

1. INTRODUCTION AND PURPOSE

The Region III Regional Response Team (RRT) is guided by the Regional Contingency Plan (RCP), which strives to coordinate and integrate response to protect the environment from the damaging effects of oil pollution. The most effective response capability must include a wide array of oil spill containment and cleanup strategies and the personnel and equipment to implement those strategies successfully. The use of chemical dispersants as one potential response tool has been and continues to be a controversial topic. However controversial, the Region III RRT has accepted its responsibility to evaluate the existing knowledge about chemical dispersants in order to formulate an informed policy toward their potential use.

The purpose of the Dispersant Employment Evaluation Plan (DEEP) is to succinctly present the RRT's policy on the potential use of chemical dispersants and provide technical and procedural guidance when a decision on dispersant use is necessary. The DEEP is intended to be a guideline that assists decision makers in their evaluation of the complex and often difficult considerations of dispersant use. Another important aspect of the DEEP is the recognition that as our regional knowledge and experience associated with dispersants changes, the DEEP should be revised to reflect those changes.

The DEEP addresses considerations for dispersant use in marine and estuarine environments only. The potential use of dispersants in freshwater environments should be evaluated as a separate effort for reasons provided in Section 10 of this document.

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

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2. POLICY ON DISPERSANTS

A. RRT Policy

It is the policy of the Region III RRT that it is **preferable** to attempt to remove spilled oil from the environment rather than distribute it throughout the water column. Therefore, the potential use of dispersants in this region will be restricted as follows:

1. Offshore Marine Situations - dispersants may be considered as a response tool in offshore marine situations where significant diffusion is predicted to occur before the dispersed oil reaches areas of less than 40 feet of water. In these situations, the dispersant will not be the only response tool, but strategically employed in those areas where physical containment could not occur in time to protect a sensitive area of concern.

2. Nearshore and Estuarine Situations - in nearshore and estuarine situations, the use of dispersants will be reserved for those situations of **extreme risk*** such as: a) where physical containment could not be effected and dispersants would reduce an imminent threat to an important species or distinct population of fish, wildlife or other biota; or b) to reduce catastrophic economic impacts.

Where any of the above conditions exist, the OSC will consult the concurrence network as described in Section 4 of this document. In all cases of dispersant use, a consistent, logical program of monitoring dispersant effectiveness and effects is required. Monitoring requirements are discussed in Section 9 of this document.

* Where hazards to human life exist, the regulations in subpart J of the NCP apply and the **OSC may authorize dispersant use without regional concurrence network approval.**

B. Summaries of State Policies

The Region III RCP requires that the State(s) with jurisdiction over the affected waters must concur with proposals to use dispersants. The summaries of the dispersant use policies for the States in our region will be included as APPENDICES when made available by the states. A list of these appendices will be noted in this section in future updates of this document.

STATE APPENDIX #

- 1.
- 2.

NOTE: STATES MAY REQUIRE CONDITIONAL APPROVAL.

C. Policy Revisions

This policy will become effective upon promulgation by the RRT and it will be reviewed annually, or as necessary, for appropriate changes and updates.

NOTE: On August 1, 1990 - a proposal to incorporate the DEEP into the RCP was presented by the Workgroup and unanimously accepted by the RRT.

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3. OPTIMAL SITUATIONS FOR USE

This information is intended to identify those situations where, if mechanical removal were infeasible and the conditions listed below were present, dispersant use probably would be one of the appropriate methods of environmental protection.

Assumptions:

- dispersants are not effective on all types of oil, and even those which are amenable when spilled become more resistant to dispersant treatment in about 24 hours
- the logistics of mounting a major dispersant operation are very complicated and require constant supervision and evaluation
- dispersants can be effective in mitigating environmental damage by reducing heavy oiling of shorelines and certain living resources
- dispersants do not remove the oil but redistribute it into the water column as fine droplets which can be readily diluted
- dispersants are not the preferred countermeasure strategy because they redistribute, not remove, oil from the environment; and because the long-term effects of the dispersant and dispersed oil on marine organisms are unclear and difficult to predict
- in common with all techniques, dispersants are not likely to be 100% effective in preventing shoreline impacts, but may be strategically employed to protect specific areas
- dispersants are one of many countermeasures strategies available to OSCs and they need to be considered along with other strategies, e.g., booms, skimmers, and shoreline cleanup, to optimally mitigate environmental damage

Optimal Conditions

If all or nearly all of these conditions exist, it is possible that dispersant use would be one of the best methods available to the OSC to protect the environment and mitigate damage.

