Caribbean Regional Response Team
Pre-Authorization Policy for Use of Solidifiers

Prepared by the Caribbean Regional Response Team (CRRT)
Response and Technology Committee
FINAL: 01 May 2007

Revised Jan 2008

RECORD OF CHANGES

Change Number	Effective Date	Date Entered	Entered By:	Page Check
01	**1/25/08**	**1/25/08**	**S. Touw**	**Appendix 3: Replace table w/NRT Fact Sheet**

Caribbean Regional Response Team (CRRT)

From: Caribbean Regional Response Team

To: Distribution

Subject: LETTER OF PROMULGATION: CRRT Limited Pre-Authorization and Use Policy for Chemical Countermeasures: Solidifiers

1. The Caribbean Regional Response Team (CRRT) has approved the attached policy for the limited use of solidifiers as listed and defined in the National Contingency Plan (NCP) product Schedule under subpart J. This policy covers the pre-approved use of solidifiers for control, containment and enhanced recovery of oil in ocean, coastal waters, and land throughout the CRRT area of responsibility. This policy hereby replaces any other policies, guidelines, or plans related to the use of solidifiers now in force throughout the CRRT. This policy will be used in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), local Area Contingency Plans (ACP), and Regional Contingency Plans (RCP) that are current and in force throughout the region.

2. This policy may be adopted for use by Area Committees by incorporating this document in the local Area Contingency Plan (ACP) maintained by the U.S. Coast Guard, as well as Regional/Area Contingency Plans maintained by the Environmental Protection Agency (EPA).

3. This policy shall be followed as closely as possible, but has not provided for every possible contingency that might occur. Deviations from this policy are authorized when necessary in the best interest of safety or protection of resources. The CRRT must be made aware of any deviation as soon as possible.

4. This policy cannot be changed or altered without notice and opportunity for comment provided to each signatory official or designated representative to the CRRT.

5. Any signatory official or designated representative to the CRRT can petition to amend or revise this policy and/or withdraw approval at any time.

6. All comments and requests for revision shall be directed to the CRRT Response and Technology Committee for consideration by the CRRT.

7. The CRRT Response and Technology Committee will remain abreast of developments and changes for solidifier products and use which may provide cause for recommending revision to this policy, The Response and Technology Committee may be tasked at any time by members of the CRRT to provide additional information or guidelines pertaining to use of solidifiers if available.

8. This Letter of Promulgation remains in effect until canceled by a competent authority.

DATE : 11/07/2007

U.S. Environmental Protection Agency CRRT Co-chair:

U.S. Coast Guard CRRT Co-chair:

Encl: (1) CRRT Limited Pre-Approval and Use Policy for Chemical Countermeasures: Solidifiers

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Table of Contents

Caribbean Regional Response Team (CRRT)
Limited Pre-Authorization and Use Policy for Chemical Countermeasures: Solidifiers

Introduction

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CRRT LIMITED PRE-AUTHORIZATION AND USE POLICY FOR CHEMICAL COUNTERMEASURES: SOLIDIFIERS

INTRODUCTION:

The Caribbean Regional Response Team (CRRT) has developed this limited pre-approval and use policy to allow for the use of solidifiers as listed on the U.S. Environmental Protection Agency (USEPA) Product Schedule for mitigation of oil spills. Solidifiers are considered an alternative to sorbents or mechanical recovery to recover small amounts of oil or thin sheens from the water surface. They also have been shown to be useful by creating solid barriers that can limit spreading, thereby enhancing containment, collection, and recovery.

Solidification of oil is an oil spill countermeasure that was evaluated by the CRRT as a candidate for developing preauthorization for use. Due to the potential for solidifiers to: 1) add to the increased effectiveness of response in certain situations; 2) the fact that currently listed solidifiers are not a significant concern from a toxicological point of view; and 3) they don't sink once reacted with oil, the CRRT agreed that preauthorization for use of solidifiers under certain conditions was desirable.

Preauthorization is necessary because the product must be on hand at the spill site and applied immediately to be effective for most spills. This pre-authorization agreement is for the use of solidifiers in all applications. However, the use of solidifiers contained in booms, socks, pillows or other similar manner may be considered for use in the same manner as sorbents provided all materials are fully recovered and disposed of properly.

Application ratios of loose powder form of solidifiers range from 1:1 to 1:10 by weight and are best used to treat relatively small volumes of spilled oil. Using solidifiers for small spills has the following benefits:

- The treated oil becomes immobilized and will not spread further, on the surface or into the ground.
- Solidifiers can be added to the perimeter of the oil, forming a solidified barrier to prevent further spreading, rather than treating the entire spill volume.
- The solidified oil can be removed with readily available hand tools, rather than requiring liquid storage and pumping systems.
- Solidifiers are effective on thin sheens whereas standard sorbent materials commonly do not pick up sheens.
- Solidifiers may, in some cases, be more effective on slow continuous small releases than sorbents.

Under the NCP (Section 300.910), Regional Contingency Plans and Area Contingency Plans may include preauthorization policies that address the specific contexts in which oil

spill control products should or should not be used. Factors for consideration in the preauthorization policy include:

- Potential sources and types of oil spilled
- Sensitive resources at risk from spilled oil
- Available equipment and adequately trained operators
- Amount of oil to be treated
- The available means to monitor product application, effectiveness, and recovery

SECTION I

Purpose

This policy implements Subpart J of the National Oil and Hazardous Substances Contingency Plan (NCP) and provides for the limited use of solidifiers as listed on the EPA product schedule on oil discharges within the Caribbean Regional Response Team area of responsibility. This pre-authorization applies for use on ocean and coastal waters, inland waters, and on land when the use is in accordance with all protocols and conditions of this policy. This authorization does not apply to use in aquifers and other areas where recovery would be limited, difficult or unlikely.

The members of the CRRT agree that solidifiers may offer enhanced response capability under certain conditions leading to prevention of serious environmental damage, and reduced threat to the public health or welfare. This policy establishes criteria under which solidifiers may be applied in the environment within the CRRT region.

