

NATIONAL MARINE POLLUTION CONTINGENCY PLAN OF ANTIGUA AND BARBUDA

**National Plan to Combat Pollution of the Sea by Oil and Other
Noxious and Hazardous Substances**



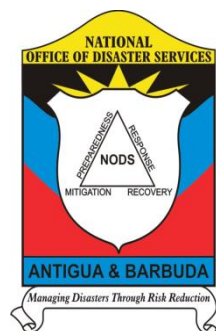
ANTIGUA AND BARBUDA

NATIONAL MARINE POLLUTION

CONTINGENCY PLAN

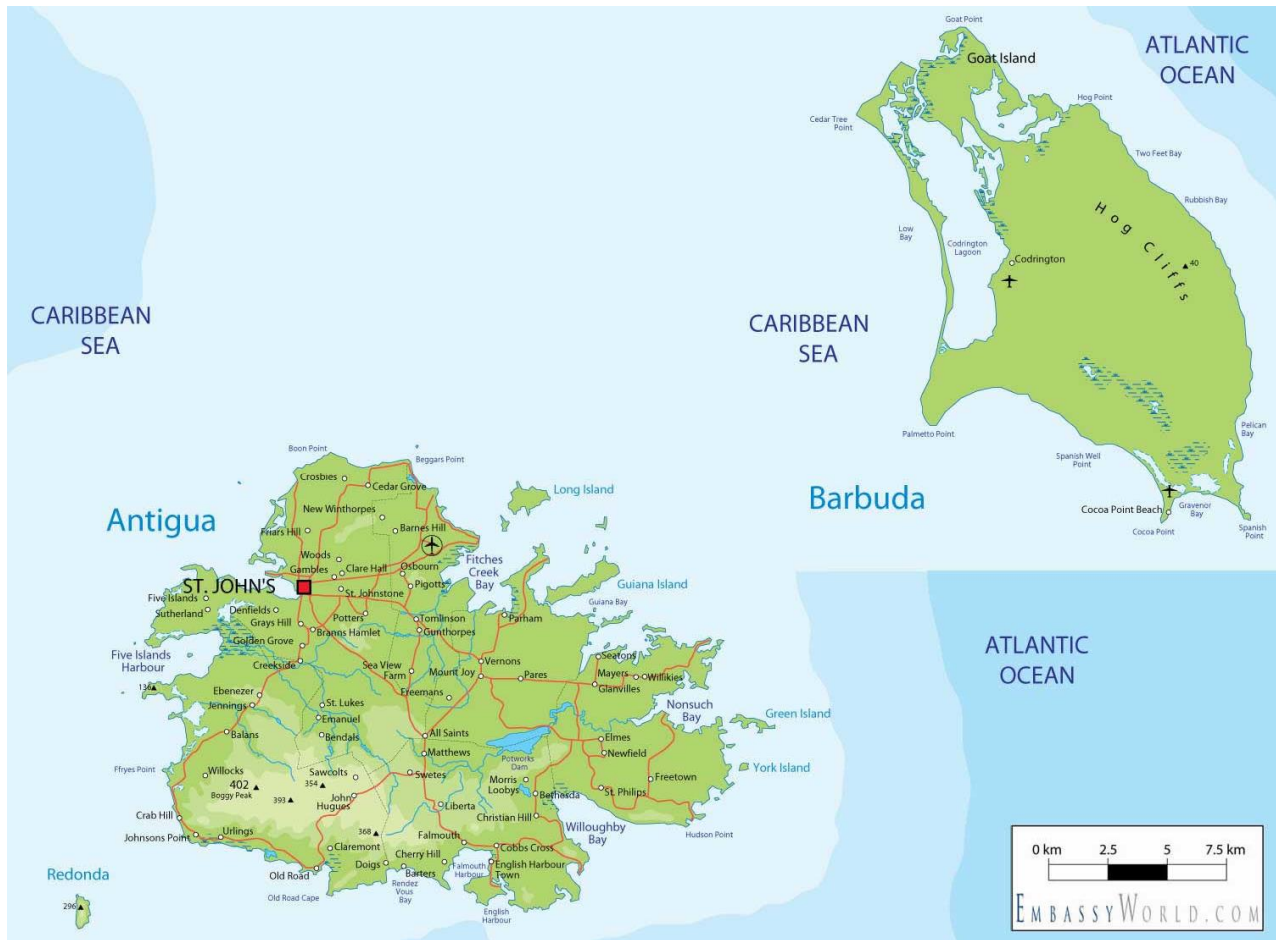
**“National Plan to Combat Pollution of the Sea by Oil and Other
Noxious and Hazardous Substances”**

JULY 2016



NATIONAL OFFICE OF DISASTER SERVICES

MAP OF ANTIGUA AND BARBUDA



Source: http://www.embassyworld.com/maps/Maps_Of_Antigua_Barbuda/images/antigua_and_barbuda_ph_1500.jpg

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ACKNOWLEDGEMENT

The revised plan was developed utilizing the following templates / guidelines / documents:

- 1) Pacifica National Marine Spill Contingency Plan: Natplan Template.
- 2) Regional Caribbean Island Oil Pollution Response and Cooperation Plan: Caribbean Island OPRC Plan: Published by: Regional Activity Centre / Regional Marine Pollution Emergency information and Training Centre ó Wider Caribbean Region RAC/REMPEITC -Carib.
- 3) The National Oil Spill Contingency Plan of Trinidad and Tobago 2010.
- 4) The National Oil Spill Plan of Jamaica.
- 5) IMO Manual on Oil Pollution.
- 6) This plan was created by the National Office of Disaster Services through the services of Mr. Paul Saunders, Disaster Risk Management Specialist, through funding and technical assistance of the Antigua and Barbuda Department of Marine Services and Merchant Shipping (ADOMS).

PLAN CUSTODIAN

Responsibility for development, updating of, and amendments to this plan rests with the National Office of Disaster Services (NODS).

This Plan is to be kept current whenever changes to key agencies and/or personnel are made and **reviewed annually**.

This plan shall also be revised based on experiences from actual incidents, drills and simulation exercises, to take into account any change in the hazard/threat, as well as changes in technology.

No revisions to the Plan can be made unless these are made through the Plan Custodian who will ensure that the revised Plan is distributed to all Plan holders.

For this version of the Plan, the Custodian is **The Director of NODS**.

Philmore Mullin
Director, NODS

PLAN AMENDMENT CERTIFICATION

Proposals for amendment or additions to the text of this plan should be forwarded to:

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Amendment						
Number	Date	Section	Page	Entered	Date	Signature

SIGNATURE PAGE

DISTRIBUTION LIST

National Marine Pollution Contingency Plan	Version July 2016	Revised	Periodic Revisions			

GLOSSARY OF ACRONYMS and ABBREVIATIONS

ADOMS	Antigua and Barbuda Department of Marine Services and Merchant Shipping
AMPD	Average Most Probable Discharge
CARIBPOLREP	Caribbean Pollution Report
CAD	Civil Aviation Division
CCA	Clean Caribbean and Americas (formerly CCC)
CCC	Clean Caribbean Cooperative
CLC	International Convention on Civil Liability for Oil Pollution Damage
COCG	Commanding Officer Coast Guard
DCA	Director of Civil Aviation
DMS	Director of Maritime Services Division
EEZ	Exclusive Economic Zone
EI	Environmental Impact
EMA	Environmental Management Authority
EOC	Emergency Operations Centre
ETA	Estimated Time of Arrival
FUND	International Oil Pollution Fund
IMO	International Maritime Organization
IOPC	International Oil Pollution Compensations Fund
ITOPF	International Tanker Owners Pollution Federation Limited
IPIECA	International Petroleum Industry Environmental Conservation Association
MARPOL	International Convention for Prevention of MARitime POLLution from Ships
MFA	Ministry of Foreign Affairs
MOF	Ministry of Finance
MPW	Ministry of Public Works
MSRT	Marine Spill Response Team
NGO	Non-Governmental Organization
NODS	National Office of Disaster Services
NMPC	National Marine Pollution Committee
NMPEC	National Marine Pollution Executive Committee
NMPCP	National Marine Pollution Contingency Plan
ODP	Office of Disaster Preparedness
OPA 90	United States of America Oil Pollution Act of 1990
OPRC	Oil Pollution Preparedness, Response and Cooperation
OSC	On-Scene Commander
OSH Agency	Occupational Safety and Health Agency
OSRICS	Oil Spill Response Incident Control System
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organization
UNEP	United Nations Environment Programme
VHF	Very High Frequency
VOC	Volatile Organic Compound
WIOC	West Indies Oil Refinery Company

DEFINITIONS of TERMS

Caribbean Plan – This is the Caribbean Island Oil Pollution Preparedness, Response and Co-operation Plan prepared by IMO/REMPEITC-Carib and presented as Appendix 1 to this Plan. The Caribbean Plan provides a framework under which Island States and Territories may co-operate at the operational level in responding to oil incidents as required by Article 8 of the Protocol to the Cartagena Convention (The Convention for the Protection of the Marine Environment of the Wider Caribbean Region and the Protocol Concerning Cooperation in Combating Oil Spills in the Wider Caribbean Region [1983]).

Exclusive Economic Zone (EEZ) ó For the purpose of the Plan, the Exclusive Economic Zone of Antigua and Barbuda extends to sea 200 miles, or to an equal division of territorial area between any two islands where the 200-mile zone would overlap.

Contiguous Zone ó This is the Zone Contiguous to the Territorial Sea, which extends twelve (12) miles seaward from the outer limit of the Territorial Sea, in accordance with Article 33 of the Convention on the Law of the Sea ó UNCLOS III.

Discharge – Includes, but is not limited to any spilling, leaking, pumping, pouring, emitting, emptying or dumping.

Dispersants ó Specially formulated agents that are sprayed at low dosages on slicks to enhance its natural mixing and biodegradation in surface waters.

Ecology ó The branch of biology concerned with the relations of organisms to one another and to their physical surroundings.

Ecosystem ó A biological community of interacting organisms and their physical environment.

Environment ó The surroundings or conditions in which person, animal or plant lives or operates.

Facility ó Means: (a) any site area, building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or treatment works), well, pit, pond, lagoon, ditch, storage containers, motor vehicles, trains, aircrafts or vessels. Or (b) where a hazardous substance has been deposited, stored, disposed of or placed or otherwise come to be located.

Flash Point ó The lowest temperature at which the vapours above a volatile liquid form a combustible mixture with air.

In-Situ Burning – A controlled ignition of oil, other hydrocarbon products, and oil spill debris at the site of the spill. For offshore spills the burning of the floating oil may occur with or without fire-resistant booms.

Lead Agency – The Antigua and Barbuda Defence Force (ABDF) Coast Guard is the Lead Agency for all marine spills within Antigua and Barbuda waters. The Lead Agency has operational responsibility for the response to marine spills, through the designated Incident Controller (IC).

Marine Pollution Committee – This is a subsidiary body of the National Office of Disaster Services and National Disaster Committee having the purpose of developing policy, revising this plan, developing draft legislation, and making recommendations on relevant international conventions that will increase the nation's capability to deal with pollution and minimize the incidents of pollution in our environment.

National Authority means the Competent National Authority with responsibility for oil pollution management: i.e. mitigate against, preparedness for, response to and recovery from. Unless designated otherwise under Article 4 of the Oil Spill Protocol, the Lead Agency is assumed to be the authority responsible for implementing the Oil Spill Protocol. The Lead Agency should be the same Competent National Authority designated under Article 6(1) (a) (i) of the OPRC 90 for those States and Territories which are signatory to that Convention. (The lead agency hereafter refers to the ABDF Coast Guard).

