southeast	10.5	12.0	10.7	12.1	11.0	11.6	11.6	11.4	9.0	8.6	10.9	10.8	11.2	10
Southeast	11.5	12.1	10.2	9.7	9.9	8.9	10.7	10.2	7.8	8.5	10.4	11.4	10.2	10
West Southeast	8.8	10.2	9.7	8.9	8.8	7.6	8.2	7.7	6.8	8.0	8.8	9.9	8.4	10
West	9.5	9.5	10.2	10.6	8.9	7.6	7.6	7.5	6.6	7.1	7.8	10.1	8.8	10
West Northwest	13.7	13.0	14.7	13.2	9.1	8.5	8.6	8.1	6.7	8.0	11.1	10.2	10.8	10
Northwest	13.5	15.8	15.3	13.5	10.8	9.2	8.1	8.1	7.9	9.6	11.4	12.3	12.1	10
North Northwest	17.4	16.0	16.8	16.8	11.0	9.7	7.6	7.7	8.4	11.2	15.6	14.7	14.4	10

METEOROLOGICAL TABLE FOR COASTAL AREA OFF GALVESTON
Boundaries: 27°N. to coast, between 95°W. and 92°W.

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Wind ≥ 34 knots (1)	1.3	1.2	.8	*	*	*	*	*	1.1	*	1.0	.9	.7
Wave height ≥ 10 feet (1)	4.0	5.1	3.4	2.2	1.2	.8	*	*	2.8	2.1	3.7	3.9	2.5
Visibility < 2 naut. mi. (1)	2.9	2.8	2.8	2.0	*	*	*	*	*	*	.8	2.0	1.2
Precipitation (1)	3.2	4.0	1.8	1.6	1.7	1.7	2.1	2.2	3.0	2.4	2.8	4.1	2.6
Temperature ≥ 85°F (1)	0	*	*	*	2.8	18.4	39.4	41.0	19.3	4.2	*	*	10.6
Mean Temperature (°F)	61.9	63.0	65.5	70.9	76.7	81.9	84.1	84.2	82.1	76.4	69.5	64.6	73.9
Temperature ≤ 32°F (1)	*	*	0	0	0	0	0	0	0	0	0	0	*
Mean relative humidity (%)	80	80	80	83	81	79	77	77	77	74	76	78	78
Sky overcast or obscured (1)	32.2	30.7	28.2	21.9	11.8	6.8	8.3	8.6	13.5	13.4	20.1	29.4	18.8
Mean cloud cover (eighths)	4.7	4.6	4.5	4.1	3.5	3.3	3.7	3.7	3.9	3.5	4.0	4.6	4.0
Mean sea-level pressure (2)	1,020	1,018	1,017	1,016	1,015	1,015	1,017	1,016	1,015	1,017	1,019	1,020	1,017
Extreme max. sea-level pressure (2)	1,040	1,041	1,035	1,038	1,031	1,029	1,028	1,028	1,030	1,037	1,036	1,040	1,041
Extreme min. sea-level pressure (2)	1,001	994	998	993	1,000	981	999	1,000	987	1,000	999	1,000	981
Prevailing wind direction	N	SE	SE	SE	SE	SE	S	SE	E	E	SE	N	SE
Thunder and lightning (1)	*	1.0	.6	.9	.9	1.3	1.8	1.8	2.2	1.1	1.2	1.0	1.2

(1) Percentage frequency
(2) Millibars
* 0.0-0.5%

These data are based upon observations made by ships in passage. Such ships tend to avoid bad weather when possible, thus biasing the data toward good weather samples.

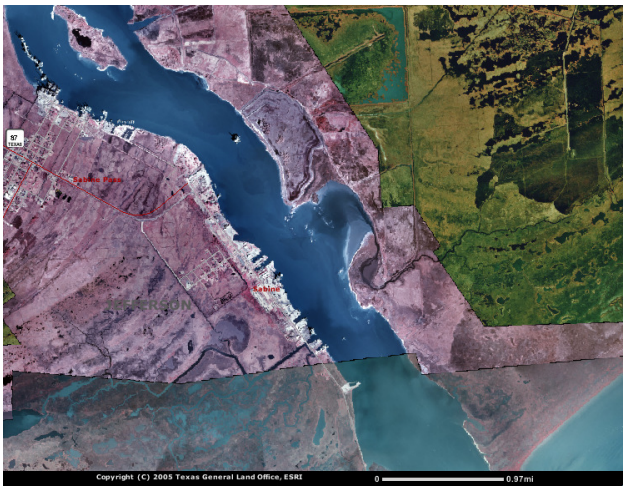
Appendix L

Location Suitability List

Appendix L: Location Suitability List

The primary ports of interest for HSR in the Houston-Galveston AOR include:

Sabine



Galveston

Freeport

Texas City

The tables on the following pages summarize the Pros and Cons of each port area within the Houston-Galveston area, and should be taken into consideration during the decision-making process. Tables are organized by vessel type.

Crude or CPP Tankers, or vessels leaking oil (including all other vessel types with bunker fuel leaks)

Location	Vessel Type	Pros	Cons
Near Shore Anchorages	Leaking Tanker	None	Near-shore currents are excessive Cannot contain spilled oil
	Non leaker	Logistics Security oversight	None
Offshore zone south of EEZ 9,11,29,55,60	Leaking Tanker	Environmental (less likelihood of oil reaching shore)	Logistics
	Non leaker	None	Logistics
Sabine River	Leaking Tanker	Unsatisfactory	Environmental sensitivity Mooring location Spill containment
	Non leaker	None	Logistics
Galveston Inner Anchorage	Leaking Tanker	Unsatisfactory	Excessive current
	Non leaker	Logistics Port State control Ready Access	None
Freeport Inner Harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment	Commercial interruption
	Non-Leaker	Same as above	None
Texas city inner harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment	Commercial interruption
	Non leaker	Same as above	None
Galveston inner harbor	Leaking Tanker	Semi Industrial Dock specific logistics	Commercial interruption Currents
	Non leaker	Logistics	None

HAZMAT/Chemical Tankers

Location	Vessel Type	Pros	Cons
Near Shore Anchorages	Leaking Tanker	Logistics Security oversight	Depending on cargo involved, may impact population density areas Near-shore currents are excessive Prevailing winds towards shore Spill may not dissipate before reaching shore May be difficult to monitor material Potentially little time to dissipate due to distance and water depth
	Non leaker	Logistics Security oversight More chop but less swell	For smaller vessel, may not provide adequate refuge
Offshore zone south of EEZ 9,11,29,55,60	Leaking Tanker	Environmental Lightering industry support possible in area Reduced security implications	Logistics May not provide adequate refuge, depending on size of tanker No in-place regulatory approval to conduct lightering offshore Potential impact to other lightering tankers in the area Search and rescue support
	Non leaker	Reduced security implications	Logistics May not provide adequate refuge, depending on size of tanker No in-place regulatory approval to conduct lightering offshore Potential impact to other lightering tankers in the area Search and rescue support
Sabine River	Leaking Tanker	Unsatisfactory	Environmental sensitivity Mooring location Spill containment
	Non leaker	None	Logistics
Galveston Inner Anchorage	Leaking Tanker	Unsatisfactory	Depending on cargo involved, may impact population density areas Excessive tidal currents Prevailing winds towards shore Spill may not dissipate before reaching shore May be difficult to monitor material Potentially little time to dissipate due to distance and water depth

			May impact other vessels traversing the vessel channel, including tankers, cruise vessels and pleasure vessels
	Non leaker	Logistics Port State control Ready Access	None
Freeport Inner Harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment Short voyage to enter/leave port Less heavy traffic in port area All chemical tankers will fit into the port Local chemical expertise and response capabilities	Commercial and recreational interruption Population density nearby
	Non-Leaker	Same as above	Commercial and recreational interruption Lack of support services for repairs May not be able to discharge all chemical cargoes in the port area
Texas city inner harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment All chemical tankers will fit into the port Local chemical expertise and response capabilities	Commercial and recreational interruption Transiting a recreational and tourist area Population density Prevailing winds
	Non leaker	Same as above, plus Industrial support available from surrounding area	Commercial and recreational interruption May not be able to discharge all chemical cargoes in the port area
Galveston inner harbor	Leaking Tanker	Unsatisfactory	Commercial and recreational interruption Tourists, recreational fishing and cruise vessels Population density Environmental sensitivity
	Non leaker	None	None (much better alternatives exist)

Container and General Cargo Vessels

Note: For simple leaks of fuels/oils from damaged bunker tanks, follow the guidance for "oil tankers" in the earlier table.

Location	Vessel Type	Pros	Cons
Near Shore Anchorages	Leaking Containers	Logistics Security oversight Public protection	Offloading capability Near-shore currents are excessive Prevailing winds towards shore
	Non leaker	Logistics Security oversight More chop but less swell	For smaller vessel, may not provide adequate refuge Offloading capability
Offshore zone south of EEZ 9,11,29,55,60	Leaking Containers	Environmental Reduced security implications	Logistics Offloading capability May not provide adequate refuge, depending on size of tanker Potential impact to other lightering tankers in the area Search and rescue support
	Non leaker	Reduced security implications	Logistics Offloading capability May not provide adequate refuge, depending on size of tanker Potential impact to other lightering tankers in the area Search and rescue support
Sabine River	Leaking Containers	None	Offloading capability Prevailing winds towards shore Environmental sensitivity
	Non leaker	None	None (much better alternatives exist)
Galveston Inner Anchorage	Leaking Containers	Unsatisfactory	None (much better alternatives exist)
	Non leaker	Logistics Port State control Ready Access	Limited offloading capability (better than nearshore/offshore locations) Some limited commercial and recreational interruption possible Current
Freeport Inner Harbor	Leaking Containers	Industrial environment Logistics Mooring Location Containment Short voyage to enter/leave port Less heavy traffic in port area Local chemical expertise and response capabilities	Commercial and recreational interruption Limited offloading capability Not all vessels may fit into the port

	Non-Leaker	Same as above	Commercial and recreational interruption Lack of support services for repairs
Texas city inner harbor	Leaking Containers	Industrial environment Logistics Mooring Location Containment Local chemical expertise and response capabilities	Limited offloading capability Commercial and recreational interruption Transiting a recreational and tourist area Population density Prevailing winds
	Non leaker	Same as above, plus Industrial support available from surrounding area	Same as above Much better alternatives exist elsewhere
Galveston inner harbor	Leaking Containers	Logistics Mooring Short voyage to enter/leave port Local chemical expertise and response capabilities Some offloading capability	Commercial and recreational interruption Tourists, recreational fishing and cruise vessels Population density Environmental sensitivity
	Non leaker	Same as above	Limited impact to tourists, recreational fishing and cruise vessels

Other types of vessels

Location	Vessel Type	Pros	Cons
Near Shore Anchorages	Leaking Tanker	None	Near-shore currents are excessive Cannot contain spilled oil
	Non leaker	Logistics Security oversight	None
Offshore zone south of EEZ 9,11,29,55,60	Leaking Tanker	Environmental	Logistics
	Non leaker	None	Logistics
Sabine River	Leaking Tanker	Unsatisfactory	Environmental sensitivity Mooring location Spill containment
	Non leaker	None	Logistics
Galveston Inner Anchorage	Leaking Tanker	Unsatisfactory	Excessive current
	Non leaker	Logistics Port State control Ready Access	None
Freeport Inner Harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment	Commercial interruption
	Non-Leaker	Same as above	None
Texas city inner harbor	Leaking Tanker	Industrial environment Logistics Mooring Location Containment	Commercial interruption
	Non leaker	Same as above	None
Galveston inner harbor	Leaking Tanker	Semi Industrial Dock specific Logistics	Commercial interruption
	Non leaker	Logistics	None

Appendix M

CMI Questionnaire Regarding Places of Refuge

"CMI" = Comite Maritime International

(www.comitemaritime.org)

A non-governmental international organization, its object is to contribute to the unification of maritime law in all its aspects

CMI PLACES OF REFUGE QUESTIONNAIRE
RESPONSE OF
THE MARITIME LAW ASSOCIATION
OF THE UNITED STATES

1. The Salvage Convention 1989

1.1. Has your country ratified the Salvage Convention 1989?

Answer 1.1. The International Convention on Salvage, 1989 was ratified by the U.S. (the U.S. Senate gave its advice and consent on October 29, 1991). The U.S. deposited an instrument of ratification with the IMO on March 27, 1992.

