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DBL 152 Oil Spill Incident

Submerged Oil Verification/Calibration Survey Plan

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OVERVIEW

On 18-20 July 2006, the Responsible Party for the DBL 152 incident (via ENTRIX) performed a towed video survey as part of the LTM program to visually assess the distribution of residual oil and calibrate VSORS-light results. Visibility and equipment issues precluded a full visual evaluation; however, VSORS-light chain drags were completed. The program described below is intended to be a final assessment of whether recoverable oil is present in the vicinity of "heavy" areas determined during the 18-20 July cruise.

Without visual calibration of the VSORS-light results, it remains uncertain whether the area of heavy oil identified along Transect T-9 (and, to a lesser degree, areas of moderate oil in the same vicinity) represent recoverable quantities of oil. *"Recoverable oil" is defined (for this mission) as concentrations sufficient for an estimated recovery rate of 500 barrels or more per diver recovery team per day, as established before the termination of winter 2005-2006 response operations.*

In an attempt to determine whether heavy oil identified by chain drags in July 2006 represents recoverable oil, and to calibrate the VSORS-light apparatus, targeted diver surveys will be conducted as soon as practical. Dive surveys will also be used to assess the potential that algae and/or vegetation skewed the VSORS-light data obtained during the July survey.

GOALS & OBJECTIVES

The overall goal of the dive surveys is to determine whether heavy oil identified in the vicinity of Transect T-9 by VSORS-light represents recoverable oil as defined for this incident. This will be attempted through visual characterization of oil on the seafloor in representative areas of heavy oil (or moderate oil if no heavy oil is encountered) using divers as the primary means of data collection. In addition to divers, the effort will be supplemented using drop camera imagery as a secondary method of documentation

¹ Final draft submitted to USCG and NOAA (TGLO not involved at the time) on 7 SEP 06. No written comments or other objections received from either agency by the time the survey was implemented on 12-14 SEP 06. The final draft, though not reissued as "final", guided field operations for this event. The plan was "finalized" on 28 NOV 06 at the request of USCG MSU Port Arthur. No changes were made to the plan's substantive content.

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Specific objectives to be accomplished by the surveys include the following:

- Visually calibrate "heavy" and potentially calibrate "moderate" VSORS-light data if no areas of heavy oil can be located. Determine if oil in the vicinity of Transect T-9 is present in recoverable quantities (i.e., greater than 500 barrels) Moderate portions of the transects will be investigated only if heavy areas prove to have recoverable quantities.
- Visually determine if the algae/vegetation is a biological indicator of recoverable oil. Collect samples of the algae and 3-5 cores of sediment and algae, assuming algae is present along the VSORS-light tracklines. Additional searching for algae in other areas will not be performed.

MISSION PLAN

The overall survey effort will consist of three separate components:

- VSORS-light chain drags
- Dive surveys and sampling
- Drop-camera surveys

These components will be implemented in stages as follows:

Stage 1

Stage 1 will consist of VSORS-light chain drags to target specific areas of heavy (or potentially moderate) oil to be assessed using divers and drop-camera equipment in later stages. Given the passage of time since the last survey, it is anticipated that the area of heavy oil identified along Transect T-9 during the 18-20 July survey (a single $\frac{1}{4}$ nm segment) may have moved. Therefore, it will be necessary to confirm and potentially relocate this patch of heavy oil prior to conducting subsequent stages.

The initial VSORS-light drag along Transect T-9 will target the $\frac{1}{4}$ nm segment where heavy oil was identified during the towed video cruise. If heavy oil is not encountered, additional $\frac{1}{4}$ nm drags will be performed along Transect T-9 north and south of the first segment until a total of $\frac{3}{4}$ to 1 nm has been covered.