This CRRT policy precludes the necessity for each Area Committee to develop separate pre-authorization plans. This policy does not preclude the Area Committees from developing more stringent requirements or limitations as they deem necessary.

Authority

Subpart J of the National Oil and Hazardous Substances Contingency Plan (NCP) provides that the pertinent Regional Response Team (RRT) representatives, including the EPA, DOC, DOI, and the affected State(s) may pre-authorize the use of chemical countermeasures for oil spill response. Subchapter J states that the OSC may authorize the use of products pre-authorized without obtaining the specific concurrence of the RRT. The NCP further states that the RRT representatives including the EPA, DOC, DOI and affected State(s) may approve, disapprove, or approve with modification the pre-authorization plans developed by Area Committees. This policy constitutes the CRRT pre-authorization policy for use by Area Committees. Approved pre-authorization plans shall be included in the appropriate Area Contingency Plans and Regional Contingency Plans.

Scope

The USCG, EPA, DOI, DOC, the commonwealth of Puerto Rico and the territory of the US Virgin Islands have adopted the use of solidifiers as an approved tool to respond to spilled or discharged oil on the waters or lands within the jurisdiction of the CRRT. This policy includes protocols under which solidifier use must be conducted. Use outside the limitations of these protocols shall be on a case by case basis as evaluated and authorized by the incident specific CRRT.

Application of solidifiers to remediate oil spills occurring in the CRRT region will be conducted in accordance with this policy and in accordance with any Letters of Agreement established between the USCG, EPA, DOI, DOC and the affected State(s). The pre-authorization to use solidifiers as provided by this policy is in effect only as dictated by all protocols established in Section III. This pre-authorization applies only to the spill response countermeasure known as solidifiers as listed on the current EPA product schedule. The CRRT may review any listed solidifier product at any time and may exclude them from pre-authorized use dependant on environmental, health or safety concerns.

SECTION II

Limited Pre-Authorization of Solidifier Use -General Considerations and Protocols

Potential Sources and Types of Oil

Specific solidifier formulations have been shown to be effective on all types of oil. Mixing the product with the oil is more difficult with viscous oils, therefore, solidifiers are generally considered to be more effective with lighter oil types. The best solidifier formulation(s) should be selected for the types of oil to be treated and spill conditions. Pre-testing of solidifier brands with specific oil types may be desired in order to better select the best candidate product.

Examples of the potential sources of spills where solidifier use is considered to have a potentially beneficial and routine niche are listed below:

1. Spills to Water in Marinas, Harbors, Ports, and other Industrial Areas where:

    - Small spills occur frequently
    - Spills are mostly light refined products that quickly spread into thin sheens that are difficult to contain and recover
    - Water currents are slow and there are structures that provide some in-place containment
    - Products could be stored at likely sources of spills (e.g., fueling docks)
    - Facility personnel can be trained in the proper use, recovery, and disposal of the products and treated oil

2. Spills on Land where:

    - Spilled oil could flow off-site into ditches and creeks
    - Oil has the potential to soak in to the ground, contaminating soils and groundwater
    - Facility personnel can be trained in the proper use, recovery, and disposal of the products and treated oil
    - Examples include fueling and oil loading stations, rail yards, and oil storage facilities

Sensitive Resources

Currently listed solidifiers in general have very low if any acute aquatic toxicity, primarily because they are insoluble in water. However, other concerns have been raised, including:

- Toxicity associated with ingestion of unreacted product;

- Ingestion and fouling hazard of treated oil or partially treated oil that is not contained or escapes containment;
- How treated oil would interact with sensitive habitats such as wetlands; and
- Whether treated oil will be more persistent in the environment and tend to weather and sink over long periods of time.

Due to the fact that solidifiers identified for use under this pre-authorization are not toxic, don't sink, are essentially inert to organisms, and render the toxic components of reacted petroleum bio-unavailable to organisms that may ingest them, no special resource restrictions for their use have been identified at this time. As long as the products are applied as directed and fully recovered from the environment, no significant adverse environmental impacts from the use of solidifiers are expected. Their use as allowed under this policy will create no more risk than the use of commonly used sorbent materials which are not regulated. Solidifiers that are manufactured in high quality booms, socks, pillows, or other effective containment devices that do not allow for the possibility of loose material to enter the environment may be considered for use in the same manner as sorbents provided all materials are fully recovered and disposed of properly. Application of solidifiers in loose form will be more restricted as discussed below.

Standard good oil-response practices are required, such as proper application of the solidifier, minimization of foot traffic and trampling of oil into the sediments/soils or damaging vegetation, avoiding application of product directly on to wildlife, and recovery of all product and treated oil.

Any use restrictions identified through Section 7 consultations with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), as required under the Endangered Species Act as well as any requirements noted under consultation for Essential Fish Habitat (EFH) with NMFS must be complied with (see Section IV; appendix 2). All stipulations, controls, or limitations identified by the signatory States or Federal Natural Resource Trustees must be complied with as well (see Section IV; appendix 1), Additionally, the State Historic Preservation Officer should also be notified/consulted on the use of solidifiers, as required under the National Historic Preservation Act, if use of a solidifier is in an area where there is an identified potential for impacts to cultural, archeological, or historic resources.

Application Methods and Adequately Trained Staff

Concerns with the application of solidifiers in loose powder form include excess release of product to the environment due to poor application techniques and over application that can lead to increased volumes of waste material. The pre-authorization includes application and recovery requirements with the intent of providing guidelines for the proper use of solidifiers in loose form without being overly restricted. It is important that responders be adequately trained in the proper use of solidifiers.

Preauthorization Conditions

1. Product Information – This preauthorization applies only to those products that have been listed on the NCP Product Schedule (effective 4/07). The purpose of this condition is to make sure that adequate information on product composition and toxicity are available in order to be considered for inclusion in this policy. The Product Schedule must be reviewed to ensure that no new solidifiers have been added that would cause concern if used in the environment and hence would not be authorized for use under this pre-authorization policy.