1.2 If so, has it adopted any legislation or regulation to give effect to Article 11?

Answer 1.2 No.

1.3 If so, please supply a copy, if possible with a translation into English or French.

Answer 1.3. Not applicable.

1.4 Has it designated any particular places as "Places of Refuge" or of similar nature?

Answer 1.4. No.

1.5 Are the existence and identity of such places made known to the public, or to the shipping community?

Answer 1.5. Not applicable.

2. The United Nations Convention on the Law of the Sea 1982 ("UNCLOS")

2.1 Has your country ratified the UN Convention on the Law of the Sea?

Answer 2.1. The United States has not ratified the 1982 Convention on the Law of the Sea. However, by Presidential proclamation on March 10, 1983 (19 Weekly Comp. Pres. Doc. 383) President Reagan stated that the U.S. would act in a manner consistent with the Convention. Additionally the United States is still a party to the Convention on the Territorial Sea, 15 U.S.T. 1606, which covers innocent passage in Articles 14. and 15.

2.2 If so, has it adopted any legislation or regulation to give effect to Articles 17, 18 21 and 39(1)(c)?

Answer 2.2. Not applicable.

2.3 If so, please supply a copy, if possible with a translation into English or French.

Answer 2.3. Not applicable.

2.4 Does your law have provisions applicable to ships which are the victims of force majeure or distress, and their rights to seek shelter in a place of refuge in your waters? If so, please provide details.

Answer 2.4. While not directly applicable to ships, American legislation does deal with obstruction of the escape of individuals from a distressed vessel in 18 USCA §1658 (2000) ("Plunder of Distressed Vessel") as follows:

> (a) Whoever plunders, steals or destroys any money, goods, merchandise, or other effects from or belonging to any vessel in distress, or wrecked, lost, stranded, or cast away, upon the sea, or upon any reef, shoal, bank, or rocks of the sea, or in any other place within the admiralty and maritime jurisdiction of the United States, shall be fined under this title or imprisoned not more than ten years, or both.
>
> (b) Whoever willfully obstructs the escape of any person endeavoring to save his life from such vessel, or the wreck thereof; or
>
> Whoever holds out or shows any false light, or extinguishes any true light, within intent to bring any vessel sailing upon the sea into danger or distress or shipwreck –
>
> Shall be imprisoned not less than ten years and may be imprisoned for life.

See also General Comments and Appendix below.

2.5 As regards protection of the marine environment from pollution, Articles 192 to 199 and 221 may be material to the subject matter of this questionnaire. In particular Article 195 provides: "In taking measures to prevent, reduce or control pollution of the marine environment, States shall so act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform

one type of pollution into another." Has this principle been implemented in any of your legislation or regulations? If so please provide details.

Answer 2.5. This principle has not been directly implemented in any U.S. pollution response laws or regulations, at least with regard to the "hazards" presented by vessels leaking pollutants into the marine environment. Instead, U.S. law authorizes federal on-scene coordinators-the federal officials in charge of environmental responses-to "remove and, if necessary, destroy a vessel discharging or threatening to discharge, by whatever means available" in the case of a spill which "poses or may present a substantial threat to public health or welfare of the United States." 40 CFR Part 300.322(b)(3). However, the intent of this provision is to eliminate the underlying environmental hazard rather than to transfer it to another "area."

In addition, U.S. law indirectly bars the transfer of "damages" occurring as a result of an oil spill by requiring vessels immediately to implement pre-contracted spill containment and cleanup resources in order to prevent or mitigate the "transfer" or migration of environmental damages to another "area."

2.4[sic] Has your country developed any contingency plan as referred to in Article 199?

Answer 2.4. Yes, the United States has promulgated the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 *et seq*. ("the National Contingency Plan").

2.5[sic] If so, does this include provisions for the admission into a place of refuge of a vessel in distress which may threaten to cause pollution?

Answer 2.5. No. The National Contingency Plan vests federal on-scene coordinators in charge of pollution responses and clean-ups with considerable discretion with respect to the steps to be taken after an oil spill, but does not specifically address places of refuge for vessels in distress. The one specific reference to the disposition of vessels appears in Part 300.322(b)(3) of the National Contingency Plan, which authorizes on scene coordinators to "remove and, if necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available" in the event of a spill which "poses or may present a substantial threat to public health or welfare of the United States."

2.6[sic] If so, please provide details.

Answer 2.6. See response to question 2.5 above.

3. The International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 ("OPRC")

3.1 Has your country ratified the OPRC Convention?

Answer 3.1. Yes. (Senate Treaty Doc. 102-11)

3.2 If so, has it adopted any legislation or regulation to give effect to its provisions summarised above?

Answer 3.2 Yes. Section 1906(b) of Title 33 USC of the U.S. Code gives effect to the reporting provisions set out in the ORPC Convention. In addition, the U.S. had adopted SOPEP regulations, 33 CFR 151.26, as called for in OPRC Article 3.

3.3 Has it adopted any Oil Pollution Response Contingency Plan?

Answer 3.3. Yes. As described above, the United States has adopted a National Contingency Plan, which establishes a national system for pollution preparedness and response and coordinates spill response among the hierarchy of available spill responders and the contingency plans currently in effect. In addition, the United States has mandated the issuance of area contingency plans which specify the spill response capabilities and spill response procedures to be followed regionally within the U.S. exclusive economic zone. Lastly, the United States requires tank vessels to maintain vessel response plans setting out spill prevention and response procedures that each vessel must implement in the event of an oil spill or threatened spill.

3.4 Has it reported any such contingency plans to the IMO (under Article 6).

Answer 3.4. Yes.

3.5 Do any of the contingency plans adopted in your country contain provisions dealing with the admission of a ship in distress which may pose a threat of pollution to a place of refuge in the internal or territorial waters of your country?

Answer 3.5 We are unaware of any provisions dealing with the admission of ships in distress which may pose a threat of pollution to a place of refuge in the internal or territorial waters of your country. Conversely, as noted above, the National Contingency Plan expressly authorizes on-scene coordinators to "remove and, if necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available" in the event of a spill which "poses or may present a substantial threat to public health or welfare of the United States." See General Comments and Appendix below.

3.6 If so, does the plan contain details of any financial or other security to be required from the owners of the ship in question as a condition of entry to cover, for example, pollution damage or wreck removal? If so, please give details.

Answer 3.6 See response to question 3.5. and General Comments and Appendix below.

4. Casualty Experience

4.1 Have you had experience of a casualty in your country's territorial waters, EEZ or indeed internal waters in which a vessel needing salvage assistance in a place of refuge has been refused entry by your administration? If so please give details.

Answer 4.1 While no specific official records could be located, it appears that a request for force majeure entry into U.S. waters was denied on at least one occasion. In October 1980, while cruising in international waters of the Gulf of Alaska, the passenger vessel PRINSENDAM suffered a fire in its engine room. The fire quickly was out of control. In one of the most dramatic rescues in history, helicopters of the U.S. Coast Guard, U.S. Air Force, and Canadian Forces, along with the USCG cutters MELLON, BOUTWELL, and WOODRUSH and the tanker WILLIAMSBURGH rescued all 319 passengers and 205 crew. The PRINSENDAM was then taken under tow by a salvage tug. Due to the damage to the vessel, which was listing badly, and the severe weather, the owner sought permission to bring the vessel into the sheltered waters of the Inside Passage to effect temporary repairs and wait for the storm to abate. The Coast Guard denied permission. The PRINSENDAM sank soon afterwards. It is unlikely that approval of the request would have saved the vessel.

4.2 If possible please provide in particular details of the legal rules on which the administration based its refusal.

Answer 4.2 Particular details of the legal rules on which the U.S. Coast Guard based its apparent denial of entry regarding the PRINSENDAM are unknown, but your attention is invited to the General Comments below and the Appendix hereto.

4.3 Have you had experience of a casualty in your country's territorial waters, EEZ or indeed internal waters in which a vessel needing salvage assistance in a place of refuge has been permitted entry by your administration? If so please give details.

Answer 4.3 As with earlier questions, particular details are lacking regarding instances of when vessels in need of assistance have been permitted entry into U.S. waters in a force majeure situation. There is recall, though, of a number of

vessels, particularly small freighters and fishing vessels, seeking and obtaining entry. This was not uncommon when a large number of foreign fishing vessels were operating just outside the U.S. territorial sea. These vessels not infrequently sought and obtained permission to either enter a U.S. port or heave to in the lee of an island to avoid storms. Now that few foreign fishing vessels operate near the U.S. coast, such requests are less common.

4.4 In particular please specify any requirements which the owners or salvors had to satisfy in order to obtain permission for entry (for example tugs standing by, financial guarantees etc.)

Answer 4.4 In the situations discussed under item 4.3 above, owners and masters were generally required to report their entry into and departure from U.S. waters. Fishing vessels were required to stow their fishing gear during their presence in U.S. waters.

4.5 Was the permission, if granted, given for limited or unlimited time?

Answer 4.5 In all cases, permission to enter was granted only for so long as the force majeure situation continued.