1. offshore/coastal spill from a vessel
2. continuous spill/slow leak
3. oil with a viscosity of < 2,000 centistokes at ambient conditions (= med. fuel oil @ 50-68 degrees F or 10-20 degrees C) provided a rapid response can be implemented
4. spill where water temperature exceeds pour point of oil
5. sea state is about 2 (4' - 6'), that is, sufficiently high to enhance mixing the dispersants, sufficient depth and movement of water to ensure rapid dilution of dispersed oil
6. the likely onshore impacts include extensive marsh areas, wildlife refuges and/or other sensitive areas
7. the likely offshore/nearshore impacts include diving birds and/or other significant populations of other waterfowl, endangered species or other sensitive biota
8. the impacts of dispersed oil in the water column are likely to be short-term and unlikely to affect significant marine resources or endangered species
9. the spill could not be physically controlled in time to prevent significant onshore impacts
10. the dispersant operation can be effected within a few hours of the release (logistics issue - the appropriate type and quantity of dispersant, and suitable method of application can be obtained within the "window" of opportunity)

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

(3OPTIMALmain)

4. USE DECISION GUIDANCE

A. Minimum Requirements Checklist to Support a Decision to Use Dispersants

This checklist is designed to assist decision makers when a proposal to use dispersants is made. Unless all of these requirements are satisfied, a decision to apply dispersants could be questioned. As indicated by the numerous references below, this checklist must be used in conjunction with other advice and guidance in the DEEP.

1. ___ The spilled oil is compositionally and environmentally suited to dispersal, i.e. neither too viscous nor too volatile, water temperature is above the pour point, oil not too weathered. (See Section 7 for guidance)
2. ___ The mixing action of the water body is sufficient to diffuse the dispersed oil. (Consult SSC)
3. ___ An on-scene field test, which has been approved by the OSC with RRT concurrence, verified that the oil can be dispersed by the available dispersant. This can be accomplished through an actual trial application, which has been approved by the OSC with RRT concurrence, or by using a test kit. (See Section 7 for guidance)
4. ___ Efforts to physically contain or remove the spilled oil will not sufficiently protect the primary resources of concern. (Use trajectory information and Section 5)
5. ___ The primary resources for protection would be more adversely affected by undispersed oil rather than a mixture of dispersed oil and undispersed oil. (See Sections 5 and 6 for guidance)
6. ___ The appropriate dispersant and application equipment can be mobilized efficiently so that the oil could be treated within approximately 24 hours of its exposure to weathering. (See Section 7 for guidance)
7. ___ A monitoring plan will be implemented to collect information on dispersant effectiveness and effects. (See Section 9 for guidance)
8. ___ The RCP concurrence procedure has been followed and the required approvals from responsible State and Federal authorities have been received. In Region III, concurrence is required from the affected State(s), DOI, DOC, and EPA.

NOTE: A STREAMLINED DISPERSANTS CHECKLIST (previously ANNEX XI of the Region III Regional Contingency Plan) is presented in the DEEP as APPENDIX 1 (5 pages) at the end of this document.

B. Decision Tree

The Decision Tree is a popular method of presenting the broad questions and answers involved in a dispersant use decision. The Decision Tree is not designed to be used in isolation, but instead must be used in conjunction with the other guidance and advisory information in the DEEP.

visual of decision tree in DEEP goes here

* Where hazards to human life exist, subpart J of the NCP allows the OSC to authorize dispersant use without concurrence network approval.

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

(4DECISIONmain)

6. REGIONAL LIST

These lists are based on the recognized resources of concern in our region and our current knowledge of dispersant effects and effectiveness. It is assumed that dispersants would reduce the quantity of surface oil but not eliminate it entirely. The judgments on reducing adverse impacts are general because of the many incident specific factors that cannot be evaluated in advance. Discussions among the natural resource specialists will be necessary to reach a determination on which resources will be at risk during a given dispersant use decision.