2. Amount of Oil to be Treated – Solidifiers in loose form may be used on any oil type under 500 gallons (this is the treatment volume, not the total spill volume). No restriction is noted for solidifier used in contained form (booms, pillows, socks) as long as complete recovery is accomplished.

3. Amount of Product Approved for Application – No more than 1,000 pounds of loose solidifier product can be applied in response to a single treatment event under this preauthorization. This limit was based on an application ratio of 1:4 and the treatment volume limit of 500 gallons, as supported by manufacturers' application rate guidance. Application of additional amounts requires a request to the CRRT.

4. Application/Recovery Requirements –

    a. On Water (includes rivers, streams, creeks, lakes, ponds, wetlands, open ocean, marine and coastal waters, etc.). In all cases, the application of loose solidifier material must be continuously monitored to ensure material is completely contained and recovered. Recovery must be conducted as soon as the product is no longer effectively removing oil.
        i. Apply loose product only directly onto oil. No loose product will be applied to flowing water bodies unless the oil is physically contained, such as by hard boom or inside a lock or other effective containment structure. The product will be applied in a manner that prevents loss from wind drift, overspray, and spillage.
        If environmental conditions such as wind, currents, weather, etc. prohibit effective containment and recovery of the applied solidifier and treated oil, then pre-authorization does not apply.
        ii. Product contained in booms, pillows, pads, etc. can be deployed in flowing waters as long as they are monitored and replaced prior to failure of containment systems.
        iii. The loose product will be applied only by responders that have been trained in the proper application of the product. The intent is to prevent misuse and over application.
        iv. No loose product will be applied directly onto wildlife (e.g., birds, mammals, reptiles, fish, shellfish) or in sensitive wetland or coastal/marine habitat where resources could be adversely affected

if complete recovery is not accomplished, or in areas that may affect known cultural, archaeological, or historic properties. Pre-authorization for use of loose solidifier material does not apply for specially managed waters or lands, including designated marine sanctuaries, preserves, or national parks without consultation with the proper resource and property manager.

v. All product and treated oil will be recovered.

b. On Land
   i. Only apply loose product directly onto oil, or to create a barrier ahead of flowing or potentially mobile oil. No loose product will be applied to drainages in an attempt to wash it towards oil downstream.
   ii. Solidifier booms and pillows can be placed in drainages to intercept oil. However, all materials will be monitored and replaced to prevent failure of containment systems.
   iii. This authorization does not apply to use in aquifers and other areas where recovery would be limited, difficult or unlikely.

c. Waste Disposal
   i. All recovered wastes will be disposed of properly.

5. Monitoring Requirements – During operational use of the loose form solidifier product, monitor the effectiveness and effects of the application, including:
   a. The product: oil ratio needed to solidify the oil. When the amount needed to solidify the oil exceeds the recommended application rate by a factor of two, determine whether further treatment is warranted.
   b. The properties of the treated oil (firm mass, sticky, non-sticky, etc.).
   c. The efficiency of treated oil recovery.
   d. The degree of damage to substrate and vegetation during application and recovery.

6. Reporting Requirements – As part of the response documentation, the responsible party or responding organization must maintain records of the following information:
   a. Amount of loose solidifier used
   b. Type and amount of oil treated
   c. Weight and/or volume of treated oil recovered
   d. Evaluation of effectiveness of the application

   Any use that results in problems, including non effectiveness, inability to contain and recover solidifier and treated oil, or any observed impacts to wildlife, aquatic resources, sensitive habitat, or known cultural, archaeological, or historic properties must be reported as soon as feasible to the CRRT through the National Response Center at 1-800-424-8802.

SECTION III

Signature Pages

07 NOV 2007

Captain J.J. O'Connor
United States Coast Guard
District Seveu
CRRT Co-Chair

date

11/6/07

Eric Mosher
EPA Region 2
CRRT Co-Chair

date

11/7/07

Bradford Benggio
Scientific Support Coordinator
Department of Commerce

date

Juan José Babá-Peebles
Director, Emergency Response & Superfuud Program
Environmental Quality Board
Commonwealth of Puerto Rico

Nov. 6, 2007
date

date

USVI DPNR

11-Dec-07
date

Gregory Hogue
Regional Environmental Officer
Department of the Interior

Juan José Babá-Peebles
Director, Emergency Response & Superfund Program
Environmental Quality Board
Commonwealth of Puerto Rico

date

USVI DPNR

6/14/07
date

Gregory Hogue
Regional Environmental Officer
Department of the Interior

date

SECTION IV

Appendices

- 1 Letters of Agreement

- 2 Consultation Requirements
  -USFWS Section 7
  -NMFS Section 7
  -NMFS Essential Fish Habitat

- 3 Solidifier Information and Comparison with Sorbents

- 4 List of Solidifier Products Covered by This Policy

- 5 Response Contact List

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Appendix 1

Letters of Agreement

Letters of Agreement do not exist at this time.

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Appendix 2

Consultation Requirements

- USFWS Endangered Species Act Section 7
- NMFS Endangered Species Act Section 7
- NMFS Essential Fish Habitat

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FILE

United States Department of the Interior

IN REPLY REFER TO:

FISH AND WILDLIFE SERVICE
Field Office
1601 Balboa Avenue
Panama City, FL 32405-3721

Tel: (850) 769-0552
Fax: (850) 763-2177

May 24, 2006

Memorandum

To: Assistant Regional Director, USFWS, Ecological Services, Atlanta, GA
Attn: Joe Johnston, Section 7 Coordinator, Endangered Species

From: Project Leader, Panama City FO, Ecological Services, FL

Subject: Concurrence with Findings of "Biological Evaluation of Federally Endangered, Threatened, and Candidate Species for Region 4 and the Caribbean Regional Response Teams on Limited Pre-authorization and Use Policy for Chemical Countermeasures: Solidifiers

As requested by Region 4 and Caribbean Spill Response Teams, biologists in each field office of the Southeast Region have reviewed the document "Biological Evaluation of Federally Endangered, Threatened, and Candidate Species for Region 4 and the Caribbean Regional Response Teams on Limited Pre-authorization and Use Policy for Chemical Countermeasures: Solidifiers." We collectively concur with the determination that endangered, threatened, and candidate species are not likely to be adversely affected by this action. Please complete the consultation by signing where indicated and returning to the Regional Response Team. We would also appreciate a signed copy for our records and distribution to the other field offices.