Oil ó Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with water other than dredged oil.

Oil Spill Incident ó A discharge or a significant threat of a discharge of oil, however caused, of a magnitude that requires emergency action or other immediate response for the purpose of minimizing its effects or eliminating the threat.

On-Scene Commander (OSC) – Means the official appointed and charged with coordination and direction of the national pollution control efforts at the scene of an oil spill or incident. The Commanding Officer ABDF Coast Guard or his designate is the On-Scene Commander.

Pollution ó Contaminant of air, water, land, or other natural resources that will, or is likely to, create a public nuisance and cause health and environment harm.

Pollution Incident – A spill or the imminent threat of a spill of oil from any source into the natural environment of such a magnitude that requires emergency action or other immediate response for the purpose of minimizing its effects or eliminating the threat.

Response – The organization mounted to investigate a reported discharge and, where feasible, to clean up the spill of oil or other noxious substances, and to minimize the consequences and prevent further spillage.

Responsible Authority – The National Office of Disaster Services (NODS) is the Responsible Authority for all marine spills within Antigua and Barbuda waters. The Responsible Authority has legal or statutory responsibility for administering and enforcing the national marine pollution legislation and for the overall management of the NATPLAN, of which the Marine Pollution Plan is an annex.

Spiller/Polluter ó Company responsible for the liquid that is spilling or been spilt.

Tiered Response ó A response mechanism established to determine the level of response for an oil spill, which is based on the characteristics oil and magnitude of the spill.

Viscosity – A measure of the resistance to flow that a liquid offers when it is subjected to shear stress; higher values indicate thicker, slower moving materials. For example, gasoline has a lower viscosity than diesel.

Welfare ó The health happiness and fortunes of a person or group not limited to, the natural environment, fish, shellfish, wildlife, public and private property, shorelines and beaches.

CHAPTER ONE

1. INTRODUCTION

1.1 Background

1.1.1 The density of marine traffic, especially oil tankers, in close proximity to the Islands of the Caribbean presents a fairly high risk of marine pollution from collisions, stranding and other marine accidents. Antigua and Barbuda, located on the Eastern edge of the island chain, could easily be affected by an incident in the Atlantic, as the prevailing currents would rapidly carry spilled oil towards the many tourist beaches. Such pollution can threaten amenity beaches, sea birds, marine life in the inter-tidal zones and the fishery with subsequent loss of revenue and protein sources. These diversities have been recognized in the formulation of this contingency plan.

1.1.2 Combating pollution requires a high level of coordination between the different Government Ministries and Departments, local voluntary organizations and industry. Because of its contingent character it is impractical to set up an elaborate organization purely for this purpose. Moreover, in medium and major oil spills the degree of damage to the marine environment and ecosystem could reach disaster proportions, requiring emergency-type responses. It is therefore envisaged to deal with marine pollution within the framework of the existing National Disaster Organization, but with routine investigations and responses conducted by the Port Authority and Coast Guard without activating the National Disaster mechanism.

1.1.3 The Government of Antigua and Barbuda has developed this National Marine Pollution Contingency Plan (NMPCP) as part of its commitment to protecting our valuable coastal and marine resources from the threat of marine pollution incidents. NMPCP has been developed to reflect the essential steps necessary to initiate, conduct and terminate an emergency spill response on, or into the navigable waters of Antigua and Barbuda, on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

1.1.4 This plan is designed to meet the obligations of Antigua and Barbuda under the MARPOL. It also meets obligations under the *International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90)*. In the event of a marine pollution incident in Antigua and Barbuda, all government departments and agencies and all oil importing companies, shipping companies and other relevant parties, which operate within the country, are required to follow the procedures laid down in this plan.

1.1.5 This plan has been developed to reflect the essential steps to initiate, conduct and terminate an emergency marine spill response in Antigua and Barbuda. The plan provides a concise and easy to follow guide to the management of spill response and associated linkages to supporting documentation.

1.1.6 This plan consists of two main parts:

- a. Part A: The core plan text designed to provide key supporting information to assist with spill response operations and planning; and
- b. Part B: Appendixes & annexes which contain operational information for oil spill planning, preparedness & response.

1.2 Purpose & Objectives

1.2.1 The purpose of this plan is to delineate responsibilities for the operational response to the spillage of oil into the environment. This plan outlines the framework in which resources will be marshalled and coordinated in Antigua and Barbuda for the purpose of dealing with pollution of the marine environment from spills of oil and other noxious substances.

1.2.2 The objectives are to:

- a. Provide an appropriate system for detecting and reporting of spills of oil and other noxious substances in coastal waters and tributary waters of Antigua and Barbuda.
- b. Coordinate deployment of resources-manpower and equipment of Government Departments, services agencies, private, commercial organizations, Disaster Committee and External Assistance to prevent, contain, and combat local oil spills or marine pollution incidents.
- c. Coordinate scientific support and analyses to determine priority/sensitivity ratings of impacted or threatened areas, when pollution is widespread.
- d. Protect public health, welfare, living natural resources; minimize impact upon the environment and the economy. Monitor and record effects during and after impact.
- e. Provide a command structure, outlining agency responsibilities appropriate to the size of the incident.
- f. Establish a reporting procedure to:
 - i. Provide routine and decision making information for the Government and the on-scene commander.
 - ii. Establish liaison with media and provide information for the public and internationally on a threatened or actual marine pollution incident.

- g.** Prescribe documentation procedures to record fully and accurately all activities throughout the response, including all expenditures to facilitate future response assessment, accountability and the recovery of costs and other damages from liable parties.
- h.** Outline procedures for obtaining support from outside the Antigua and Barbuda and the modus operandi of such support (through the Sub-region Oil Pollution Contingency Plan and CDEMA).

1.3 Legislative Authority

1.3.1 Operations to control and combat marine pollution shall be carried out within the framework of the existing National Emergency Organization. This Pollution Contingency Plan should be construed and implemented in such a manner as to ensure the widest possible compatibility with any Regional Oil Spill Contingency Plans and International Agreements in which the Antigua and Barbuda participate. At the international level, the following multilateral instruments are applicable:

- a.** International Convention on Civil Liability for Oil Pollution Damage, 1969 (1969 CLC) and its Protocols from 1992.
- b.** The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention 1971) and its protocol from 1992.
- c.** International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and its Annexes.
- d.** Convention for the Protection and Development of the Marine Environment in the Caribbean Region. Protocol concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region, 1983 and Protocol on Controlling Land Based Sources of Marine Pollution.
- e.** International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990.

1.4 Policy Statement

1.4.1 In the event of a major oil spill in the marine environment, the following assumptions are made:

- a.** The first priority will be safety and preservation of life of persons.
- b.** Early detection mechanisms shall be utilized to determine source of a spill and to mount an early response to a spill in the EEZ of Antigua and Barbuda.

- c. In the event of extensive oil impacts, a substantial marine logistical task would be required to organize and sustain the deployment of cleanup personnel and equipment.
- d. The mounting of a labor-intensive and protracted beach cleaning operation would quickly absorb the available labour force so that external reinforcement of equipment and personnel would almost certainly be required as a contingency.
- e. It is unlikely that Antigua and Barbuda will be able to dispose of the entire oily residue and waste within country.

1.4.2 In major spills, National Policy will recognize that at-sea operations will be the priority and shoreline treatment operations will be a contingency. This plan focuses on the provision of equipment and human resources within the country. This plan also recognizes that external aid will be a last resort in the event local capabilities are exhausted or unable to deal with problem at hand.

1.4.3 Smaller amounts of oil resulting from minor incidents should be manageable by local resources when it comes ashore. Oil pollution from illegal discharges that frequently reach the shoreline in the form of tar balls poses a lesser threat. Tar balls are nevertheless a considerable nuisance and should be handled using a local capability.

1.4.4 Due to the proximity of St Kitts and Nevis, and the fact that a threat to one country may pose a threat to another, a good working relationship must be developed and maintained between the authorities of the involved countries with each Contingency Plan being held by the other. In the interest of reducing the impacts of a major oil spill that occurs close to a country's territorial borders, a Rapid Response Agreement of equal right of access must be established. Details of the Rapid Response Agreement are included in Section 2.8 of the Caribbean Islands OPRC Plan 2006. (a proposal for NODS to review)

1.5 Mechanism for Activating the Plan

1.5.1 The Plan will be activated by the NODS in consultation with the On-Scene Commander in the event of a pollution incident. NODS will advise the Minister of Social Transformation and the Prime Minister of the situation.

1.5.2 When this Plan and its annexes are invoked, special Customs and Immigration clearances will be granted for facilitating the movement of response resources, including personnel and equipment, in accordance with the Policy and Procedures of the National Disaster Plan.

1.6 Scope

1.6.1 This Plan is effective for the territorial waters of Antigua and Barbuda, its adjoining shoreline, the Contiguous Zone and Economic Exclusive Zone (E.E.Z.) where the pollution threat to Antigua and Barbuda waters, coastline, fish sanctuaries and shelf bottom exists. The

geographical scope is all of the coastlines and all marine waters below highest astronomical tide within the 200 nautical mile limit of both islands.

1.6.2 This Plan is also effective for spills on land and any body of water that may migrate to or flow into the marine waters. It is intended to organize the activities of all the responsible agencies and to provide a command structure and an established method of operations for the forces engaged in dealing with any incident.

1.6.3 This plan covers the response to spills into the marine environment of all forms of pollutants, including oil and other Noxious and Hazardous Substances. However, it retains a primary focus on oil spills, as oil is the main pollutant likely to be spilled. The plan covers spills into the marine environment from all sources, including both shipping and shore-based facilities.

1.6.4 For the purposes of the plan, spills are classified as Tier One, Two and Three spills. Classification is dependent upon the amount of pollutant spilt, or likely to be spilt, the resources required and level of support both nationally and internationally.

Figure One:

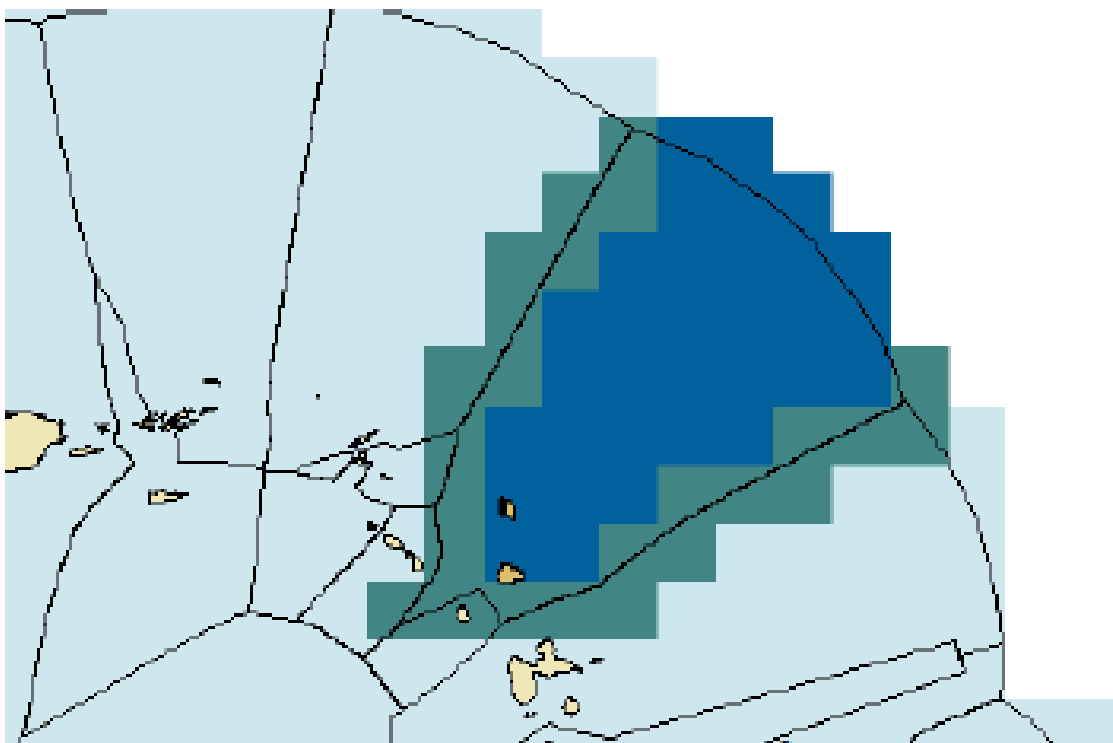


Fig. 3. Map of Antigua-Barbuda's EEZ².