General Comments:

No regulation promulgated by the U.S. Coast Guard specifically addresses the issues raised in the CMI Questionnaire. The Coast Guard, though, has promulgated regulations bearing on the general issue. A vessel in a hazardous condition (e.g., in distress) is required to comply with various conditions prior to entry into U.S. waters. The Coast Guard Captain of the Port (COTP), though, may waive any of those requirements upon finding that circumstances are such that application of those requirements is 'unnecessary or impractical for purposes of safety, environmental protection, or national security.' (33 CFR § 160.205). Further, while a Coast Guard District Commander or COTP has the authority to deny entry into U.S. waters of any vessel not in compliance with the provisions of the U.S. Port and Tanker Safety Act, that authority must be applied 'subject to recognized principles of international law.' (33 CFR § 160.107).

More specifically, foreign merchant vessels are prohibited from entering U.S. waters unless in compliance with the requirements of the ISM Code. An exception is allowed for vessel under force majeure. (33 CFR § 96.390(a)). Vessels under force majeure are exempted from certain provisions of the regulations implementing the Deepwater Port Act. (33 CFR §§ 150.317(c), 150.337, and 150.345). Vessels under force majeure are exempted from certain provisions of MARPOL. (33 CFR §§ 151.08(a) and 158.130(e)). Vessels under force majeure are exempt from general advance

notification requirements. (33 CFR § 160.201.(c)(4)).

A District Commander or COTP may prohibit a vessel from operating in the navigable waters of the United States if it is determined that the vessel's serious repair problems creates reason to believe that the vessel may be unsafe or pose a serious threat to the marine environment. (33 CFR § 160.113(a)). The District Commander or COTP, though, may allow provisional entry into the navigable waters of the United States or into any port or place under the jurisdiction of the United States, if the owner or operator proves to the satisfaction of the District Commander or COTP that the vessel is not unsafe or does not pose a threat to the marine environment and that such entry is necessary for the safety of the vessel or the persons on board. (33 CFR § 160.113(c)). This regulation implements the provision of the Ports and Waterways Safety Act relating to conditions for entry into ports of the United States (33 U.S.C. § 1228(b)).

More detailed guidance relating to force majeure is contained in the U.S. Coast Guard's Marine Safety Manual. The pertinent provisions from this internal agency manual are included as an Appendix to this submittal.

5. <u>Other Legislation</u>

Answer 5. Not applicable.

U.S. COAST GUARD MARINE SAFETY MANUAL
Volume VI - Ports and Waterways Activities
Chapter 1 - Ports and Waterways Safety

F. Force Majeure

1. General. Force Majeure is a doctrine of international law which confers limited legal immunity upon vessels which are forced to seek refuge or repairs within the jurisdiction of another nation due to uncontrollable external forces or conditions. This limited immunity prohibits coastal state enforcement of its laws which were breached due to the vessel's entry under force majeure.

2. Definition. Emergency entry, or force majeure, is defined as an overwhelming force or condition of such severity that it threatens loss of the vessel, cargo or crew unless immediate corrective action is taken. Force majeure is based upon the historical premise in international law that, if a vessel is compelled to move into the waters of a foreign state by some uncontrollable external force, then the vessel should be excused from compliance with domestic laws which prohibit such entry.

3. Burden of Proof. The burden of proof that a vessel has a valid claim of force majeure rests with the vessel, its master and owner. A claim of force majeure is supported only by the existence of overwhelming conditions or forces of such magnitude (e.g., severe storm, fire, disablement, mutiny) that they threaten the loss of the vessel, crew, or cargo unless immediate action is taken. Conversely, an invalid claim of force majeure has no effect on the authority of the coastal state to take all appropriate law enforcement action against an entering vessel.

4. COTP Authority. Each Coast Guard COTP, and the District Commander, has the authority to verify and then accept or reject claims of force majeure for the purposes of enforcing applicable laws. Even if a vessel exhibits a valid force majeure claim, the COTP may nevertheless take action to remove a hazard to life or property under the authority of the Ports and Waterways Safety Act (33 USC 1221, et seq.). For example, in the event of fire, flooding, or collision damage which may affect the safety of a vessel or its cargo the COTP would ascertain the condition of the vessel, determine the existence of any hazard to the port, and make any COTP order consistent with the right of entry under force majeure and the protection of the port. The COTP may direct the vessel to a specific location and not to the port of their choice. However, once a force majeure claim has been validated, the Coast Guard alone is the Federal agency responsible for granting or denying vessel entry.

Appendix N

IMO Notification Forms

Appendix N: IMO Notification Forms

2.4 INFORMATION FOR INITIAL, FOLLOW-UP CASUALTY REPORT

2.4.1 Initial Notification:

The Master makes the initial casualty report as soon as the nature of the pollution incident or casualty is known. The Master makes his initial verbal notification reports to USCG (National Response Center), Qualified Individual and Owner/Operator or other necessary parties. A hard copy of the initial casualty report shall be sent via telex, fax, radio to the Qualified Individual, and vessel Owner/Operator, as soon as possible.

The format and content of an initial incident report is given below. The format is consistent with the General Principles for Vessel Reporting Systems and Vessel Reporting Requirements, including Guidelines for Reporting Incidents involving dangerous goods, harmful substances and/or Marine Pollutants, adopted as Resolution A.851(20) by the International Maritime Organization (IMO), and USCG.

The report should contain the following information:

AA (Vessel)The name of the vessel, call sign or vessel station identity, MMSI, INMARSAT MES (if available), flag, and reporting party/Master's name are to be entered in this block.

BB (Date & Time of event) Enter a six (6) digit group giving the day of month (first two digits) and hours and minutes (last four digits). This information is given in UTC (Zulu) time. If other than UTC, state time zone used.

CC (Position) Enter a four (4) digit group giving latitude in degrees and minutes suffixed with N (North) or S (South) and a five (5) digit group giving longitude in degrees and minutes suffixed with E (East) or W (West).

DD (Position) Enter the first three (3) digits of the true bearing. State the distance in nautical miles from a clearly identified landmark. Be sure to state the name of the landmark used.

(***NOTE: Either CC or DD can be provided to report vessel's position.***)

EE (True Course) Enter true course using three (3) digits.

FF (Speed in Knots) Enter the speed of vessel in knots. Speed should be described in knots to the nearest tenth, meaning the number entered should be three (3) digits. For example: 09.3 knots or 13.2 knots.

LL (Route Information) Enter the vessel's intended track.

MM (Radio-communication equipment VHF, MF SSB, HF SSB, INMARSAT MES) State in full the names of radio stations and frequencies guarded, the vessel's fax number, and satellite or cell phone number.

NN (Time of next report) Provide the date and time of report to the FOSC or COTP by entering a six (6) digit group giving the time and day of month (first two digits) and hours and minutes (last four digits). Be sure to use UTC (Zulu) time.

PP (Cargo on board) State the type and quantity (units) of cargo/bunkers on board. Provide brief details of any dangerous cargoes as well as harmful substances and gases that could endanger persons or the environment.

QQ (Defects/Damage/Deficiencies/other Limitations) Provide brief details of defects, damage, deficiencies, or other details.

RR (Description of pollution or dangerous goods lost overboard) Provide brief details of the type of pollution (oil, chemicals, etc.) or dangerous goods lost overboard. Be sure to state the chemical's technical name, the UN/IMDG number (if known), the overall impact of the oil spill, and whether or not the chemical is still leaking. The position of vessel is expressed in the same format as Parts C and D of this form. BE SURE TO INCLUDE A SEPARATE ATTACHMENT.

SS (Weather & Sea conditions) Enter brief details of weather and sea conditions prevailing. Enter the direction and speed (knots) of the wind, and the direction and height of the swell (meters).

TT (Vessel's representative and/or owner) Give contact details of the name and particulars of the vessel's representative or owner or both for provision of information.

UU (Vessel size and type) Provide details of the vessels overall length, greatest breadth, draught, and type. Enter each of these characteristics in meters (m).

XX (Additional information) ATTACH ADDITIONAL SHEETS, IF NECESSARY. Provide other information – including, as appropriate, mobile phone numbers (if any), brief details of incident and reporting party, other vessels involved either in the incident, assistance, or salvage. Discuss actions to correct/mitigate the situation, give the number of crewmembers, and details of any injuries or fatalities. Give contact details of the P&I Club and local correspondent. Also, provide any miscellaneous information not mentioned within the reporting form. Spill location information is required to trigger National Response Center agency notifications.

Vessel Spill Incident Fax Reporting Form

ACTUAL INCIDENT: Yes____No____ **DRILL: Yes____No____**

TO:
Fax:
Email:
Phone:

FOR USA PORTS ONLY
USCG National Response Center : **Fax: 1-202-267-2165**
Follow up with Voice confirmation of fax receipt within 15 minutes
Voice: 1-800-424-8802 or 1-202-267-2675 Telex: 892427

AA (vessel name, IMO #, call sign, flag, INMARSAT MES, MMSI, reporting party/Master's name)

BB (date & time of event) ____ ____ ____ ____ ____ ____ UTC (Zulu)
D D H H M M

CC (position, latitude, longitude)
____ ____ ° ____ ____ ' **N S**
d d m m
____ ____ ____ ° ____ ____ ' **E W**
d d d m m

-OR-

DD (bearing, distance from landmark)
____ ____ ____ ° Brg
d d d
Distance nm from

EE (true course) ____ ____ ____ °T
d d d

FF (speed in knots) .

LL (intended track) ____ ____ ____ °
d d d

MM Radio-communication equipment VHF, MF SSB, HF SSB, INMARSAT MES (radio station(s) and frequencies guarded, vessel fax number, satellite or cell phone number)

NN (date and time of next report to FOSC or COTP) ____ ____ ____ ____ ____ ____ UTC (Zulu)
D D H H M M

PP (type and quantity (units) of cargo/bunkers on board)

QQ (brief details of defects/damages)

RR (Include attachment of brief details of pollution, including estimated amount of loss)
Estimated quantity lost: _____

Technical name: _____ UN/IMDG number, if known: _____ Still leaking? _____ Yes or _____ No

SS (brief details of weather and sea conditions)
WIND direction _____ SWELL direction _____
speed _____ kts height _____ m

TT (contact details of vessel's owner/operator/agent)

UU (vessel size and type)
Length: _____ (m) Breadth: _____ (m) Draught: _____ (m) Type: _____

XX (additional information—***ATTACH ADDITIONAL SHEETS. IF NECESSARY***)
Brief details of incident and reporting party: Mobile Phone Numbers (if any)

Need for outside assistance:

Actions taken to correct/mitigate the situation:

Number of crew, injuries, or fatalities: _____ Crew _____ Injuries _____ Fatalities

Details of P&I Club and local correspondent:

Spill Location:
City _____ State _____ County (if known) _____

Note: The alphabetical reference letters in the following format are from "General principles for vessel reporting systems and vessel reporting requirements, including guidelines for reporting incidents involving dangerous goods, harmful substances and/or marine pollutants" adopted by the International Maritime Organization by resolution A851 (20). The letters do not follow the complete alphabetical sequence as certain letters are used to designate information required for other standard reporting formats, e.g. those used to transmit route information.