If no heavy oil is found along this portion of Transect T-9, VSORS-light drags will be initiated along a new parallel transect located $\frac{1}{4}$ nm to the northwest, the general direction of observed oil movement throughout the course of long-term monitoring. The new transect will begin 1 nm northeast of the intersection with

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Transect T-12. Tows will again be performed in $\frac{1}{4}$ nm increments. If no heavy oil is encountered, this process will be repeated until Transect T-10 is reached.

Once a $\frac{1}{4}$ nm segment containing heavy oil is found, it will be subdivided into five (5) 300-ft segments and resurveyed with VSORS-light to reduce the area to be surveyed by divers. Based on experience, 300 feet is the minimum practical limit of VSORS-light tows in open water. With careful positioning of the dive platform near the midpoint of the segment, divers should be able to traverse the 300-ft transect with a single anchor set.

The minimum number of 300-ft heavy oil transects to be identified for further evaluation is two (2). Additional transects will be identified and potentially surveyed if sufficient time is available within the 1-day windows allocated for each study component.

As for previous surveys, VSORS-light transect endpoints and trackline will be recorded with GPS, degree of oiling of sorbents will be assessed visually and documented with photos, and results will be reported graphically by transect. In addition, information on the relative amount of vegetation/algae recovered on each chain drag will also be recorded, close-up photos will be taken and representative samples will be collected if possible.

The VSORS-light surveys will be performed by ENTRIX aboard the *Hull Raiser*. Agency oversight personnel are not anticipated for this component of the survey.

Stage 2

Stage 2 will consist of dive surveys to visually survey and document the characteristics of residual submerged oil along the VSORS-light trackline in a minimum of two of the 300-ft heavy oil segments identified in Stage 1. If no oil heavier than moderate is found, dive surveys will be completed along 1-2 300-ft moderate segments to confirm the absence of recoverable oil, provided the work can still be performed in a single day.

At each survey location, divers will attempt to visually assess the seafloor along the 300-ft VSORS-light transect and document characteristics of any oil encountered with respect to its general distribution (e.g., large pools vs. uniformly distributed smaller globules); percent cover (ocular estimation), size and thickness of oil globules, appearance (e.g., color, consistency, sediment load, etc.). Divers will also investigate vegetation/algal mats present to determine if (1) oil is serving as an attachment substrate or is otherwise correlated to the presence of vegetation/algal mats, (2) if vegetation could be visually obscuring oil laying on the sediment surface, or (3) if vegetation could be affecting contact and sorbtion of oil on sorbents. Additionally, divers will collect 1-2 sediment cores through the subject vegetation/algae to a depth of 6-12 inches at

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representative dive locations. If present in sufficient quantities, divers will collect 1 or more samples of oil from the bottom.

Divers will maintain communication with the surface at all times. All diver observations will be thoroughly documented in diver notes/report. In addition, divers will be equipped with both still and video cameras to obtain photo-documentation of the entire survey.

T & T Marine Salvage, Inc. of Galveston, TX will be contracted by the RP to perform the dive surveys. ENTRIX will provide one representative who will remain topside to help oversee and document the effort. A research diver from NOAA or LSU will not be available to accompany the dive team. It is anticipated that NOAA and/or USCG will provide a representative, who will also remain topside, to participate in this component of the survey. The *Texsun II*, chartered out of Galveston, will serve as the dive platform.

The VSORS-light team will deploy temporary buoys at each end of the 300-ft transect to aid in positioning of the dive vessel. The dive vessel will be positioned over the trackline as close as possible to the segment midpoint. Divers will survey the seafloor along compass bearings from the vessel to the buoys in each direction depending on bottom currents.

Stage 3

Stage 3 will consist of drop-camera surveys performed in close proximity to the 300-ft heavy oil segments surveyed by divers. The drop-camera will be deployed as close to the VSORS-light trackline/dive survey transect as possible. However, since maintaining precise positioning directly over the trackline/transect may be difficult, it is anticipated that camera drops will be performed along drift transects crossing the VSORS-light trackline. The camera and mount will be repeatedly raised and lowered off the bottom as the vessel drifts down-wind/down-current.