1.7 Integration with Other Contingency Plans

1.7.1 This plan is a sub plan of the Antigua and Barbuda National Disaster Plan, and is supported and integrated into local, oil industry, site and port emergency plans as well as international support plans like:

- a. Regional Caribbean Island Oil Pollution Response and Cooperation Plan (CARIBBEAN ISLAND OPRC PLAN) 2009;
- b. CDEMA Regional Coordinating Mechanism; and
- c. WIOC Oil Spill Plan.

1.8 Procedures

1.8.1 The plan provides for an On-Scene Commander (OSC) who will initiate and control response activities to manage a spill and for a National Response Team to provide advice and assistance to the OSC. It establishes alerting and notification procedures, command structure, post clean-up requirements and arrangements for assuming the responsibility for the cost of operations.

1.9 Responsibility

1.9.1 The implementation and maintenance of the Plan is the responsibility of the National Office of Disaster Services. The Plan shall consist of representatives of specified government and nongovernmental agencies.

1.10 Assumptions

1.10.1 Development of this plan is based on the following assumptions:

- a. Antigua and Barbuda and its surrounding waters are vulnerable to oil spill incidents.
- b. All major oil spill incidents in Antigua and Barbuda would have a negative effect on the marine and terrestrial ecosystem and would ultimately affect the welfare of the population, the economy and tourism.
- c. The response team, if activated, will readily assist in the management and control of oil spill incidents.
- d. Designated facilities where resources are identified will be easily available and accessible to assist in the containment and cleanup of spilled materials.
- e. The Response Team will continue managing activities for control of the oil spills until directed otherwise by the On Scene Commander (OSC).

1.11 Provision for Approval, Control & Revision of the Plan

1.11.1 **Approval of the Plan:** NODS will submit for approval the plan, with such approval requiring written endorsement of the plan by all members of the National Marine Pollution

Committee. Once signed off by all the committee members, the plan will be submitted to Cabinet for approval as a sub plan of the National Disaster Plan.

1.11.2 Control of the Plan: The NMPCP will be a controlled document under the direction of the NODS. Full contact details for all holders of controlled copies of the plan are maintained on a register at the office of the NODS, in order to facilitate revisions and updating.

1.11.3 Revision of the Plan: The main body of the Plan may only be revised by agreement of all members of the National Marine Pollution Committee followed by approval by Cabinet. In the revision of the plan the following should be considered:

- a. Any member of the Committee may submit proposed revisions to the main body of the Plan. The Committee will consider these proposals. Technical information contained in informational annexes, such as contact details and equipment inventory, will be revised and updated regularly, and new informational appendices added as required, by the NODS, without the need for agreement by the Committee. Such revisions and updates will be circulated by the NODS to all registered holders of controlled copies of the plan.
- b. The accuracy of technical information contained in informational annexes, which relates to individual Committee members, is the responsibility of each Committee member. Committee members and other parties to the plan should report to NODS, any changes in circumstances, including levels of risk of marine spills, capability to manage marine spills, internal administrative arrangements and contact details, that may require revision and updating of the plan. NODS will then be responsible for circulating such updates to all registered holders of controlled copies of the plan.
- c. All personnel involved in the emergency response process should be educated and trained on a continuing basis.
- d. Exercises should be carried out on a regular basis to test the emergency plan.
- e. Independent observers must be involved and should facilitate objective reviews of any deficiency or defects in the plan.
- f. The plan should be revised following evaluation of exercises or pollution incidents.
- g. Improvements in the plan should also be enforced in response to advancing technologies and capabilities.
- h. Recording of the actions and decisions taken during an accident should be evaluated so that lessons can be learnt

1.12 Underlying Principles, Protection Priorities & Environmental Sensitivities

1.12.1 The main four underlying principles of an environmental pollution emergency plan are:

- a. **Prevention:** regulatory and physical measures to prevent incidents or mitigate the effects of the pollutant. Every effort must be made by industry and government to **prevent** spills of oil and other hazardous materials from occurring, as the highest priority.
- b. **Preparedness:** arrangements to mobilise and deploy all necessary resources and services. Despite all efforts, for various reasons, spills will continue to occur from time to time, and it is necessary to have competent contingency plans in place to deal effectively with such spills, at the local and national level. The NMPCP constitutes the national contingency plan for Antigua and Barbuda.
- c. **Response:** actions taken during and immediately after a pollution emergency to minimise effects. The response to marine spills under NMPCP will always seek to maximise cooperation, co-ordination and integration **between government and industry**, and to adopt the most **cost-effective, efficient** and **practicable** response options available.
- d. **Recovery:** arrangements to restore the affected environment to normal. The primary purpose of the plan is to provide a national mechanism for the prevention/minimisation of damage to marine and coastal environments and **resources** from marine spills, and to hasten the **recovery** of any environments and resources damaged by marine spills.

1.12.2 **Priorities:** In the event of a marine spill requiring a response to be mounted under the NMPCP, the following protection priorities should be adhered to (in order of priority accepted internationally):

- a. Human life, health and safety.
- b. Biological habitat.
- c. Rare and endangered species.
- d. Cultural resources.
- e. Commercial resources.
- f. Non-commercial property and amenity.

1.12.3 Within these protection priorities, various marine and coastal environments and resources have different environmental sensitivities, requiring further prioritization of spill response efforts.

CHAPTER 2

COUNTRY OVERVIEW/ VULNERABILITY ASSESSMENT

2.1 Geography

2.1.1 Antigua, the longest island in the Leeward Island chain, is located 17 North 61 45 West or about midway down the chain of islands forming the West Indies. Antigua is 108 square miles (280 sq km). It is some 24km long 18km wide. Its dependents Barbuda being 68 sq miles (176 sq km) and Redonda, 1/2 sq mile (1 sq km).

2.1.2 The coast is rugged and contains many bays, some of which have fine white sand beaches. Elsewhere, especially on the west coast, are small areas of mangrove swamps. The island is surrounded by coral reefs.

2.2 Climate

2.2.1 **Winds:** Antigua lies in the north-east Trade Winds belt which means prevailing wind is from the north-east, reaching greatest strength and persistence during the cooler months between December and March. Occasional strong gusts of winds reaching up to 50 mph affect the island. These are usually associated with localized low pressure cells. These strong gusts usually last less than one day but can do considerable damage particularly to agricultural assets. Highest energy wind speeds are associated with depressions that sometimes spawn Tropical Cyclones (hurricanes) which originate in the Eastern Atlantic and South-western Caribbean. June 1st to November 30th is designated by International Convention the "Hurricane Season": for the region.

2.2.2 **Temperature:** Average temperatures are 85 F (29 C) in August to September and 75 F (24 C) in January ó February.

2.2.3 **Rainfall:** Antigua is something like Barbados in being a low island with a low uncertain rainfall, the average annual total being only 1150 mm. The amount received, which varies considerably from year to year, has a considerable effect on the island's prosperity. Thus, rainfall is light, falling mainly in late summer.

2.3 Oil Spill Hazard Analysis

2.3.1 NATURE OF AN OIL SPILL INCIDENT –

Sources or causes of spills are:

- a. Risk of collision;
- b. Risk of groundings;
- c. Hazard to navigation;
- d. Records of seaworthiness of vessels (Port/State Control inspections);
- e. Negligence and competence of crews;
- f. Size/type of vessels;
- g. Type/amount of oil/chemicals carried;
- h. Traffic density;
- i. Environmental factors (weather, tides, severe weather events e.g. cyclone frequency);
- j. Environmental resources under threat;
- k. Petroleum facilities;
- l. Tank farms; and
- m. Offloading mechanisms e.g. wharf/fixed pipeline/floating pipeline.

2.3.2 TYPES OF OILS AND CHEMICALS WITHIN THE COUNTRY

[Detail the major categories of oils, fuels & chemicals, imported, exported and manufactured in Antigua and Barbuda]

2.4 Risk Assessment

2.4.1 Marine traffic, especially oil tankers, large cruise liners and cargo vessels in transit through coastal waters, present the risk of major oil pollution from collision, fire, explosion and grounding. Lesser, but nevertheless serious, pollution is caused by vessels pumping out their bilges or otherwise illegally discharging oil.

2.4.2 Pipelines, refineries, and oil handling facilities also pose a threat to both marine and inland environments. International data suggests that 80% of marine oil spills occur within port or 23arbor areas. These spills are usually small in nature resulting from normal operations such as loading/unloading and bunkering of fuels.

2.4.3 Risk scenarios resulting from shipping operations on, or in the vicinity, of Antigua and Barbuda must be identified. The NMPCP will outline a response capability, in co-operation with industry, to cover these operations.

2.4.4 Operators shall perform risk assessments for their operations to determine the type and quantity of equipment required, response measures and limitations. Based on this risk assessment they must also effectively deal with the T1 spill so that the Average Most Probable Discharge (AMPD) has minimal or no impact on the shoreline or marine mammals. Resources at risk as a result of operations must be identified and mechanisms for protection must be outlined.

2.4.5 The Caribbean Plan Chapter 11 expands on the threat throughout the Caribbean Region. The risk of spills in Antigua and Barbuda is summarized in Appendix K according to the 14

primary activities that could lead to accidental discharges. See also Appendix J for sensitive zones that would have the highest potential impacts from oil.

[Add details of risk assessment]

Add summary of risk assessment, a few paragraphs only. For risk Assessment we refer to IMO Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness 2010 Edition. The methodology to be followed by the NODS will be from that manual.

2.5 Organizations for Oil Spill Management – the Government Responsibility.

2.5.1 The management of Marine Spill issues in Antigua is vested in the National Marine Pollution Committee and Executive. Figure 1 shows the Management Framework. The appropriate government agencies from the National Marine Pollution Committee will cooperate as fully as possible to respond expeditiously to a pollution incident that affects or threaten to affect the marine environment.

2.5.2 Actions taken under the Plan shall be consistent with the statutory authorities, operational requirements and other obligations of each agency.

2.5.3 Good communications between all levels of government are vital to successful implementation of the Plan. Any pollution incident that threatens the country or the marine environment shall be promptly reported to the Coast Guard.

2.5.4 Agencies possessing equipment and other resources that may be useful in a government response to a pollution incident shall make those resources available subject to exigencies in their area.

