

Sector Corpus Christi Area Committee Plan for RRT VI Preauthorized Use of Surface Washing Agents on vessel hulls & hard structures in Industrial and Port Areas During Oil Spill Cleanup Operations.

Purpose

This document was prepared to establish Regional Response Team VI (RRT6) preauthorization to the Federal On-Scene Coordinator (FOSC) to approve the use of surface washing agents (SWAs) for the cleanup of vessel hulls & hard structures in port and industrial areas of the Corpus Christi Inner Harbor (Fig 1). This preauthorization is only for the use of these agents on vessel hulls & hard structures in these areas. Adjacent shoreline types will require authorization from RRT6 or a specific shoreline treatment recommendation (STR). This document will be incorporated into the Corpus Christi Area Contingency Plan (ACP) for emergency response. This document provides background information on the need for such approval, guidelines for use, and sufficient information for consultation with key stakeholders.

Background Information

In January 2003, RRT6 approved guidelines to decontaminate and clean hard structures in port areas using surface washing agents during emergency oil spill cleanup activities (Appendix A). Surface washing agents are chemical formulations designed to enhance oil removal from shorelines and surfaces of hard structures such as seawalls and the sides of vessel hulls. The terms “surface washing agents” and “shoreline cleaning agents” are generally interchangeable and represent the same list of approved chemicals on the National Contingency Plan (NCP) Product Schedule. Most surface washing agents (or shoreline cleaners) are a mixture of a solvent and a surfactant. Some formulations have dispersant-like characteristics when used while others are purposely designed to remove and float oil for recovery. Preauthorization would extend only to those agents that would be classified as “lift and float,” and that would, by design and purpose, allow for recovery of flushed oil. It is understood that preauthorization would require that any product used must be listed on the NCP Product Schedule. Compliance will be ensured via monitoring to ensure that SWAs are being applied as recommended, and that water sampling may be conducted if high pressure is used or a subsurface plume is observed per RRT 6 guidelines. Any observed negative effects and lessons learned will be documented and submitted to the RRT and the Science and Technology Subcommittee Chairperson. Efforts will be made to minimize the use of SWAs and to collect, contain, and recover all flushed oil, and, at a minimum, the manufacturer’s recommendations will be taken into account. It is further understood that surface washing activities will follow the tiered protocol outlined in the *RRT VI EMERGENCY RESPONSE PREAPPROVED GUIDELINES TO DECONTAMINATE VESSELS AND HARD STRUCTURES IN PORT AREAS USING SURFACE WASHING AGENTS* (22 Jan 2003). This document will be used as background and guidance during the response. When used properly, SWAs enhance the rate of cleaning and improve the degree of oil removal especially on heavy fuel oils and weathered oil residues. The use of chemical agents that are similar to detergents and dispersants, but do not result in a refloat of the removed oil, were not considered for preauthorization. Any use of dispersant-like surface washing agents would require incident specific approval of RRT6.

Since 2005, RRT6 has approved the use of surface washing agents on an average of at least three oil spill responses per year in Texas. In each response, cleanup required the use of such agents to either achieve the cleanup objectives or to enhance the rate of cleaning of oiled vessels and shorelines impacted by the spill. Conventional flushing methods were determined to be inadequate to achieve defined response goals.

Given that oil spills are unplanned activities, convening the RRT and conducting proper consultations during the emergency phase of a spill response is often difficult. Valuable cleanup time can be lost. By undergoing a preauthorization process, all required consultations can be conducted without the pressures and time limitations of an emergency response. The net result would be a better and more comprehensive response plan with full stakeholder involvement.

The RRT6 guidelines provided a process for granting preauthorization to the FOSC to authorize the use of surface washing agents during an emergency response. This document is intended to meet these requirements. Any use must be consistent with RRT6 guidelines and would extend only as authorized by the NCP. Prior to granting preapproval authorization, RRT6 requires individual Area Committees to evaluate the need, identify specific areas for preauthorization, and to coordinate any consultations that might be required.

This document summarizes the efforts conducted by the South Texas Coastal Zone Area Committee. It is intended to assist the FOSC with the decision to authorize the use of surface washing agents within a defined area with Federal and State oversight to ensure that application of the agents was consistent with the authority granted. Surface washing agents should only be used if conventional response options such as water flushing alone fail to meet cleanup objectives. Only “lift and float” agents will be considered and oil recovery will be required. Once approved by the Area Committee and after any required consultations as defined by the Endangered Species Act and the Magnuson-Stevens Fishery and Conservation Act, this document will be submitted to RRT6 for final approval. Once approved, the document will be incorporated into the ACP, and the FOSC will have authority to allow the use of surface washing agents as outlined. The FOSC shall review the properties of the particular SWA and ensure the use of the surface washing agent selected, and the application technique, will not adversely impact the environment.

ACP Preauthorization Review Process

The Corpus Christi Area Committee developed a workgroup (Table 1) to create this document. Current Environmental Sensitivity Index (ESI) shoreline type data for the proposed area was collected and validated to present viable information on shoreline habitat that might require additional restrictions on the use of surface washing agents and to expedite the preapproval process. The working group obtained up-to-date data on current shoreline classifications for ESI maps per NOAA guidelines. It was determined that no specific areas within the boundary shown in Map 1 (figure 2) would be exempted, but that coordination through the Incident Command System Environmental Unit or resource coordinators engaged in the response would ensure proper safety precautions are utilized. For example, if there is an adjacent fringing marsh habitat, additional containment boom might be recommended. Alternatively, isolation distances from sensitive habitat would be created. Given the complexities of oil spill cleanup, the workgroup desired to maintain a degree of flexibility and develop restrictions and/ or additional safety precautions on a case-by-case basis. It was also determined that riprap would be considered a hard

structure suitable for the use of surface washing agents only if there is consensus from the Environmental Unit and resource agency personnel engaged in the response.

Table 1. Corpus Christi Area Committee Workgroup Members

Brent Koza, TGLO (Subcommittee Chair)
Alex Nunez, TPWD
Clare Lee, USFWS
MSCTS Nancy Cisneros, USCG
Nicolas Brescia, EPA

Area Characterization

The Corpus Christi Inner Harbor (Fig 1) is an industrial area with relatively few natural resources that would be considered highly sensitive with respect to the use of surface washing agents. The shorelines in the proposed preapproval area are dominated by hard man-made structures (including riprap) with some smaller isolated marshes, mixed sand and gravel beaches, and scarps (Table 2). Appendix B provides Resources at Risk (RAR) analysis for the proposed area. Identified in the RAR are threatened/endangered species that reside or frequent the area to feed.

Minimum Requirements for Preauthorized Use of Surface Washing Agents

The following outlines the minimum requirements that the FOOSC must consider when approving the use of surface washing agents.

1. Ensure public safety. This has not been an issue in past responses since the public is generally excluded from cleanup areas. Regardless, ensuring public health and safety is the basic premise for any response action.
2. Conventional approaches have been tried, but have failed to meet the cleanup objectives. Note, the cleanup objectives are not restricted only to the degree of oil removal or “degree of cleanliness.” Often during a response, the need to enhance the rate of cleaning by using a chemical agent is justified so long as there is minimal additional risk to environmental resources. Cleaning the hulls of large commercial vessels oiled by the spill such that they can be released to return to work would be an example where the rate of cleaning to a desired standard might benefit from the use of surface washing agents.
3. The location where surface washing agents are to be used is within the preauthorized zone (Figure 1).
4. Consultation with the Environmental Unit or natural resource protection managers to determine if any additional restrictions or additional safety precautions are required in the proposed operation. Such consultation would also be required for any cleaning of riprap to evaluate if response trade-off is appropriate.

5. Ensure that the spill management team develops an approved plan for use that includes worker safety precautions. This plan should be submitted in writing to the FOSC and should be incorporated into the Incident Action Plan.
6. Ensure that the RRT6 Emergency Response Preapproved Guidelines to Decontaminate Vessels and Hard Structures in Port Areas Using Surface Washing Agents (Appendix A) are consistent with any authorized use. A checklist is provided in Appendix G that may be used by field observers. It is required that the FOSC ensures these stipulations are met, and that RRT6 is promptly notified of any decision to use surface washing agents. Upon completion, a short follow-up summary documenting essential monitoring observations and lessons learned should be submitted to the RRT co-chairs and the Science a Technology Subcommittee chairperson. This requirement does not imply continuous monitoring during the entire cleanup process. Observations of the initial process & spot observations during the response will meet this guideline. The FOSC may task a technical specialist to submit this summary. For many situations, a simple e-mail to capture this information will suffice.
7. The report must be approved by the FOSC or their representative prior to being submitted to the RRT. In the past, the NOAA Scientific Support Coordinator (SSC) has often been tasked with this responsibility.
8. A trained observer shall be posted to ensure the safety of all responders involved in the surface washing agent cleanup operations. The trained observer will ensure that the use of surface washing agents will not pose harm to the surrounding environment, including any marine life and/ or sensitive shoreline. Trained observers will report any potential harmful impacts immediately to the FOSC or designated representative.
9. Surface washing agents are not intended to be used in, or near sea grass areas.
10. In consideration of the safety of workers assigned to the application of surface washing agents, and in consideration of the protection of the environment, it is preferred that surface washing agents are applied during daylight hours.
11. Ensure that the oil spill removal organization/spill management team develops an approved work plan in writing for use that includes worker safety precautions.

Table 2. Delineation of Shoreline Types by ESI Type and Linear Miles

<u>ESI Type</u>		<u>Miles</u>	<u>% of Total</u>
8C	Sheltered Scarps	8.9	28.90
6B	Exposed Riprap Structures	0.5	1.62
1	Exposed Walls and Other Solid Structures	0.1	0.32
8A	Sheltered Solid Manmade Structures	7.1	23.05
10A	Salt and Brackish Water Marshes	1.7	5.52
2A	Scarps and Steep Slopes in Clay	0	0
3B	Scarps and Steep Slopes in Sand	0	0
8B	Sheltered Riprap Structures	9.2	29.87
10C	Freshwater Swamps	0	0
3A	Fine-grained Sand Beaches	0	0
5	Mixed Sand and Gravel or Shell Beaches	1.3	4.22
7	Exposed Tidal Flats	0	0
9	Sheltered Tidal Flats	0.5	1.62
2B	Wave-cut Clay Platforms	0	0
6A	Gravel or Shell Beaches	0.3	0.98
10B	Freshwater Marshes	0	0
TOTAL		30.8	100.00

Summary

As previously stated, this document was prepared to establish RRT6 preauthorization for the FOSC to approve the use of surface washing agents for the cleanup of vessel hulls and hard structures in port and industrial areas of the Corpus Christi Inner Harbor. These guidelines with appropriate consultations will be incorporated into the Sector Corpus Christi Area Contingency Plan for emergency response.

For safety of responders and to aid with any required consultations, SDS for three “lift and float” surface washing agents that are readily available are included in Appendix C. Any written comments during the developmental phase should be directed to the Subcommittee workgroup chair, Brent Koza of TGLO, or to MSTCS Nancy Cisneros, USCG. Comments should then be directed to both the NOAA and State of Texas - GLO SSCs for State-wide continuity purposes. Any member of the workgroup may be contacted for discussion.

RRT VI Notification Process

A step-by-step process to notify RRT6, including a template of a written request to RRT6 for approval of SWA use is outlined in Appendix H.

Contact Information for Draft Review:

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Corpus Christi, TX 78412

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Brent.koza@glo.texas.gov

USCG Contact:

Incident Management Division (IMD)

361.533.2846



Figure 1. A full overview of the proposed Corpus Christi Inner Harbor Preapproval Area for surface washing use.



Figure 2. Note Index Map at lower left, indicating corresponding divisions of the Corpus Christi Inner Harbor, providing a more detailed view of the identified segment “1.” Table 3 provides the ESI shoreline type index.