Considerations for Use of Dispersants in RRT Region III and major resources of regional concern are presented in the following tables:

TABLE 6A - Ocean System (1 page)

TABLE 6B - Estuarine System (2 pages)

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

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TABLE 6A - OCEAN

TABLE 6A**Considerations for Use of Dispersants in RRT Region III****Major Resources of Regional Concern****System: OCEAN**

Primary Vulnerability(2)

Seasons to Non-Dispersed Could Dispersants(3)

Resource(1) of Concern oil Reduce Impacts

Beaches(4) Sp-Su High Yes

Barrier Bay Systems(4) Sp-Su-F High Yes

(Wetlands,

shellfish, etc.)

Shorebirds Sp-Su-F High Yes

Seabirds Sp-F-W High Yes

Waterfowl F-W-Sp High Yes

Ospreys/Peregrines/ Sp-Su-F-W Med Maybe

Eagles

Finfish

Spawning Areas Sp-Su High Maybe

Migratory Corridors Sp-Su-F Med Maybe

Blue Crabs

Spawning Zones Su-F High Maybe

Adults Sp-Su-F Med * No

Overwintering W Low * No

Shellfish Beds Sp-Su-F-W Low * No

(Clams, Scallops,

Whelks, Lobsters)

Artificial Reefs Sp-Su-F-W Low * No

Marine Mammals Sp-Su-F Low Maybe

Sea Turtles Sp-Su-F Low Maybe

1. Consult resource maps and the SSC, Federal and State natural resource specialists for exact locations and seasons.
2. Vulnerability based on portion of the water column commonly used for feeding, nesting, or movement strategies.
3. Reduction of impacts assumes an application that would disperse oil before it reaches shoreline areas. "Maybe" indicates that local conditions should be evaluated and resource specialists consulted to determine efficacy of dispersants.
4. Do not apply dispersants directly to these areas if they are already oiled.

* Unless oil is sinking

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(6ATABLEmain)

TABLE 6B - ESTUARINE

TABLE 6B-1**Considerations for Use of Dispersants in RRT Region III****Major Resources of Regional Concern****System: ESTUARINE**

Primary Vulnerability(2)

Seasons to Non-Dispersed Could Dispersants(3)

Resource(1) of Concern oil Reduce Impacts

Beaches(4) Sp-Su High Yes

Intertidal Flats(4) Sp-Su-F-W High Yes

Salt Marshes(4) Sp-Su-F-W High Yes

Tidal Freshwater(4)

Marshes Sp-Su-F-W High Yes

Tidal Wooded(4) Sp-Su-F-W Med Yes

Wetlands

Shorebirds Sp-Su-F High Yes

Wading Birds Sp-Su-F High Yes

Waterfowl F-W-Sp High Yes

Ospreys/Eagles/ Sp-Su-F-W Med Maybe

Peregrines

Anadromous Fish

Spawning Areas Sp High Maybe

Nursery Areas Sp-Su Med Maybe

Adults Sp-Su-F Med Maybe

Estuarine Fish

Spawning Areas Sp-Su High Maybe

Nursery Areas Sp-Su-F-W Med Maybe

Adults Sp-Su-F-W Med Maybe

Submerged Aquatic

Vegetation Sp-Su-F-W Med * No

1. Consult resource maps and the SSC, Federal and State natural resource specialists for exact locations and seasons.
2. Vulnerability based on portion of the water column commonly used or feeding, nesting, or movement strategies.
3. Reduction of impacts assumes an application that would disperse oil before it reaches shoreline areas. "Maybe" indicates that local conditions should be evaluated and resource specialists consulted to determine efficacy of dispersants.
4. Do not apply dispersants directly to these areas if they are already oiled.

* Unless oil is sinking

TABLE 6B-2

Considerations for Use of Dispersants in RRT Region III

Major Resources of Regional Concern

System: ESTUARINE

Primary Vulnerability(2)

Seasons to Non-Dispersed Could Dispersants(3)

Resource(1) of Concern oil Reduce Impacts

Blue Crabs

Larvae Su-F Med No

Adults Sp-Su-F-W Med No

Overwintering W Low No

Oyster Beds

Intertidal Sp-Su-F-W High Yes

Subtidal Sp-Su-F-W Med Maybe

Clam Beds Sp-Su-F-W Low * No

Bay Scallop Beds Sp-Su-F-W Med * No

Artificial Reefs Sp-Su-F-W Low * No

Marine Mammals Sp-Su-F Low Maybe

Furbearers Sp-Su-F-W Med Yes

(Beaver, otter,

mink, muskrat)

Sea Turtles Sp-Su-F Low Maybe

1. Consult resource maps and the SSC, Federal and State natural resource specialists for exact locations and seasons.
2. Vulnerability based on portion of the water column commonly used or feeding, nesting, or movement strategies.
3. Reduction of impacts assumes an application that would disperse oil before it reaches shoreline areas. "Maybe" indicates that local conditions should be evaluated and resource specialists consulted to determine efficacy of dispersants.
4. Do not apply dispersants directly to these areas if they are already oiled.