2.6 National Marine Pollution Committee (NMPC)

2.6.1 The Antigua and Barbuda Government has a fully formulated Marine Pollution Committee consisting of representatives from:

- 1) National Office of Disaster Services (**Chair**);
- 2) Antigua and Barbuda Defence Force: Coast Guard and Land Force;
- 3) Antigua and Barbuda Department of Marine Services and Merchant Shipping (ADOMS);
- 4) Ministry of Health Consumer Affairs and Social Transformation: Public Health (Central Board of Health) and Medical Health;
- 5) Ministry of Legal Affairs/ Attorney General Chambers;
- 6) Ministry of Agriculture, Lands, Housing and the Environment: Fisheries Division and Environment Division;
- 7) Ministry of Tourism and Civil Aviation;
- 8) Ministry of Finance;
- 9) Ministry of Public Works;
- 10) Ministry of Foreign Affairs;

- 11) Meteorological Services;
- 12) Antigua Shipping Association;
- 13) Antigua Hotel and Tourism Association;
- 14) West Indies Oil Company;
- 15) Antigua & Barbuda Port Authority;
- 16) The Royal Police Force of Antigua & Barbuda;
- 17) Antigua & Barbuda Fire Service;
- 18) Antigua & Barbuda Airport Authority;
- 19) Antigua Public Utility Authority;
- 20) Marine Association;
- 21) Cruise Ship Association; and
- 22) National Solid Waste Management Authority.

2.6.2 The Committee also has an **Executive Committee** made up of the following members:

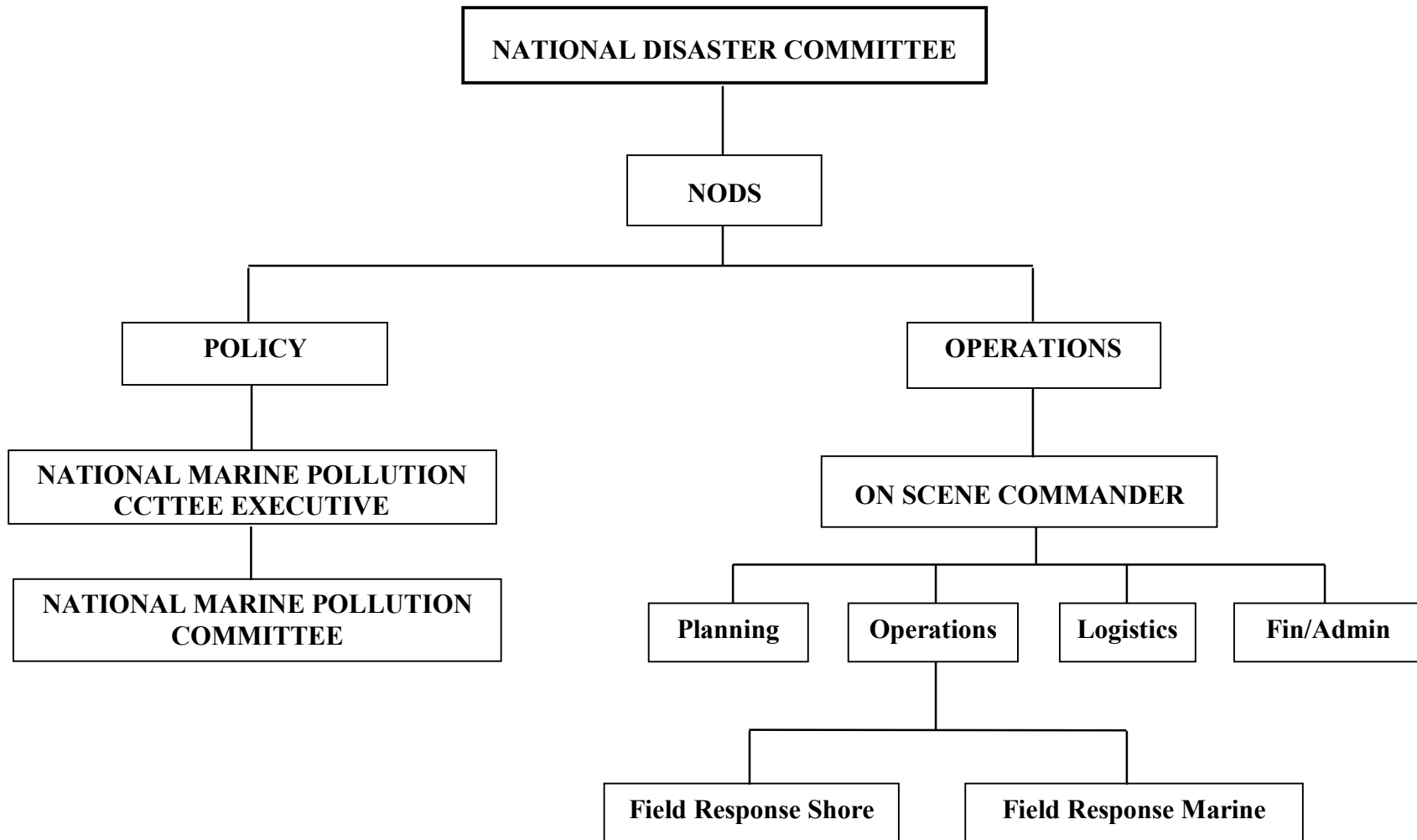
- 1) NODS (Chair);
- 2) ABDF CG;
- 3) Environment Division;
- 4) Fisheries Division;
- 5) Marine Services;
- 6) WIOC;
- 7) Ministry of Legal Affairs;
- 8) Ministry of Finance; and
- 9) Port Authority.
- 10) APUA

2.6.3 The duties of the NMPC are as follows:

- a. Develop, recommend improvements, implement and maintain the NMPCP.
- b. Oversee the response to marine spills and monitor performance and effectiveness.
- c. Review local/facility contingency plans for consistency with National arrangements.
- d. Oversee national marine spill response training and exercises.
- e. Make available those facilities or resources, that may be useful in a response situation, consistent with the agencies authority and capability.
- f. Provide advice to government on general marine pollution issues and contribute to development of policy, legislation and other initiatives relating to the prevention and response to marine pollution.
- g. Promote public awareness of, and appropriate community participation in marine pollution prevention, preparedness and response.
- h. Advise and support the OSC during pollution incidents Note: the MPC does not have operational control over the OSC.

- i.** Develop and evaluate procedures to promote a coordinated response by all participants.
- j.** Monitor reports, evaluate the likely impact of reported pollution incidents, and remain aware of OCS's actions and plans.

ANTIGUA AND BARBUDA MARINE POLLUTION MANAGEMENT FRAMEWORK



- k. Coordinate actions of local, national, bilateral and international agencies in supplying necessary support to the OSC, e.g. USCG, regional Plan.
- l. Organize other agencies (Industrial ó Scientific groups) to play their appropriate part in support action.
- m. Ensure adequate communications link throughout chain of command: Government/MPS/ IC/Field Staff.

2.6.4 When the NMPC is convened for the purpose of addressing its responsibilities under this plan, the Chairman shall be the Director of NODS and the Vice Chairman the Commanding Officer, ABDF CG.

2.7 Roles and Responsibilities – National Agencies

National Office of Disaster Services (NODS):

2.7.1 In the event of a pollution incident, the Director of NODS will be responsible for the implementation of the Plan, and is therefore designated the National Coordinator (NC) and also Chairman of the Marine Spill Response Team (MSRT). Other duties include:

1. Informing the proper authorities Nationally and regionally
2. If required activate in full or part the NEOC
3. Put appropriate resources on stand-by
4. Advise focal point members on the status of the event
5. Generate situation report for the CU and Cabinet etc.
6. In consultation with the IC keep the public and partner informed

Antigua and Barbuda Defence Force: Coast Guard (ABDF CG):

2.7.2 The ABDF CG has the responsibility for the coordination and direction of the National Pollution Control efforts at the scene of an incident in marine waters. In the event of a pollution incident, the Commanding Officer is responsible for the operational coordination to combat the incident, including arrangement for investigation and documentation, and is therefore designated the On-Scene Commander (OSC).

2.7.3 The CG will also assist in investigating incidents and provide patrol craft and On-Scene support personnel as necessary. They will also Arrest and Detain any offending vessel/personnel, if necessary.

Antigua and Barbuda Department of Marine Services and Merchant Shipping (ADOMS)

2.7.4 Under the port state control regime this agency boards and inspects ships that may be responsible for oil spill pollution incidents. They prepare reports and support disciplinary actions against the ship.

2.7.5 ADOMS represent the government during any claims in regards to civil liability caused by oil pollution. This report would be submitted to the authority in London, the Inter Oil Pollution Compensation Fund (IOPC) 1992.

The Royal Police Force of Antigua and Barbuda

2.7.6 Will provide assistance in crowd control, traffic management and other operational matters as directed by the National Coordinator.

Antigua and Barbuda Defence Force - Land Forces

2.7.7 The ABDF will provide support for cleanup as needed, in securing the scene and providing man power assistance for cleanup and other operations as necessary.

Antigua and Barbuda Fire Service

2.7.8 Provide operational support as directed by the NEOC.

Ministry of Agriculture

2.7.9 Provides general scientific support personnel, materials and advice relating to natural resources, and in particular providing analyses and criteria for establishing priority/sensitivity ratings of impacted or threatened areas.

Environment Division:

2.7.10 The ED has the responsibility for investigating the effects of pollution incidents on the environment, sampling, analyzing and monitoring. The National Damage Assessment Team along with Environment Division will also assess damage of the actual or potential impact on the surroundings and will:

- a. Recommend in conjunction with Fisheries Division, protection priorities for coastline (to be guided by environmental sensitivity maps);*
- b. Provide policies and regulations relating to the use of chemical treating agents;*
- c. Develop maps of ecologically sensitive areas for the purpose of establishing priorities for cleanup (environmental sensitivity maps);*

- d.* Provide surveillance support for monitoring of the pollutant;
- e.* Environment Division along with the Ministry of Health will recommend and arrange sites *or options* for the disposal of contaminated materials; and
- f.* Recommend cleanup methodology related to the sensitivity of the area

Fisheries Division

2.7.11 The Fisheries Division of the Ministry of Agriculture is responsible for:

- a.* The administration of fisheries laws and regulations, and monitoring of off-shore fisheries resources;
- b.* Assisting in collection of complaints, informing the fishermen on dangers and restrict fishing activities when an incident occurs;
- c.* Accepting and coordinating claims from fishermen for loss of income, fouling of nets, cleaning of hulls, engines, cost recovery and investigations for compensation; and
- d.* To assist the Environment Division in recommending protection priorities for threatened coastline.

Ministry of Health

2.7.12 This Ministry has general responsibility for the public health. It advises the OSC concerning health matters including the danger posed by toxic substances and designates suitable disposal sites and agrees on acceptable methods of disposal of oil waste, residues, and debris.

2.7.13 The Ministry of Health has the responsibility for:

- a.* Monitoring the environmental health implications of a spill incident including regulating of waste discharge on land and sea;
- b.* The ministry is mandated to carry out monitoring and assessment with regards to control of portable water quality, and will advise on the impact of the pollutant on local water users;
- c.* Use of chemical dispersants;
- d.* Hazardous material disposal, including any other environmental matters that pertain to its area of competence; and

- e. Identify appropriate locations for disposal of oily wastes.

Ministry of Finance

2.7.14 The Ministry of Finance provides the initial cost for clean-up and recovery.

2.7.15 Receive information on clean-up costs etc. and assists in the preparation of claims.

Negotiate with any involved vessel and cargo owner's insurers and other bodies regarding compensation and indemnity.

