M/V NEW AMITY RESPONSE CLEANUP END-POINTS

Approved Cleanup Endpoint Guidelines for Upper Galveston Bay:

The following cleanup end points were developed as a consensus of the representatives who participated in the Shoreline Cleanup and Assessment Team (SCAT).

Endorsement of cleanup guidelines: Date: _____

TGLO _____

Texas P&W _____

USCG _____

NOAA _____

RP Rep. _____

Salt Marshes - Most of the impacted marshes are located on the eastern side of Hog and Atkinson Islands. Fringing marshes were also impacted in the port area, Goose Creek, and at several locations on the western edge of upper Galveston Bay. Recommended cleanup strategy was natural recovery. Where free oil is present, passive containment and recovery is recommended.

Cleanup Endpoint for Salt Marshes:

- No free oil in marsh.

Fine-grain Sand Beaches - The beach area near Morgans Point (B4) was heavily impacted and continues to be regularly reoiled. Recommended cleanup strategy is manual removal. Nets were proposed as barriers to collect subsurface and reduce additional oiling of riprap to the south of B4 due to longshore transport.

Cleanup Endpoint for Fine-grain Sand Beaches:

- Less than 5% coverage of tarballs or scattered tar patties

Riprap - Riprap is present in many locations such as the eastern end of Morgans Point (B1 and B3) and along the residential community of Shore Acres (B6). Recommended cleanup strategy is removal of any free oil by manual removal including the use of snare, high pressure hot water flushing. Some sites will not require aggressive cleaning and can be allowed to naturally recover once the initial cleanup endpoint has been reached (referenced as Type II standard). Other areas of riprap will require a higher standard of cleanliness due to public access and active wildlife use (Type I standard). The north end of Morgans Point near The Point Restaurant (B1a) and the adjacent boat launch facility is an example of an area requiring active cleanup to meet the higher Type I standard. Additional segments of riprap which may require the same level of cleaning will be individually evaluated by the SCAT team. These may include residential areas. The use of surface washing agents that lifts and floats the oil can be considered as an alternative to hot water on Type I Riprap, but there use will require additional RRT approval.

Cleanup Endpoints for Type II Riprap:
- Absence of free oil
- No Sheening
- Absence of "sticky tacky" residue
- Recover all remobilized oil
- Use hard boom and snare

Cleanup Endpoints for Type I Riprap (a higher cleaning standard):
- In addition to Type II standards
- Clean to a stain, no oil or greasy film can be wiped off with a sorbent pad.

Shell Beaches - Shell beaches are common on the western side of both Atkinson and Hog Islands (C1, C3, and C7). Only beaches with greater than 20% coverage of oil coat and tarballs will be cleaned. Cleanup end point will be the removal of 80% of the gross oil contamination using rakes and shovels. Snare should be used to collect any heavy sheen generate by the cleanup. Snare should be used for passive recover in shell beach areas observed to have persistent sheening.

Cleanup Endpoint:
- Remove 80% of the gross oil contamination.

Segment Descriptions, Remarks, and Cleanup Endorsements:

Endorsement of a division as completed doesn't preclude future or additional cleanup should the situation change due to secondary oiling or newly identified environmental concerns. This document identifies cleanup expectations based on environmental concerns for waters and lands under the regulatory authority of the response agencies. Attached are division and segment maps.

Endorsement of Division A, Port Area Cleanup: Date: _____

TGLO _____

USCG _____

RP Rep. _____

Endorsement of Division B, Morgans Pt. S Cleanup: Date: _____

TGLO _____

USCG _____

RP Rep. _____

Endorsement of Division C, Island Cleanup: Date: _____

TGLO _____

Texas P&W _____

USCG _____

RP Rep. _____

Maintenance Requirements:

In addition, maintenance by the RP to include a stand-by cleanup contractor as required.