* Unless oil is sinking

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(6BTABLEmain)

7. DISPERSABILITIES PRODUCTS

One crucial factor in every dispersant use decision process is the dispersability of the petroleum product spilled. If the chemical and physical characteristics of the product make dispersant use ineffective or unnecessary, the decision process is quickly concluded. However, there is a large number of petroleum products, primarily crude oils, that can be dispersible under certain environmental conditions. The task of the response community is to rapidly determine if the spilled product is dispersible under the specific environmental conditions actually present at the spill location.

The information provided in this section is designated to speed the response community's evaluation of whether or not the spilled product is dispersible. It is NOT designed to provide a yes or no answer on whether or not a dispersant should be applied. This dispersability information must be combined with results of a field test and site specific environmental condition information before concluding that the spilled product is truly dispersible. The field test may be accomplished by using a field test kit or through a trial application on the spill itself (which has been approved by the OSC with RRT concurrence). Test kits may be commercially manufactured types or "homemade" versions as long as accepted testing procedures are carefully followed.

The dispersability factor definitions were taken from the American Petroleum Institute publication "U.S. Crude and Products Import - 1985" as were the dispersability factors for the finished products. The list of crude oils was developed by the DELBAY Cooperative and is considered representative of the many crude oils transported and stored in our region. If the spilled product in question is not listed, the product's API Gravity and pour point can be used to determine the product's dispersability using Table 7 - 7. (See page 24.)

NOTE: The following six tables of Dispersability Factors are arranged in the order of NEED to be acted upon the fastest i.e., 3L, 3H, 2H, 2L, 4, 1.

Table 7-7 is a summary table of the previous 6 tables.

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8. SOURCES OF DISPERSANTS

8. AVAILABLE SOURCES OF DISPERSANTS AND APPLICATION EQUIPMENT

A crucial factor in every dispersant use decision is the ability to deliver the selected dispersant product to the spill site quickly and then properly apply the product to achieve effective dispersal. The information provided in Appendices 2A and 2B is designed to assist the response community once a decision has been made to employ a dispersant as a response measure.

The information provided was assembled by the DELBAY Cooperative through their survey of response resources. The product and organization names are provided to assist response efforts and use of these names does not constitute RRT endorsement of products or services.

SEE:

APPENDIX 2-A - Dispersant Supplies

APPENDIX 2-B - Application Equipment

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(8SOURCEmain)

DEEP APPENDIX 2 SOURCES

APPENDIX 2-A**A. Dispersant Supplies**

Dispersant Product Quantity Where Stockpiled

Corexit 9527 22 drums Delaware Bay and

River Co-op

Lewes, DE

(302) 645-7861

Phoned 3/21/91 - verify 22 drums (up from 12)

A PO is in process for an additional 8 drums.

Corexit 9527 25 drums Clean Harbors Co-op

Perth Amboy, NJ

(201) 738-2438

Phoned 3/21/91 - verify 25 drums

spoke with Manger, Mr. Wirkowski

Corexit 9527 500 drums Clean Caribbean Co-op

Ft. Lauderdale, FL

(419) 465-2541

Hotline # (419) 465-2545

Phoned 3/25/91 - Mr. Don Alberts (ALL POINTS

ASSOCIATES) verified 500 drums (down from 532)

and aerial dispersants equipment.

APPENDIX 2-B**B. Application Equipment****1. Aircraft**

The following three companies have a known dispersant spraying capability. Note that only one

company is in the immediate area (Cordoba). Their involvement, interest, and capability grows out of the efforts of the New York Cooperative, Clean Harbors, to provide an aerial spraying capability. The other two companies each operate a fleet of large fixed wing aircraft and have extensive dispersant spraying experience. They are prepared to respond throughout the U.S. and abroad.