2.4.2 Follow-Up Notification:

Follow-up reports shall be transmitted within the time specified in the Initial Report. The follow up report must include as a minimum:

- Additional details on the type of oil onboard
- Vessels position and present condition of the vessel
- Rate of release and spread of oil
- Weather conditions
- Clean-up activities initiated
- Any other information

Appendix O

Port of Refuge Decision Matrix

Appendix O: Port of Refuge Decision Matrix

The Coast Guard has developed Commandant Instruction 16451.9 titled “U.S. Coast Guard Places of Refuge Policy”. This document provides background into the risk assessment methodology to be used when evaluating various harbors that could be used for safe refuge. The Commandant Instruction is included on the following pages, and the associated enclosure is attached within this report.

During an incident in 2006, the Coast Guard utilized a simplified matrix to assess the harbors that were being considered for refuge during the capsizing of the Cougar Ace. The matrix used for this situation was simplified compared to that now in the Commandant Instruction, and serves as a good example of the overall intent of the Places of Refuge Policy and tools.

Cougar Ace Matrix Example

Port of Refuge Matrix
1 August 2006 1435

Port of Refuge and approx distance from Cougar Ace as of 1 Aug)	Marine Access	Shelter	Environmental Risk	Historic Properties/ Permitting	Logistics	Commercial and Subsistence Impact	Concerns
Adak Finger Bay (224 nm) .	3	3	2 or 3 Require more information	3	3 Infrastructure in place for 6000 w/ 100 currently there. Large airstrip. Self-support messing.	3 One seafood processor there now.	Assuming Finger Bay. Need to confirm exact Adak location
Chernofski Harbor (225 nm).	1	1 No lee. Wind is factor.	1	1 30+ historic sites	1	3	Weather avoidance is factor. High ecological value.
Makushin Bay (250 nm) .	2 Anderson Bay has difficult access but better shelter. Is small.	2	1 Birds post high risk.	1	1	3	High ecological value.
Dutch Harbor Wide Bay or Captain's Bay (296 nm).	3	3 Captain's Bay better shelter than Wide Bay, but more traffic w/ seafood processor.	2 Subsistence, anad. Streams	2 Route-sensitive due to large number historic sites en route and in Unalaska Bay.	3	1 Processors. Multi-billion dollar fishing industry.	
Key: 1 = high risk, most difficult 2 = medium risk, least difficult 3 = lowest risk, least difficult							

U.S. Department of Homeland Security
United States Coast Guard

Commandant
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COMDTINST 16451.9
July 17 2007

COMMANDANT INSTRUCTION 16451.9

Subj: U.S. COAST GUARD PLACES OF REFUGE POLICY

Ref: (a) International Maritime Organization Resolution A.949(23), Guidelines on Places of Refuge for Ships in Need of Assistance
(b) Marine Safety Manual, COMDTINST M16000 (series)
(c) U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement to the International Aeronautical and Maritime Search and Rescue Manual (IMSAR Manual), COMDTINST M16130.2 (series)
(d) U.S. Coast Guard Maritime Law Enforcement Manual, COMDTINST M16247.1 (series)

1. PURPOSE. This Instruction provides policy guidance, a sample checklist, and a risk assessment job aid to field commanders, Area Committees, and Regional Response Teams (RRTs) to aid in preparing for and responding to a vessel requesting a place of refuge as described in reference (a), or similar events in which a vessel, not in need of immediate Search and Rescue (SAR) assistance, may pose a variety of risks to a port or coastal area. This Commandant Instruction focuses primarily on the decision process of selecting the lowest risk Place of Refuge option for a stricken vessel. In any such situation, Operational Commanders will also be conducting other, simultaneous operations, including, but not limited to, developing transit plans, staging pollution, fire, and/or hazmat response equipment, and addressing any security concerns.

2. ACTION. Area, district, and sector commanders of Maintenance and Logistics Commands, commanding officer of integrated support commands, commanding officers of Headquarters units, assistant commandants for directorates, Judge Advocate General, and special staff elements at Headquarters shall ensure compliance with the provisions of this Instruction. Internet release is authorized.

3. DIRECTIVES AFFECTED. None.

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	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A																										
B		8	10		1									1												
C					1					1	2		1	2		1										
D		1			1																					
E		1			1													1								
F																										
G																										
H																										

NON-STANDARD DISTRIBUTION:

4. BACKGROUND.

   a. On December 5, 2003, the International Maritime Organization (IMO) adopted resolution A.949 (23), *Guidelines on Places of Refuge for Ships in Need of Assistance*, which were drawn up in response to three significant events – the motor tanker (M/T) ERIKA (Dec 1999), the M/T CASTOR (Dec 2000), and the M/T PRESTIGE (Nov 2002) – involving tank ship structural failures at sea. In the case of the ERIKA and PRESTIGE, both tank ships broke apart and sank, resulting in catastrophic environmental damage to coastal states due to spilled oil. The purpose of this resolution is to encourage nations to adopt systems to balance the needs of the vessel and the needs of the coastal state and make sound decisions to enhance maritime safety and the protection of the marine environment.

   b. A second IMO resolution, A.950 (23), *Maritime Assistance Services* (MAS), recommends that all coastal states establish a maritime assistance service (MAS). In the United States, Rescue Coordination Centers (RCCs) meet the intent of this resolution.

   c. These incidents demonstrated that in some circumstances, coastal states could actually increase their risk if they deny a vessel the opportunity to enter a place of refuge and make repairs, or delay a decision until no options remain. This Instruction establishes a process to support risk based planning and decision making. A repeatable, transparent process is also important in building stakeholder and public confidence in the final decision, regardless of outcome.

5. DISCUSSION.

   a. Contingency Planning/Pre-Incident Surveys. Operational Commanders, including Area, District, and Sector Commanders and the Commanding Officers of Marine Safety Units and Chairs of Area Committees, and RRTs shall use this Instruction as part of their normal contingency planning process. Any evaluations of possible Places of Refuge conducted before an actual incident shall be considered "pre-incident surveys" rather than a final decision. If an actual event occurs, the Operational Commander, working within a Unified Command structure as appropriate, shall review, verify, and modify as necessary these pre-surveys. Note that the term "Place of Refuge" refers simply to a location where a ship can go so that its crew or others can stabilize the situation or make repairs. It may, but need not, include actual ports or terminals.

   b. National Response Team Place of Refuge Guidelines. The National Response Team (NRT), which includes the Coast Guard, developed and approved *Guidelines for Places of Refuge Decision-Making* (NRT Guidelines) that provides: (1) an incident-specific decision-making process to assist Coast Guard Captains of the Port in deciding whether a vessel needs to be moved to a place of refuge, and if so, which place of refuge to use; and (2) a framework for pre-incident identification of potential places of refuge for inclusion in appropriate Area Contingency Plans. The NRT Guidelines, (located at http://www.nrt.org), emphasizes consultation with the Area Committees, RRTs, natural resource trustees, other stakeholders, and technical experts in the identification of potential places of refuge during pre-incident planning and during the decision-making process of an event. In general, operational commanders may use this and other planning tools that are consistent with the intent of this instruction.

c. Transit Oversight. Operational commanders are expected to impose appropriate restrictions on the vessel before and during its transit to a Place of Refuge, and during any repair operations and subsequent departure. Furthermore, it may be appropriate to plan the transit in stages with appropriate requirements at each stage to allow responders to gain control and reduce risk. For example, a vessel might be required to move from open sea, to a lee, to anchor, and finally to a pier or dock, with each stage providing an opportunity to re-evaluate and take necessary actions.

d. Risk Informed Decision Making. The Ports and Waterways Safety Act (33 USC 1221 et seq.) is a cornerstone of the Coast Guard's responsibility and authority to manage risk in coastal areas. As described in Chapter 1, Vol IX, of reference (b), the purpose of this Act is to increase navigation and vessel safety, to protect the marine environment, and to protect life, property, and structures in, on, or immediately adjacent to the navigable waters to the United States. A decision to allow a damaged vessel to enter a port area in response to a Place of Refuge request may at first seem at odds with the purpose of this Act. As officials learned with the PRESTIGE and other incidents, denying a vessel a Place of Refuge has not always led to reduced risk for a coastal area. Nonetheless, in some circumstances the lowest risk option may require the Captain of the Port (COTP) to deny entry to a vessel. A vessel should only be denied entry when the Operational Commander can, having considered all options, identify a practical and lower risk alternative to granting a Place of Refuge. Such alternatives might include continuing the voyage (independently or with assistance), directing the vessel to a specific Place of Refuge in another locale, or scuttling the vessel in a location where the expected consequences will be relatively low. Note that "continue voyage", "scuttle", and "ground" are listed as options in enclosure (2), and should be evaluated if the operational commander believes they are realistic options. Any decision to deny a vessel a Place of Refuge should be accompanied with a plan to render assistance and/or impose restrictions until the situation is ultimately resolved. An arbitrary decision to force the vessel to another locale, particularly one which may involve higher risk and/or with less capability to address the situation is unacceptable.

e. SAR. Vessels requesting a Place of Refuge may also be in need of SAR assistance, either at the time the incident first occurs or at a later time as the situation develops. SAR operations will take place in accordance with reference (c). SAR authorities will closely monitor all Places of Refuge situations and be prepared to respond as necessary. Note that the IMO recommends that nations establish a MAS to serve as a national point of contact for Place of Refuge situations. In the United States, RCCs function as MASs, although decisions on Places of Refuge will generally be made at the Sector Commander/COTP/Federal On-Scene Coordinator (FOSC) level.

f. Security Concerns. Operational Commanders shall evaluate security risks as part of the decision-making process, including the standard procedures conducted for any vessel and crew bound for the United States, such as the International Ship and Port Facility Security (ISPS) and High Interest Vessel (HIV) targeting matrices. Operational Commanders will incorporate security risks into the final decision, and may, where the risks so warrant, determine that security concerns override all other risks. In some circumstances it may be necessary to conduct security related operations, such as an escort or boarding, while simultaneously evaluating a Place of Refuge consideration, staging salvage and spill response equipment, and taking other actions. Operational Commanders are reminded of their responsibility to protect classified and sensitive

security information. The parallel relationship between SAR, safety, environmental, and security concerns is depicted in enclosure (3).

g. National Defense Concerns. Operational Commanders shall evaluate the risks a vessel seeking a Place of Refuge may pose to national defense, including limiting freedom of action (such as by blocking a channel), or compromising Operational Security (OPSEC) by exposing Department of Defense (DOD) or Coast Guard personnel, installations, or equipment to unacceptable surveillance. Operational Commanders shall include appropriate DOD personnel in Place of Refuge planning activities, and incorporate DOD stakeholder concerns into any final Place of Refuge decision. As in the case regarding security concerns, Operational Commanders are reminded of their responsibility to protect classified information.

h. Safety Concerns. Operational Commanders shall exercise extreme caution before placing boarding officers or other Coast Guard personnel aboard a stricken vessel. Personnel safety concerns remain paramount and boarding operations shall be conducted in accordance with reference (d) and with due regard for unusual safety hazards. Survey and response operations onboard a stricken vessel shall only be conducted in accordance with an approved site safety plan. This applies equally to Coast Guard and non-Coast Guard personnel.

i. Force Majeure. *Force majeure* is defined as an overwhelming force or condition of such severity that it threatens loss of the vessel, cargo or crew unless immediate corrective action is taken. A request for a Place of Refuge may be preceded by, or issued in conjunction with, a force majeure declaration. Volume VI, Chapter 1 of reference (b) discusses Coast Guard policy with respect to force majeure. In general, force majeure is a doctrine of international law which confers limited legal immunity upon vessels that are forced to seek refuge or repairs within the jurisdiction of another nation due to uncontrollable external forces or conditions. This limited immunity prohibits coastal state enforcement of its laws which were breached due to the vessel's entry under force majeure. If a vessel's master cites *force majeure* as a reason for entry, Sector Commanders shall consult with the servicing staff judge advocate before allowing the vessel to enter. If time and circumstances permit, Sector Commanders shall use these Place of Refuge guidelines and the Maritime Operational Threat Response (MOTR) process to reach a decision and direct the vessel to a particular location. In all cases, Sector Commanders can and shall impose appropriate requirements needed to ensure safety, security, and the protection of natural resources.

j. Notice of Arrival.