Figure 3. Note Index Map at lower left, indicating corresponding divisions of the Corpus Christi Inner Harbor, providing a more detailed view of the identified segment “2.” Table 3 provides the ESI shoreline type index.



Figure 4. Note Index Map at lower left, indicating corresponding divisions of the Corpus Christi Inner Harbor, providing a more detailed view of the identified segment “3.” Table 3 provides the ESI shoreline type index.

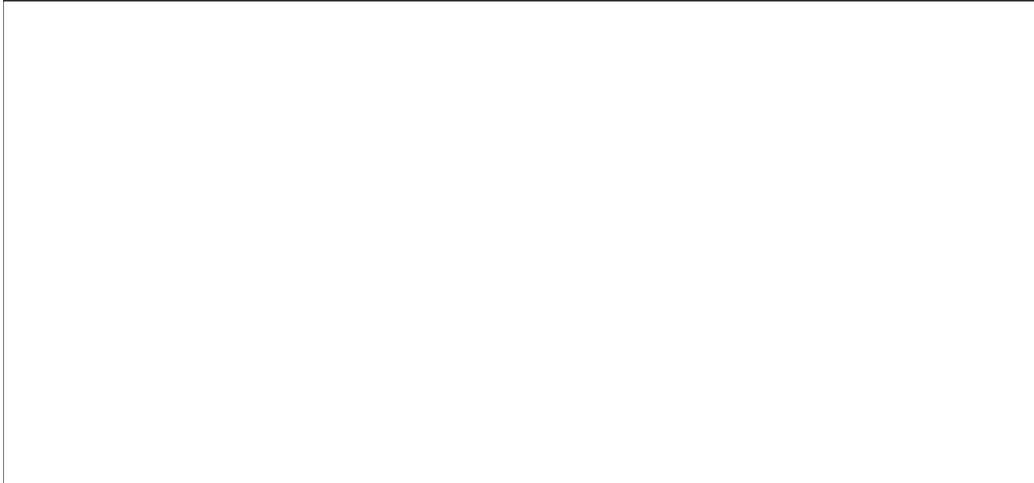


Figure 5. Note Index Map at lower left, indicating corresponding divisions of the Corpus Christi Inner Harbor, providing a more detailed view of the identified segment “4.” Table 3 provides the ESI shoreline type index.



Figure 6. Note Index Map at lower left, indicating corresponding divisions of the Corpus Christi Inner Harbor, providing a more detailed view of the identified segment “5.” Table 3 provides the ESI shoreline type index.

Table 3. Environmental Sensitivity Index



The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map is not suitable for navigational purposes and does not purport to depict boundaries of private land and public land.

Oil Spill Planning
And Response 2014



Appendix A – RRT VI Emergency Response Preapproval Guidelines to Decontaminate Vessels and Hard Structures in Port Areas Using Surface Washing Agents

Regional Response Team

Regional VI Oil and Hazardous Substances Pollution Contingency Plan

July 09, 2003

From: Co – Chair, Regional Response Team VI

To: All Coastal On-Scene Coordinators (OSC's)

Regional Response Team (RRT) VI, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300, Section 300.910), grants pre-authorization to all coastal OSC's for using surface washing agents in pre-identified in Area Contingency Plans (ACPs), as defined by the “RRT VI Emergency Response Pre-approved Guidelines to Decontaminate Vessels and Hard Structure in Coastal Port Areas”.

This pre-authorization is based on RRT VI's last semi-annual meeting held in Fort Smith, Arkansas on June 18, 2003. These guidelines authorizes the OSC's the use of surface washing agents under the following conditions:

For a product to be used, it must be listed on the National Contingency Plan (NCP) Product Schedule. Only pre-identified and approved port locations listed in or amended to your ACP are to be considered. Surface washing agents may be considered when conventional flushing techniques are inadequate in removing oil residues to the required cleanup standard or when cleanup time can be reduced such that a significant positive impact on overall cleanup goal is achieved. Efforts must be made to minimize the use of chemical agents and to collect, contain, and recover all flushed oil.

The provisions of the “RRT VI, Emergency Response Pre-Approval Guidelines to Decontaminate Vessel and Hard Structure in Coastal Port Areas” must be fully complied with in order to meet the requirements of these guidelines.

A copy of this letter should be retained in the front of this document.

D. F. Ryan II
Captain, U.S. Coast Guard
Region VI Co-Chair

Report Oil and Chemical Spills Toll Free (800) 424-8802

RRT
Environmental Protection Agency
United States Coast Guard
Department of Commerce
Department of Interior
Department of Agriculture
Department of Defense
Department of State
Department of Justice
Department of Transportation
Department of Health and Human Services
Federal Emergency Management Agency
Department of Energy
General Services Administration
Department of Labor
Nuclear Regulatory Commission
States of:
Arkansas
Louisiana
New Mexico
Oklahoma
Texas

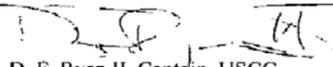
RRT VI APPROVAL SIGNATURES

RRT VI EMERGENCY RESPONSE PREAPPROVAL GUIDELINES TO
DECONTAMINATE VESSELS AND HARD STRUCTURES IN PORT AREAS
USING SURFACE WASHING AGENTS

July 09, 2003



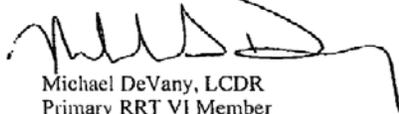
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Greg Pollock
Deputy Commissioner
Oil Spill Prevention and Response
Texas General Land Office

**RRT VI EMERGENCY RESPONSE PREAPPROVED GUIDELINES TO
DECONTAMINATE VESSELS AND HARD STRUCTURES IN PORT AREAS USING
SURFACE WASHING AGENTS**

22 January 2003

Disclaimer

References to any specific surface washing product does not constitute an endorsement or recommendation. The National Contingency Plan (NCP) identifies many chemical agents suitable for the decontamination and cleaning of hard surfaces. It is the responsibility of the Unified Command (UC) to insure that selected products meet the requirements of these guidelines, and are consistent with established cleanup goals.

Introduction

As a result of the successful use of surface washing agents to enhance the cleaning and demobilization of oiled vessels during several spill events in Galveston Bay Texas, the United States Coast Guard (USCG) sought to expedite the RRT VI approval process by establishing preapproval authorization to the Federal On-Scene Coordinator (FOSC). Preapproval is limited to the guidelines delineated in this document for the use of shoreline cleaning agents to decontaminate vessels and hard surfaces in pre-designated port areas during emergency events. In short, preapproval extends only to the use of NCP listed cleaning agents that demonstrate a "lift and float" action when used in accordance with the manufactures recommended practices. Preapproval extends only to pre-identified and approved port locations listed in or amended to Area Contingency Plans (ACP). All effort must be made to minimize the use of chemical agents and to collect, contain, and recover all flushed oil. Preapproval requires a minimum level of monitoring and reporting to the RRT.

This document provides background information on the use of surface washing agents during two spills in the Galveston Bay area (the M/V GENMAR HECTOR and the M/V NEW AMITY incidents), an overview of surface washing agents with specific application guidelines approved by RRT VI, the procedures to approve specific port areas for preapproval, and RRT VI reporting and monitoring requirements. All locations identified for preapproval must be reviewed by the appropriate trustee and regulatory agencies with respect to any unique sensitivities which must be factored into response actions. Request for inclusion in this preapproval authorization will come from the local Area Contingency Plan (ACP) process.

Background

On 14 March 2001, the M/V GENMAR HECTOR was oiled on both the super structure and hull after a transfer line broke during an unexpected storm event with winds gusting to 70 mph. In addition to the tanker vessel, seven vessels were oiled at the waterline as well as floating docks and barges. The crude oil rapidly weathered to the point that conventional cleanup techniques were ineffective at removing residual oil from the vessels so that they could be released from the port

area. The use of surface washing agents was evaluated in a field trial and found to enhance the demobilization process by reducing the time required and improving the degree of cleanliness.

During the response, members of RRT VI were convened and the use of NCP listed surface washing agents identified as having the effect of "lifting and floating" remobilized oil were approved. Using the guidance of the RRT, a test was conducted to evaluate conventional washing techniques as well as chemically enhanced washing techniques. As a result of the test, pretreatment with PES-51 followed by high pressure, hot water wash resulted in the desired cleanup level which was essential complete remove of oil and oil stain. PES-51 was selected for this application because of its availability and minimal contact time required before flushing. The demobilization of the oiled vessels and port cleanup was greatly enhanced using a surface washing agent.

Six months later, the collision between the M/V NEW AMITY and a barge tow resulted in a 1000 bbl oil spill in the Upper Galveston Bay. Shortly after the collision, the holed vessel was moved into the Barbours Cut port facility resulting in heavy oiling of the piers and vessels in port. In the M/V NEW AMITY incident, the spilled oil was an IFO-380, a very heavy and persistent residual fuel oil. Again, RRT VI was petitioned to allow the use of surface washing agents in a manner similar to that which was approved during the M/V GENMAR HECTOR incident. Approval was granted and was later amended to include limited use on hard structures such as the Passenger Cruise Ship Terminal within Barbours Cut. Although approved, high pressure was not used for vessel demobilization, but was used for final cleaning of some hard structures within the port under RRT approval. Most of the vessels were cleaned using low pressure flushing and PES-51 as required. Corexit 9580 was also used during this response. The use of a surface washing agent enhanced the emergency response and cleanup activities by allowing port operations to continue. Vessels were allowed into the port to unload and load cargo then rapidly cleaned as they prepared to exit the port.

During the M/V NEW AMITY response, a third spill located at a port closer to Houston, resulted in a similar request to the RRT for the use of surface washing agents to clean and relocate an oiled vessel. From these events, it was clear that some form of RRT preapproval guidance was needed to both expedite approval and provide specific RRT VI concerns and restrictions on the use of surface washing agents for such emergency actions. Developing preapproval guidelines has the added benefit of providing planners proper time for a detailed evaluation of the response action request with a corresponding opportunity for the RRT to fully review the action. Such comprehensive considerations are often difficult during late night conference calls during actual spill response events.

The need for monitoring was identified by several of the trustee agencies; therefore, some form of monitoring must be established to evaluate effectiveness and potential environmental hazards. The information gained would improve the science of surface washing agents and future spill response decision making. Water sampling would be required for situations where oil dispersion was either observed or expected to result from the agent/washing technique employed. As a result of the need expressed during past spill responses and discussions with RRT members, a guidance document which clearly defines acceptable practices approved by RRT IV was developed. This is that document.

When to Consider a Surface Washing Agent?

Surface washing agents may be considered when conventional flushing techniques are inadequate in removing oil residues to the required cleanup standard or when cleanup times can be reduced such that a significant positive impact on overall cleanup goal is achieved. Often, it is difficult and time consuming to configure and use conventional high temperature and high pressure systems to demobilize small bands of oil near the waterline of vessels that have been inadvertently oiled. By using surface washing agents and simple techniques such as hand wiping and lower pressure ambient water flushing from small boats, effective cleaning and demobilization of vessels can be achieved quickly (often with enhanced results relative to conventional hot water, high pressure washing).

The application of shoreline cleaners are at times an appropriate response tool since cleaning and returning collaterally oiled vessels back to commerce or, at a minimum, removing them from cleanup zones is often a priority element while responding to a spill in a port area. As with all alternative cleanup techniques, there should be a determination that the use of surface washing agents during a specific spill response provides an overall positive benefit to the response objectives.

Surface Washing Agents and Mode of Action

Surface-washing agents are chemicals that are used to enhance oil removal from beach substrates and hard surfaces. Most chemicals that are classified for this application contain a mixture of a non-polar solvent and a surfactant. The solvent dissolves into the highly viscous or weathered oil to create a less viscous and somewhat uniform liquid oil or oily mixture. The surfactant reduces the interfacial tension between the liquid oil and the surface the oil has adhered.

