

## RESPONSE PLANNING AND ACTION CONSIDERATIONS

7/28/97

### SITUATION:

The F/V Fortuna Reefer is hard aground on hard coral about 300 yards off the southeast end of Mona Island, a natural reserve. Approximately 100,000 gallons of IFO 180 fuel oil and 33,000 gallons of marine diesel on-board distributed in four of the ship's double bottom tanks and are of concern in the event a breach of the hull occurs. Currently the vessel is stable and no release has been reported. Due to the ship's close proximity to the shoreline and to sensitive natural resources and habitats, response options will be evaluated in the event a rupture in one or more of the ship's tanks occurs, during salvage operations. Keep in mind that effective response options may be significantly limited due to:

- 1) limited access to the grounding site because of shallow water depth and coral rock near or at the surface, as well as limited access to the shoreline due to vertical rocky cliffs.
- 2) the remoteness of the location and limited ability to stage equipment, supplies, and personnel on scene.
- 3) limited ability to boom, contain, and recover oil mechanically due to seas and unpredictable nearshore eddy and rip currents.

Currently, there are 900 feet of boom between the bow of the ship and the shore. This boom is placed as a precaution in the event of a small release. It is not likely that it will offer much in the way of protection if a catastrophic release occurs. It was observed that the boom is being overwashed by existing sea state. This boom may offer more benefit if adjusted to deflect any release to the pre-determined collection point shown on attachment 5-3. Skimming feasibility in existing sea states should be evaluated. It is likely that skimming will not be effective in current sea conditions or nearshore in surf conditions. The tug Apollo arrived on scene at 1100 on 7/28 to begin lightering operations. The tug's storage capacity is 16,000 gallons. It is planned that the tug will lighter two loads from the Fortuna Reefer with diesel being taken off first. A large tug, the Centurion, is due to arrive on-scene at 1500 on Monday 7/28 to tow the Fortuna off the reef.

Additional equipment on-scene includes 9000 feet of boom onboard barge, two tugs, Munson work boats, and four 500 gallon temporary storage device.

### CURRENT SALVAGE PLANS:

1. lighter 32,000 gallons of fuel to the tug Apollo and trim vessel to maintain stability by internal transfer of IFO 180 fuel and transfer or discharge of ballast water as.
2. tow vessel off reef using the tug Centurion with two additional tugs standing by on-scene. A pre-marked extraction channel will be used to avoid further coral damage.
3. conduct underwater hull survey. the west side of Mona Island has been proposed as a location to conduct the hull survey to offer divers and the ship a lee.
5. proceed to Port Mayaguez for repair evaluations.

Details of lightering and salvage plan are under development and should be prepared by mid-day 7/28. Some considerations include:

- plan to follow vessel with boom and a skimmer in event of a spill.
- maintaining at least one mile from shore while transiting to conduct hull survey to reduce risks of potential releases to Mona Island.

#### WILDLIFE CONSIDERATIONS:

Birds and other wildlife have not been reported to be abundantly present in the immediate area of the grounding site. Shorebirds were sighted along the beach. No sea turtles have been observed, but still could be present at any time. Turtle nesting activity was observed in the area two weeks ago by PRDNER. No nesting activity was observed during surveys conducted on 7/27. PRDNER has ability to handle oiled wildlife from Mayaguez. Contact Ms Debra Moore phone number 787-899-1531 for assistance.

#### EVALUATION OF USE OF DISPERSANT:

If a release occurs at the grounding site, dispersant application, if effective, could reduce impacts to turtle nesting beaches and other shorelines west of the grounding location. Shorelines in the immediate vicinity of the grounding site would likely still be impacted. Though dispersants may provide some protection to turtle nesting habitat, it may cause additional damage to the shallow corals in the nearshore. Under the CRRT dispersant pre-approval plan, dispersants may be applied one mile from shore and at least one mile from any coral within 20 feet of the surface. Additionally, minimum water depth must be 60 feet (see attached map). Refer to the CRRT dispersant policy for all required protocols. RRT consultation is required prior to dispersant application outside the pre-approved parameters. One option in the event of a release while extracting the vessel is to continue to tow out into deeper water where dispersing oil is less likely to impact resources. Other additional support personnel would be required on-scene to conduct dispersant operations and monitoring. The Gulf Strike Team can provide dispersant effectiveness monitoring.

Consider that the non-use of dispersants does not eliminate water column impacts from the oil. Some oil will naturally disperse and could be expected to mix thoroughly in shallow waters.