(1) Notice of Arrival (NOA) regulations are found in 33 Code of Federal Regulations (CFR) Part 160. Per 33 CFR 160.214, COTPs are granted the authority to waive any requirements of the NOA regulation for any vessel if the NOA requirements are "unnecessary or impractical for purposes of safety, environmental protection, or national security." An operational commander's decision to grant a waiver, such as for the 96 hour NOA time requirement, should be based on an examination of the facts and circumstances of each particular Place of Refuge request. Factors to take into account when considering a waiver include but are not limited to MARSEC level, available intelligence, and homeland security threat level. Any

decision concerning civil penalty or similar enforcement action should likewise be made on a case by case basis.

(2) Vessels arriving under *force majeure* may be considered exempt from NOA requirements under 33 CFR 160.203(b) (3) if they are not carrying certain dangerous cargo or controlling another vessel carrying certain dangerous cargo. Any vessel requesting a Place of Refuge will almost certainly meet the standard of a hazardous condition as defined in 33 CFR 160.204, and therefore must meet the reporting requirements of 33 CFR 160.215.

k. Intervention on the High Seas. Volume IX, Chapter 1 of reference (b) discusses Coast Guard policy with respect to the Intervention on the High Seas Act (33 USC 1471) and the *International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties*, 1969. In general, the convention affirms the right of a coastal State to take such measures on the high seas as may be necessary to prevent, mitigate or eliminate danger to its coastline or related interests from pollution by oil or the threat thereof, following a maritime casualty. "Interests" is defined to include (but not limited to) fisheries, tourism activities, and the health and well being of coastal populations. The measures taken must be proportionate to the threat. Note that consultation with the affected flag state is required and that the authority to take such action remains with the Commandant and has not been delegated. Sector Commanders who believe Intervention on the High Seas actions may be necessary shall notify their Operational Commander as soon as possible.

l. Financial Responsibility Concerns. In general, most financial responsibility concerns confronting the FOSC/COTP will be satisfied provided the vessel holds a valid Certificate of Financial Responsibility (COFR). If a vessel requesting a Place of Refuge does not hold a valid COFR, Operational Commanders shall contact the National Pollution Funds Center (NPFC) to discuss other options before allowing the vessel to enter United States waters, and may put the vessel's representative in direct communication with the NPFC. Sector Commanders seeking a Letter of Undertaking or other surety shall consult the servicing staff judge advocate for guidance.

m. Notifications and International Coordination.

(1) The complex and sensitive nature of Place of Refuge incidents makes rapid communication with stakeholders, partner agencies, and the Coast Guard chain of command particularly important. Most Place of Refuge requests will involve foreign flag vessels. In such cases, in order to meet treaty obligations, follow established protocol, and ensure our response is consistent with foreign policy objectives, it is imperative that Sector Commanders inform Coast Guard Headquarters, via their operational chain of command, and the servicing District legal office of the facts of the situation and any proposed course of action. Within the Coast Guard, Operational Commanders shall ensure that the following offices are notified at the onset of the event, and kept informed through message traffic and other routine channels: the Coast Guard Headquarters Offices of Incident Management and Preparedness, (CG-3RPP), Law Enforcement (CG-3RPL), Operations Law Group (OLG) (CG-09412), and the Director of Inspections and Compliance (CG-3PC). The OLG duty team, in-country liaison officers

and other in-country personnel may be reached 24 hours a day, 365 days a year, through the Coast Guard National Command Center.

(2) When directed by competent authority, Place of Refuge incidents may by communicated via Maritime Operational Threat Response (MOTR) protocols; a national-level interagency communications process designed to achieve consistent coordinated action and desired outcomes that directly support National Security Presidential Directive-41/Homeland Security Presidential Directive-13: *Maritime Security Policy*, December 21, 2004. Strategic in nature, MOTR protocols achieve a coordinated U.S. Government response to threats against the United States and its interests' globally in the maritime domain. MOTR addresses the full range of maritime threats including terrorism, piracy, drug smuggling, migrant smuggling, weapons of mass destruction (WMD) proliferation, maritime hijacking, and fisheries incursions.

(3) When MOTR is triggered, established protocols are put into action for initiating real-time interagency communication, coordination, and decision-making through the integrated network of command centers. MOTR events are coordinated with the National Joint Terrorism Task Force (NJTTF) or Joint Terrorism Task Force (JTTF) and agencies that typically participate in MOTR calls, depending on the threat, include but are not limited to: the Department of Homeland Security (DHS), DOD, Department of Justice (DOJ), Department of Energy (DOE), Department of State (DOS), Department of Transportation (DOT), USCG, U.S. Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), White House Situation Room (WHSR) and the National Counterterrorism Center (NCTC). DHS, DOD and DOJ are designated lead agencies. The National Security Council and Homeland Security Council announced via memo that the President of the United States approved MOTR on October 27, 2005.

(4) As with other pollution preparedness activities concerning events near international borders, Place of Refuge planning activities should be made in cooperation with the appropriate officials in foreign governments, and under the aegis of the governing Joint Contingency Plan (JCP). Accordingly, Regional Response Teams shall use this Instruction as part of their normal JCP planning process. U. S. Coast Guard representatives shall encourage their foreign counterparts to adopt a risk based, transparent approach to Place of Refuge planning and decisions.

(5) In the event of a Place of Refuge situation occurring near an international border, or where a transit to a Place of Refuge will cross an international border, the U. S. Coast Guard, in accordance with the governing JCP, shall notify and cooperate with the appropriate foreign authorities, share all available information, and, in cooperation with foreign government representatives, strive to present a united and consistent set of requirements for the vessel seeking refuge.

(6) Note that the United States is party to the *International Convention on Oil Pollution Preparedness, Response and Co-operation*, 1990. This treaty requires, among other provisions, that ships notify coastal states of pollution incidents, and that potentially impacted states share information and cooperate during the response.

n. Captain of the Port Orders and Administrative Orders. Sector Commanders may need to direct the owners/operators of vessels seeking a Place of Refuge to take certain actions in order to reduce safety, security, or other risks. For vessels within the territorial seas, as defined in 33 CFR 2.22, or navigable waters of the United States, as defined in 33 CFR 2.36(a), Captain of the Port Orders are typically used to issue such direction. For vessels outside of the territorial seas, as defined in 33 CFR 2.22, or navigable waters of the United States, as defined in 33 CFR 2.36(a), Sector Commanders may, using the FOSC's authority, issue Administrative Orders as authorized by Section 311(c) of the Federal Water Pollution Control Act (33 U.S.C. 1321) as amended by the Oil Pollution Act of 1990. The FOSC must first determine that the action will mitigate or prevent a substantial threat of a discharge into or on the navigable waters or the exclusive economic zone of the United States. Sector Commanders should consult the servicing judge advocate before issuing direction to a vessel in Place of Refuge situations. This paragraph should not be construed as limiting other regulatory or statutory authorities the Coast Guard may have.

o. Place of Refuge and the Incident Command System. While this document can and should be used as part of the normal planning process, when an incident actually occurs, the incident management team shall evaluate the situation, using this Instruction, and make a recommendation to the Unified Command on any Place of Refuge request by the responsible party. A proper Place of Refuge evaluation should consider input from subject matter experts from various fields and positions within the Incident Command System (ICS) structure. To avoid the distractions of current operations and planning, the Unified Command may consider forming a "future plans" unit, headed by the Deputy Planning Chief, to conduct the Place of Refuge evaluation. This cell would include necessary personnel from Operations and Planning Sections and the Command Staff. In some cases it may also be appropriate to include stakeholders (via the liaison officer) that are not otherwise part of the Unified Command. When the unit has completed its evaluation it will make a recommendation via the Planning Section Chief, to the Unified Command.

p. Local Stakeholder Concerns. Place of Refuge situations can raise significant concerns among local stakeholders, who may have little understanding of the technical nature of the problem, but clearly see risks to their citizens, natural resources, and economy. Area Committees should therefore make every attempt to incorporate local stakeholders into the planning processes. This should include an explanation of risk reduction measures that will be part of any Place of Refuge decision, such as transit and salvage plans, escort requirements, or the staging of pollution response equipment. Two way communication efforts will provide a better understanding of the resources at risk, may help identify lower risk options, and will promote acceptance of the process and any final decision.

q. Urgent Situations. In some cases, circumstances may be so urgent that the stakeholder consultation and formal risk analysis processes described in this Instruction are not possible, even in an abbreviated form. In such cases, Operational Commanders shall make all notifications that circumstances permit, and shall determine the best course of action based on the available information, prior Place of Refuge planning efforts, and their own professional judgment.

5. DISCLAIMER. Each COTP/FOSC has discretionary authority which should be used to best reduce risk within their area of responsibility (AOR). Nothing in this Instruction is intended to circumscribe the discretionary authority of a COTP/FOSC to address the unique safety and security situation within their AOR. This Instruction is intended only for internal guidance of Coast Guard personnel responsible for responding to a Place of Refuge request. Any requirements or obligations created by this Instruction flow only from such personnel to the Coast Guard, and the Coast Guard retains the discretion to deviate or authorize deviation from any requirements in this Instruction. This Instruction creates no duties or obligations to the public to comply with procedures described herein, and no member of the public should rely upon these procedures as a representation by the Coast Guard as to the manner in which it will respond to a Place of Refuge request.

6. REQUESTS FOR CHANGES. Direct to: Places of Refuge Project Officer, Office of Incident Management and Preparedness (CG-3RPP-A), 2100 Second Street, S.W., Washington, DC 20593-0001.

7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. Environmental considerations were examined in the development of this Instruction and have been determined to be not applicable.