Company Location Phone

Cordoba Helicopter Hightstown, NJ (609) 448-0031

Bigert Aviation Chandler, AZ (602) 821-2400

One ADDS PACK and one 2,500 gallon system installed in a DC-4 aircraft.

Conair Aviation Abbotsford, BC (609) 853-1171

Ten DC-6 fitted for 3,000 U.S. gallon system, capable of delivering up to 20 gallons/acre. Fifteen 360 U.S. gallon systems for Bell 205 Helicopters and six 180 U.S. gallon systems for Bell 206 Helicopters. NOTE: Per phone conversation on 1/29/91 with Rod Boles of Conair, the two Fokker F-27 (not F-17) systems fitted for 7,000 U.S. gallons, were sold to France.

The only boat mounted spraying systems identified on the East Coast, north of Florida were those owned by the Delaware Bay and River Cooperative (one complete self contained system) and the Clean Harbors Cooperative in New York (one complete self contained system).

Similar system are held by other industry cooperatives at more distant locations. Clean Harbors and the Delaware Bay and River Cooperative have mutual assist agreements which allow for quick access to each others equipment.

Company Location Phone

Delaware Bay &

River Co-op Lewes, DE (302) 645-7861

Clean Harbors Co-op Perth Amboy, NJ (201) 738-2438

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9. CRITERIA FOR MONITORING

9. CRITERIA FOR MONITORING DISPERSANT USE

Dispersant applications in Region III will be monitored as a general practice. The OSC is responsible for designating monitors. The Atlantic Strike Team will serve as monitors as available. There are two levels of criteria suggested: general and incident specific.

Dispersant use needs to be monitored for two reasons. First, the OSC needs to know how well an application worked to help decide whether to continue and if so, to refine future applications. Second, in the long-run, there is a great need for more field data on dispersants; each use constitutes an opportunity that should not be lost.

NOTE: The Region III MONITORING SUBGROUP of the DISPERSANTS WORKGROUP will be developing additional MONITORING REQUIREMENTS that will be incorporated into the DEEP as an APPENDIX when available.

GENERAL REQUIREMENTS

Records

1. Dispersant brand
2. Equipment and methods used in application
3. Dilution of dispersant prior to application, if any
4. Rate of application (gallons per acre, dispersant to oil ratio)
5. Times and area of application
6. Tracks of vessels or aircraft during application
7. Wind and wave conditions during application

Effectiveness

Visual and photographic documentation by qualified observers of:

1. Oil before and after dispersant application
2. Resurfacing of dispersed oil

Environmental Impacts

Visual and photographic surveys by qualified observers of:

1. The extent of shoreline impact by dispersed and undispersed oil
2. Mortality or abnormal behavior by fish, birds, or mammals

INCIDENT SPECIFIC REQUIREMENTS

Based upon variables such as the location of the spill relative to sensitive resources, the time period during which dispersants would be applied, and other factors, more specific monitoring requirements may be applied. The following are types of incident specific concerns for which detailed monitoring may be necessary.

Records

1. Dispersant brand
2. Equipment and methods used in application
3. Dilution of dispersant prior to application, if any
4. Rate of application (gallons per acre, dispersant to oil ratio)
5. Times and area of application
6. Tracks of vessels or aircraft during application
7. Wind and wave conditions during application

Effectiveness

Sampling of the water beneath the oil slick and the oil and dispersant combination to determine the level of petroleum hydrocarbons in the water. This sampling could include "in-situ" measurements or sample collection for later analysis.

Environmental Impacts

1. Comparison of shoreline areas impacted by oil and oil and dispersant mixtures
2. Analysis of oil concentrations in sediments under dispersed oil
3. Investigation of water column organisms for signs of adverse impact due to dispersed oil
4. Collection and analysis of birds and other wildlife (and perhaps vegetation) affected by dispersants or dispersant and oil mixtures

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10. POLICY DEVELOPMENT

10. POLICY DEVELOPMENT AND JUSTIFICATION

The highly industrialized character of our region, and the frequent transport, transfer and storage of petroleum products into the ports of Philadelphia, Baltimore and Norfolk, make the occurrence of oil spills inevitable. The question, therefore, is not "what if" but rather "where, how much and what kind" of oil is spilled. In 1987, the RRT identified the issue of dispersants as one deserving special attention in our region. Shortly thereafter, the Dispersants Workgroup was established to study the body of knowledge on dispersants with the intention of developing the appropriate guidance that the RRT and OSCs need to make and support a decision to employ or not employ dispersants. The justification for either decision took on added importance following the court decision on the French government's response to the Amoco Cadiz oil spill. In that 1988 decision, the court ruled that the French decision to ban the use of dispersants in waters shallower than 50 meters (164 feet), was "Without scientific justification" and "seriously interfered with the success of the dispersant method." This kind of precedent reminded us that the decision on dispersant use must be based upon sound reasoning and the best information available.