Ministry of Foreign Affairs

2.7.16 The Ministry of Foreign Affairs provides procedures for advising and instructing other government agencies in the speedy release of equipment and other aid-material from overseas donors. This includes facilitating fast communication with overseas aid-donors through our Embassies abroad.

District Disaster Committee

2.7.17 Coordinate beach cleanup efforts and assist OSC as needed in their District.

Ministry of Public Works

2.7.18 Provides heavy equipment and labour for shorelines clean-up and transporting recovered oily debris to disposal sites. The Ministry will fulfil special needs related to its aviation and communications responsibilities.

Port Authority

2.7.19 The Port Authority has the responsibility for the operations of all Ports and Harbours in Antigua and Barbuda. This includes:

- a. Marine law enforcement;
- b. The control of vessels entering and leaving Antigua and Barbuda's Ports within Pilotage limits;
- c. Investigation of marine accidents and navigational aids;

- d. The Harbour Master will report on all incidents involving oil spills or other hazardous substance from vessels in ports and harbours;
- e. Provide advice and information on dredging operations;
- f. The authority will make vessels/equipment available on request when needed;
- g. He will also provide information on vessel stability etc.

2.7.20 The Port Authority will assist operations by providing appropriate government marine equipment including cargo handling facilities and equipment and tugs and workboats.

Civil Aviation

2.7.21 Liaise with airlines and other operators; Reports sighting and other operators; organize surveillance missions to monitor to progress of Response and the behaviour of the spill. Provide logistical support in the event that spraying of Dispersant, etc; by use of aircraft is required.

Customs Department/Immigration Department

2.7.22 Expedite the due entry of equipment and personnel required for the Response and to deny outward clearance to any vessel involved in a pollution incident.

Attorney General Chambers/ Ministry of Legal Affairs

2.7.23 Supervise legal aspect of the pollution incident including:

- a. Ensure the necessary evidence collected by the coast guard and other agencies is supervised, and properly documented for obtaining reimbursements of response costs, other damages and undertaking further prosecution;
- b. Provide advice on the correlation between laws; (national and international) and the plan, so as to keep the Plan up-to-date and enhance its legal foundation;
- c. Negotiate with other legal entity to establish the best approach for the specific situation; and
- d. Provide advice to victims of pollution damage.

2.7.24 The Attorney General's Department has the responsibility for the coordination of legal action in a pollution incident, and will:

- a. Provide legal counsel to the NC and the OSC on operational matters;
- b. Ensure that necessary evidence is properly documented to protect the operations liability and/or initiate further prosecution action if required;
- c. Liaise with the legal representatives of the polluter regarding compensation and indemnity;
- d. Provide advice on International Laws and Conventions as they affect the Plan;
- e. Provide advice to victims of pollution damage;
- f. Restrain any offending vessels within Antigua and Barbuda's territorial waters if necessary.

Ministry of Tourism

2.7.25 Acts as liaison between the National Response Organization and the owners of resorts and touristic facilities impacted by marine pollution incident. The tourism Ministry will:

- a. Coordinate information submitted to the Antigua and Barbuda Tourist Board, other tourist related organizations;
- b. Prepare and release information to various interest groups, both locally and overseas; and
- c. Provide information on claims resulting from the incident.

Meteorological Office

2.7.26 This office provides weather updates, current and tide information, wind direction, assist in the analysis of drift under prevailing and future conditions.

West Indies Oil Company/ Private Suppliers

2.7.27 Provide technical advice, logistical support and facilities for temporary storage of any recovered oil, sludge, residue, and debris. They may be requested to put in place anti-pollution equipment, dispersants, as well as containment and cleanup equipment. All companies that import and or store oil in whatever quantity or form, in Antigua and Barbuda, have the following roles and responsibilities under the NMPCP requested to put in place, special antipollution equipment, dispersants etc.:

- a. Giving highest priorities to preventing spills from tankers, pipelines, terminals, depots and other facilities owned and/or operated by them;

- b. Immediately reporting all marine spills from their facilities to the Responsible Authority or Lead Agency;
- c. Developing and maintaining local marine spill contingency plans for all facilities that they own;
- d. Manage and/or operate as well as ensuring that these plans are compatible and integrated with the NMPCP;
- e. Establishing and maintaining stockpiles of marine spill response equipment for all facilities that own, manage and/or operate, with the types and amounts of equipment being appropriate to the level of risk at each facility;
- f. Ensuring that personnel are appropriately trained in marine spill prevention and response in the event of a spill from its facilities.
- g. Actively participating in the National Marine Pollution Committee and in planning, exercises and training activities.

2.8 Responsible Party/ Polluter

2.8.1 The preferable course of action is for the responsible Party/Polluter to undertake all necessary actions and expenditures and in any way event be held liable for all costs and damages arising from or connected with the spill. The party responsible for causing the spill has the following responsibilities:

- a. Reporting the spill immediately to the Responsible Authority /Lead Agency;
- b. Taking immediate action to control or stem the source of the spill;
- c. Taking immediate action to contain the spill and prevent it from spreading; and
- d. Co-operating fully with the Lead Agency in the response to the spill under the direction of the Incident Controller (IC).

2.9 Role of P&I Clubs

2.9.1 Approximately 90% of the world's shipping fleet is entered with a Protection and Indemnity Insurer, called a P&I Club. The risks covered by the P&I Clubs include:

- a. Liability arising from the carriage of cargo;
- b. Pollution liability;

- c. Liability for loss of life and injury to crew members, passengers and others such as stevedores on a ship;
- d. Damage to fixed and floating objects and to other property; and
- e. Wreck removal and other such parts of the liability for collision damage as is not covered under a vessel's hull policy.

2.9.2 When an incident occurs a P&I Club usually appoints a correspondent to assist the P&I Club in relation to claims that arise where the correspondent operates. The role of the correspondent in marine pollution incidents involving vessels includes but not limited to:

- a. Notifying the P&I Club of incidents that occur in his area of responsibility;
- b. To attend an incident scene if appropriate;
- c. To appoint surveyors/experts to attend at the scene of a maritime casualty;
- d. To liaise with governments, maritime authorities at the scene of a maritime casualty;
- e. To monitor salvage operations, pollution containment/removal at the scene of the casualty;
- f. To assist in posting security for claims; and
- g. To assist in carrying out investigations on cause of loss of vessel/cargo

2.9.3 The IC should ensure that the P&I Club and/or P&I Correspondent are fully informed of the activities being undertaken during the incident response and that they have access to running records of costs of the incident. The correspondent would also be working closely with the Salvors and ship's master and will be a valuable conduit for information flow.

CHAPTER 3

OPERATIONAL ELEMENTS

3.1 RESPONSE COORDINATION (Operations)

Oil Spill Preparedness

3.1.1 There are certain fundamental elements which together constitute oil spill preparedness. These elements are as follows:

- a. **Legislation and Regulations:** The Government of Antigua and Barbuda has the following legislation and regulations in place to deal with the issue of oil spills: **Legal Department to provide the information merchant shipping act and oil pollution act of maritime areas to be included**
- b. **Contingency Planning:** The government started the process and the development of this plan is as a result. Ongoing data gathering, risk assessments and environmental sensitivity mapping are being done to enhance and update the current plan.
- c. **Response Equipment and Supporting Resources:** Response equipment is held by WIOC and other agencies as listed in the Annex. This equipment is backed up by the human resources available from several agencies, both private and public sector.
- d. **National Oil Spill Response Centers:** The National Oil Spill Response Centers are designated sites where equipment is available to provide the necessary requirements to fulfill the provisions of the Plan (see Annex G). During an incident the Response Centers would be established as designated facilities. Alternative sites closer to the scene of the incident may be specified instead of the designated sites at the discretion of the NC/OSC. The National Oil Spill Response Centers are located at:
 - (1) ABDF Coast Guard Base English Harbour;
 - (2) ABDF Camp Blizzard, Coolidge; and
 - (3) Barbuda

Oil Spill Mitigation

3.1.2 Oil Spill Mitigation measures are those aimed at reducing the impact and extent of a spill. Some recommended actions are:

- a. Incident Assessment;
- b. Mobilization of Resources;
- c. Incident Management;

- d. Strategy and Techniques;
- e. Containment and Recovery;
- f. Dispersants;
- g. In Situ Burning;
- h. Monitor and Evaluate;
- i. Shoreline Protection and Clean Up;
- j. Waste Management; and
- k. Post Spill Assessment.

Oil Spill Response

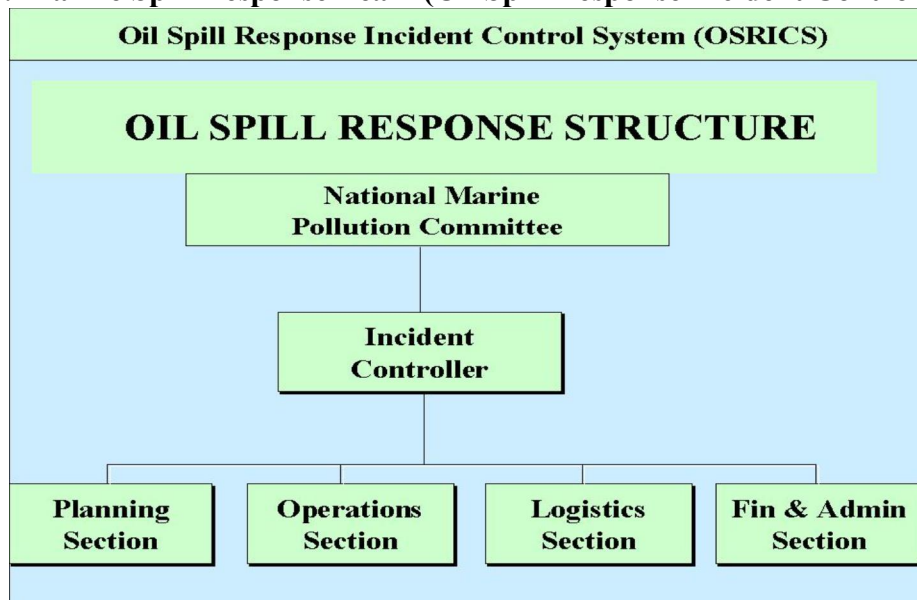
3.1.3 Incident Command & Control - Elements of Effective Control of Spill Response:

In Antigua and Barbuda, spill response will be executed using the Incident Command System (ICS). Therefore, the Oil Spill Response ICS (OSRICS) system will be adopted. Establishing effective control and initiating a spill response requires a number of actions. These include:

- a. OSC activates Procedures;
- b. Mobilizing the Marine Spill Response Team (MSRT);
- c. Establishing a suitable incident control centre;
- d. Establishment of effective communications;
- e. Effective collation, transfer, display and storage of information;
- f. Effective management of public and community relations (media and consultative processes).

3.1.4 Incident Control System and Marine Spill Response Team: Response operations cannot be effectively carried out unless there is a clear organizational structure to command and control both the response activities as well as the trained individuals to carry out the response plans. The overall structure of incident command and control system is depicted in **Figure Two**. In the event of a marine spill within Antigua waters, the On Scene Commander, who has responsibility for operational issues, will activate the OSRICS, as seen in Figure Two below.

Figure Two: Marine Spill Response Team (Oil Spill Response Incident Control System)



3.1.5 The number and nature of the individual sections and units should be flexible and tailored to suit the size and nature of the spill. Several functions may be combined under a single coordinator for small spills. The OSC directs response efforts and co-ordinates all efforts at the scene and is the primary decision-making authority in relation to spill response activities.