8. FORMS/REPORTS. None.

DAVID P. PEKOSKE /s/
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Operations

Encl: (1) Sample Place of Refuge Checklist
(2) Place of Refuge Risk Assessment Job Aid
(3) Authorities, Responsibilities, and Roles during a Place of Refuge Incident

Sample Place of Refuge Checklist

<table>
<tr><th colspan="6">Vessel Information</th></tr>
<tr><td colspan="3">Name</td><td>Flag</td><td colspan="2">Official Number</td></tr>
<tr><td colspan="3">Number of Persons on Board</td><td colspan="3">Location</td></tr>
<tr><td>Crew</td><td colspan="2">Passengers</td><td colspan="2">Longitude</td><td>Latitude</td></tr>
<tr><td colspan="3" rowspan="2">Number Of Crew/Passengers Already Evacuated:</td><td colspan="3" rowspan="2">Description: e.g., 20 miles west of Cape Disappointment</td></tr>
<tr></tr>
<tr><td>Gross Tons</td><td>Length</td><td>Draft</td><td colspan="3">Type/Service: e.g., container ship, product tanker, etc.</td></tr>
<tr><td colspan="3">Current O/S WX & Sea State</td><td colspan="3">Projected O/S WX</td></tr>
<tr><td>Owner/Operator/RP[1]</td><td colspan="2">P&I Club</td><td>Class Society</td><td colspan="2">Agent</td></tr>
<tr><td>POC</td><td colspan="2"></td><td></td><td colspan="2"></td></tr>
<tr><td>Phone</td><td colspan="2"></td><td></td><td colspan="2"></td></tr>
<tr><td colspan="6">Notified by vessel master?</td></tr>
<tr><td>___ Yes ___No</td><td colspan="2">___ Yes ___No</td><td>___ Yes ___No</td><td colspan="2">___ Yes ___No</td></tr>
</table>

[1] Determine which party will be acting as the responsible party and has authority to do so. Under OPA 90 the responsible party is any person owning, operating, or demise chartering the vessel.

Vessel Information (continued)

Complete Port State Control Safety & ISPS/MTSA targeting matrix

Complete HIV targeting matrix. (*Classified upon completion*)

Ensure vessel has a valid COFR[2]

Cargo		Bunkers	
Type	Amount	Type	Amount

Other HAZMAT: e.g., Ship's stores, etc. (Attach vessel's dangerous cargo manifest if available)

General description of ship's condition, including any structural damage:

[2] If vessel does not hold a COFR, coordinate with NPFC and servicing legal office to arrange COFR or other coverage to the extent deemed necessary for entry.

Vessel Information (continued)	
Are there any deaths, injuries, or persons in need of medical assistance? If so, treat as SAR incident and prosecute accordingly!	
What is the nature of the problem leading to a need for a Place of Refuge?	
What is the vessel master/rep specifically requesting?	
When did the problems begin?	How long has the crew been up? (fatigue concerns)
Status of the Following Systems:	
Lifesaving (lifeboats, rafts, EPIRB, etc)	
Fire Fighting for Cargo and Accommodation/Machinery Spaces	
Bilge Pumps	
Propulsion	
Steering	
Ship's Service Generator	
Emergency Generator	
Measures Already Taken by the Crew – The attached "Rapid Salvage Survey" may assist in collecting information.	
Repairs	
Ballasting	
Cargo Shifts	

Require the Vessel to take the following actions, as appropriate. Use an Administrative Order for vessels outside of the territorial seas and a COTP Order for vessels inside the territorial seas. The Oil Spill Liability Trust Fund (OSLTF) is available to remove an actual discharge of oil or to prevent or mitigate a substantial threat of an oil discharge.

Action	Notes
Arrange for tugs of sufficient horsepower to render necessary assistance.	
Submit a salvage plan to the Captain of the Port.	
Hire/activate an appropriate Oil Spill Response Organization.	The responsible party must notify the Qualified Individual per the Vessel Response Plan (VRP).
Hire a salvage company capable of addressing the situation.	See the International Salvage Union http://www.marine-salvage.com or the American Salvage Association http://www.americansalvage.org for information about professional salvage standards, including compensation issues.
Hire a marine fire fighting company capable of addressing the situation.	See the National Fire Protection Association for information on professional standards for marine fire fighting. http://www.nfpa.org
Other	
The vessel's representative/responsible party must describe exactly what it is requesting with respect to a Place of Refuge, and what it intends to do there (i.e. repairs). This will require, at a minimum, a salvage plan and a transit plan, both of which will require COTP approval.	

Notifications by the COTP/FOSC

In addition to notifications required by local policy, the COTP/FOSC shall make the following notifications:

Notification	Number	Notes/Completed
District Command Center		Notify District Command Center, ensure District prevention, response, and legal offices are notified.
Area Command Center		Will normally be notified by the District Command Center
Marine Safety Center (Salvage Engineering Response Team)	(202) 475-3400 or (202) 327-3985	Search for "Salvage Engineering" at http://homeport.uscg.mil.
National Pollution Funds Center	(202) 493-6700	http://www.uscg.mil/hq/npfc/index.htm
Appropriate Strike Team	AST (609) 724 0008 PST (415) 883 3311 GST (251) 441 6601	
Area Committee Members		
Natural Resource Trustees		
Other		

Actions by the COTP/FOSC and Unified Command
(Items most relevant to making a decision regarding a Place of Refuge request)

Action	Notes/Completed
Facilitate the placement of an inspection team on the vessel if safe to do so.	Entry should be made only in accordance with a site safety plan.
Plot the trajectory of the vessel if it is drifting or at risk of losing power or steerage.	
Plot the trajectory of the expected spill from the current location.	
Plot the trajectory of the expected spill from each Place of Refuge under consideration.	
Identify and evaluate resources at risk for each Place of Refuge under consideration.	
Review and approve a salvage plan.	
Review and approve a transit plan.	

Place of Refuge Risk Assessment Job Aid

Operational Commanders should use this evaluation as part of the normal planning process through table top exercises and other scenario based planning activities. While Area Committees should take the lead in this planning, any actual event may cross Area Committee boundaries. Therefore, RRTs should review these evaluations to ensure consistent risk evaluation.

In the event of an actual Place of Refuge request, the Operational Commander should review and verify the previous work or modify it to suit the particular situation. The risk evaluation may be done by a future plans unit within the Planning Section made of subject matter experts from the Operations and Planning Sections, the Command Staff, and appropriate stakeholders. Before beginning the evaluation, use the checklist (Enclosure 1) to gather all relevant information.

The risk evaluation job aid is designed to independently evaluate the probability and consequences associated with each Place of Refuge option under consideration. The scores for each option are then combined to produce overall risk scores.

Numerical scores for each option are generated using a formulated Excel spreadsheet, which is located on both CG Central and CG Homeport. To access the spreadsheet via CG Central, log onto http://cgcentral.uscg.mil and follow the path: Our CG > Organizational Information > HQ Directorates > Assistant Commandant for Operations (CG-3) > Assistant Commandant for Response (CG-3R) > Office of Incident Management and Preparedness (CG-3RPP) > Places of Refuge > under "Supporting Documents" select the file labeled "Places of Refuge COMDTINST 16451.9_Enclosure 2_Risk Assessment Job Aid.xls." To access the spreadsheet via CG Homeport, log onto http://homeport.uscg.mil/mycg/portal/ep/home.do and follow the path: Missions > Environmental > Pollution > Oil > Places of Refuge > under "Supporting Documents" select the file labeled "COMDTINST 16451.9 Enclosure 2 Job Aid Excel Spreadsheet."

Because different subject matter experts may be involved in the different portions of the Place of Refuge evaluation, sections of the job aid may be completed in parallel, rather than in sequence.

The ***probability*** portion of the evaluation is primarily concerned with how towing, sea conditions, currents, wind, holding ground, the relative ease of conducting salvage and response operations, and other physical factors associated with a given Place of Refuge may affect the vessel. Accordingly, salvors, professional mariners and persons with expertise in engineering, ship structure, and similar fields should make this portion of the evaluation. This is in no way intended to limit the participation of others.

The ***consequence*** portion of the evaluation is primarily concerned with the expected harm to public health and safety, natural resources, and economic activity should an incident actually occur. Accordingly, public safety officials, natural resource trustees, and economic stakeholders should be included in the human health and safety, natural resource, and economic consequences portions respectively. This is in no way intended to limit the participation of others.

Briefly, the sequence of events is as follows: The Operational Commander shall define the worst case scenario assumption, identify any overriding national security or national defense considerations, and list the specific Place of Refuge options (locations) that the future plans unit will evaluate. The planning unit will then evaluate the risk associated with each option identified by the Operational Commander. Finally, the Operational Commander will verify the work of the planning unit, and set conditions and requirements on how and when the stricken vessel will enter the designated Place of Refuge.

Note on weighting factors: The weighting factors for the consequences tables have been calculated with a hierarchy which favors human health and safety over natural resources and natural resources over economic losses. This hierarchy will not pre-determine the final decision however, because scores for all categories will be calculated and considered during the process.

Step 1, Define the Scope and Scale of the Evaluation: The process begins when the Operational Commander determines the "worst case scenario" the group will use as a planning assumption, and lists the potential Place of Refuge locations that the group will evaluate. Taken together, these two decisions define the scope and scale of the evaluation. The Incident Commander shall make these determinations based on available information and the input of professional mariners, pilots, and salvage and response experts.

Step 1.1: Identify the "worst case scenario" that one may reasonably expect. This might otherwise be defined as a significant worsening of the vessel's condition and the associated results. Make conservative but realistic assumptions about the vessel's current status, how the situation may worsen, and the likely results. For example, determine if the loss of the entire vessel is possible, how much cargo/hazmat is onboard, and if fire or explosion is possible. Use these assumptions to define the "worst case scenario" for the incident. Evaluators should apply this definition consistently throughout the risk evaluation process. Define the scenario below:

Step 1.2: The Incident Commander shall designate a limited number of potential Places of Refuge that the group will evaluate. Prior Place of Refuge and other planning activities, taken in combination with the current situation and the vessel's location should provide an adequate number of options. Unless clearly ruled out by the circumstances, "continue voyage" and "repair in place" should be included so that the risks with these options can be evaluated. "Grounding" and "scuttle" need only be considered if those options, however undesirable, may be preferable to taking no action. If needed, either of these options may be lined out on the tables and replaced with an additional POR to evaluate.

Indicate below which of the following Place of Refuge options will be evaluated.

	Vessel Continues its voyage (deny entry)[1]
	Vessel Remains in its current location (repairs made in place)
	Vessel is taken out to sea and scuttled at a given location
	Vessel is intentionally grounded at a given location
	Vessel is taken to a place of refuge at:
	Vessel is taken to a place of refuge at:
	Vessel is taken to a place of refuge at:

[1] Note: A continue voyage/deny entry decision should be accompanied with a plan to render assistance and impose restrictions until the situation is ultimately resolved.