The Dispersants Workgroup initiated its efforts by reviewing the various existing regional approaches to dispersant use issues and outlining a strategy for our particular position on dispersant use. In general terms, the Workgroup listed a number of tasks to better identify the effects and effectiveness of dispersants prior to preparing appropriate guidance materials to be adopted as part of the RCP. The Workgroup also decided to focus its attention on the possible use of dispersants in marine and estuarine environments only. The use of dispersants in freshwater should also be investigated as there are significant differences between their use in those environments compared to freshwater environments. For example, in freshwater there are added concerns for impacts to drinking water, normally there is less volume of water for mixing, and there is a much smaller body of data available for decision making.

The Dispersants Workgroup reviewed a great deal of information on sensitive environmental resources, petroleum products routinely handled in our region, historical oil spill data, dispersants types and toxicities, and application techniques. The result of these reviews was the preparation of the Dispersant Employment Evaluation Plan (DEEP) which is composed of a collection of advisory and reference materials to be incorporated into the RCP. These materials serve to educate responders about dispersant use considerations and serve as guidelines to technical specialists who would be consulted during an actual spill response. As part of the DEEP, the Workgroup decided to include a statement of regional policy that would put the question of dispersant use into the broader context of how our region chooses to respond to oil spills.

It is acknowledged that first and foremost, our regional policy must assist the OSC to make decisions efficiently. In addition, this policy should be revised as necessary to recognize new, useful information on dispersant effects and effectiveness gained from research or experience from actual uses on oil spills. Through such an evolution, the regional policy should help the response community make the most effective use of dispersants as one possible oil spill response tool. It is presumed that any dispersant use would be in combination with other response methods, especially the physical containment and removal of the spilled oil.

It is the policy of the RRT that it is preferable to attempt to remove spilled oil from the water body rather than distribute it throughout the water column. The RRT considers that a decision to use dispersants is acceptance of a tradeoff in environmental impacts. In general terms, dispersants would reduce the amount of oil on the surface while increasing the amount of oil in the water column as well as adding dispersant to the water column. It is important to recognize that even under small-scale, controlled conditions, dispersants are nowhere near 100 percent effective. In the field studies presented in the National Academy of Sciences report, the average effectiveness of dispersants was 30 percent

with a range of 0 to 100 percent. The RRT acknowledges that there is no single oil spill response measure that is 100 percent effective. That is why employment of a variety of cleanup methods is usually necessary to achieve maximum success.

When dispersants are used, there will be both surface oil and dispersed oil impacts on the environment. The specific impact tradeoffs can only be identified if we have detailed field and laboratory data to quantify the effects of dispersed oil and undispersed oil on those organisms or habitats within our region. This need for detailed, region specific data is a significant factor in this Region's decision to restrict dispersant use at this time.

Based on the efforts of the Dispersants Workgroup, the RRT concludes that there is insufficient toxicity information about dispersant effects as related to our region's characteristics. In the absence of this information, the RRT does not believe that widespread dispersant use can be justified. The major points of concern regarding this information gap are presented below.

- The available toxicity information is based upon laboratory, not field, measurements;
- much of the toxicity testing on fish and shellfish has been done with crude oils rather than the refined products frequently shipped in our region;
- toxicity is usually reported as lethal concentrations or doses and there is much less information on the sublethal effects of dispersants; and,
- there is insufficient toxicity information for the species of most concern in our region.

Furthermore, after reviewing the description of how dispersants physically function in the environment, the Workgroup is concerned about the diffusion and mixing action (so vital to dispersant performance and dilution) characteristics of Region III's estuarine environments such as the Chesapeake and Delaware Bays. These areas comprise a significant portion of sensitive resources where, historically, most of the region's oil spills have occurred.