Endorsement of maintenance schedule: Date: _____

TGLO _____

USCG _____

RP Rep. _____

Segment Descriptions, Remarks, and Cleanup Recommendations:

A01, Barbours Cut Pier and Dock Facility. The facility is approximately 1.2 miles in length and extends over the water some 100 feet. The pier is supported by some 3600 concrete pilings. Riprap is present on the W end of the segment. The facility should be cleaned such that there is an absence of free oil and no sheens exiting the dock facility. Riprap should be cleaned to Type II standard. Note, the final standard for this facility has not been established to date.

A02, Cruise Ship Dock. The facility is primarily a steel piling and concrete pillar dock. The cleanup end-point should be the same as the Type II riprap standard. Note, the final standard for this facility has not been established to date.

A03, Enron LaPort Facility. This segment consist of a dock facility and riprap. The cleanup end-point should be the same as the Type II riprap standard. Note, the final standard for this facility has not been established to date.

A04, Fringe marsh on N side of turning basin. There is an area flagged by the SCAT team on the northern shoreline of Barbours Cut turning basin that has oiled debris and needs to be recovered using minimal intrusive techniques. Marsh should be left to natural recovery.

A05, Riprap, shell beach, and wave cut platforms on the N side of Barbours Cut. The cleanup end-points for riprap should meet the Type II standard. The small oiled shell beach near the entrance should be cleaned such that 80% of the contamination is removed. Any heavily oiled debris or oil patties should be removed from the exposed wave cut platforms.

B01a, East end of Morgans Point near The Point Restaurant. Riprap and exposed man-made structures on NE side of the point. Broken band of oil stain and coat adjacent to and including the boat launch. Type I cleanup standard recommended by SCAT since this is a high use public area.

B01b, Riprap area south of B1a to bulkhead on SE corner. B1b was heavily impacted. A 3-4 foot wide broken band of heavy coat extends approximately 400 yards. In addition to riprap, there is a small shell beach measuring approximately 30 yards near the center of the segment. During the preliminary assessment, this area was designated to be cleaned to the Type II riprap standard. The heavily oiled shell substrate should be removed and cleaned to the standard set for shell beaches. All oiled debris such as heavily oiled drift wood should be removed.

B02, Bulkhead structure with marsh vegetation on sandy flat behind exposed wall. Physical damage to vegetation by trampling should be avoided. The preferred option is to use adsorbents to remove oil on sand flat. The outer surfaces of the structure should be flushed to remove free oil such that it is no longer a source of secondary oiling or sheens (same as Type II riprap standard).

B03, Small area of riprap between bulkhead and fine-grain sandy beach. This area measures at the most 50 yards and should be cleaned to the Type II standard.

B04, Fine-grain intertidal sand with fringing oiled vegetation. This beach is in excess of 1500 yards in length. The NE end of B4 was heavily oiled initially (nearly 100% coverage). Prior to being visited by the SCAT team, the beach had been cleaned of the initial gross oil contamination. On 26 Sept., scattered tarball and tar patty accumulations were observed (many the size of door mats). Manual cleanup with shovels was in progress. Some of the oil had washed from the beach and was observed in the lower intertidal and subtidal zones as submerged oil slugs. It appeared that the net longshore transport was to the south with an E or NE wind (the typical

conditions observed). SCAT recommended the placement of seine nets as barriers to collect oil. Cleanup standards include the manual removal of stranded oil using shovels, pads or small trowels to remove oil in and adjacent to the fringe vegetation, and snare to collect heavy sheens. Physical damage to vegetation by trampling should be avoided. SCAT does not recommend cutting vegetation.

B05, Long segment measuring slightly more than one mile of shoreline between Little Cedar Bayou and the sandy beach identified as B4. The segment is dominated by riprap and wave cut platforms. This segment includes Sylvan Beach Park. During the initial assessment phase, this area was essentially unoiled, but is thought to be an area subject to secondary oiling. The approved general cleanup endpoints for Upper Galveston apply.