The Incident Command System

3.1.6 The ICS allows flexibility for the escalation or reduction in the organizational/management structure as the scale of the response increases or diminishes. The number of personnel comprising each of the sections, and its sub units, will be determined by both the size of the incident and the needs of the Incident Controller ie the On Scene Commander.

3.1.7 **Incident Controller (IC):** The commanding officer of the ABDF CG is designated as the IC for all marine spills within Antigua and Barbuda waters. Under this plan, the incident controller is the On Scene Commander. In the event of a marine spill, the IC will assume operational responsibility for commanding the response to the spill and will control and direct the use of all resources. **The national government invests through NEOC the IC with the authority necessary to command all national assets and resources as deemed necessary to deal with the incident (need legislative backing for this) the disaster legislation??**

3.1.8 **The responsibilities** of the various sections within the ICS can be summarised as follows:

3.1.8.1 **Planning Section:** The Planning Section has clearly defined specific responsibilities that provide the basis for all operational activities. The Planning Section

may be split into a number of sub units in a major incident to enable it to more effectively meet its responsibilities. The sub units identified and their roles are as follows:-

- a) Situation Unit ó responsible for the collection, processing and organization of information.
- b) Resource Unit ó responsible for information on the deployment of resources.
- c) Environment Unit ó responsible for the collection and collation of environment data and advice.
- d) Consultation Unit ó responsible for the coordination and development of community and commercial consultation.
- e) Response Planning Unit ó responsible for the coordination, development and review of incident action planning.

3.1.8.2 Operations Section: The operational aspects of the response will take place in the field, remote from the Incident Command Centre where the planning process has taken place. It is, therefore, essential that significant links are developed and maintained between the response personnel in the field, the Operations and Planning Section staff in the Incident Command Centre. ICS provides for these links to be established by the development of reporting lines on a similar basis to those implemented within the other functional sections. Operations in the field have been subdivided into units with responsibility for specific aspects of the response activities. These units have been developed with quite clear operational parameters. The six units, each under the direction and control of a Coordinator who is responsible to the Operations Officer, cover the following operations: -

- a) Marine Unit ó all activities undertaken by waterborne craft and equipment.
- b) Aviation Unit ó all activities undertaken utilizing fixed wing aircraft or helicopters.
- c) Shoreline Unit ó all clean-up activities undertaken on the shoreline.
- d) Wildlife Unit ó all activities involved in the collection and treatment of oiled wildlife.
- e) OH&S Unit ó all activities related to the implementation of the Occupational Health & Safety Plan provisions.
- f) Waste Management Unit ó all activities related to the containment and disposal of recovered oil and oil debris.

3.1.8.3 Logistics Section: In any emergency situation there is a vital need to ensure that response personnel are provided with adequate resources to enable an effective response to be mounted and that these personnel are provided with the essential amenities. To

carry out these functions, there has been identified a Logistics Section that is given responsibilities for ensuring that these resources are made available as required.

3.1.8.4 The Section is under the direction of a Section Officer and, in cases where the subunits are formed, each sub unit is under the direction of a Coordinator who reports to the Section Officer.

- a) Procurement Unit ó responsible for acquisition of personnel and equipment.
- b) Services Unit ó responsible for the acquisition of services and facilities.
- c) Transport Unit ó responsible for the provision of aviation, land and sea transport services.
- d) Communications Unit ó responsible for the provision of communications services and support.
- e) Medical Unit ó responsible for the provision of medical services.
- f) Staging Area Unit ó responsible for the activation and management of assembly and staging areas.

3.1.8.5 **Administration and Finance** A vital component of any incident response is the need to ensure that fully detailed records are maintained to enable full cost recovery to be achieved from the polluter. These records will be kept through a Finance & Administration section. In addition, the Finance & Administration section is responsible for the management of the Incident Command Centre.

- a) Administration Unit ó responsible for administrative services.
- b) Finance Unit ó responsible for the provision of financial services.
- c) Records Unit ó responsible for the collation of incident records.
- d) ICC Management Unit ó responsible for the management of the Incident Control Centre.
- e) The Section is under the direction of a Section Officer and, in cases where the subunits are formed, each sub unit is under the direction of a Coordinator who reports to the Section Officer.

3.2 RESPONSE ACTIONS & OPERATIONS

3.2.1 The ecological impact of a oil, fuel, chemical or hazardous substance spill can be minimized by good management and planning as well as the response actions put into effect by the NODS and the ABDF CG. Such actions will largely depend on several factors;

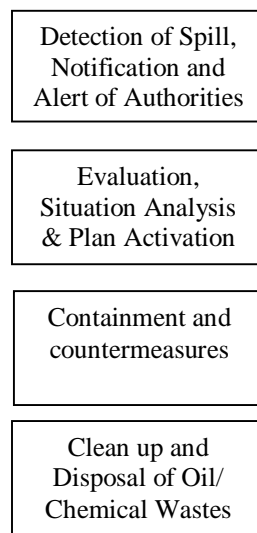
- a) The type of oil, fuel or chemical(s) involved;
- b) The size of the spill;
- c) The location of the spill;
- d) Prevailing sea and weather conditions at the spill site;
- e) The environmental sensitivity of the coastline/site impacted.

3.2.2 In commanding the response to the spill, the OSC should ensure that defensive actions should begin as soon as possible to prevent, minimize or mitigate the threat to the environment or public health from the pollution. To ensure that these actions are taken, the OSC should delegate relevant tasks to the Marine Spill Response Team (MSRT). To assist in this process a Spill Response Action Checklist at the front of the NMPCP summarizes this sequence. Depending on the nature of the spill, some of the actions listed below may not be applicable or may be carried out in parallel rather than in sequence, as determined by the OSC.

3.3 Phases of a Response

3.3.1 There are five main phases to the overall process of responding to oil or hazardous chemical spills which can be summarized as follows in Figure Three.

Figure Three: Five Phases - Response to Marine Spills



PHASE I – DETECTION OF SPILL, NOTIFICATION AND ALERT OF AUTHORITIES

3.3.2 The discovery of a pollution incident may be made through normal surveillance activities, through observations from a ship, aircraft, fishermen, government agencies, by those who caused the incident or by the alertness and concern of the general public.

3.3.3 Such reports are to be sent immediately to the ABDFCG (marine), NODS, or the E911 or ABDF Ops Room to determine the level of response required and whether or not there is a need to **activate** (invoke) the plan. Information details of reports required and radio communications details are set out in Annex XX

3.3.4 Early notification is critical to both ensuring that the discharger is held financially responsible and enabling response actions to be undertaken. An oil spill is usually discovered by casual observation by government personnel or the public, a monitoring or surveillance program, a report made by the spiller. The agency receiving the report shall obtain the:

- a) Name and telephone number of the reporting source
- b) Exact location and time of spill
- c) Estimated amount and type of pollutant
- d) Source of pollutant
- e) Action being taken to control pollution
- f) Wind speed and direction
- g) Current speed and direction (as available)

3.3.5 The receiving agency shall immediately relay this information to the Coast Guard, telephone No. 462-3206

PHASE II – EVALUATION, SITUATION ANALYSIS & PLAN ACTIVATION

3.3.6 Upon receiving a report, the Coast Guard shall record the information in a Pollution Log Book and investigate so as to confirm its validity and to evaluate the:

- a) magnitude and severity of the spill;
- b) potential impacts of the spill including hazards to life or property;
- c) available response time; and
- d) resource requirements and adequacy

3.3.7 The magnitude and severity of the spill will be determined by the OSC utilizing the following tier system and guidance (*1 barrel = 55 US gals/ 42 imperial gallons*):

- a) **Tier One:** Small spills that are within the response capability and resources of an individual port or oil terminal within Antigua and Barbuda. These spills would

normally have low potential for environmental or economic harm and are usually covered by oil terminal or port specific response arrangements.

*As a guide spills of this nature are in the range of less than 10,000Litres. **0-100 barrels***

- b) Tier Two:** Medium spills that are within the national capability and resources of Antigua and Barbuda. These spills would have a moderate potential for environmental and/or economic harm and are covered by this NATPLAN.

*As a guide spills of this nature are in the range of 10,000-100,000Litres **100-70,000 barrels***

- c) Tier Three:** Major spills that are of a magnitude and/or severity that is beyond the response capability and resources of Antigua and Barbuda, and/or; that impacts or threatens to impact within the jurisdiction of both Antigua and Barbuda and neighbouring country (ies); and the spill has the potential to cause extensive local or regional environmental damage and loss of resources.

*As a guide spills of this nature are greater than 100,000Litres. **In excess of 70,000 barrels***

3.3.8 It should be noted that set quantities and sizes of spills have intentionally not been used in the definition of Tiers. This is because in some instances a relatively small spill of oils and hazardous chemicals may fit the Tier Two or even Tier Three category, depending on the response capabilities and resources available, the prevailing conditions at the time of the spill and the types of environments impacted or threatened.

3.3.9 Allocation of any one spill to a particular Tier can only be done at the time of the spill, according to an assessment by the Lead Agency. Because in reality spills do not fall into convenient categories, the boundaries between Tiers will inevitably be blurred. The Lead Agency must therefore be prepared to involve the next highest Tier from the earliest moments, as it is easier to stand down an alerted system than to escalate a response by calling up unprepared reserves.

3.3.10 If the Police receive a report of a spill, they shall notify the OSC. Based on his assessment, the OSC shall notify members of the Marine Spill Response Team as appropriate. The OSC and the Chairman of the NMPC shall, determine whether the situation would warrant convening a meeting of the Subcommittee. If warranted by the results of his investigations, the OSC shall implement the plan, marshalling appropriate officials and resources and undertaking the activities within the Response Phases.

3.3.11 If the OSC determines that National resources would not be adequate to remedy the situation, the OSC shall consult the NMPC and obtain authorization to implement the OPRC Sub-Regional Oil Pollution Contingency Plan or obtain other outside help through the NDC. The OSC shall record all steps and decisions taken collectively or by himself. In addition, the following actions shall be taken speedily and concurrently:

- a) Secure the Spill source. For example, isolate a ruptured tank or close a valve in a discharging pipeline.
- b) Identified the spilled product. Know what product was spilled and take precautions against explosive or toxic properties.
- c) Determine spill size and predict spill movement.
- d) Determine local wave, tide, current, and wind conditions. Oil movement is a function of both the velocity of the local direction (movement is same as current velocity) and direction (movement is about three percent of the wind velocity). Obtain constant field reports in order to enable effective positioning of resources.

3.3.12 **Spill Surveillance and Forecasting** It is vital that the likely movement of the spill is assessed, in order to identify possible impact areas and determine the most operate response options. There are three main ways a spill trajectory can be determined;

- a) Direct observation (surveillance),
- b) Manual calculation using currents & winds,
- c) Computer modelling.
- d) Visual observation of any spill is essential and the OSC, through his support personnel, should arrange for charter, military or commercial aircraft to assess and monitor the movement of the spill.

3.3.13 Meteorological and hydro graphic data should be obtained by the OSC, through his support personnel, and analysed to obtain predictions of expected spill movement. Local knowledge from people such as fishermen and mariners should be used as a valuable source of expertise on likely spill movement. It is essential that the results of such observations and predictions be transmitted to other parties likely to be affected by the spill (e.g. neighbouring islands). In some areas, sophisticated spill trajectory prediction systems may be available, such as computer models.