If you have any questions or would like to discuss the consultation, please contact Dr. Jon Hemming at extension 238.

Karl Carmody

Attachments:
Region 4 and Caribbean Response Teams Review Request
Biological Evaluation
Limited Pre-authorization and Use Policy for Chemical Countermeasures

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SPECIES/ CRITICAL HABITAT	ACTIONS TO MINIMIZE IMPACTS
	minimization measures.
	If listed species or critical habitat occur in the area, make all possible effort to avoid contact and/or harassment of species and initiate post-application/recovery emergency consultation procedures on action with the appropriate Service field office in the response area for minimization measures.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION[1]			RESPONSE[1] REQUESTED
	NE	NA	AA	
All in V and VI above.		X		Yes

[1]DETERMINATION/ RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a AConcurrence@ is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a@Concurrence@.

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is AFormal Consultation@. Response requested for proposed and candidate species is AConference@.

Jay M Lemmon 10 May 2006

Signature (originating station) **date**

Ecologist

Title

26 April 2006

IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence _X_ Nonconcurrence _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks (attach additional pages as needed):

Signature 7/3/06 date

Acting Assistant Regional Director of Ecological Services Southeastern Region
Title Office

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
(727) 824-5312; FAX 824-5309
http://sero.nmfs.noaa.gov

AUG 23 2006

F/SER31:DK

Mr. Patrick T. Keane
Region 4 and Caribbean Regional Response Teams
Seventh Coast Guard District
909 SE First Avenue, Suite 808
Miami, FL 33131-3050

Dear Mr. Keane:

This is in reply to your April 26, 2006, letter, biological evaluation (BE), and copy of the *Limited Pre-authorization and Use Policy for Chemical Countermeasures* received by the National Marine Fisheries Service (NMFS). The U.S. Coast Guard (USCG), Caribbean Regional Response Team, submitted these documents pursuant to section 7 of the Endangered Species Act (ESA). The USCG proposes to pre-authorize the use of chemical countermeasures in Region IV and the Caribbean to be used in the event of an oil spill, and requests our review and concurrence with their determination that the action would be not likely to adversely affect any endangered, threatened, or candidate species under NMFS purview. Areas of Region IV and the Caribbean that fall under NMFS purview include waters off North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Puerto Rico, and the U.S. Virgin Islands.

The Regional Response Team for Federal Region IV and the Caribbean propose to pre-authorize the use of solidifiers to mitigate oil spills. These solidifiers form a physical bond with the oil and are expected to be beneficial to the environment and protected species as they increase oil spill recovery and containment. The solidifiers themselves have low-to-no toxicity and do not sink when they react with oil. The use of these products is considered an appropriate response for spills in marinas, harbors, on land, inside facilities, and in small water bodies as any loose product can readily be contained and recovered. Use in open water habitats such as oceans or coastal waters would occur only if the oil is physically contained by a boom or other such structure.

Because of the broad geographic range covered by the pre-authorization, including inshore waters, as well as coastal and oceanic waters (if spill is contained in a boom), all ESA-listed species under the purview of NMFS' Southeast Regional Office (SERO) are included in this consultation. The complete species list is included as an enclosure with this letter.

NMFS has analyzed the proposed actions and believes the projects' potential effects on listed species and their critical habitat under NMFS' purview will be discountable and insignificant. The pre-authorization plan includes specific Preauthorization Conditions (enclosed) which will help ensure that the use of the solidifiers is not likely to affect listed species. These conditions include a requirement to contain and recover all loose product and treated oil; therefore, the likelihood of solidifier, or solidifier/oil product remaining in the environment in more than very small quantities is very low. As a result, the probability of ingestion of floating product by any listed species is discountable. The amount of oil to be treated is limited to less than 500 gallons if solidifiers are used in loose form, and no restriction if contained. Likewise, a limit of 1000 pounds of solidifier can be applied in response to any single treatment event. Additionally, the

solidifier and the solidifier/oil product float, and therefore would not reach the benthic habitats utilized by some of the listed species. The possibility of ingestion of minute quantities of the solidifier is minimal, but in the event that it does happen, the effects are deemed to be insignificant as the product is considered to have no-to-low toxicity and the quantities of any stray product would be minimal. The Conditions also require monitoring and reporting of the entire process. The use of the solidifier could also potentially prevent harm to habitats used by protected species by aiding in the recovery of petroleum products that have been spilled.

The use of the solidifier can potentially occur in areas that have been designated as critical habitat for listed species under NMFS' purview (see enclosure). However, the use of the solidifier is not likely to impact critical habitat for the same reasons that it is deemed not likely to adversely affect listed species as detailed above. No critical habitat features for sea turtles will be impacted by the proposed action. The designated leatherback sea turtle critical habitat is based on use of those waters for courting, breeding, and access to the nesting beaches. The green and hawksbill sea turtle critical habitat is based on the areas being extensively used for foraging by the turtles, especially juveniles. Green turtles utilize sea grass beds, and hawksbills specialize on sponges found on reefs and hardbottom habitats. The proposed action will not alter the physical and biological features that were the basis for designation of right whale critical habitat (water depth, water temperature, and the distribution of cow/calf pairs in relation to the distance from the shoreline to the 40-meter isobath). Critical habitat for Johnson's seagrass is based on the following physical and biological attributes, none of which will be negatively impacted by the proposed action: adequate water quality, adequate salinity levels, adequate water transparency, and stable, unconsolidated sediments free of disturbance.

The Gulf sturgeon critical habitat designation is based upon the areas having one or more of the following principle constituent elements, none of which will be impacted by the proposed action:
- Abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, molluscs and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages.

- Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages;

- Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; and

- Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (e.g., an unobstructed river or a dammed river that still allows for passage).

The use of solidifiers to clean up oil spills will not negatively impact critical habitat. The solidifier and the solidifier/oil product float, and therefore will not impact benthic habitats or sediment quality. The solidifier and solidifier/oil product will be contained and recovered, and therefore will not negatively impact water quality. The very small quantities of material that may not be recovered during an operation will have an insignificant impact on habitats as it is deemed to be low-to-non-toxic. Boat operations to clean the spills will be very localized and limited in time, and therefore won't cause additional impacts to critical habitats or their PCEs. The impacts of petroleum products left unrecovered would pose a greater threat to critical habitats than the minimal likelihood of impact posed by the use of solidifiers as detailed in the plan.

Based upon our review of the information provided, NMFS concurs with the USCG's determination that the action plan associated with the *Limited Pre-authorization and Use Policy for Chemical Countermeasures: Solidifiers* may affect, but is not likely to adversely affect, any listed species under NMFS' purview. The U.S. Fish and Wildlife Service is responsible for ESA section 7 issues for sea turtles in terrestrial environments (the beach) and therefore should be contacted for consultation regarding any potential impacts of solidifiers on the nesting beach.

This concludes the USCG's consultation responsibilities under section 7 of the ESA. A new consultation must be initiated if there is a take, if new information reveals effects of the action to listed species or critical habitat in a manner or to an extent that was not previously considered; if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not previously considered; or if a new species is listed or critical habitat designated that may be affected by the identified action.

We have enclosed additional information on other statutory requirements that may apply to this action, as well as NMFS' Public Consultation Tracking System that allows you to track the status of this ESA consultation. If you have any questions, please contact Dennis Klemm, fisheries biologist, at (727) 824-5312, or by e-mail at dennis.klemm@noaa.gov.

Sincerely yours,

for Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures

cc: F/SER4 – M. Croom

File: 1514-22.H.2.USCG
Ref: I/SER/2006/01903

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
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St. Petersburg, Florida 33701-5511
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May 25, 2006 F/SER4:DD

Mr. Patrick T. Keane
Region 4 and Caribbean Regional Response Team
Seventh Coast Guard District
909 SE First Avenue, Suite 808
Miami, Florida 3313103050

Dear Mr. Keane:

NOAA's National Marine Fisheries Service (NMFS), Southeast Region, Habitat Conservation Division has reviewed the information provided with your April 26, 2006, letter regarding the proposed Caribbean Regional Response Team's Pre-Approval for Use of Solidifiers for Oil Spill Response. As specified in the Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat (EFH) consultation is required for federal actions which may adversely affect EFH.

Be advised that the Gulf of Mexico and Caribbean Fishery Management Councils recently revised their descriptions and identifications of EFH and EHF habitat areas of particular concern (HAPC) for federally managed species within their respective jurisdictions. Please find enclosed *Essential Fish Habitat: A Marine Fish Habitat Conservation Mandate For Federal Agencies - Gulf of Mexico Region* and in particular note Appendixes 5 and 6 that summarize current EFH and EHF-HAPC designations. While a similar document is currently under development for the Caribbean region also please find enclosed information extracted from their final amendment which provides current EFH and EFH-HAPC designations for that area also.

As the federal action agency in this matter, the U.S. Coast Guard has determined that the proposed action would not adversely affect EFH and, based on our review, we agree with your determination. Please be advised that further consultation on this matter is not necessary unless future modifications are proposed and you believe that resulting action may result in adverse impacts to EFH. We appreciate the opportunity to provide these comments. Questions should be directed to Mr. David Dale at (727) 824-5317 or by e-mail at David.Dale@noaa.gov.

Sincerely,

/ for

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

Enclosures

Enclosure 2. EFH Descriptions extracted from the Caribbean Fishery Management Council's Comprehensive Amendment to the Fishery Management Plans for the U.S. Caribbean, May 2005.

EFH Alternatives:

- EFH for the spiny lobster fishery in the U.S. Caribbean consists of all waters from mean high water to the outer boundary of the EEZ (habitats used by phyllosome larvae) and seagrass, benthic algae, mangrove, coral, and live/hard bottom substrates from mean high water to 100 fathoms depth (habitats used by other life stages).
- EFH for the queen conch fishery in the U.S. Caribbean consists of all waters from mean high water to the outer boundary of the EEZ (habitats used by eggs and larvae) and seagrass, benthic algae, coral, live/hard bottom and sand/shell substrates from mean high water to 100 fathoms depth (habitats used by other life stages).
- EFH for the Reef Fish Fishery in the U.S. Caribbean consists of all waters from mean high water to the outer boundary of the EEZ (habitats used by eggs and larvae) and all substrates from mean high water to 100 fathoms depth (habitats used by other life stages).
- EFH for the Coral Fishery in the U.S. Caribbean consists of all waters from mean low water to the outer boundary of the EEZ (habitats used by larvae) and coral and hard bottom substrates from mean low water to 100 fathoms depth (habitat used by other life stages).

HAPC Alternatives:

- Designate HAPCs in the Reef Fish FMP as the following areas based on the occurrence of confirmed spawning locations identified in the EIS as: Puerto Rico: Tourmaline Bank/Buoy 8; Abrir La Sierra Bank/Buoy 6; Bajo de Sico; Vieques – El Seco St. Croix: Mutton snapper spawning aggregation area; East of St. Croix (Lang Bank) St. Thomas: Hind Bank Marine Conservation District and Gramanic Bank.