For each assessment area, the crew will attempt a series of drift transects within a 300-ft x 300-ft box centered on the midpoint of the target transect (e.g., the transect will bisect the square). Continuous video will be shot while drifting through the target area to maximize the potential for acquiring good-quality still images during times when the camera is seated on the bottom (vs. suspended slightly above). Still images will be extracted from the full-motion video as part of post-mission processing. Geo-referencing of still images will be provided by GPS coordinates overlaid onto the video stream. Since the camera will be positioned directly below the vessel, no lay-back will be applied. As the vessel drifts through the target area, the camera operator will record waypoints when the camera is on the bottom in order to track survey progress and guide

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positioning for subsequent drift transects. Temporary buoys may be deployed at the corners of the assessment area to assist with vessel positioning during the during the camera drops.

Post-mission image processing will include capture of still frames from full-motion video, followed by analysis of still images to determine factors such as percent cover of oil, globule size, and relationship to vegetation/algae, if any. Data from individual still images will be compiled to make inferences about oiling conditions within the 300-ft x 300-ft assessment areas.

The drop-camera surveys will be performed by ENTRIX aboard the *Hull Raiser*. Agency oversight personnel are not anticipated for this component of the survey.

ANTICIPATED SCHEDULE

Barring weather delays, completion of the survey components outlined above is anticipated to require 2-3 days. The anticipated schedule is as follows:

Day 1 - Tuesday 12 Sept 2006

- VSORS-Light Surveys (aboard *Hull Raiser*)
Duration - 1 Day

Day 2 - Wednesday 13 Sept 2006

- Dive Surveys (aboard *Texsun II*)
Duration - 1 Day
- Drop-Camera Surveys (aboard *Hull Raiser*)
Duration - 1 Day

This schedule calls for the dive surveys and drop-camera surveys to be performed concurrently on the same day. This schedule would allow the *Hull Raiser* to remain in the study area overnight, which allows for more efficient use of time and resources. On Day 2, vessels would be required to work in different areas. If it were desirable to perform all drop-camera surveys after the dive surveys, the drop-camera surveys could be postponed until Day 3. The *Hull Raiser* is available for our use at any time. The *Texsun II* is only available Mondays through Thursdays.

Any agency oversight personnel wishing to accompany the dive team must be prepared to depart from Galveston no later than 0600 on 13 September.

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VISIBILITY CONTINGENCY

Successful achievement of mission objectives using both diver and drop-camera surveys is dependent upon adequate visibility at the bottom. In the event that poor visibility precludes meaningful visual assessment, an alternative means of data collection is proposed. In this event, determination of recoverable oil and the potential relationship to vegetation/algae would be made using a dredge-type sediment grab sampler such as a full-size or petite ponar. Neither vessel currently available is rigged to handle a Van Veen sampler. Multiple grabs would be collected in the vicinity of each 300-ft heavy oil segment selected for investigation (using an approach proposed for drop-camera work). The amount of oil present in the grab would be assessed qualitatively and documented with photographs, as would the relationship to vegetation/algae. Each drop location would be recorded as a GPS waypoint. If a sufficient number of grabs are obtained in close proximity to the VSORS-light trackline, the results can be used to make inferences about whether or not the amount of oil on the bottom is likely to exceed the threshold for recovery.

DECISION POINTS

1. If recoverable oil concentrations are observed, the Unified Command will meet to discuss their options, which includes the resumption of response activities. *“Recoverable oil” is defined (for this mission) as concentrations sufficient for an estimated recovery rate of 500 barrels or more per diver recovery team per day, as established before the termination of winter 2005-2006 response operations.*
2. If, in the opinion of the Unified Command, no oil can be practically recovered, the response phase of the DBL 152 incident will be terminated and the case will be remitted to the NOAA Natural Resource Trustee representative (NOAA Damage Assessment Center) for injury assessment under the Natural Resources Damage Assessment (OPA 90) process.