Depending on environmental conditions and the selection and combination of solvents and surfactants, the removed oil will either float or disperse. The latter has a negative environmental impact for most shallow water coastal environments; therefore, products which “lift and float” are preferable. An exception would be in high-energy environments where the surface oil cannot be recovered. Under such conditions, it may be preferable to let the oil disperse rather than reoil adjacent areas. Note, preapproval does not extend to lift and disperse products, but this document should serve to expedite their appropriate use, when the situation requires such agents.

Approved “Lift and Float” Agents and Technical Support

For a product to be used, it must be listed on the [NCP Product Schedule](#). The Product Schedule does not specifically identify shoreline cleaners as to their mode of action. The manufacturer's product information, prior experience using a particular product, or laboratory test should provide the information necessary to classify a surface washing agent as “lift and float” or “lift and disperse.” The Job Aids for Spill Countermeasures Technologies (see the following web site <http://homepage.mac.com/csusalis/index.html>) is highly useful in determining the mode of action for many of the listed products. Technical specialist such as the NOAA Scientific Support

Coordinator should be consulted if there is any doubt as to the applicability of NCP listed products for specific applications. In addition, scientific and technical publications such as those published in the Proceedings of the International Oil Spill Conference may be consulted for technical overview and case studies (Michel et al is one such publication).

Application Guidelines

Each product will have recommended instructions for use provided by the manufacturer. During spill responses, these methods may require some modification to achieve the desired cleanup goals. The RRT does not wish to define too narrow an approval guideline. The environmentally friendly and cost practical approach is to minimize the amount of chemical used and maximize containment and recovery of the treated oil. Several approaches which have been recommended and used in the past are outlined. Each has positive and negative trade-offs that must be balanced with the overall response goals including removing the oil to an acceptable standard with minimal additional environmental impact. The two most common approaches are the "Spray and Wipe" and the "Spray and Flush" techniques.

Technique I: Spray and Wipe. There are two ways to use this technique, spraying agent on a sorbent pad then wiping the oiled surface or spraying agent directly on the oiled surface and then wiping with sorbent pad. This technique is most useful on small accessible thin bands of oil and "bathtub rings" above the waterline of vessels and other hard surfaces.

Spray Chemical on Sorbent Pad then Wipe

Pros:

- uses less chemical agent
- minimal or no oil and chemical transported to the water
- no need for on-water recovery
- no additional equipment needed other than sorbent pads, sprayer, and a platform to work from
- good during periods of high wind (over spray minimized)

Cons:

- individual workers come in close contact with chemical
- may take longer than high pressure flushing techniques
- labor intensive
- less effective if the product requires contact or soak time

Spraying Agent on Oiled Surface then Wiping

Pros:

- generally less time consuming than spray pad and wipe technique
- no additional equipment needed other than sorbent pads, sprayer, and platform to work from

Cons:

- may require on water recovery as some of the oil will rapidly run down vertical surfaces and come in contact with the water (sorber boom and/or pads at the contact point between the structure's surface and the water may serve this function).
- workers come in close contact with agent and may pose an inhalation hazard
- time consuming (but generally faster than cleaning without chemicals)
- labor or manpower intensive
- may require contact or "soak" time based on manufacturers recommendations

Technique II. Spray and Flush: The basic form of this technique is simply applying the surface washing agent using a low pressure garden type hand held sprayer followed by flushing the mobilized oil from the hard surface with water hoses. Removed oil is flushed into a containment boom system and collected using either sorbents or a skimming system. This technique has been demonstrated as useful on porous structures such as cement pilings and large oiled surfaces. The pressure and temperature of the water flushing system can be highly variable, but low pressure and ambient water temperatures are preferred since they more easily available and reduce the potential for physical oil dispersion into the water column.

Spray and Flush (General Considerations)

Pros:

- can remove oil from large areas effectively
- less manpower required (more efficient for larger areas)
- fewer workers come in direct contact with chemical agent
- soak time less of an issue due to time it takes to cover a large area with the agent prior to flushing.

Cons:

- requires more equipment to include containment boom
- must recover oil flushed onto the water surface
- higher pressures increase physical dispersion of both oil and chemical agent into the water column and will require sample collection.
- concerns for over spray to include collateral public and occupational worker exposure during windy conditions

There are several variations on the Spray and Flush technique that may be considered:

- a) Apply agent then use low pressure (<10 psi) ambient or hot water (between 90 and 171°F) to wash.
- b) Apply agent then use high pressure (>100 psi) ambient or hot water (between 90 and 171°F) to wash.
- c) Apply agent then use steam cleaning (water temperatures > 171°F). Note, steam cleaning is general used in conjunction with very high pressure systems (often >2000 psi), but water volumes generated are very low relative to flushing systems.

d) High pressure ambient or hot water wash the surface to remove the bulk of the oil, apply surface washing agent, then low pressure wash to remove residual stain.

Ideally, the use of chemical agents should enhance the use of lower water pressures and cooler water temperatures to achieve the same degree of oil removal relative to high pressure steam cleaning. High pressure systems should only be used if lower pressure systems fail to achieve the cleanup goals. The same is true with water temperature: a good practice is to start with ambient water and increase temperature only if required. For some applications, high pressure flushing of the bulk of the oil from the surface followed by product treatment and low pressure flushing have been highly successful and minimize the amount of chemical agent required. Hot water and steam cleaning systems will increase worker inhalation exposure.

Monitoring Requirements and Guidelines

At a minimum, the FOSC is required to provide visual monitoring to insure that the surface washing agents are being applied as recommended, evaluate effectiveness, document any observed negative effects, and to make recommendations which may enhance future use of such cleanup technologies. The requirement for visual monitoring does not imply continuous monitoring during the entire cleanup process. Observations of the initial trails and spot observations during the response will normally meet this guideline. Photographic documentation is recommended, but not required. If subsurface plumes are observed, water sampling should be requested. If high pressure flushing is employed, water sampling is required under this preapproval guidance document to assess hazards to the aquatic environment. Worker health and safety monitoring must be established consistent with concerns identified by individual Material Safety Data Sheets (MSDSs).

During an oil spill response, there is a requirement to collect information about the use and effectiveness of various response technologies in a real-time, scientifically based manner to support decision making during the current response and add to lessons learned for future responses. This is especially true for products that there is little or no actual field information available. Monitoring is primarily based on visual observations, but water sampling, as previously stated, is required where subsurface plumes are observed or when high pressure flushing systems are used. Observations should address the following questions where appropriate:

General Observations

- Does the product improve the rate of oil removal?
- Does the process achieve the required cleanup standard?
- Is the treated oil dispersed?

Effectiveness Observations

- Can the flushing pressure and temperature be reduced without loss of effectiveness?
- What fraction of the treated (removed) oil is recovered?

Effects Observations

- What were the oil concentrations in the water adjacent to the treated areas?
- Were there any observations of negative impact to animals in the adjacent waters?

Water Sampling and Laboratory Analysis.

Ideally, subsurface water grab samples should be collected at a depth of 1 meter into precleaned 1 liter amber bottles. Samples should be collected prior to treatment and several times during the cleanup process. Insure that samples are collected "downstream" from the location. Record the date and time each was sample collected, distance from actual cleaning operation, as well as log what activities were being conduct during and prior to sample collection. A simple drawing of the location and sample collection points is recommended. A field blank should also be submitted for analyses for QA/QC. Water samples should, at a minimum, be analyzed for TPH-Oil.

Reporting and Follow-up Documentation to the RRT

When time permits, the FOSC should notify the RRT co-chairs that surface washing agents are being used as defined in the preapproval. The initial notification should include the location, product being used, and a short justification. The USCG 8th District Response Assistance Team (DRAT) can be tasked by the FOSC or his representative to make this initial notification to the RRT.

To document monitoring observations and provide a follow-up report to the RRT such that information gained may be used to improve future spill responses, the RRT request that a short summary be submitted to the RRT co-chairs as well as the Science and Technology Subcommittee Chairman. The responsibility for providing this feedback rest with the FOSC, but the actual task may be directed to a technical support specialist. The report need not be long and may be submitted electronically. For many situations, a simple email would capture the essential observations and lessons learned. The DRAT can be used as the point of contact for RRT communication.

Preapproved Areas

Specific port locations to which preapproval applies should be proposed in a written request by the USCG Captain of the Port (COTP) as chairman of the ACP process. To be included as a preapproved area, the port and adjacent habitat must be reviewed to insure compliance with the Inter-agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the National Oil and Hazardous Substances Pollution Contingency Plan and the Endangered Species Act and Essential Fish Habitat (EFH) consultation as required under the Magnuson-Stevens Fishery Conservation and Management Act (amended 1996). The NOAA SSC and other technical specialist may coordinate these consultations for the COTP. Area planners should evaluate the unique requirements for specific geographical regions and submit a request for approval within practical spatial limits. The RRT recommends that environmental assessments extend 0.5 nautical miles from the port entrances. Ideally, individual ports will be identified, but

geographical regions may be proposed for highly clustered port areas so long as specific environmental concerns are not overlooked.

The RRT will review the information submitted in the written request and make any additional consultations deemed appropriate before approval. Once submitted and approved, the request to the RRT with a signed response cover letter will, in effect, serve as the preapproval document with this guideline referenced and attached.

References

Michel, J., A. Walker, D. Scholz, and J. Boyd. 2001. Surface-washing agents: product evaluations, case histories, and guidelines for use in marine and freshwater habitats. In the *Proceedings of the International Oil Spill Conference*, Tampa Florida. pp 805-813.

U.S. EPA. 2003. The Job Aids for Spill Countermeasures Technologies. <http://homepage.mac.com/csusalis/index.html>

Appendix B - Resources at Risk in the Preapproved Areas for Surface Washing Agents

Introduction

This report was prepared in Sep 2015 as part of the request process for the preapproval use of surface washing agents within the Inner Harbor Port of the Port of Corpus Christi. The ESI shorelines, essential fish habitat, and species information for the proposed area was compiled from the latest data collected by Texas General Land Office, Texas Parks and Wildlife Department and the USFWS to ensure the most up-to-date information was available for this project.

Geographic Region Covered

The area covered by this report is identified as the Inner Harbor Port of the Port of Corpus Christi and an area extending out 0.5 nautical miles out from the entrance mouth in Corpus Christi Bay, Nueces County. The Inner Harbor is a dredged channel, extending approximately 7.5 nautical miles inland, and is dredged to a depth of approximately 45 feet deep. It is located just south of Nueces Bay, running parallel to this system, opening up to Corpus Christi Bay (Fig 1).

Although not intended to be part of the preapproved area, Tule Lake is included in this report due to its connectivity to the Inner Harbor. Tule Lake is an intertidal estuarine wetland, just south of the Inner Harbor. It's hydrologic connected to the Inner Harbor is via Tule Channel at the Tule Lake turning basin.

Habitat

Shoreline Resources at Risk

The shorelines along the Inner Harbor are predominantly armored with sheltered man-made structures, riprap and other erosion control structures. Sections of unarmored shoreline area are wetlands characterized as estuarine; intertidal; unconsolidated; excavated shores that have naturalized to tidal flats, scarps, beaches of varying grain sizes and fringe salt water marshes.

Tule Lake includes two wetland classifications. The inner, deeper section of the lake is classified as estuarine; intertidal; unconsolidated; irregularly exposed with the perimeter of the wetland classified as estuarine; intertidal; emergent; persistent; regularly flooded.

Physical Environment

Tidal movement within the inner harbor is minimal. Data collected by the [Conrad Blucher Institute](#) from January 2000 to July 2013, indicates monthly averages ranging between 0.5 to -0.5 feet mean sea level with some increase in range from 1.0 to -1.0 feet. Although considered minimal, tidal movement is a predominate factor for the flushing of Tule Lake to the inner harbor. For current tidal movement click on the NOAA link [NOAA/CO-OP ODIN MAP](#).