- Designate HAPC For the Reef Fish FMP as those EFH habitat areas or sites identified as having particular ecological importance to Caribbean Reef Fish species identified in the EIS as: Puerto Rico: Hacienda la Esperanza, Manití; Bajuras and Tiberones, Isabela; Cabezas de San Juan, Fajardo; Jobos Bay National Estuarine Research Reserve, Jobos Bay; Bioluminescent Bays, Vieques; Boquerón State Forest; Pantano Cibuco, Vega Baja; Piñones State Forest; Río Espiritu Santo, Río Grande; Seagrass beds of Culebra Island (9 sites designated as Resource Category 1 and two additional sites); Northwest Vieques seagrass west of Mosquito Pier, Vieques; St. Thomas: Southeastern St. Thomas, including Cas Cay/Mangrove Lagoon and St. James Marine Reserves and Wildlife Sanctuaries; Saba Island/Perseverance Bay, including Flat Cay and Black Point Reef; St. Croix: Salt River Bay National Historical Park and Ecological Preserve and Marine Reserve and Wildlife Sanctuary; Altona Lagoon; Great Pond; South Shore Industrial Area; and Sandy Point National Wildlife Refuge.

- Designate HAPC for the Coral FMP as those EFH habitat areas or sites identified as having particular ecological importance to Caribbean Coral species identified as: Puerto Rico: Luis Peña Channel, Culebra; Mona/Monito; La Parguera, Lajas; Caja de Muertos, Ponce; Tourmaline Reef; Guánica State Forest; Punta Petrona, Santa Isabel; Ceiba State Forest La Cordillera, Fajardo; Guayama Reefs; Steps and Tres Palmas, Rincon; Los Corchos Reef, Culebra; Desecheo Reefs, Desecheo; St. Croix: St. Croix Coral Reef Area of Particular Concern, including the East End Marine Park; Buck Island Reef National Monument; South Shore Industrial Area Patch Reef and Deep Reef System; Frederiksted Reef System; Cane Bay; and, Green Cay Wildlife Refuge.

Appendix 3
NRT-RRT Factsheet:
Application of Sorbents and Solidifiers for Oil Spills

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NRT-RRT Factsheet

February 2007

Prepared by the
National Response Team
Science & Technology Committee

APPLICATION OF SORBENTS AND SOLIDIFIERS FOR OIL SPILLS

NOTE: ALL solidified oil must be removed from the environment. No product can be left in the environment unless it is classified as a bioremediation agent by U.S. EPA.

Regional Response Teams and Area Planners are tasked with developing planning documents to allow for the use or prohibition of solidifiers listed on the U.S. EPA National Contingency Plan, Subpart J Product Schedule (Schedule) for mitigation of oil spills.

Solidifier and sorbent manufacturers often contact oil companies, response contractors, state and federal agencies to promote the use of their products. Most sorbents do not have to be on the Schedule, while solidifiers, classified as a *chemical agent* by definition in 40CFR300.5, must be on the Schedule. Solidifiers are considered an alternative or can be used in conjunction with sorbents to recover small amounts of oil.

This guide will also assist product manufacturers and members of the response community in distinguishing a sorbent from a solidifier for purposes of listing such products on the Schedule and applying them in the field.

Manufacturers should contact the EPA Product Schedule Manager with any questions they have before proceeding with testing or marketing of their sorbents and or solidifiers. For a current listing of solidifiers on the NCP Product Schedule go to www.epa.gov/oilspill.

What Are Sorbents?

Definitions under Subpart J of the NCP

Section 300.915(g) ...materials consisting of, but not limited to the following materials:

i) Organic products
   a. Peat moss or straw; Cellulose fibers or cork; Corn cobs; Chicken, duck, or other bird feathers.

ii) Mineral compounds
   a. Volcanic ash or perlite; Vermiculite or zeolite.

iii) Synthetic products
   a. Polypropylene; Polyethylene; Polyurethane; Polyester.

Sorbents are essentially inert and insoluble materials that are used to remove oil and hazardous materials from water through adsorption, in which the oil or hazardous substance is attracted to the sorbent surface then adheres to it; absorption, in which the oil or hazardous substance penetrates the pores of the sorbent material; or a combination of the two. Sorbents are generally manufactured in particulate form for spreading over an oil slick or as sheets, rolls, pillows, or booms.

ASTM Definitions: ASTM F726-99 Standard Method of Testing

Sorbent – an insoluble material or mixture of materials used to recover liquids through the mechanisms of absorption or adsorption, or both.

Absorbent – a material that picks up and retains a liquid distributed throughout its molecular structure causing the solid to swell (50% or more). The absorbent is at least 70% insoluble in excess fluid.

Adsorbent – an insoluble material that is coated by a liquid on its surface including pores and capillaries without the solid swelling more than 50% in excess fluid.

Type I adsorbent (roll, film, sheet, pad, blanket, web) – a material with length and width much greater than thickness and which has both linear form and strength sufficient to be handled either saturated or unsaturated.

Type II adsorbent (loose) – an unconsolidated, particulate material without sufficient form and strength to be handled except with scoops and similar equipment.

Type III adsorbent (enclosed): pillows – adsorbent material contained by an outer fabric or netting which has permeability to oil, but with openings sufficiently small so as to substantially retain the sorbent material within the fabric or netting. adsorbent booms–adsorbent material contained by an outer fabric or netting which has permeability to or is permeable to oil but with openings sufficiently small so as to substantially retain the sorbent material within the fabric or netting.

What are Solidifiers?

Most solidifiers available in today's market are products composed of dry high molecular weight polymers that have a porous matrix and large oleophilic surface area. Solidifiers form a physical bond with the oil.

Oil's viscosity increases to the point that the oil becomes solidified into a rubber-like solid.
End product can range from a firm cohesive mass to a non-cohesive granular material. Solidifiers are available in various forms, including dry powder, granules, semi-solid materials (e.g., pucks, cakes, balls, sponge designs), and contained in booms, pillows, pads, and socks.

Solidifiers Should Meet the Following Criteria

- Insoluble in water;
- Specific gravity of less than 1.0;
- Composed primarily of polymers (with few other additives);
- Contain less than 5 ppm of heavy metals and chlorinated hydrocarbons;
- Have a physical reaction with oil whereby, at the prescribed application rate, the oil is sorbed by the product in a manner where the oil is resistant to leaching;
- Do not release solidified liquids under pressure; and
- Product itself is non-toxic to wildlife and other species

What are the Mechanisms of Actions for Solidifiers?