The RCP requires, in Subpart A Section II.(A), the effective and immediate action by government agencies to minimize damages from oil discharges. Without the better information on impacts of dispersed oil, and considering the diffusion and mixing action questions, it would not be prudent to recommend widespread use of dispersants in our region. In addition, we need sufficient margin of protection for those special situations where restricted dispersant use is recommended.

The Dispersants Workgroup identified several situations where dispersants might be used while compromising our policy of preferring oil removal to distribution into the water column. In recommending offshore use, the rationale is that there would be sufficient water depth and mixing action to reduce dispersed oil levels below sublethal concentrations quickly before it reached nearshore, sensitive resources. To ensure a sufficient margin of protection, offshore use should only be recommended where significant diffusion would occur before the dispersed oil reaches areas of less than 40 feet of water. The 40 foot depth is selected because studies show that sublethal concentrations do occur at depths of 10 meters (33 feet) and researchers recommend at least 10 meters of depth when using dispersants over sensitive resources such as coral reefs and sea grasses. While recognizing that our region does not have coral reefs, we believe that the region's shellfish resources deserve similar protection.

One potential nearshore, extreme risk situation for dispersant use would be a situation where a sensitive plant or animal population could be irreversibly harmed by large quantities of surface oil. A possible example would be surface oil impacts on the horseshoe crab eggs and shorebirds dependent on them in Delaware Bay during the peak shorebird migration period. At this critical time, significant portions of

the world's population of some shorebirds species may be exposed to the spilled oil, both through ingestion of oiled crab eggs and physical contact with the oil. If physical containment or mechanical removal was not possible or sufficiently effective, careful dispersant use might reduce the magnitude of the adverse impacts.

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

(10POLICYmain)

11. SOURCES OF INFORMATION

11. SOURCES OF INFORMATION ON DISPERSANTS

Throughout the first two years [1988, 1989] of the Dispersant Workgroup's efforts in developing the DEEP, the members utilized the available literature and other information to take advantage of previous work on dispersants. Listed below are specific sources that were consulted which provided valuable information.

American Petroleum Institute, 1985, U.S. Crude and Product Import

Gundlach, Erich R., 1989 Amoco Cadiz Litigation: Summary of the 1988 Court Decision

National Research Council, 1989, Using Oil Spill Dispersants on the Sea

Regional Response Teams, Region I - IV, VI, IX, and Alaska, Regional Contingency Plans

U.S. EPA, 1989, National Contingency Plan Product Schedule

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DEEP APPENDIX 1 CHECKLIST

APPENDIX 1**(Formerly Annex XI of the Regional Contingency Plan)****STREAMLINED DISPERSANTS CHECKLIST****I. COMPILATION OF DATA**

A) Spill Data OSC

1. Circumstances (fire, grounding, collision, etc.)
2. Time/Date of incident:
3. Location of spill:
4. Type of oil product:
5. Volume of product released:
6. Total potential of release:
7. Type of release (instantaneous, continuous, intermittent, etc.):

B) Characteristics of the spilled oil OSC

1. Specific gravity:
2. Viscosity:

C) Weather and water conditions/forecasts SCC

1. Air temperature, wind speed, direction:
2. Tide and current information:
3. Sea conditions:
4. Water temperature and salinity:
5. Water depth and depth of the mixed layer:

D) Oil trajectory information SCC NRC

1. 48-hour surface oil trajectory forecast:
 - o surface area of slick
 - o expected areas of landfill
2. 48-hour dispersed oil trajectory forecast:
 - o oil movement in water column
 - o surface oil movement and expected land fall
 - o concentration of the dispersant/oil mixture in The water column

E) Characteristics of available dispersants and application equipment

1. Characteristics of the dispersants:

- name
- manufacturer
- when available
- location(s)
- amount available

- type of containers
- characteristics:
 - i. toxicity
 - ii. effectiveness
 - iii. reactions
 - iv. applicability to spilled oil
 - v. other
- application methods
- misc.

2. Type of transportation and dispersing equipment:

Company one Company two Company three

- name
- location
- equipment available

F) Information about available dispersant and USCG EPA

dispersing equipment

1. Name of the proposed dispersant on EPA acceptance lists:
2. Location of the area to be treated:
3. Estimated time interval between dispersant application and contact with sensitive environment/resources.
4. Estimated distance between application of dispersants and sensitive environment/ resources.