A review of Texas Commission for Environmental Quality water quality standards for Inner Harbor Port indicates no listed impairments. A review of water temperature (°C), salinity (ppt), and dissolved oxygen (mg/L) was conducted with the results listed in Table 4. Minimal stratification is observed between surface and bottom measures with the greatest variability observed with seasonal shifts.

Table 4. Surface and bottom observations for Water Temperature (°C), Salinity (ppt), and Dissolved Oxygen (mg/L) within the Inner Harbor Port of the Port of Corpus Christi. Data was compiled from the Texas Commission on Environmental Quality – Surface Water Quality Monitoring Program from April 2000 to November 2012.

	Water Depth	Mean	Range
Temperature (°C)	Surface	24.22	13.00 – 32.40
	Bottom	23.59	12.20 – 31.00
Salinity (ppt)	Surface	31.64	17.40 – 41.30
	Bottom	32.44	24.17 – 41.70
Dissolved Oxygen (mg/L)	Surface	7.00	4.30 – 11.20
	Bottom	5.86	0.64 – 9.60

Essential Fish Habitat

The inner harbor is located within the Essential Fish Habitat (EFH) designated areas for red drum, reef fish, shrimp, stone crab, and coastal migratory pelagic fish (NOAA, 2005). EFH consists of areas of higher species densities, based on the NOAA atlas and functional relationships analysis for these species. The Inner Harbor is not considered a habitat area of particular concern (HAPC) or an EFH area protected from fishing.

The bay bottom and channel are characterized as a soft bottom mud substrate, terrigenous in origin. The substrate of the Inner Harbor and Corpus Christi Bay are ideal for white shrimp populations and ichthyofauna associated with the white shrimp grounds (NOAA, 2004). Manmade structures provide habitat for intertidal hard shore communities. Examples of the structures within the Inner Harbor include pilings, groins, and breakwaters and other structures to stabilize shorelines and prevent erosion. The flora and fauna is associated with the structures is suspected to be a combination of epibenthic organisms from offshore areas and oyster reefs (NOAA, 2004).

Biological Resources at Risk

Birds

Threatened/Endangered Birds

The inner harbor falls within the range of the federally listed endangered Whooping Crane, Red Knot and Piping Plover. The Whooping Crane migrates annually to the area and is present from October to May. The federally threatened Piping Plover and Red Knot may be present from August through May, in and around beaches and tidal flats of the area.

Piping Plover

There is no critical habitat for the Piping Plover in the Inner Harbor. The nearest critical habitat is Texas Unit-13 (Figure 7). Piping Plovers have been known to use Tule Lake. However, this area is immediately boomed during any spill in the Inner Harbor. Its shallow depth would preclude the area from ship or barge cleaning. If a spill occurred in an upland area and flowed into Tule Lake, surface washing agents would not be utilized due to the absence of hard structure. Therefore, the USCG has determined that the use of surface washing agents “may affect but is not likely to adversely affect” the Piping Plover.

Red Knot

As of October 2016, there is no designated critical habitat for the Red Knot. According to USFWS, its preferred habitat is parallel with that of the Piping Plover. If a spill occurred in an upland area and flowed into Tule Lake, surface washing agents would not be utilized due to the absence of hard structure. Therefore, the USCG has determined that the use of surface washing agents “may affect but is not likely to adversely affect” the Red Knot.

Whooping Crane

The only potential habitat in the Inner Harbor area suitable for Whooping Cranes is Tule Lake. However, as described for Piping Plovers surface washing agent would not be used in Tule Lake. Therefore, the USCG has determined that the use of surface washing agents “may affect but is not likely to adversely affect” the Whooping Crane.

Northern Aplomado Falcon

the Northern Aplomado Falcon prefers open terrain with scattered trees. They can be found nesting on Mustang Island and suitable habitat can be found near the port area. However, their prey and feeding strategy should preclude any impacts from the use of surface washing agents. Therefore, the USCG has determined that the use of surface washing agents “may affect but is not likely to adversely affect” the Northern Aplomado Falcon.

Other Birds

In addition to threatened/endangered birds, the area also includes a number of species characterized as diving birds, gulls and terns, migratory song birds, raptors, **shore birds**, **wading birds** and **waterfowl**. The absence of a species from the list does not necessary imply that the species is not present at the given location. Many species are considered ubiquitous. The aforementioned categories are intended to capture multiple species that populate similar habitats. Use of SWAs should have no significant direct effects on birds beyond those normally associated with use of flushing techniques on shorelines. Normal procedures are to contain and recover any floating oil that is released. Use of SWAs that disperse the treated oil into the water column could increase the exposure of water-column resources in areas of restricted water flow, which could result in acute toxic effects to fish in these areas and a reduction in prey species for diving birds. The recently delisted Brown Pelican resides in the Inner Harbor area throughout its life stage. As of 2013 the delisting marks the beginning of a five year monitoring project to evaluate its population status. It frequently uses the Inner Harbor but it is unlikely that pelicans would dive or swim within a boomed area where operations would be taking place. However, efforts will be made to ensure that pelicans and other migratory birds are not impacted by this activity. If necessary, hazing will be used following coordination with the USFWS.

Aquatic Resources

Fish

Fish known to be present in Corpus Christi Bay near the mouth of the Inner Harbor, the Inner Harbor, and Tule Lake are: Atlantic croaker, red drum, black drum, gulf menhaden, hardhead catfish, sand sea trout, spotted sea trout, ladyfish, pinfish, pigfish, sheepshead, crevalle, snook, and stripped mullet. Fish management plan for red drum indicate the Inner Harbor contains suitable habitat for the entire life stage of this organism including the channel bottom, wetland habitats and bay bottom.

Invertebrates

Several invertebrates are common along Corpus Christi Bay including blue crabs, brown shrimp, white shrimp, and encrusting organisms such as barnacles and American oysters. Blue crabs may be spawning during April through July with larvae and juveniles present from May through August.

Use of SWAs that result in most of the oil being dispersed into the water column could result in acute toxicity to fish and shellfish, particularly the larval and juvenile life stages. Product that lift and float the oil might have a slightly increased risk to fish and shellfish compared to normal flushing techniques because of the added toxicity of the SWA product. However, at the recommended application rate (one gallon per 100 square feet) dilution to non-toxic levels is expected to be rapid.

Marine Mammals

Bottlenose dolphin may be present throughout the year within the Inner Harbor and Corpus Christi Bay. The endangered West Indian Manatee in the Inner Harbor is also documented. Although a resident population is not thought to exist in the proposed area, environmental conditions may be suitable to attract such species. Any effects of spilled oil are likely to be temporary (eye, nose, skin irritation). Use of SWAs is not likely to cause any significant additional impacts. If a manatee is sighted while surface agents are being used, the nearest USFWS office will be notified, Personnel will be instructed not to provide food or water to the manatee. The products being utilized for surface washing are lift and float agents, so water column exposure is reduced. Boom is placed around the immediate vicinity where cleaning is occurring, reducing the area where a manatee would surface to a small footprint. The chances of a manatee being present in the ship channel and being exposed to surface washing agents is negligible. Therefore, the USCG has determined that the use of surface washing agents “may affect but is not likely to adversely affect” the West Indian manatee.

Reptiles

Threatened and endangered sea turtles identified in the proposed preapproved area include Green Sea Turtles, Hawksbill Sea Turtle, Kemp’s Ridley Sea Turtle, Leatherback Sea Turtle and Loggerhead Sea Turtle. Any effects of spilled oil are likely to be temporary (eye, nose, skin irritation). Use of SWAs is not likely to cause any significant additional impacts.

USFWS Jurisdiction

Five sea turtle species are listed in Nueces County but we understand that USFWS has jurisdiction only for nesting turtles. This concurrence does not include areas near Gulf beaches where turtles nest. Therefore, we have determined that there will be “no effect” to nesting sea turtles.

NOAA Jurisdiction

NOAA-NMFS has jurisdiction on non-nesting sea turtles. The USCG has determined that the use of surface washing agents as described in the plan “may affect, but is not likely to adversely affect” non-nesting sea turtles due to limited use of habitat within the Corpus Christi Inner Harbor and the implementation of conservation measures including but not limited to containment, collection, and recovery of oil within defined work areas isolated from sensitive habitat. Marine mammals observed within the work site will be reported to the marine mammal stranding hotline at 877.433.8299.

Non-Marine Wildlife

There is no habitat within the Inner Harbor for the Gulf Coast Jaguarundi, the Ocelot, the Northern Aplomado Falcon, Slender Rush-Pea, or South Texas Ambrosia. Therefore, we have determined that there will be “no effect” to these species.

Human-Use Resources

Commercial ship traffic moves through the Inner Harbor Port of the Port of Corpus Christi. Water intakes are numerous along the ship channel. Use of SWAs that lift and disperse could increase the amount oil that mixes into the water column, which would increase the risk of oil entering water intakes. Only lift and float products should be used where there is a risk to water intakes, and oil containment and recovery efforts should be closely monitored. The Texas Coastal Oil Spill Planning and Response Toolkit should be utilized to identify water intakes, and other applicable human-use resources.

Expected Use and Behavior of Surface Washing Agents

Surface washing agents contain surfactants, solvents, and/ or other additives that are used to increase the efficacy of oil removal from oiled substrates by flushing with water. Use of SWAs are most applicable for oil removal from solid surfaces such as seawalls, riprap structures, pier surfaces, and vessels. The product is sprayed onto the oiled substrate, there may soak period depending on the product, and then the treated area is flushed with water. The water may require heating, and often the water flush is conducted at high pressures.

There are two types of SWAs: 1) lift and float products are those that do not emulsify the oil, so little of the oil is mixed into the water column and the released oil can be recovered from the water surface; and 2) lift and disperse products are those that emulsify the oil, thus most of the oil is mixed into the water column and cannot be recovered from the water surface. Some products may cause an initial dispersion of the treated/ flushed oil, but the treated oil re-floats in low currents.

The use of SWAs on shorelines is considered to achieve a higher degree of cleanliness or cleanliness at a higher rate. Use of SWAs might reduce the pressure or temperature of the wash water needed to clean the substrates, which may reduce additional impacts from the cleanup.

There may also increase the rate of shoreline cleanup with the use of SWAs reducing disturbance to wildlife using these areas. Because they are used on areas of heavy to moderate oiling, it is assumed that the oil has already significantly impacted the intertidal biota, and the use of SWAs will not increase the impacts in the oil footprint. However, use of SWAs on shorelines could have additional toxic effects to intertidal communities from overspray outside the oiled area or from flushing of the treated oil/ wash water across sensitive lower intertidal habitats. Thus, there may be restrictions against direct spraying of areas with rich intertidal biota and flushing of the oil, product, and water across sensitive shorelines. That is, product application and flushing can be prevented during a period around low tide in areas with a rich lower intertidal zone. The product toxicity and dispersability of treated oil widely vary among products. The selection of an SWA product should consider these factors. Use of SWAs that lift and disperse could increase the amount oil that mixes into the water column, which would increase the risk of oil entering water intakes. Only lift and float products should be used where there is a risk to water intakes, and oil containment and recovery efforts should be closely monitored.