Solidifiers are polymers that have a physical attraction to oil that is enhanced by van der Waals forces, which are based on the theory that molecules are attracted to those that have similar structures. Non-polar hydrocarbon polymers are attracted to non-polar petroleum hydrocarbons, thus they prefer to be oil-wet rather than water-wet. They consist of long chains of hydrocarbons that have a loose molecular structure and a very porous matrix. They are soluble

in excess liquid (solvent) but with continued application will increase the viscosity of the oil to the point that it forms a solid mass.
One analogy is how Styrofoam behaves when mixed into gasoline. Initially the Styrofoam pieces will dissolve in the excess gasoline (a solvent); however, continued addition of Styrofoam pieces will thicken the gasoline, increase it's viscosity, and eventually form a solid mass.

The reaction time is primarily controlled by the grain size (and thus surface area) of the product. Fine-grained powders solidify faster than granules because of the higher surface area of the product and the higher diffusion rate of the oil. Light, low viscosity oils are solidified more readily compared to heavy, high viscosity oils. Heavy, viscous oils result in a lower effectiveness and longer solidification time.

Oil bonds strongly with solidifiers but the exact solidification mechanisms have not been studied in depth. Experiments by Ghalambor (1996) showed that solidifiers tend to absorb energy (endothermic reaction) in their reactions with crude oil. This initial decrease in temperature is due to the partial dissolution of the polymer in the oil, and it indicates the lack of a chemical reaction between the oil and polymer.

It appears that most large molecules are firmly held, implying an aggressive interaction with the polymers. However, light compounds, such as in gasoline, are able to vaporize, albeit more slowly, from the solidified mass, indicating that there is only a physical bonding and not a chemical reaction.

What are the Environmental Concerns Associated with Solidifiers?

Whether the product and/or treated oil may sink, either initially or over time. Solidifier products currently listed (May 2006) on the Product Schedule have a specific gravity less than 1.00 and should float in both fresh and salt water. The treated oil should float as well. Pre-authorized products should be tested to document that they do not sink or cause treated oil to sink initially or after 24 hours of floating on the water surface. These tests could be conducted with oil types to be included in the pre-authorization.

Fate and bioavailability of unreacted product in the environment. Under certain conditions, the product could be released to the environment (e.g., wind-blown powder, failure of containment booms and pillows). Polymers degrade very slowly, thus residues may be highly persistent. There are concerns that the product could be ingested by wildlife feeding on the water surface or in fauna living in sediments. Currently, there are no standard oil-spill treating agent toxicity tests for an ingestion pathway for birds or mammals. Pre-authorization stipulations should require recovery of all materials, both untreated product and treated oil.

Fate and behavior of treated, unrecovered oil. There is concern about exposure to solidified or partially solidified oil that remains in the environment after recovery efforts are terminated. Treated oil is expected to weather more slowly, compared to untreated oil, thus it may be more persistent. If the oil is solidified into a cohesive mass, it will be less bioavailable; if it is sticky, it could adhere to soils, vegetation, and animal body parts (including skin, fur or feathers) that come into contact with the solidified mass.

Pre-authorization stipulations should require application only under situations where containment and recovery would be most effective.

Acute aquatic toxicity is not a major concern. Solidifiers, by definition, are solids that are insoluble in water. Thus, LC_{50} values are generally high, based on nominal exposures where most of the product remains as a solid on the water's surface; however the NCP requires toxicity testing. Solidifiers that are left in the water may have impacts that need to be evaluated.

The chart on the following pages shows the benefits and shortcomings of, and comparisons between sorbents and solidifiers.

What are the Benefits/Shortcomings/Comparisons of Using Solidifiers versus Sorbents?

Issue	Benefits	Shortcoming	Comparison with Sorbents
Effectiveness with Light Oils	Work best with light oils.	None	Effective in recovering light oils spread into thin slicks and are difficult to recover with sorbents.
Effectiveness on Sheens	Can remove even light sheens.	Tend to over-apply on sheens.	Effective in recovering sheens that are very difficult to pick up with sorbents.
Effectiveness with Heavy, Viscous Oils	*Little*	Longer solidification time with emulsified, viscous oils due to poor mixing.	Not very effective. Sorbent effectiveness is dependant on type; oil snare is very effective with viscous oil.
Low Temperature	Could be applied in ice conditions.	Longer solidification time or reduced effectiveness at low temperatures due to increased oil viscosity.	Temperature has little effect on most sorbents.
Flash Point	Treated oil is less flammable.	None	Both solidifiers and sorbents may lower flammability.
Worker Training	Increases effectiveness	Need training in proper use of new products.	Sorbents are a very familiar product, but there is often overuse.
Access Limitations	NA	NA	Same requirements for access to deploy/retrieve.
Application Considerations	Likely to be used by trained individuals in specific response conditions.	General broadcasting of loose material could be a problem in open areas and in high wind conditions that would inhibit effective containment and recovery.	In contained form (booms, pillows and socks), would be the same as for sorbents. In loose form, both have problematic containment and recovery issues.
Recovery Methods	Manual recovery of both contained and loose product from effective containment should be straightforward.	Effective containment of loose product is an issue-especially in conditions of currents, tides, and wind. Recovery of all material is highly desirable due to product persistence.	In contained forms, recovery of solidifiers should be the same as sorbents.