G) Comparison of the effectiveness OSC

of conventional cleanup methods

vs. the use of dispersants

1. Containment at the source:
2. Shoreline protection strategies:
3. Shoreline cleanup strategies:
4. Time necessary to execute response:

H) Habitats and resources at risk SSC

Dispersant treated spill

Untreated spill

1. Shoreline habitat type and area of impact:
2. Resources:
 - endangered/threatened species (state and Federally designated)
 - critical habitats for the above species
 - marine animals (pupping, migration)

- waterfowl use (nesting, migration)
- shellfish (spawning, harvesting) () indicates seasonal considerations
- finfish (spawning, release migration, harvest)
- commercial use (aquaculture, water intakes etc.)
- public use areas (parks, marinas, etc.)
- other resources of specific significance

II. RECOMMENDATIONS TO THE RRT

A) Possible options:

1. Do not use dispersants.
2. Use dispersants on a trial basis, but not as a control or cleanup technique. (To evaluate for future use on this or other spills)
3. Disperse in limited or selected areas.
4. Disperse to the maximum extent possible with accepted methods and available equipment.

B) Other recommendations/rationale:

III. RRT EVALUATION OF THE CONSEQUENCES OF A DISPERSANT APPLICATION DECISION.

- Will applications of dispersant remove a significant amount of the slick from surface water?
- Can the extent of location of shoreline impacts be altered in a positive manner?
- Can the damage to endangered or threatened species, marine mammals, and waterfowl be lessened?
- Will the damage to habitats and resources resulting from chemical dispersion be less than those resulting without chemical dispersion?
- If recreational, economic and aesthetic considerations are a higher priority than natural resource considerations, what is the most effective means of their protection?

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

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DEEP APPENDIX 2 SOURCES

APPENDIX 2-A**A. Dispersant Supplies**

Dispersant Product Quantity Where Stockpiled

Corexit 9527 22 drums Delaware Bay and

River Co-op

Lewes, DE

(302) 645-7861

Phoned 3/21/91 - verify 22 drums (up from 12)

A PO is in process for an additional 8 drums.

Corexit 9527 25 drums Clean Harbors Co-op

Perth Amboy, NJ

(201) 738-2438

Phoned 3/21/91 - verify 25 drums

spoke with Manger, Mr. Wirkowski

Corexit 9527 500 drums Clean Caribbean Co-op

Ft. Lauderdale, FL

(419) 465-2541

Hotline # (419) 465-2545

Phoned 3/25/91 - Mr. Don Alberts (ALL POINTS

ASSOCIATES) verified 500 drums (down from 532)

and aerial dispersants equipment.

APPENDIX 2-B**B. Application Equipment****1. Aircraft**

The following three companies have a known dispersant spraying capability. Note that only one

company is in the immediate area (Cordoba). Their involvement, interest, and capability grows out of the efforts of the New York Cooperative, Clean Harbors, to provide an aerial spraying capability. The other two companies each operate a fleet of large fixed wing aircraft and have extensive dispersant spraying experience. They are prepared to respond throughout the U.S. and abroad.

Company Location Phone

Cordoba Helicopter Hightstown, NJ (609) 448-0031

Bigert Aviation Chandler, AZ (602) 821-2400

One ADDS PACK and one 2,500 gallon system installed in a DC-4 aircraft.

Conair Aviation Abbotsford, BC (609) 853-1171

Ten DC-6 fitted for 3,000 U.S. gallon system, capable of delivering up to 20 gallons/acre. Fifteen 360 U.S. gallon systems for Bell 205 Helicopters and six 180 U.S. gallon systems for Bell 206 Helicopters. NOTE: Per phone conversation on 1/29/91 with Rod Boles of Conair, the two Fokker F-27 (not F-17) systems fitted for 7,000 U.S. gallons, were sold to France.

The only boat mounted spraying systems identified on the East Coast, north of Florida were those owned by the Delaware Bay and River Cooperative (one complete self contained system) and the Clean Harbors Cooperative in New York (one complete self contained system).

Similar system are held by other industry cooperatives at more distant locations. Clean Harbors and the Delaware Bay and River Cooperative have mutual assist agreements which allow for quick access to each others equipment.

Company Location Phone

Delaware Bay &

River Co-op Lewes, DE (302) 645-7861

Clean Harbors Co-op Perth Amboy, NJ (201) 738-2438

Federal Region III Regional Response Team's Dispersant Employment Evaluation Plan (DEEP) May 1991.

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