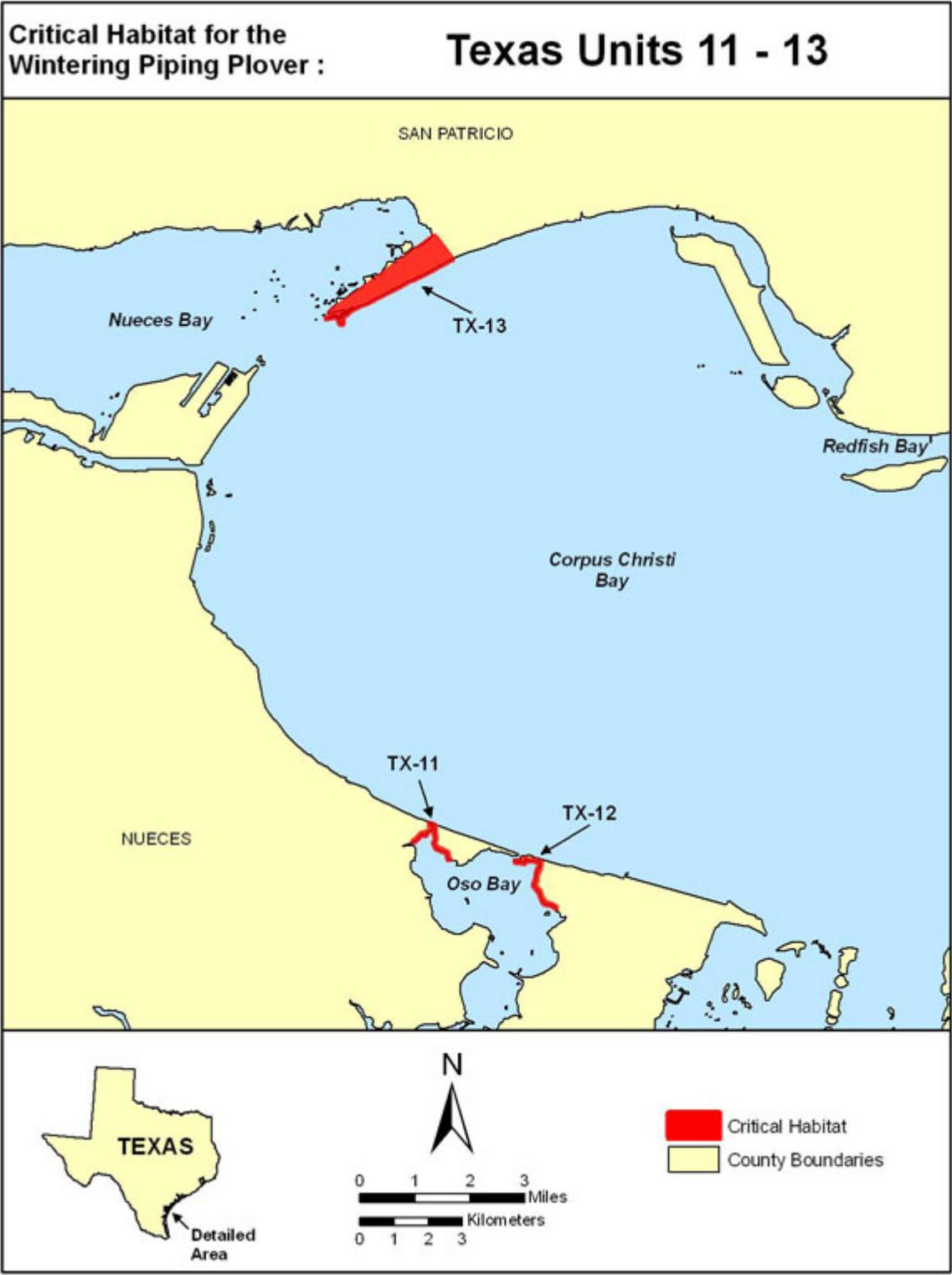


Figure 7. Texas Unit-13 Map

Appendix C. – SDS sheets

This section contains the Safety Data Sheets (SDS) for three surface washing agents that meet the RRT VI criteria, i.e., “lift and float” and NCP listing. Additional SWAs can be found on the [NCP Product Schedule](#). The following product information was copied from the US Environmental Protection Agency Product Schedule and Notebook on March 24, 2005. For further information regarding other SWAs listed on the NCP Product Schedule, visit “[NCP Product Schedule Toxicity & Effectiveness Summaries](#),” and “[NOAA Oil Spill Response – Surface Washing Agents](#).”

URL <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations>

COREXIT 9580 SHORELINE CLEANER

TECHNICAL PRODUCT BULLETIN #SW-10 (formerly #D-38)

USEPA, OIL PROGRAM CENTER

ORIGINAL LISTING DATE: JULY 21, 1989

REVISED LISTING DATE: SEPTEMBER 27, 1995

"COREXIT 9580 SHORELINE CLEANER"

I.NAME, BRAND, OR TRADEMARK

COREXIT 9580 Shoreline Cleaner (EC9580A)

Type of Product: Surface Washing Agent (hydrocarbon based)

II.NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER/CONTACT

Nalco/Exxon Energy Chemicals, LP

P.O. Box 87

Sugarland, TX 77487-0087

Customer Services:

Phone: (281) 263-7205

(800) 333-3714

Fax: (281) 263-7149

24-hour Emergency Number: (281) 263-7200

Product Management:

Phone: (281) 263-7736

(281) 263-7955

Mobile: (713) 854-1658

(Mr. Paul Hey)

III.NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS

ABASCO

11355 Highway 225

La Porte, TX 77571

Phone: (281) 470-0440

24-hour Emergency Number: (800) 421-4911

Nalco/Exxon Energy

Chemicals, L.P.

P.O. Box 87

Sugar Land, TX 77487-0087

Phone: (800) 333-3714

Nalco/Exxon Energy

Chemicals L.P.

Nalco/Exxon Energy

Chemical, L.P.

P.O. Box 220
Long Beach, CA 90801
Phone: (310) 639-1553

701 E. Tudor St, # 290
Anchorage, AK 99503
Phone: (907) 563-9866

IV. SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION

1. Flammability:

IMO nonflammable; DOT combustible

2. Ventilation:

Use with ventilation equal to unobstructed outdoors in moderate breeze.

3. Skin and eye contact; protective clothing; treatment in case of contact:

Avoid contact with eyes, skin and clothing. Wash skin with soap and water. Flush eyes with plenty of water until irritation subsides. Remove to fresh air.

4.a. Maximum storage temperature: 170 F

4.b. Minimum storage temperature: -30 F

4.c. Optimum storage temperature range: 40 F-100 F

4.d. Temperatures of phase separations and chemical changes: None

V. SHELF LIFE

The shelf life of unopened drums of COREXIT 9580 is unlimited.

VI. RECOMMENDED APPLICATION PROCEDURE

1. Application Method:

COREXIT 9580 contains a balanced formula of specifically selected biodegradable surfactants in a de-aromatized hydrocarbon solvent system. COREXIT 9580 has a very low degree of toxicity to marine and shoreline organisms.

Shorelines, Mangroves, and Seagrasses-COREXIT 9580 is sprayed directly on the oiled rocky shorelines, mangroves or seagrasses full strength as supplied. After a soak time of zero to thirty minutes, rinse the cleaner and the oil released from the shoreline surface into the water where it can be readily recovered by conventional means such as skimmers or absorbents. The soak time may vary with temperature, oil density and degree of weathering.

2. Concentration/Application Rate:

The recommended dosage is approximately 1 gallon per 100 sq. ft. but this can vary depending on the amount of weathering and oiling. The product should be applied full strength as supplied. Since it is hydrocarbon-based, the product should not be diluted with water during application as this will greatly reduce effectiveness.

3. Conditions for Use:

COREXIT 9580 SHORELINE CLEANER is useful on shorelines in fresh or salt water. It is effective on all types of oil including heavily weathered and emulsified oil ("chocolate mousse") containing up to 50% water.

VII. TOXICITY AND EFFECTIVENESS

1.Toxicity:

Material Tested	SPECIES	LC50 (ppm)
COREXIT 9580	Menidia beryllina	86.88 96-hr
	Mysidopsis bahia	31.96 48-hr
No. 2 Fuel Oil	Menidia beryllina	10.72 96-hr
	Mysidopsis bahia	16.12 48-hr
COREXIT 9580 & No.2 Fuel Oil (1:10)	Menidia beryllina	13.20 96-hr
	Mysidopsis bahia	9.06 48-hr
Reference Toxicant (DSS)	Menidia beryllina	7.02 96-hr
	Mysidopsis bahia	9.82 48-hr

NOTE: This toxicity data was derived using the concentrated product. See Section VI of this bulletin for information regarding the manufacturer's recommendations for concentrations and application rates for field use.

VIII.MICROBIOLOGICAL ANALYSIS

Not Applicable

IX.PHYSICAL PROPERTIES

- 1.Flash Point: 174 F
- 2.Pour Point: -65 F
- 3.Viscosity: 3.1 cp at 100 F
1.7 cp at 150 F
- 4.Specific Gravity: 0.810 at 60 F
- 5.pH: Not Applicable
- 6.Surface Active Agents: CONFIDENTIAL
- 7.Solvents: Dearomatized Hydrocarbon
- 8.Additives: None
- 9.Solubility: Not Applicable

X.ANALYSIS FOR HEAVY METALS, CYANIDE, AND CHLORINATED HYDROCARBONS

COMPOUND	CONCENTRATION (ppm)
Arsenic	< 0.06
Cadmium	< 0.002
Chromium	0.003
Copper	< 0.001
Iron	0.046
Lead	< 0.009
Mercury	< 0.0002

Nickel	0.01
Zinc	0.041
Cyanide	< 0.05
Chlorinated Hydrocarbons	3.1 ug/ul

CYTOSOL
 TECHNICAL PRODUCT BULLETIN #SW-19
 US EPA, OIL PROGRAM CENTER
 LISTING DATE: January 30, 1997
 "CYTOSOL"

I. NAME, BRAND, OR TRADEMARK
 CYTOSOL
 Type of Product: Surface Washing Agent

II. NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER

CytoCulture International, Inc.
 249 Tewksbury Avenue
 Point Richmond, CA 94801-3829
 Phone: (510) 233-0102
 Fax: (510) 233-3777
 (Dr. Randall von Wedel)

III. NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS

CytoCulture International, Inc.
 249 Tewksbury Avenue
 Point Richmond, CA 94801-3829
 Phone: (510) 233-0102
 Fax: (510) 233-3777
 (Mr. Greg McGowan)

Foss Environmental, Inc.
 7440 West Marginal
 Seattle, WA 98108-4141
 Phone: (206) 768-1450
 Fax: (206) 767-3460
 (Mr. Larry Pintler)

Advanced Cleanup Tech. Inc
 20928 Lamberton Ave.
 Carson, CA 90810
 Phone: (800) 334-2284
 Fax: (310) 763-9076
 (Mr. Walt Dorn)

IV. SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION

1. Flammability:

Non-flammable. However, keep the product away from heat and avoid contact with strong oxidizing agents. Ensure proper disposal of product-saturated absorbants, rags, and combustible materials to avoid the possibility of spontaneous combustion.

2. Ventilation:

Product is not volatile. However, in the event of aerosol inhalation, immediately move victim to fresh air. If victim has stopped breathing, give artificial respiration, preferably by mouth to mouth. Get medical attention immediately.

3. Skin and eye contact; protective clothing; treatment in case of contact:

The CytoSol contains no volatile hydrocarbons or petroleum constituents. However, as a precautionary measure, wear gloves and safety glasses meeting the specifications of ANSI Standard Z87.1. Avoid breathing aerosols. Avoid prolonged contact with skin.

4. Storage:

a. Maximum storage temperature: 110 F

b. Minimum storage temperature: 39 F

c. Optimum storage temperature: 55 F

d. Temperatures of phase separations and chemical changes:

Avoid freezing. At temperatures below the cloud point (43 F), the product may become cloudy, but will return to normal upon warming, with no effect on performance. Store product in airtight containers, if possible, without excessive exposure to moisture.

V. SHELF LIFE: Closed container: 10 years in a dry environment.

Open container: 1 year in a warm, humid environment.