Step 2 - Probability: For the probability component of risk, consider the likelihood (probability) that the scenario defined in step 1.1 above may occur for each Place of Refuge (POR) option being considered. The probability of such an incident may be different for different Place of Refuge options due to environmental factors, such as wind and sea conditions both at the Place of Refuge and during any transit, and by the degree of difficulty and complexity in conducting repair or salvage operations at a given POR.

Step 2.1 – Consider how each of the following factors may affect the probability of the proposed scenario occurring, using the following scale:

1	Ideally suited to addressing situation, equipment readily staged and deployed
2	Acceptable under prevailing and expected conditions
3	Poorly suited, additional measures or procedures will be needed
4	Poorly suited to addressing situation even w/additional measures; equipment staged/deployed only with great difficulty
5	Completely unsuitable or unavailable to address situation

Evaluators should assign a higher score only where the factor would actually increase the likelihood of an incident, independent of cost or convenience.

Table 2-A. Add any additional factors relevant to the current situation at the bottom of the table.

Physical Attributes and Port Services	POR A	POR B	Continue Voyage	Repair in Place	Scuttle[2]	Ground
Transit Difficulty						
Holding Ground						
Expected Winds						
Expected Sea State						
Tides and Currents						
Cargo Offload						
Cargo Storage						
Docking Facilities						
Salvage Equipment						
Spill Equipment						
Security Concerns						
Total						

Total the scores for each Place of Refuge option under consideration. Lower scores indicate options less likely to result in a significant worsening of the vessel's condition.

[2] Per step 1.2, "scuttle" and "ground" may be lined out on this and all subsequent tables if they are not viable options and space is needed to evaluate other specific POR options.

Step 2.2 – The numbers recorded in table 2-A above does not translate directly into a probability score, they are only intended to help the stakeholders consider the various factors that may influence the probability that the ship's condition will significantly worsen for each of the COAs under consideration.

Having considered the various factors that may affect the likelihood of a further worsening of the vessel's situation; assign a probability score for each COA using the criteria below.

Highly Probable	Almost certain an incident will occur	0.9
Probable	More than 50% likelihood that an incident will occur	0.75
Equal probability	Approximately 50% likely that an incident will occur	0.5
Unlikely	Less than 50% likelihood than an incident will occur	0.25
Improbable	Incident not expected to occur under prevailing and expected conditions	0.05

Table 2-B

Course of Action	Probability Score
Vessel Continues its Voyage	
Repairs Made in Current Location	
Vessel is Taken to Place of Refuge A	
Vessel is Taken to Place of Refuge B	
Vessel is scuttled at a given location[3]	
Vessel is grounded at a given location	

[3] For this COA, the probability will be 100% unless the situation is such that scuttling might result in a more controlled release of pollutants than would be the case if no action were taken.

Step 3 - Consequences: For the consequence component of risk, appropriate stakeholders will determine the level (scale) of consequences that can reasonably be expected if an "incident" – defined as a significant worsening of the vessel's condition – occurs. Stakeholders will assess the scale of expected consequences for the following three categories:

- Human Health and Safety, including the safety of the crew, professional responders, and the public at large
- Natural Resources, including threatened and endangered species, subsistence species, commercial species, habitat, and cultural resources
- Economic Impacts, including commercial shipping and fishing, marine tourism and recreational fishing, and non-marine related economic activities

Step 3.1 – Begin by evaluating the potential consequences to human health and safety using Table 2-C below (or attached Excel table). While few credible Place of Refuge scenarios will include significant health and safety consequences to the general public, the National Contingency Plans properly lists the safety of human life as the top priority during every response action (40 CFR 300.317). Score using the following criteria:

2	No credible threat to human health and safety
4	Minor injuries to a few individuals, exposure to hazmat below PEL/STEL
8	Serious but non-life threatening injuries, hazmat exposure beyond PEL/STEL
16	Some deaths and/or significant injuries/ hazmat exposure beyond IDLH to small groups or lesser exposure to large groups
32	Many deaths, serious injuries, or life threatening health concerns

Table 2-C

Raw score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground	Weight
General population							10
Response personnel							9
Vessel crew							9

Weighted Score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground
General Population						
Response Personnel						
Vessel Crew						
Total						

Step 3.2 - Evaluate the likely consequences to each category of natural resources and for each COA being considered using the table below, or the attached Excel spreadsheet. Score each item as follows:

2	No expected exposure of the natural resource in question
4	Minimal exposure, impact expected to be local and short term
8	Moderate exposure, measurable impact over a larger area or longer time
16	Significant exposure, regional impact and/or multi-year recovery period
32	High exposure, impact could cause the long term collapse over a large area

Table 2-D

Raw Score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground	Weight
Threatened and endangered species							8
Critical habitat for TAES							10
Sensitive (non protected) species							6
Critical habitat for sensitive, (non protected) species							5
Historic or cultural resources							10
Subsistence use species							8
Subsistence use critical habitat							10
Commercial species							6
Essential fish habitat							3
Recreational use/activities							3
Other natural resources							3

Step 3.2 (continued) – Record the weighted scores in the following table, or by using the attached Excel spreadsheet.'

Weighted Score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground
Protected Species						
Critical habitat for protected species						
Sensitive (non protected) species						
Critical habitat for sensitive, (non protected) species						
Historic or cultural resources						
Subsistence use species						
Subsistence use critical habitat						
Commercial species						
Critical habitat for commercial species						
Other natural resources						
Total						

Step 3.3 – Evaluate the potential economic consequences to each category of economic activities for each COA being considered using the table below. Consider direct impacts to critical infrastructure, but avoid undue speculation concerning cascading economic disruption. Score each item as follows:

2	No expected impact on the economic activity in question
4	Minor – local area, few businesses, and/or short term
8	Moderate – regional area, many business, and/or longer term
16	Major – significant impacts on region/economic sector for several weeks
32	Severe – will affect regional activity for several months or longer

Table 2-E

Raw Score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground	Weight
Maritime commerce and shipping							4
Commercial fishing and aquaculture							4
Recreational fishing, marine tourism							4
Non-maritime activities and commerce							4
Other							1

Weighted score	POR A	POR B	Continue Voyage	Repair in Place	Scuttle	Ground
Maritime commerce and shipping						
Commercial fishing and aquaculture						
Recreational fishing, marine tourism						
Non-maritime activities and commerce						
Other						
Total						

Step 4- Combined Risk Score

Step 4.1 — Record the probability for each Place of Refuge option, and the associated consequence score for each type of consequence from previous tables.

	Probability Score	Health and Safety	Natural Resources	Economic Activity
Place of Refuge A				
Place of Refuge B				
Continue Voyage				
Repair in Place				
Scuttle				
Ground				

Step 4.2 — Calculate the risk for each type of consequence, and the total risk for each Place of Refuge in the table below. Risk = Probability * Consequences.

		Risk by Consequence Type			
	Probability Score	Human Health and Safety	Natural Resources	Economic Activity	**Total** Risk
Place of Refuge A					
Place of Refuge B					
Continue Voyage					
Repair in Place					
Scuttle					
Ground					

Step 4.3 – Combine Probability and Consequence scores and determine the lowest risk Place of Refuge option. Decision makers are advised to consider each category individually, not just the lowest total risk score. For example, a Place of Refuge option with the lowest total risk might still have an unacceptably high Human Health and Safety risk relative to other options. Also, as previously discussed in this instruction, the Operational Commander shall consider security and national defense risks in making a final decision.

Attach this form to the signed Incident Action Plan to document approval of the final decision.

Authorities, Responsibilities, and Roles during a Place of Refuge Incident

Shaded areas indicate "lead" at the given stage of the operation

	SMC/SAR	COTP/Force Majeure	FOSC/Places of Refuge	FMSC/Security Concerns
Stage 1: SAR		Monitor and assist	Monitor and assist. Notify trustees, stakeholders, and RRT of potential for POR concern	Monitor and assist. Identify any security issues
State 2: Force Majeure	Monitor and assist		Monitor and assist. Notify trustees, stakeholders, and RRT of potential for POR concern	Monitor and assist. Impose any necessary security restrictions
Stage 3: Place of Refuge Request Assessment	Monitor and assist			Monitor and assist. Impose any security restrictions required to allow transit to proceed as planned.
Stage 4: Vessel Transit	Monitor and assist			Monitor and assist. Conduct positive control boarding or other ops necessary for secure transit.
Stage 5: Response	Monitor and assist			Monitor and assist
Stage 6: Follow-Up	Monitor and assist		Focus on Natural Resource Damage Assessment (NRDA), claims, restoration, and other long term concerns	Monitor and assist
State 7: Conclusion	Monitor and assist			Monitor and assist
Stage 8: Lessons Learned				

All agencies, Commands, authorities, and personnel are expected to act with a *Unity of Effort* to resolve the situation with due regard to safety, security, and stewardship.

Appendix P

Aloha Plume Models

Appendix P: Aloha Plume Models

Aloha Plume Models For Vinyl Chloride

Assumptions

Plumes are run for a vessel in the Gulf of Mexico.

1. Wind is from the Southeast at 22 MPH, 75% Humidity
2. Container is modeled as a Sphere which represents a box shaped container that is approximately 12,700 Cubic Feet.
3. The opening from which the chemical is being released is at the top of the container; i.e. a vent pipe 8" up to a 6 foot hole.
4. We assumed the chemical is being stored at 7degrees F.