(see technical response considerations attachment for more information).  
(Also see attached dispersant pre-approval zone map)

#### EVALUATION OF USE OF IN-SITU BURNING:

In-situ burning of the oil could be an option if containment and collection of the spill could be accomplished in the existing sea states. Generally, the oil thickness would have to be a minimum of 2mm and the sea state should be 3 feet or less. A burn could potentially be conducted in a natural catchment area against or near the shoreline where containment could be accomplished. Cautions would include the potential for sinking burn residue, and smoke proximity to shorebased sensitive resources or people. Current pre-approval for in-situ burning requires that the burn be conducted at least 3 miles from shore. Refer to the CRRT in-situ burn policy for all required protocols. Other additional support personnel would be required on-scene to conduct in-situ burn operations and monitoring. Air monitoring could be conducted by the Gulf Strike Team.

(see technical response considerations attachment for more information)

(also see attached graphic areal coverage rates for selected spill response systems and ISB pre-approval zone maps)

#### SHORELINE SEGMENTATION In Area To WEST OF GROUNDING

Currents in the nearshore are unpredictable due to the variability of wind, tides, and currents, especially rip zones and eddies created by wind and the complex maze of reef. Initial trajectory forecasts predict that a significant release of oil at the grounding site would move towards the west and make first contact with shore within about a half hour somewhere within a mile north or south of the vessel position. As a planning contingency, the shoreline in this initial impact zone has been surveyed, pre-segmented, and preferred collection areas have been identified based on access and sensitivity in an effort to facilitate a more rapid and effective response should a release occur.

(see shoreline segment map attached)

#### ADDITIONAL PROTECTION MEASURES TO CONSIDER:

- pre-stage boom, sorbents, and snare in locations on shore so that rapid deployment could be effected to deflect oil to pre-designated collection sites or recover from the water. Skimming is likely to be ineffective due to sea conditions.
- Obtain four 10-12 foot Zodiacs to operate in shallow nearshore to tend boom.

#### SHORELINE CLEANUP CONSIDERATIONS:

There are three types of shoreline in the immediate impact area at risk; coarse coral sand, rocky shoreline, and one man made structure, a concrete pier. A few potential cleanup options and considerations for each shoreline type at risk are provided below. If shoreline impacts occur, a more detailed shoreline assessment is recommended to develop better site-specific cleanup recommendations.

I. Coarse Sand

the sand is likely to be quite permeable and difficult to address if oil gets ashore. Also oil could get buried on subsequent high tides. Some cleanup options, include:

- excavation and removal of oiled sand
- pushing lightly oiled sand into the surf to wash and refloat oil into collection boom if area is fairly low energy so refloat oil could be collected
- trenching and use of sorbents to collect oil

II. Rocky shoreline

about 1/3 of the surveyed shoreline is natural beachrock outcrops. These areas are generally higher energy areas and may get naturally cleaned by surf. Sorbent wiping, pressure washing or chemical shoreline cleaners could also be considered.

III. Man made structure - pier

the pier may be effectively cleaned with chemical cleaners, or with high pressure washing.

SUBSURFACE OIL CONSIDERATIONS:

There is potential that this oil could incorporate sediment and form mats or rollers on the bottom. It could coat coral and other resources on the bottom. Recovery impossible or limited to manual removal by divers.

BIOREMEDIATION CONSIDERATIONS:

Generally, bioremediation may enhance natural degradation of oil in areas that are sensitive or inaccessible. Bioremediation is generally considered a polishing tool and is not effective for removal of gross amounts of oil. This could be considered more of a remediation than response removal method in most cases. If bioremediation agents are used, they should be applied in areas where they will not get washed away by tides or surf.

(see technical response considerations attachment for more information).

CHEMICAL SHORELINE CLEANER CONSIDERATIONS:

Shoreline cleaners may provide additional effectiveness over natural recovery or high pressure washing on hard surfaces. It may be desirable in areas protected from waves and tides or areas that require a higher level of cleaning. Corexit 9580 was used effectively for cleaning oil from rocky shoreline during the Morris Berman Spill in 1994.

(see technical response considerations attachment for more information).

Another issue for consideration if shoreline impacts occur is disposal options. There is organic debris and wrack along most of the sand beaches that will act as sorbent material if oil comes ashore. This material along with sorbents will need to be disposed of. Additionally, if oiled sand is removed, it would need to be cleaned or disposed of. Options for storage and disposal of these materials is most likely limited, especially on Mona Island.