The product does not deteriorate appreciably over time, but will grow bacteria if water condensation accumulates in the container.

VI. RECOMMENDED APPLICATION PROCEDURE

1. Application Method:

The CytoSol is applied to oiled shorelines to extract and recover weathered petroleum by flotation with passive water deluges from header pipes or manual spraying. Remaining residual hydrocarbons are biodegraded, either passively by intrinsic bioremediation, or aggressively by enhancing the process with controlled amounts of nutrients and/or acclimated cultures of bacteria cultured from the site, when approved by local, state and federal agencies. The CytoSol Process is most suitable for the treatment of heavily oiled shorelines that do not respond well to conventional treatments, or that are considered too sensitive for mechanical/pressure wash strategies. Prior to the application of CytoSol, collection booms, oil skimmers, sorbent pads, or other appropriate containment and collection mechanisms must be deployed and operational.

2. Concentration/Application Rate:

CytoSol may be applied with a variety of spraying or washing equipment, depending upon the scale and type of shoreline to be cleaned. The product is to be used only neat and undiluted, for direct application to spilled oil. For large beach areas, CytoSol can be sprayed from water trucks or work boats equipped with pumps, hoses, and nozzles to deliver the product as an aerial spray. In smaller applications, CytoSol may be applied with hand sprayers or portable pumps to spray the product directly onto oiled surfaces. Dose rates will vary with the type and amount of petroleum spilled, the extent of weathering, and other site specific conditions, including temperature, porosity of shoreline, and residence time available to let the product contact the oil. In general, the ratio of applied CytoSol to crude oil is between 0.5:1 and 1:1. The quantity of CytoSol applied should be approximately equivalent to the quantity of petroleum accumulated on the shoreline, or as required to dissolve and remove weathered oil. After application, the product should be allowed to penetrate and dissolve the weathered petroleum for at least one hour, preferably longer. Cold weather applications will require more contact time before initiating

recovery. In tidal areas, it is advisable to apply the CytoSol as the tide is ebbing (receding) to maximize contact time. Trapped oil may continue to be released for several days, requiring that containment devices be left in place.

3. Conditions for Use:

The following shoreline types are appropriate for the use of CytoSol: Coarse sand beaches where petroleum has penetrated into sand; marsh areas and vegetated wetlands where oil has coated plants and become trapped; concrete bulkheads, rip rap and piers that may have trapped oil; oiled pilings; gravel or cobble shorelines and rocky shores, where oil has become trapped in pockets; and, public beaches, fisheries, hatcheries, river banks, and other sensitive or high impact sites. The CytoSol has been fielded tested successfully for removing oil from mussel beds and intertidal zones, pilings and concrete rip rap. The CytoSol also proved effective in facilitating the removal of oil from the banks and vegetation along an oiled creek.

VII. TOXICITY

Material Tested	SPECIES	LC50 (ppm)
CytoSol	Menidia beryllina	738 96-hr
	Mysidopsis bahia	124 48-hr
No. 2 Fuel Oil	Menidia beryllina	38.9 96-hr
	Mysidopsis bahia	5.9 48-hr
CytoSol & No. 2 Fuel Oil (1:10)	Menidia beryllina	24.3 96-hr
	Mysidopsis bahia	7.0 48-hr
Reference Toxicant (DSS)	Menidia beryllina	13.8 96-hr
	Mysidopsis bahia	22.2 48-hr

NOTE: This toxicity data was derived with the EPA protocols for dispersants using a blender to emulsify the product into the water for testing organisms. The CytoSol emulsion created microdroplets of product which may have had direct physical effects on the test larvae. Since the solubility of the product in water is so low (14 ppm or less), it is probable that the observed effects on the test organisms was caused by larvae having direct contact with droplets of product rather than by a true chemical toxicity from the trace amount of dissolved product. In practice, the CytoSol would not be emulsified to any great extent during application. See Section VI of this bulletin for information regarding the manufacturer's recommendations for concentrations and application rates for field use.

VIII. MICROBIOLOGICAL ANALYSIS

Not Applicable

IX. PHYSICAL PROPERTIES

1. Flash Point: 360 F
2. Pour Point: 10 F
3. Viscosity: 4.15 CST @ 104 F
4. Specific Gravity: 0.8877 @ 60 F
5. pH: Neutral
6. Surface Active Agents: None

7. Solvents: No Petroleum Distillates
8. Additives: CONFIDENTIAL
9. Solubility: 14 ppm in fresh water, 7 ppm in sea water

X. ANALYSIS FOR HEAVY METALS AND CHLORINATED HYDROCARBONS

COMPOUND	CONCENTRATION (ppm)
Arsenic	ND
Cadmium	ND
Chromium	ND
Copper	ND
Lead	ND
Mercury	ND
Nickel	ND
Zinc	ND
Cyanide	ND
Chlorinated Hydrocarbons	ND

PES-51

TECHNICAL PRODUCT BULLETIN #M-12
 USEPA, OIL PROGRAM CENTER
 ORIGINAL LISTING DATE: AUGUST 31, 1992
 REVISED LISTING DATE: SEPTEMBER 13, 1995
 "PES-51"

I. NAME, BRAND, OR TRADEMARK

PES-51
 Type of Product: Miscellaneous Oil Spill Control Agent

II. NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER/CONTACT

Practical Environmental Solutions (formerly known as Petroleum Environmental Services, Inc.)
 P.O. Box 12563
 San Antonio, Texas 78212
 Phone: (210) 822-4205
 Fax: (210) 822-4205
 (Mr. Dennis C. Owens)

III. NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS

FOSS Environmental Services
 (various locations include):
 WASHINGTON
 Seattle (206) 281-3800
 Tacoma (206) 272-0362
 Port Angeles (360) 457-3688

Everett (206) 252-4131

Grays Harbor (360) 532-4445

FOSS Envrnt'l (206) 767-0441

FOSS Shipyard (206) 281-3872

FOSS Terminal (206) 281-3754

CALIFORNIA

Los Angeles/Long Beach (310) 435-0171

San Francisco Bay (707) 745-4747

San Diego (619) 234-8228

FOSS Envrnt'l (310) 432-1304

OREGON

Portland (503) 286-0631

Astoria (503) 325-6621

Rainier (503) 556-4311

FOSS Envrnt'l (503) 283-1150

ALASKA

Anchorage (907) 274-1577

CANADA

Vancouver (604) 665-4363

IV.SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION

1.Flammability: 124F

2.Ventilation: Handle product in a normal well ventilated place.

3.Skin and eye contact; protective clothing; treatment in case of contact:

Although PES-51 is expected not to pose any specific health hazard, the following precautions are recommended due to possible irritation from the biological by-products contained in the product. Avoid contact with skin, eyes, and clothing. Avoid prolonged or repeated contact with skin, breathing mist, and do not take internally. Keep product away from heat, sparks, and flames, and store in a cool, dry, well ventilated place, away from incompatible materials. Vent container in warm weather to relieve pressure. Do not cut, grind, weld or drill on or near product containers. Handle empty containers just as would the full ones.

4.a.Maximum storage temperature: Not applicable.

4.b.Minimum storage temperature: Not applicable.

4.c.Optimum storage temperature range: Not applicable.

4.d.Temperatures of phase separations and chemical changes: Not applicable, but PES-51 freezes at -142F.

V.SHELF LIFE

6 years (unopened drum), 1 year (opened drum).

VI.RECOMMENDED APPLICATION PROCEDURE

1.Application Method:

The following PES-51 application methods are applicable for the full range of PES-51 industrial uses, including shoreline and surface treatment, tank cleaning and equipment decontamination.

The selection of the method(s) will be dependent on the level and extent of hydrocarbon

contamination, type of oil, and its degree of weathering/emulsion and the nature and type of surface to be treated or cleaned. Equipment availability, logistics and manpower requirements should also be considered. Application methods may be combined, if necessary. In addition, for shoreline cleaning, the treatment area will be boomed and contained prior to PES-51 usage. For equipment decontamination, the use of portable de-con pools or secondary containment liners are recommended.

PORTABLE EQUIPMENT

A. Hand Held Spraying

Spray PES-51 on the contaminated area using a Chapin Steel Sprayer #1729 (or equivalent), 2.5 gallons capacity, or the AU 8000 MicroNair sprayer. After application, allow 3 to 5 minutes for soaking without allowing evaporation of PES-51 (weather dependent). When saturation is attained, hydrocarbon will be seen running off the impacted surface. Rinse the treated surface with available water (fresh or sea water) from the pump until no hydrocarbon remains. The water should be used at ambient temperature. Depending on level and extent of contamination, a pressure washer may also be used for rinsing (ambient may be used). Collect the effluent hydrocarbons with absorbent booms and pads, and squeeze off the oil contaminants from the booms and pads for reuse as process oil.

B. Airless Sprayer

Depending on the level and extent of the hydrocarbon contamination and the nature of the impacted surface, an airless type sprayer may be used for direct product application. Common types of airless sprayers are: Airlessco, Graeco or equivalents. These airless sprayers can have single or multi-hose attachments and can include wand extensions as required. Application rate and pressure will vary depending on the equipment type and site specific conditions. After spraying with PES-51, allow to soak for 3 to 5 minutes (weather dependent) avoiding evaporation, rinse/flush surfaces with pumps, fire hoses, deluge headers or pressure washers (ambient).

C. Pressure Washer with Syphon Feed System

Depending on the level and extent of the hydrocarbon contamination and the nature of the impacted surface proposed for treatment, a pressure washer may be used for direct product application. In most applications, hot water (greater than 120F) is not necessary. Common types of pressure washers are: Hotsy and Lambda, or equivalents. These pressure washers have a variable rate "detergent syphon feed" system for PES-51 application and can have single or multi-hose attachments which can include wand extensions. Application rate and pressure will vary depending on equipment type and site specific conditions. After spraying with PES-51, allow to soak for 3 to 5 minutes (weather dependent) avoiding evaporation, rinse/flush surfaces with pumps, fire hoses, deluge headers or pressure washers (ambient).

D. Air Knife (Modified for PES-51 Application)

PES has developed a patent-pending modified air knife system for product application. This method was developed primarily for rocky, cobble, bedrock type shorelines with both surface subsurface oil. The modified air knife delivers the PES-51 in both a liquid stream (125 psi) or as an aerosol. Compressed air is used to dilate subsurface sediments and allow for distribution of the PES-51. The air knife method is also applicable for surface treatment of impacted rocks, bulkheads, seawalls, rip-rap jetties, etc. After spraying with PES-51, allow to soak for 3 to 5 minutes (weather dependent) avoiding evaporation, rinse/flush surfaces with pumps, fire hoses, deluge headers or pressure washers (ambient). For subsurface treatment, continue flushing with large quantities of low-pressure seawater at ambient temperatures.

MOBILE EQUIPMENT

A. Boat Spraying

The recommended application rate is 1 to 5 gallons per 200 sq. ft., from a boat with speed of 1 to 3 knots, depending on the sea conditions and oil film thickness on the rocks. For a boat with a mounted AU-8110 MicroNair sprayer (or equivalent sprayer) and a spray swath of about 20 feet, travelling at approximately two knots, 25 acres/hr will be treated. After spraying, rinse PES-51 off the rocks with a hard, coarse spray of sea water. Standard size pumps with fire hoses or deluge headers may be used. Higher pressure rinses may be required if oil is thick and weathered. The shoreline may also be sprayed from the beach side, which will force the oil into the containment boom.

B. Helicopter Deployed Spraying

Aerial spraying can be utilized for shore treatments and pretreatment with the AU 5000 atomizer (MicroNair) or equivalent sprayer. The recommended aerial application of PES-51 is 14 to 23 liters/minute. The AU 5000 (or equivalent) can be used with fixed-wing aircraft and helicopters operating at speeds of 90 MPH (145 Km/Hr) and more. The smaller AU 7000 sprayer (or equivalent) is recommended for use at airspeeds below 90 MPH. After spraying, the hydrocarbons can be rinsed off the shore rocks as described above with hand held pumps, deluge headers or boat spraying.