Chart 1

Sunny Conditions 85 Degrees F

Hole size	8 Inches	3 Feet	6 Feet
Plume Distance 1.0 ppm (TVA)	6.5 miles	6.5 miles	10+ miles
LEL 3.6% 36,000 ppm	57 yards	73 yards	176 yards
10% LEL 3,600 ppm	242 yards	303 yards	690 yards

Chart 2

Overcast, 33 degrees F

Hole Size	8 inches	3 Feet	6 Feet
Plume Distance 1.0 ppm	6.5 miles	6.5 miles	10+ miles
LEL 3.6% 36,000 ppm	53 yards	68 yards	176 yards
10% LEL	231 yards	289 yards	663 yards

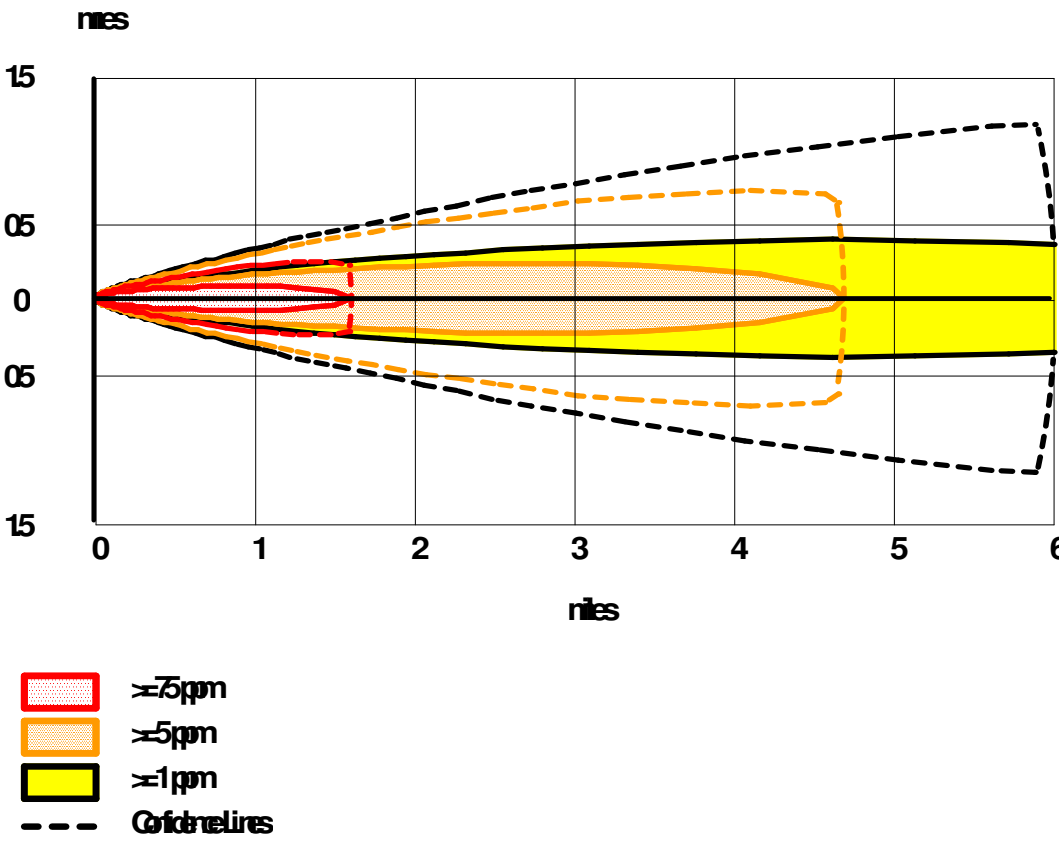
SITE DATA:
Location: GALVESTON, TEXAS
Building Air Exchanges Per Hour: 2.42 (unsheltered single storied)
Time: August 15, 2007 1300 hours CDT (user specified)

CHEMICAL DATA:
Chemical Name: VINYL CHLORIDE Molecular Weight: 62.50 g/mol
TEEL-1: 50 ppm TEEL-2: 5000 ppm TEEL-3: 20000 ppm
LEL: 36000 ppm UEL: 330000 ppm
Ambient Boiling Point: 7.0° F
Vapor Pressure at Ambient Temperature: greater than 1 atm
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
Wind: 22 knots from SE at 3 meters
Ground Roughness: open water Cloud Cover: 0 tenths
Air Temperature: 90° F Stability Class: D
No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:
Leak from short pipe or valve in spherical tank
Flammable chemical escaping from tank (not burning)
Tank Diameter: 28.2 feet Tank Volume: 11,742 cubic feet
Tank contains liquid Internal Temperature: 7° F
Chemical Mass in Tank: 352 tons Tank is 100% full
Circular Opening Diameter: 8 inches
Opening is 28.2 feet from tank bottom
Release Duration: 2 minutes
Max Average Sustained Release Rate: 4,860 pounds/min
(averaged over a minute or more)
Total Amount Released: 9,387 pounds
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).

THREAT ZONE:
Model Run: Heavy Gas
Red : 1.6 miles --- (75 ppm)
Orange: 4.7 miles --- (5 ppm)
Yellow: greater than 6 miles --- (1 ppm)

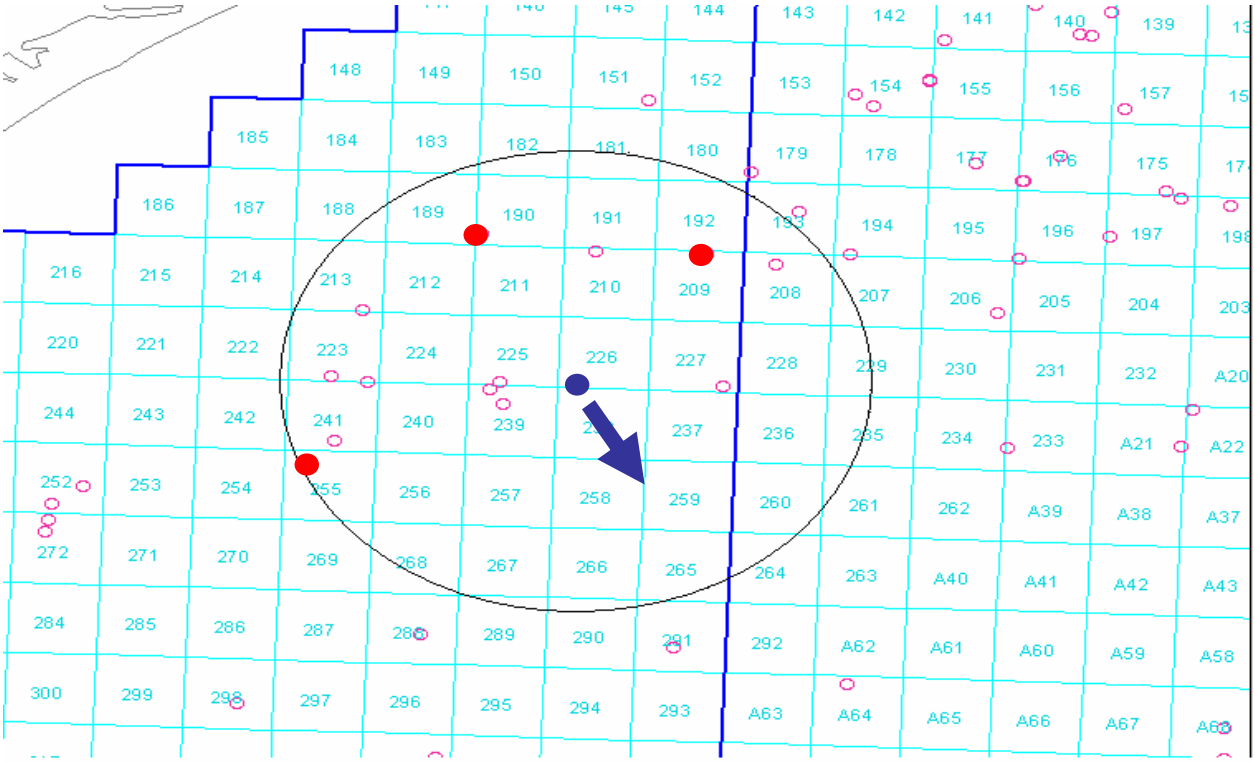

miles
15
05
0
05
15
0
1
2
3
4
5
miles
>=75ppm
>=5ppm
>=1ppm
Confidence Lines

Appendix Q

Primary Offshore HSR Location

Appendix Q: Primary Offshore HSR Location

Pre-Positioned HSR Site for HAZMAT Vessel
Southside Fairway Anchorage



Structures within approx. 10 miles of 29° 05' N , 94° 37' W

Aaron Campbell
3/30/2007

Block #	name	complex ID	lease #	manned	operator
GA 190	A	511	G20623	yes	Merit Energy Company
HI 208	A	10543	G07286	n	El Paso Exploration & Production
GA 209	A	10500	G06093	yes	Exxon Mobil Corp.
	B C	28051		yes	
GA 210	1 2 B	1620	G25524	n	Hydro Gulf of Mexico, LLC
GA 213	A	168	G17170	n	Stone Energy Corp.
GA 223	C	1417	G03738	n	Hunt Oil Company
	JA	10196		n	TDC Energy LLC
GA 225	Cais. #4	313	G15742	n	Walter Oil & Gas Corp.
GA 227	A	1715	G21322	n	Energy Partners, Ltd.
GA 239	A	10561	G09032	n	Walter Oil & Gas Corp.
	5	362		n	
GA 241	B C	10571	G01772	n	Spn Resources, LLC
GA 255	A	10050	G22025	yes	El Paso Exploration & Production

Coordinates of manned platforms

GA 190 A	29° 08' 32" N	94° 40' 12" W
GA 209 A	29° 07' 49" N	94° 32' 45" W
GA 209 BC	29° 07' 49" N	94° 32' 48" W
GA 255 A	29° 00' 01" N	94° 45' 53" W

Appendix R

Harbor of Safe Refuge Hurricane Decision Matrix for Vessels in Extremis

Appendix R: Harbor of Safe Refuge Hurricane Decision Matrix for Vessels in Extremis

Designed to provide guidance in decision-making

Category	Winds (mph)	Surge (feet)		Damage	Zone Evacuations*	100' - <200'	200' – <400'	400' and above
		Coast	Bays					
1	74 – 95	4 – 5	4 – 7	Minimal	Marine areas of: Freeport Texas City Galveston	• Allow into port. • Hold below Fred Hartman Bridge. • Not allowed up into Ship Channel	• Priority vessels for the Inner Anchorage and generally available docks in Galveston	• Must be kept offshore at Anchorages only unless they can find an available HSR Hurricane Contingency Berth (Pilot issue) or Inner Anchorage (if space is available)
2	96 – 110	6 – 8	8 – 12	Moderate				
3	111 – 130	9 – 12	13 – 18	Extensive	Marine areas South and West of 146, including Clear Lake	• Allow into inner harbor areas of Freeport and Galveston	• Priority docking at available docks in Freeport or Galveston* * Due to potential salvage concerns.	• Maintain in anchorage areas • Not allowed in port unless there is an available HSR Hurricane Contingency Berth available in Freeport or Galveston
4	131-155	13 – 18	19 – 24	Extreme	All reaches of the Houston Ship Channel, up to and including the Turning Basin			
5	> 155	18+	24+	Catastrophic				

Notes: Prior to allowing entry, vessels must be assessed by USCG for special concerns, such as CDCs, security issues, or any other materials or issues that are a potential danger to the port.

Asset availability goes away at Port Condition Yankee and Zulu, approximately 12 hours before arrival of gale force winds.

Evacuation Zones are based on the South Texas mandated evacuation maps.

Designated Hurricane Contingency Berths for HSR

- 2 – 3 docks in Galveston
- 1 – 2 docks in Freeport
- 1 dock at Barbours Cut
- Satisfactory moorings capable of securing a vessel in excess of 400'
- Maintained open by local authorities until the local authorities evacuate
- Moving vessels > 200' into port at this time may be an issue due to lack of availability of Pilots, assist tugs and/or line handlers due to mandatory evacuations and/or moving of Pilot vessels and assist tugs to safe berths.

Requirements for Vessels Remaining in Port

1. Receive written permission from the berth owner to remain at that berth during the storm
2. Complete the information form and submit to the USCG prior to Condition Yankee
3. Moored/anchored at a location of adequate depth to handle storm surge and wave action throughout the storm