Monitoring Considerations	Can monitor visually for effectiveness during both tests and application.	When used in loose form, constant visual monitoring should ensure: 1) proper and complete containment and recovery; 2) no adverse wildlife or fish impacts. Use should be modified or stopped if either condition is not met.	Basically similar to sorbents, but less passive, especially when using loose material. All material should be recovered as soon as it is no longer effective at removing oil.
Pickup Time for Treated Oil	NA	Can be slow with loose product.	About the same when products are contained as booms, socks, etc.
Application on Solid Surfaces	Effective on solid surfaces (land); treated oil is a dry solid that can be swept up. Also can form a containment barrier.	None	Likely more effective than sorbents.
Waste Volume	Will increase volume proportional to application rate.	None	Sorbents create large waste volumes.
Waste Weight	NA	Generates waste weight equal to the weight of added solidifier.	When properly applied, sorbents themselves add little to the waste weight, but can pick up water.
Waste Disposal - Landfill	More likely to pass leach test for landfill.	None	Sorbents less likely to pass leach test for landfill.
Waste Disposal - Incineration	High BTU value; Need preplanning to assess waste to energy options and management as separate waste stream.	None	Sorbents can also be incinerated but may have lower BTU compared to solidifiers, depending on the product.
Waste Disposal Industrial intermediate for recycling of encapsulated product and oil	Can be recycled via introduction into other industrial processes, including: asphalt modification; rubber additive, etc.	Must meet TCLP and EPA/state testing procedures.	Not applicable for most traditional sorbents.

What are Application and Monitoring Issues with Use of Solidifiers?

Application Rate: Recommended rates are from 10-50 percent by weight of the liquid to be recovered. In practice, even higher application rates are used because of the difficulty of estimating oil spill volume, use on thin sheens, worker unfamiliarity with the product (particularly if solidification is not immediate), and general attitude that more is better. Higher application rates can lead to increased wastes and product costs; similar to what occurs when sorbents are overused.

Application Method: Application of loose product by hand or blowers under even light wind conditions can result in product being blown out of the treatment area. This issue is particularly true for fine powders. Thus, product in some sort of containment is preferred.

Mixing Energy: Most solidifiers require some degree of physical mixing with floating oil, which

can be achieved with water spray, boat wakes, or hand-held devices. Booms, pillows, pads, and filter packs can be used like similar sorbent products.

Solidification Time: Most solidifiers act quickly, solidifying the oil in less than 1 minute up to 1 hour. Some products continue working for over a number of hours. Fast-acting products can be problematic because they react with that portion of the oil they first contact, potentially resulting in a mix of solidified and un-solidified oil. This behavior can be beneficial where the solidifier can be applied to the perimeter of the oil, forming a solidified barrier to prevent further spreading, rather than treating the entire spill volume.

Oil Type: Solidifiers work best with light to moderate oils. For highly volatile oils such as gasoline, it should be noted that the oil will continue to evaporate, albeit slowly. Solidifiers are less effective on heavy or emulsified oils. At a spill, preliminary tests should be conducted with the spilled oil to determine overall application rate, effectiveness, and character of the treated oil (consistency, cohesiveness, stickiness). See the effectiveness test procedure in the Selection Guide for Oil Spill Applied Technologies.

Solidifier Products Need to Be Listed on the NCP as Miscellaneous Oil Spill Control Agents Because:

Solidifiers can vary in chemical composition, including additives, although the actual composition of each product is proprietary. Listing is necessary so information on their chemical composition, physical properties (e.g., density), and toxicity are made available in a standard format.

References:

Dahl, W., Lessard, R.R, Cardello, E.A., Fritz, D.E., Norman, F.S., Twyman, J.D., Clayton, E.W., Knight, B.L., Crane, R.D., Johnson, S.J., and Martin, B.R., 1996. Solidifiers for oil spill response. Proceedings of the Society of Petroleum Engineers Conference on Health Safety and Environment, SPE paper No. 35860, pp. 803-810.

Fingas, M., R. Stoodley, N. Stone, R. Hollins, and I. Bier, 1991. Testing the effectiveness of spill-treating agents: Laboratory test development and initial results. Proceedings of the 1991 Oil Spill Conference. American Petroleum Institute, Washington, D.C., pp. 411-414.

Ghalambor, A., 1996. The effectiveness of solidifiers for combating oil spills. Louisiana Applied Oil Spill Research and Development Program, OSRADP Technical Report Series 96-006, 68 pp.

Walker, A.H., J. Michel, G. Canevari, J. Kucklick, D. Scholz, C.A. Benson, E. Overton, and B. Shane, 1994. Chemical oil spill treating agents: herding agents, emulsion treating agents, solidifiers, elasticity modifiers, shoreline cleaning agents, shoreline pre-treatment agents, and oxidation agents. Marine Spill Response Corporation, Wash., D.C., Tech. Report 93-015, 328pp.

Appendix 4

List of Solidifier Products Covered by This Policy

1) M-17 M
CI AGENT (formerly
CHEAP INSURANCE &
PETRO-CAPTURE)
OnSite Waste Management / IRST LLC
11760 Commonwealth Drive
Louisville, KY 40299
PHONE: (502) 267-0101
(800) 255-6073
FAX: (502) 267-0181
(Mr. Dan Parker)
02/25/94 06/14/95*

2) M-19 M
WASTE-SET #3200®
C.B Environmental Inc.
3374 West River Drive NW
Grand Rapids, MI 49544
PHONE: (616) 784-0770
FAX: (616) 784-5018
(Mr. Cal Blystra)
04/22/96 04/22/96

3) M-20 M
WASTE-SET #3400®
C.B Environmental Inc.
3374 West River Drive NW
Grand Rapids, MI 49544
PHONE: (616) 784-0770
FAX: (616) 784-5018
(Mr. Cal Blystra)

4) M-23 M
ALSOCUP
REVCOM Associates 1550 Rimpau Avenue #53 Corona, CA 92881
PHONE: (951) 737-0104 FAX: (951) 737-5500
E-MAIL: revcom@sbcglobal.net (Mr. Dave Naylor - President)
11/23/98

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Appendix 5

Response Contact List

1) National Response Center: 1-800-424-8802

2) Environmental Protection Agency, Region 2

   Business Hours: Regional Response Center (RRC)
   (732) 482-1000/1001 (primary)
   (732) 906-6940 (secondary)
   (732) 906-6865 (fax)
   r2_rrc@epa.gov (email)

   After hours: Contact Standby Duty Officer thru the NRC

3) USCG Sector San Juan

   Sector San Juan Command Center: (787) 289-2040 (24 hour)