C. Vehicular Spraying

The recommended vehicular spraying is 50 to 150 ft²/gallon depending on climatic conditions. A MicroNair vehicle-mounted sprayer is recommended. This unit is a self contained sprayer kit that combines the AU 8000 sprayhead (or equivalent) with a powerful 4-stroke engine and a 60 liter chemical tank to give complete product coverage. After spraying, the hydrocarbons can then be rinsed off the shore rocks as described above with hand held pumps, deluge headers or boat spraying.

2. Concentration/Application Rate:

The product comes already mixed, and ready for use. For specific application, see rate of application as indicated above.

3. Conditions for Use:

Water temperature and salinity do not effect the product performance. PES-51 is effective against hydrocarbons only, and the age of the hydrocarbon is not relevant.

VII. TOXICITY AND EFFECTIVENESS

1. Toxicity:

Material Tested	SPECIES	LC50 (ppm)
PES-51	Menidia beryllina	137.00 96-hr
	Mysidopsis bahia	54.00 48-hr
No. 2 Fuel Oil	Menidia beryllina	200.00 96-hr
	Mysidopsis bahia	11.50 48-hr
PES-51 & No. 2 Fuel Oil (1:10)	Menidia beryllina	435.00 96-hr
	Mysidopsis bahia	14.50 48-hr
Reference Toxicant (DSS)	Menidia beryllina	2.20 96-hr
	Mysidopsis bahia	9.80 48-hr

NOTE: This toxicity data was derived using the concentrated product. See Section VI of this bulletin for information regarding the manufacturer's recommendations for concentrations and application rates for field use.

2.Effectiveness:

Not applicable.

IX.PHYSICAL PROPERTIES

1.Flash Point: 124F

2.Pour Point: -50F at 30 min.

3.Viscosity: 30 cst at 28C

4.Specific Gravity: 0.840 at 25C

5.pH: 6.7

6.Chemical Name and Percentage by Weight of the Total Formulation: CONFIDENTIAL

7.Surface Active Agents: CONFIDENTIAL

8.Solvents: CONFIDENTIAL

9.Additives: CONFIDENTIAL

10.Solubility: Not Applicable

X.ANALYSIS FOR HEAVY METALS, CYANIDE, AND CHLORINATED HYDROCARBONS

COMPOUND	CONCENTRATION (ppm)
Arsenic	< 0.005
Cadmium	< 0.01
Chromium	< 0.05
Copper	< 0.05
Lead	< 0.05
Mercury	< 0.005
Nickel	< 0.01
Zinc	< 0.05
Cyanide	< 1.00
Chlorinated Hydrocarbons	< 0.01

Appendix D: TGLO Toolkit Legend



LEGEND

ENVIRONMENTAL SENSITIVITY INDEX

- MANGROVE MARSH (10D)
- FRESHWATER SWAMPS (10C)
- FRESHWATER MARSHES (10B)
- SALT AND BRACKISH MARSHES (10A)
- SHELTERED TIDAL FLATS (9)
- SHELTERED ROCKY/KARST SHORES (8D)
- SHELTERED SCARPS (8C)
- SHELTERED RIPRAP STRUCTURES (8B)
- SHELTERED SOLID MAN-MADE STRUCTURES (8A)
- EXPOSED TIDAL FLATS (7)
- EXPOSED RIPRAP STRUCTURES (6B)
- GRAVEL OR SHELL BEACHES (6A)
- MIXED SAND AND GRAVEL OR SHELL BEACHES (5)
- COARSE-GRAINED SAND BEACHES (4)
- SCARPS AND STEEP SLOPES IN SAND (3B)
- FINE-GRAINED SAND BEACHES (3A)
- WAVE-CUT CLAY PLATEAUS (2B)
- SCARPS AND STEEP SLOPES IN CLAY (2A)
- EXPOSED WALLS AND OTHER SOLID STRUCTURES (1)

HYDROGRAPHY

- MARSH WETLAND
- TIDAL MUD OR SAND FLATS
- BEACH, BAR
- INTERMITTENT WATER BODY
- DUNES
- SUBMERGED AQUATIC VEGETATION
- MANGROVES
- OYSTERS

PRIORITY PROTECTION AREAS

- HIGH MEDIUM
- MEDIUM PRIORITY
- LOW PRIORITY

BIOLOGICAL RESOURCES

- DIVING BIRDS
- GULLS/TERNS
- PASSERINE BIRDS
- PELAGIC BIRDS
- RAPTORS
- SHOREBIRDS
- WADING BIRDS
- WATERFOWL
- FISH
- DOLPHINS
- SMALL MAMMALS
- UPLAND/WETLAND PLANTS
- SUBMERGED AQUATIC VEGETATION
- ALLIGATOR
- TURTLES
- OTHER REPTILES/AMPHIBIANS
- BIVALVES
- CRABS
- GASTROPODS
- SHRIMP
- SQUID
- THREATENED/ENDANGERED SPECIES

POLITICAL BOUNDARIES

- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY

TRANSPORTATION

- DIVIDED HIGHWAY
- STATE/FEDERAL HIGHWAY
- CITY STREET/COUNTY ROAD
- AIRPORT
- RAILROAD
- SHIP CHANNEL/GULF INTRACOASTAL WATERWAY
- SHIPPING SAFETY FAIRWAY

HUMAN USE FEATURES

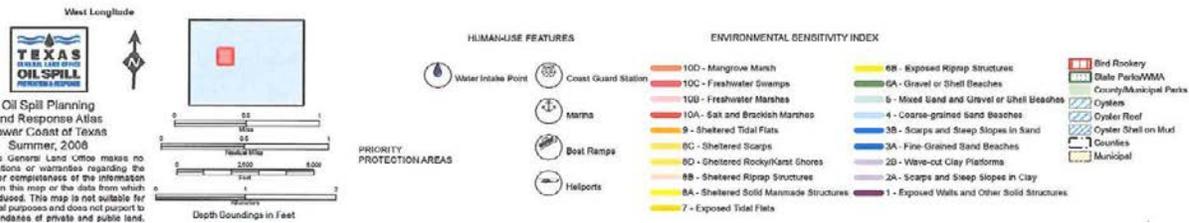
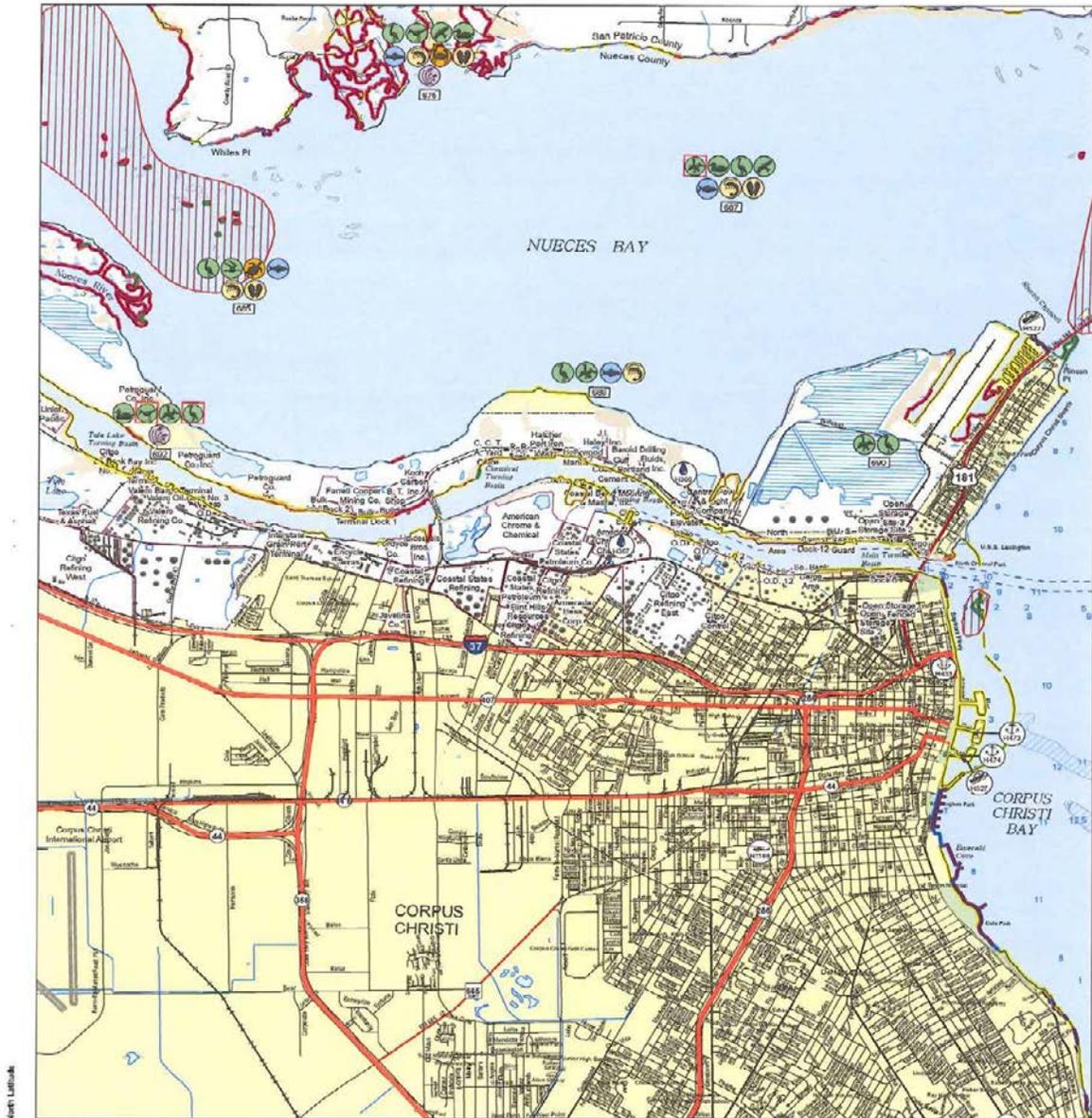
- AQUACULTURE SITE
- BEACH ACCESS POINT
- BOAT RAMP
- COAST GUARD STATION
- HELIPORT
- LIGHTHOUSE
- MARINA
- WATER INTAKE POINT