B06, Shoreline in the Shore Acres area from Little Cedar Bayou south to shell beach adjacent to the Houston Yacht Club Marina. Area is dominated by riprap structures. Sections of the segment are identified as city parks. SCAT recommends that cleanup in public use areas meet the Type I standard for riprap. The approved general cleanup endpoints for Upper Galveston apply.

B07, Small 100 yard shell beach N of the Houston Yacht Club. Gross oil was removed from the shell beach prior to a SCAT survey. The site has been regularly reoiled. Snare should be placed to protect and collect oil until the potential for reoiling has past. Tarball recover should continue until only trace levels of tarballs are observed.

B08, Houston Yacht Club and Marina. Cleanup to be determined by Houston Yacht Club manager with consultation of Unified Command.

B09, Riprap and hard structures S of Houston Yacht Club. The approved general cleanup endpoints for Upper Galveston apply.

B10, Wave cut platform between Bayport and Red Bluff. The approved general cleanup endpoints for Upper Galveston Bay apply.

B11, Red Bluff is primarily wave cut platforms. The approved general cleanup endpoints for Upper Galveston Bay apply.

B12, Eljardin Park to, but not including, Pine Gull. B12 is a combination of riprap, scarps, and marsh. The approved general cleanup endpoints for Upper Galveston apply.

B13, Pine Gully and south. B12 is a combination of riprap, scarps, and fringing marsh. The approved general cleanup endpoints for Upper Galveston apply.

C01, N side Hog Island. Salt marsh with wave cut scarps. Broken band of heavy oil on fringing marsh plants. A band 4-6 inches was observed on the mid-stem portion of the fringing *Spartina alternaflora*. Area left to natural recovery with the exception of any large accumulations of oil on small exposed beaches and scarps.

C02, Interior marsh on N side of Hog Island. No oiling observed. No cleanup recommended.

C03, NE side of Hog Island. Broken band of heavy oil on fringing salt marsh plants. A band 2-6 inches was observed on the mid-stem portion of the fringing *Spartina alternaflora*. Area to be left to natural recovery.

C04, Shell Beach on SE side of Hog Island. Patchy, 2-3 foot wide band of oiled clam shell substrate. One to three inch penetration was observed. SCAT recommended manual removal of oiled shell such that 80% of the gross contamination was removed from beach. Bags of oiled shell must removed.

C05, Shell Beach on SW side of Hog Island. Patchy, 3-5 foot wide band of oiled clam shell substrate (only 1-2 foot heavy). One to three inch penetration was observed as well as the release of heavy sheens when sediment disturbed. SCAT recommended manual removal of oiled shell such that 80% of the gross contamination was removed from beach. Bags of oiled shell must removed. NE of shell beach a small section of salt marsh was observed with broken coat. No cleanup required in small fringe marsh.

C06, Fringing salt marsh broken by wave cut scarps and exposed man-made structures. Although several small patches of oiled fringing marsh was observed, no oiling which would require cleanup was observed. Natural recovery recommended. No cleanup required.

C07, NE side of Atkinson Wildlife Management Area. Oiled fringe marsh. No cleanup recommended. Patchy band of oil observed on salt marsh plants.

C08, Shell beach on W side of Atkinson Island. Patchy band (2-5 feet) of coat, tarballs, and patties. SCAT recommended manual removal of oiled shell such that 80% of the gross contamination was removed from beach. Bags of oiled shell must removed. Oiled debris in segment must be removed.

C09, NE end of Atkinson Wildlife Management Area. Patchy band of coat, tarballs, and patties. SCAT recommended manual removal of oiled shell such that 80% of the gross contamination was removed from beach. Bags of oiled shell must removed. Oiled debris in segment must be removed.

C10, Goose Creek area was oiled along the marsh and in the small stretch of riprap adjacent to the boat launch. General cleanup guidelines for Upper Galveston Bay apply.