3.3.14 **Spill Assessment & Reporting:** Once attempts have been made to stem the flow of oil (or other pollutant), the nature, size, extent, severity and likely movement of the spill should be assessed, and a POLREP completed and transmitted urgently to all members of the National Marine Pollution Committee, other affected/interested parties.

3.3.15 The OSC is responsible for the assessment of the spill to attempt to classify it as Tier One, Two or Three, and determine whether or not external assistance is required. The assessment of Tier levels may change over time and should be periodically reviewed during the spill.

3.3.16 **The Marine Spill Response Field Team (MSRFT):** The Spill Response Field team will be made up of the Field Response Marine and the Field Response Shore Teams. The teams shall

consist of representatives of the agencies from the National Marine Pollution Committee. They will function as advisory teams and cleanup crews and will be activated by the OSC in the event of a pollution incident in accordance with the Plan and its annexes.

3.3.17 The designated OSC is the Commanding Officer ABDF CG for marine incidents; The OSC is responsible for the coordination and control of all operational action leading to the mitigation of the effects on the environment of a pollution incident. He/She shall establish prioritized areas for protection. The OSC team shall consist of representatives from the following agencies. The OSC is made up of two teams the **Command Team** and the **Field Operations Teams**.

3.3.18 The OSC will determine which agencies make up the teams at the appointed time. The OSRICS system as described earlier will be that used by the OSC. The Command team will be a direct support to the OSC. The Field Operation Teams will be the Shore and Marine teams as discussed earlier. They will be a part of the Operations Section under the OSRICS system. There is a more detailed breakdown of each section and they will be staffed according to the magnitude and extent of the spill and the response needed.

3.3.19 **Functions of OSC**

- a) Assess situations ó determine all pertinent facts: the nature, amount, location, probable direction, time of travel of the material, resources available/needed and the areas that may be affected.
- b) Initiate and direct operations e.g. establish clean-up priorities ó monitor ó control of expenditure.
- c) Obtain appropriate authority to call upon, and direct deployment, countermeasures, clean-up, and disposal fun Maintain current and accurate flow of information to the NRT as required.
- d) Participate in operational reviews with a view to improve procedures.
- e) Prepare and maintain plans for operational readiness.

NOTE: In the event of a pollution incident, the arrival of the first official at the site from an agency with responsibility under this plan shall assume coordination of activities under the Plan until the designated OSC becomes available to take charge of the operation.

3.3.20 **POLLUTER PAYS PRINCIPLE** The Polluter is responsible for immediately reporting and initiating all steps necessary to mitigate the effects of the spill on the environment and for providing necessary information to the OSC with regards to the incident.

3.3.21 If in the opinion of the OSC the clean-up operations are inadequate for the size and scope of the spill, the OSC will assume responsibility for the cleanup. This action does not remove the financial liability from the polluter nor does it preclude his/her involvement in subsequent

mitigation and clean-up operations. The OSC should ascertain the polluters' intentions with respect to active involvement in the operations as soon as possible following any spill. Where the OSC assumes responsibility for the clean-up operations, this action is to be notified to the polluter by way of a **Notice of Assumption of Responsibility**. (See Annex D).

3.3.22 Contamination of Neighbouring State If it is determined by the IC that the pollution incident will affect Antigua and Barbuda coastal waters and sensitive areas or a neighboring state, he/she shall make an immediate report using the communication procedures in Appendix D **CARIBPOLPREP FORMAT**. Under this format the following spill size classification will be used:

- **Minor:** A discharge of less than 10,000 gallons
- **Medium:** A discharge of 10,000 ó 100,000 gallons
- **Major:** A discharge of more than 100,000 gallons or discharges, regardless of size that:
 - ✓ Occur in or endanger critical areas
 - ✓ Substantially threaten public health or welfare
 - ✓ Generate wide public attention

PHASE III – CONTAINMENT AND COUNTERMEASURES

3.3.23 Containment is any measure, whether physical or chemical which is taken to control or restrict the spread of a pollutant. Countermeasures to enforce those activities, other than containment would be implemented to reduce the impact and the effect of a pollutant on the welfare of the public. The employment of Chemical Dispersants/Oil Herders is subject to Appendix. XXX See Resource List (Annexes). Decisions as to priority of protection and containment of facilities and coastline will be aided/guided by the Environment Division, Fisheries Division and coastal sensitivity maps.

3.3.24 Isolate the spill area to protect life and health. As soon as possible after the spill is discovered, initiate actions to restrict the spreading of the oil and to stop the discharge at its source.

3.3.25 Stopping the source of spill might entail simple valve realignment or extensive salvage operations. Use booms or other physical or adsorbent barriers, or chemical dispersants to prevent the spill from impacting sensitive or beneficial areas such as water supply intakes, heavily used beaches, resorts, or productive biologic areas. Where possible, deploy booms in such a way that skimmers can be located where the oil gathers. Dispersants shall not be used except as authorized by the OSC with the concurrence of the officials charged with health/sensitive area responsibilities.

PHASE IV – CLEANUP AND DISPOSAL OF OIL/ CHEMICAL WASTES

3.3.26 Lead agencies: Coast Guard (sea) Solid Waste Management Authority and Public Works (land/ beach clean-up)

3.3.27 This phase consists of those actions taken to mitigate damage by recovering spilled oil and disposing oil debris in an environmentally acceptable manner. While the following descriptions will aid in choosing the more suitable methods, it is important to apply knowledge of experienced personnel and the information in field manuals to the situation at hand.

3.3.28 Recovering oil for reuse. Where feasible choose clean-up methods that will recover spilled oil for reuse. Such recovery generally requires the use of vacuum equipment or oil skimmers, either shore-based or floating, as the situation requires. This method of choice is most feasible when oil can be concentrated in either natural collection points or by using containment booms. Large amount of oil can be rapidly recovered with minimal labour cost when compared to the clean-up of an oiled shoreline which would also entail the removal of oily sand and debris

3.3.29 Material recovered by means of vacuum units shall, wherever possible, be returned directly to permanent or temporary storage tank. Under no circumstances will oil/water mixtures be discarded at a land fill dump without first exhausting all other disposal alternatives. As oil is recovered from the spill area, transfer it to a tank or container where oil/water separation is initiated by techniques such as gravity separation and centrifuging. The remaining oil may then be transported for recycling.

3.3.30 Removing non-reusable oil. Where the previously described methods are not feasible, consider:

- a) Evaporation ó Light, non-persistent oils such as gasoline and JP-4 tend to evaporate more rapidly than removal operations can be undertaken. Furthermore, removal of such volatile products such as gasoline would be excessively hazardous in many situations.
- b) Physical removal--Use heavy equipment or manual labour is often the only available method for removing oily debris or on a shoreline. Sorbent materials such as polyester shaving or readily available natural materials such as straw may facilitate subsequent manual or mechanical removal.
- c) Biodegradation ó Certain chemicals and biologic additives may foster the biodegradation of oil, however, this method is not common and should not be used without serious deliberations.
- d) Burningô an option worthy of high consideration when: other options are inadequate; the losses to the fire are acceptable; and the fire can be maintained.
- e) Chemical dispersing--Most suitable where it is the only option for protecting a resource. Do not use if the oil will not impact a resources that requires protection. The operation requires major logistical support and unique equipment. Availability of dispersants that are most effective for the situation at hand and knowledgeable personnel is critical.

- f) Disposal. Oily waste or debris from which the oil cannot be extracted and recycled must be properly disposed of practical uses such as road construction/repair shall be considered. Dispose of unusable materials at land fill dumps in a manner approved by Ministry of Health.

3.3.31 **Clean-up Priorities** Generally deploy resources to protect and clean-up the highest priority areas such as: unique and vulnerable natural areas, industrial or drinking intakes, and economically important tourist and recreation facilities.

3.3.32 The above notwithstanding, give high priority to areas that can be most rapidly and efficiently cleaned such a readily accessible area with high volumes of floating oil that may contaminate other areas of higher ecologic or economic value.

3.3.33 **Degree of Cleanliness** Redeploy clean-up resources to where they are most effective. In general shift clean-up resources to other contaminated areas when:

- a) Excessive effort is needed to remove remaining oil.
- b) The clean-up operation causes more damage than would the remaining oil.
- c) Surveillance reveals areas having higher clean-up priorities.

3.3.34 **Stabilizing Spill Source & Intervention at Sea** The second priority action is to attempt to stop the flow of oil (or other pollutant in the case of spills other than oil), in order to minimize the potential size, extent and severity of the spill. All efforts must be focused on saving a vessel so that the problem is not compounded. Stabilizing the situation includes securing the source of the spill and/or removing the remaining oil from the vessel, tank or pipeline to prevent additional pollutant entering the sea.

3.3.35 With accession to the *United Nations Convention on the Law of the Sea (UNCLOS)*, Antigua's jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits Antigua Barbuda to intervene on the high seas against the wishes of the ship and cargo interests. This is only to the extent necessary to prevent, mitigate or eliminate grave and imminent danger to the coastline or related interests from pollution or threat of pollution of the sea, following a maritime casualty, which may be reasonably expected to result in major harmful consequences. The measures taken must be proportionate to the damage, whether actual or threatened, and must not go beyond what is reasonably necessary to achieve the ends of protection and must cease when those ends have been achieved. Such measures may include:

- a) Move the ship or part of the ship to another place;
- b) Remove cargo from the ship;
- c) Salvage the ship, part of the ship or any of the ship's cargo;

- d) Sink or destroy the ship or any part of the ship;
- e) Sink, destroy or discharge into the sea any of the ship's cargo, or
- f) Take over control of the ship or any part of the ship.

PHASE V – DOCUMENTATION AND COST RECOVERY

3.3.36 It is imperative to undertake actions that result in the discharger incurring the costs if a spill which can range from product loss, clean-up measures, and restoration to the costs associated with interrupted use of navigational channels and loss of business at resort facilities. The OSC to Maintain properly documented logs in order to successfully evaluate the pollution incidents. The logs will serve to substantiate for any claims to be made by government for reimbursement arising from expenditures incurred from assessment, containment, disposal, and rehabilitation to environment.

3.3.37 **Documentation:** The OSC shall document major actions and costs associated with an oil spill including:

- a) The initial incident report: Spill description, areas and degree of impact.
- b) Conference held.
- c) Decisions arrived at and implemented.
- d) Groups contacted, employed or used for what purpose.
- e) Chronological log/ Hours worked ó all government funded personnel.
- f) Wages and materials costs of government resources/(clean-up expenditures).
- g) Time of and nature of major events.
- h) Polluter's report; investigative report; post incident report.

3.3.38 **Cost Recovery:** The strategy guidelines to be worked out and established by the NMPC committee.

3.4 External Assistance

3.4.1 The Coast Guard will be the agency assigned to conduct the initial assessment. Should NODS or the CG assess a spill to be a Tier Three spill, it will activate a Request for Assistance

through CDEMA, in accordance with the procedures laid down in the regional plan or with REMPETIC thru the OPRC Plan and in conjunction with the various protocols.

3.4.2 When requesting assistance, as much information as possible about the nature of the spill should be provided and the request should be as specific as possible about the type of assistance required.

3.5 Pollution Reports and Communication

Surveillance and Spill Detection

3.5.1 All maritime oil and chemical spills shall be reported to the Responsible Authority through the ABDF coast guard and recorded systematically. Vessel incidents such as groundings, collisions, fires, explosions or other accidents or incidents should also be reported as these can often lead to the release of cargoes or vessel fuels and oils. (All spills over five (5) gallons.)