OTHER LAYERS

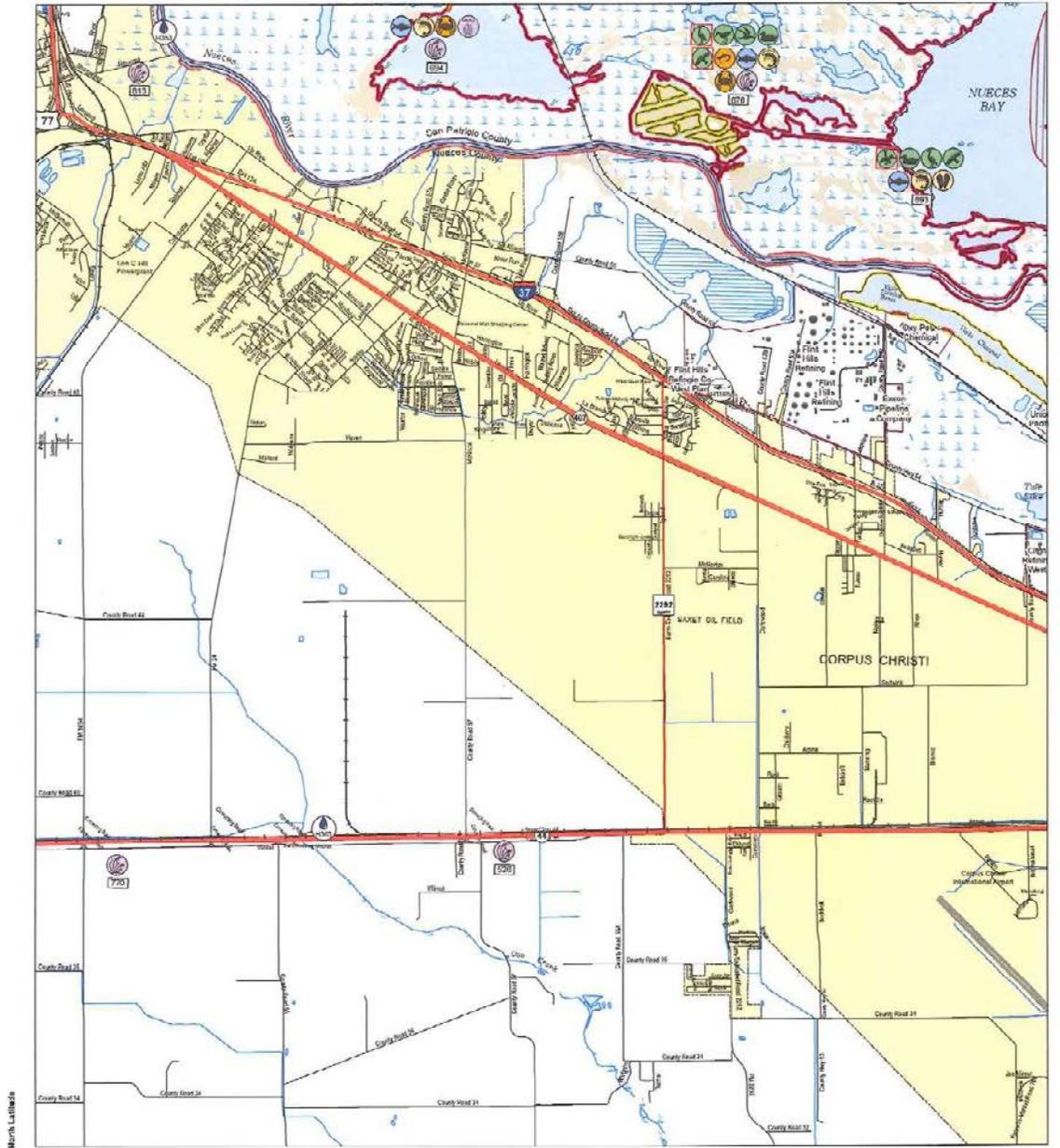
- ANCHORAGE AREA
- AUDUBON SANCTUARY
- BIRD ROOKERY AREA
- CITY OR COUNTY PARK
- COASTAL PRESERVE
- MUNICIPAL AREA
- NATIONAL WILDLIFE REFUGE
- STATE PARK/WILDLIFE MANAGEMENT AREA
- WASHOVER AREA

Appendix E: Corpus Christi Inner Harbor – East

CORPUS CHRISTI



Appendix F: Corpus Christi Inner Harbor – West ANNAVILLE



West Longitude

TEXAS
STATE LANDS OFFICE
OIL SPILL
RESPONSE ATLAS

Oil Spill Planning
and Response Atlas
Lower Coast of Texas
Summer, 2008

The Texas General Land Office makes no representations or warranties regarding the accuracy or completeness of the information depicted on this map or the data from which it was produced. This map is not suitable for navigational purposes and does not support to depict boundaries of oil and public land.

HUMAN-USE FEATURES

- Water Intake Point
- Hollups

ENVIRONMENTAL SENSITIVITY INDEX

100 - Mangrove Marsh	05 - Exposed Riprap Structures
10C - Freshwater Swamps	6A - Gravel or Shell Beaches
10B - Freshwater Marshes	5 - Mixed Sand and Gravel or Shell Beaches
10A - Salt and Brackish Marshes	4 - Coarse grained Sand Beaches
9 - Shallow Tidal Flats	3B - Riprap and Steep Slopes in Sand
0C - Chilleded Coasts	3A - Fine Grained Sand Beaches
8D - Shaltered Rocky/Kant Shores	2B - Winwure Clay Platforms
0A - Shaltered Riprap Structures	2A - Corps and Clops Clops in Clay
8A - Shaltered Solle Mannsde Structures	1 - Exposed Wite and (Xar Solt Structures
7 - Exposed Tidal Flats	

PRIORITY PROTECTION AREAS

Priority Protection Area

Other Symbols

- Bird Rookery
- Counties
- Municipal

Appendix G: Checklist for Monitoring Surface-Washing Operations

The product to be used is on the EPA Product Schedule and is a “lift and float” agent:

- PES 51 Corexit 9580 Cytosol Other _____

Is the approved surface-washing agent the one being applied (confirm)?

Confirm for each of the following: SDS drum label invoices spray packs

Provide visual monitoring to insure that the surface-washing agents are being applied as recommended.

Technique I: Spray and Wipe

- Spray agent on sorbent pad then wipe
- Spray agent on oiled surface then wipe with pad
- Other:

Technique II: Spray and Flush

- Apply agent, flush with low (<10psi) ambient or hot (90° to 171° F) water
- Apply agent, flush with high pressure (>100psi) ambient or hot (90° to 171° F) water
- Apply agent, then steam clean (water temp> 171°F)
- High pressure or hot water wash to remove bulk of oil, then apply agent, then low pressure wash to remove residual stain
- Other:

General Observations:

- Does the product improve the rate of oil removal?
- Does the process achieve the required cleanup standard?
- Is the treated oil dispersed into the water column (subsurface plume observed)?
- Is containment in place? Is it effective?

Evaluate effectiveness:

- What water temperature & pressure is used?
- Can the flushing pressure and temperature be reduced without loss of effectiveness?
- What fraction of the treated (removed) oil is recovered?

Document any observed negative effects (impacted wildlife, for example): _____

Make recommendations, which may enhance future use of such cleanup technologies: _____

Reminders

- Photographic documentation is recommended, but not required.
- If subsurface plumes are observed, water sampling should be requested.
- If high pressure flushing is employed, water sampling is required under this pre-approval guidance document to assess hazards to the aquatic environment.
- If sampling is being conducted, record the oil concentrations in the water adjacent to the treated areas.

Appendix H: RRT VI Notification Process & Monitoring Considerations

When to consider Surface Washing Agents (SWAs):

1. When conventional flushing techniques are inadequate in removing oil residues
2. When cleanup time can be reduced such that the use of SWAs during a spill response provides an overall benefit to response objectives

RRT Notification Process (non-pre-authorized area) :

1. USCG, TGLO, & Responsible Party agree that the use of SWAs is warranted. Responders relay their recommendations via Chain of Command.
2. USCG FOSC notifies Mr. Todd Peterson (RRT Coordinator & Environmental Protection Specialist for USCG District 8).
Todd Peterson contact info:
504.589.6225 (24 hour phone number)
504.671.2232 (office phone)
Todd.M.Peterson@uscg.mil
3. USCG FOSC asks Todd Peterson to convene the RRT. The requester, whether it be the USCG, TGLO, or Responsible Party, should provide background on the situation, & ensure its delivery to the RRT members prior to the call.
4. NOAA SSC and State SSC (if in waters of the State) should be consulted at this time.
5. RRT will convene, at which time the requester will deliver a consolidated background on the event and the request.
6. Approval will be given, denied or a request for additional information may be received.

Monitoring requirements, recommendations, & documentation:

1. Determine compliance via visual monitoring to ensure that SWAs are being applied as recommended and to report affected marine mammals to stranding hotline at 877-433-8299.
2. Evaluate effectiveness & document any observed negative effects.
3. Make recommendations that may enhance future use of cleanup technologies.
4. Photo documentation not required “BUT highly recommended.”
5. Water sampling should be requested if a subsurface plume is observed.
6. Water sampling required if high pressure flushing is employed.
7. Water Sampling & Lab Analysis (when required): subsurface grab samples at 1 m depth into pre-cleaned 1 liter amber bottles. At least one pre-treatment sample, plus additional samples should be taken as needed while the cleaning process is underway at a downstream location.
8. Upon completion, a short follow-up summary documenting essential monitoring observations & lessons learned should be submitted to the RRT co-chairs & the Science & Technology Subcommittee chairperson. This requirement does not imply continuous monitoring during the entire cleanup process. Observations of the initial process & spot observations during the response will meet this guideline. The FOSC may task a technical specialist to submit this summary. For many situations, a simple e-mail to capture this information will suffice.
9. Efforts must be made to minimize the use of chemical agents & to collect, contain, & recover

all flushed oil.

10. Worker health & safety monitoring must be established & consistent with concerns identified by MSDS sheets.
11. Consult the USCG SMART team on applied/ advanced response technologies.

Template: This document is a request to RRT 6 seeking approval to use surface washing agents (SWAs) in the Corpus Christi Inner Harbor (TX).

In response to the **XXX** spill, Unified Command has requested that SWAs be approved by RRT6 for use in the commercial/ recreational port area as a contingency plan. Given the potential extent of the shoreline impact, this request includes all waterfront hard structure surfaces and vessel hulls in the Corpus Christi Inner Harbor.

The specific request is that "lift and float" SWAs be allowed to enhance cleaning operations of vessels and hard structures at impacted areas along the channel. Specific products have not been identified and are currently being researched as to availability and applicability. It is clearly understood that approval would require that any product used must be listed on the NCP Product Schedule, that personnel safety measures will be established & consistent with concerns identified by MSDS sheets, that compliance is ensured via monitoring to ensure that SWAs are being applied as recommended, that water sampling will be conducted if high pressure is used or a subsurface plume is observed per RRT 6 guidelines, that any observed negative effects & lessons learned will be documented & submitted to the RRT & the Science & Technology Subcommittee Chairperson, that efforts will be made to minimize the use of SWAs & to collect, contain, & recover all flushed oil, and, at a minimum, the manufacturers recommendations will be taken into account. It is further understood that surface washing activities will follow the tiered protocol outlined in the RRT VI EMERGENCY RESPONSE PREAPPROVED GUIDELINES TO DECONTAMINATE VESSELS AND HARD STRUCTURES IN PORT AREAS USING SURFACE WASHING AGENTS (22 Jan 2003). This document will be used as background and guidance during the response. In addition, any specific use of surface washing will be coordinated with approval of the UC and with input from the Environmental Unit.

Situation:

The **XXX** was involved in a collision, explosion, fire and pollution event on **XX Month, 20XX**. The vessel remained at anchor and stable (**location**) (**coordinates**). Damage was sustained in (**where**) tank and the (**where**) tank. Total estimated spill volume is **XXX BBLs (gallons)** (**product**) oil. When spilled on water, (**product, prediction of what product will do based on characteristics & degradation rate, potential damage to wildlife/ mortality and shorelines, toxicity, resources that may be effective for product cleanup**). Slick is moving (**what**) direction. At (**time**) the leading edge if the slick was at (**coordinates**). The leading edge was about (**location**). Approximately **XXX BBLs (also in gallons)** of cargo have evaporated. **XXX bbls (gallons)** dispersed and **XXX bbls** have been mechanically recovered leaving approximately **XXX bbls (gallons)** of uncontained oil on the water (**see attached map**). Trajectories & models predict the first beach (**land**) impact to occur on Mustang island on (**date, time**). There is a medium probability that oil could impact (**list potential impact sites**). Lightering operations were

completed at (time, date). Temporary repair operations have commenced and estimated date of completion is (date). Approximately XXX ft of (size) inch deflection boom has been deployed across the entrance to the (port, jetties, etc.). Despite these protection efforts, it is anticipated that some oil may enter the port, or jetties, fouling the waterline structures (other potentially impacted areas).

We appreciate your expedited response.

Regards,

Name, Rank/ Title