3.5.2 Under the *International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)* there is an obligation on the master of a vessel to report any marine pollution incidents without delay, and to the fullest extent possible, to the coastal State in order to facilitate necessary counter-pollution actions. Mandatory reporting requirements for incidents involving harmful substances are contained in article 8 and Protocol 1 to MARPOL 73/78. All personnel in industry, government agencies, members of the general public, as well as crews of civil and military aircraft, should be required to, and be able to, report a spill to the Responsible Authority or Lead Agency 24 hours a day.

Initial Pollution Reports (CARIBPOLREPS)

3.5.3 Recognizing the importance of rapid dissemination of information in the event of a marine spill, any ship's master or crew, aircraft crew, oil company employee, port personnel or any other person observing a marine spill should immediately report the spill to the ABDF Coast Guard. It is essential that the 24-hour hotline numbers be maintained to provide a focal point to government, industry and the general public.

24-Hour Emergency Hotline for Antigua and Barbuda:

- ABDF Coast Guard: 462-3206
- NODS: 464-8456 primary
- NODS 464-8457 secondary
- ABDF: 462-1458
- All contact information to be moved to an annex for attachment

3.5.4 The ABDF CG in consultation with the NODS will assess the implications of the situation and make a decision on whether any response is likely to be required. The ABDF CG

should also consider whether other parties need to be made aware of a potential pollution situation if operational personnel need to be placed on standby.

3.5.5 The ABDF CG should immediately complete a POLREP, using the standard format contained in Appendix Two, and urgently transmit this to all members of the National Marine Pollution Committee, any other affected/interested parties.

Situation Reports (SITREPS)

3.5.6 In order to provide periodic updates on pollution incidents, the ABDF CG will complete SITREPs, using the standard format contained in Appendix Three. These SITREPs should be frequently compiled from field information and transmitted to all members of the National Marine Pollution Committee, any other affected/interested parties and to SPREP via facsimile, at regular intervals throughout the spill.

Post Incident Reports (POSTREPS)

3.5.7 After a pollution incident, the Lead Agency should prepare a brief report including:

- a) Assessment of the response operation, including reference to equipment used, its effectiveness, additional equipment, and training needs.
- b) Documentation of clean-up costs.
- c) Assessment of environmental and economic damage.
- d) Details of problems encountered.
- e) Recommendations regarding amendment or revision of NMPCP.

3.5.8 When the ABDF CG has compiled this report, the Incident Controller and other personnel should meet with the National Marine Pollution Committee to review their collective experiences and compile an overall Post-Incident Report (POSTREP), including if necessary, any recommendations for amending or revising NMPCP.

Media and Public Reporting

3.5.9 When an incident occurs it is imperative to give the public prompt, accurate information on the nature of the incident and actions underway to mitigate the damage. Media and community

relations personnel should ensure that all appropriate public and private interests be kept informed and their concerns are considered throughout a response. (See Annex 9 Media Plan)

3.6 Other Emergency Information Sources

- a) Technical Assistance and Industrial Response teams
 - b) UWI
 - c) Chemical companies
 - d) Publications: IMO Oil Pollution Manuals
 - e) Hazmat emergency response guidebook
 - f) Emergency handling of hazardous materials
 - g) Government chemist
- REMPETEC ?

CHAPTER 4

POST DISASTER ACTIVITIES

4.1 Response Termination

4.1.1 In any marine spill response operation, a point is reached where the cost and effort involved in continuing clean-up operations outweigh the benefits to be gained. The IC, in consultation with his/her support personnel under the Marine Spill Response Team and the members of the National Marine Pollution Committee, should determine the point when further effort and expenditure become unreasonable and can no longer be supported on grounds of environmental effectiveness and cost.

4.1.2 The advice of the nominated scientific/environmental expertise, including any provided through external assistance, will be of paramount importance in determining when the environmental effectiveness of continued spill clean-up efforts do not justify continued expenditure.

4.2 Recovery Policy Procedures

4.2.1 Once clean-up operations are completed, it may be necessary to restore affected areas. The degree of restoration will be determined by the National Committee the using the appropriate local or internationally accepted standards for remediation. In the event the spill is from a vessel, the International Tanker Owners Pollution Federation (ITOPF), the P&I Club of the spilling vessel and the IOPC Fund must be engaged at an early stage to ensure that restoration plans are in keeping with the IOPC Fund Guidelines.

4.2.2 Consideration will be given, as necessary, to replacing contaminated beach sand, replanting mangrove, marsh and sea grass beds.

4.2.3 In areas identified as having high environmental sensitivity, consideration will be given to establishing a monitoring program to determine the long-term effects on flora and fauna.

4.2.4 An operation will be terminated by the NC when it becomes ineffective or when the desired level of clean-up has been achieved based on established clean-up standards.

4.3 Equipment Cleaning/Restoration/ Return

4.3.1 Oiled equipment should be cleaned as soon as possible after use. Cleaning should be carried out in a controlled situation where run-off can be contained without causing further pollution of the environment. Equipment cleaning methods include:

- a) High pressure hosing.
- b) Steam cleaning (do not use on booms made of PVC, or plasticity of the boom will be lost).
- c) Apply dispersants and brush (especially heavily oiled booms).
- d) Flushing pumps that have been used to apply dispersants with fresh-water, immediately after use.

4.3.2 All oil collected from cleaning operations must be disposed of in accordance with the oily waste management procedures outlined in NATPLAN. Once cleaning is completed, all equipment that has been provided through external assistance should be inspected and checked-off, and arrangements made in consultation with the assistance provider for returning/replacing the equipment.

4.3.3 Data collection should commence as soon as possible after the spill.

4.3.4 The use of sound pre-spill baseline data is essential to the success of post-spill damage assessment and monitoring. The (add name of national environment administration) should rapidly identify all such data, including that held by government environment and fisheries agencies, universities and research institutions.

4.3.5 The monitoring design should include the identification and monitoring of control sites.

4.3.6 The monitoring design should include areas impacted by the spill, areas disturbed by clean-up activities and areas used for the storage of oily waste.

4.3.7 All organizations involved in post-spill damage assessment and monitoring should keep detailed records of all costs and expenses associated with these activities.

4.3.8 The results obtained should be published in the scientific literature, to assist the development of the spill response discipline in general.

4.4 Response Evaluation and Debriefing

4.4.1 As soon as possible after termination of clean up, a full de-brief session/ After Action Review (AAR) should be held. This is to be led by NODS and ABDF CG. The aim of the debrief session is not to assess the performance of individuals, but to evaluate the response and to translate any lessons learned into improvements to the National Plan, so as to improve the effectiveness of any future spill responses. After the completion of the review, the OSC will prepare a concise report of lessons learnt and any operational deficiencies noted, and submitted to the National Marine Pollution Committee for action.

4.5 Damage Assessment and Monitoring

4.5.1 Damage assessment is a critical process following a marine spill. It is necessary to conduct post-spill damage assessment and monitoring activities, in order to scientifically and quantitatively assess the following:

- a) Ecological damage.
- b) Impacts on commercial resources and activities such as fisheries, aquaculture and tourism.

4.5.2 It will also provide a baseline against which to measure recovery from the spill. The information gathered will assist with:

- a) Determination of compensation claims.
- b) Better understanding of the effects of spills and the ability of the environment to recover from such effects.
- c) Better understanding of the effects and effectiveness of the various clean-up techniques used.
- d) Identification of any necessary ongoing restoration and rehabilitation requirements for damaged environments and resources.

4.5.3 The Environment Division will have responsibility for initiating and coordinating post-spill damage assessment and monitoring. The following general principles should apply to post-spill damage assessment and monitoring.

- a) The Environment Division organise joint government/industry monitoring teams, to undertake coordinated, integrated studies. This will avoid duplication of effort and the possibility of conflicting results that may be used for compensation claims.

- b) Assessment and monitoring should aim to be as quantitative as possible, and the basis of any qualitative assessments stated.
- c) Monitoring must be designed so as to be statistically valid and rigorous, with the levels of confidence clearly stated. Data collection should commence as soon as possible after the spill.
- d) The use of sound pre-spill baseline data is essential to the success of post-spill damage assessment and monitoring. The Environment Division should rapidly identify all such data, including that held by government environment and fisheries agencies and other relevant bodies.
- e) The monitoring design should include the identification and monitoring of control sites.
- f) The monitoring design should include areas impacted by the spill, areas disturbed by clean-up activities and areas used for the storage of oily waste.
- g) All organisations involved in post-spill damage assessment and monitoring should keep detailed records of all costs and expenses associated with these activities.
- h) The results obtained should be published in the scientific literature, to assist the development of the spill response discipline in general.

4.6 Environmental Restoration and Rehabilitation

4.6.1 Following a spill, it may be necessary to undertake activities to restore and rehabilitate damaged ecosystems and resources, for example replanting mangroves killed by a spill, rehabilitating beaches damaged by clean-up activities or transplanting coral to a high-use tourist area impacted by a spill.

4.6.2 Responsibility for Post-spill restoration & rehabilitation should generally rest with the Environment Division, which provides the ESC on the spill response team. The following general principles should apply to post-spill restoration & rehabilitation.

- a) Areas requiring restoration and rehabilitation should be identified during post spill damage assessment (refer section 7.4).
- b) In determining the best options for the restoration and rehabilitation, techniques that seek to complement and make use of **natural forces** to the fullest extent possible should be selected, including the option of allowing natural recovery without active intervention.

- c) The effects and effectiveness of restoration and rehabilitation efforts should be assessed through rigorous monitoring, as part of post-spill damage. Assessment and monitoring activities (refer section 7.4).
- d) All organisations involved in restoration and rehabilitation should keep detailed records of all costs and expenses associated with these activities.
- e) The results obtained should be published in the scientific literature, to assist the development of the spill response discipline in general.

4.7 Cost Recovery and Reimbursement

4.7.1 International Conventions and Protocols

4.7.2 Polluter Pays Principles

4.7.1 It is the responsibility of the **Responsible Authority** to initiate cost recovery actions direct with the polluter's representative, e.g. P&I Club correspondent. If required to negotiate or to take legal action to achieve full settlement of amounts incurred in the response, discussions will be held with the polluter. In most cases the identity of the spiller is known and a representative of the P&I Club or Fund will be aware of the Authorities intervention.

4.7.2 The reimbursement of the costs of a marine spill response should be attempted from the polluter, under existing legal regimes (such as relevant national legislation, the *Civil Liability Convention 1992* and the *Fund Convention 1992*).

4.7.3 To assist in the recovery of costs, detailed records of action taken and equipment and other resources used to respond to the incident, including detailed and complete records of all costs incurred must be kept by all parties. These records can be utilised both to support cost recovery, claims for compensation and for subsequent analysis of actions taken during the pollution incident, in order to upgrade the NMPCP.

4.7.4 The IC through the Marine Spill Response team shall ensure the necessary collection and safeguarding of oil and environmental samples, information, accounts, receipts and reports for the recovery of costs through the spillers' insurer.

4.8 Training and Exercises

(a table top exercise shall be conducted by-annually and a full scale exercise every other year these are to be mandatory and are the minimum activities to be carried out by the lead agency.

Training of Spill Responders

4.8.1 Training of key personnel is an essential component of contingency planning and preparedness. All personnel involved in spill response should have as a minimum health and safety training. Ideally they should have sufficient training to fully understand their responsibilities during a spill response, be capable of operating all equipment and performing all duties allocated to them in a safe, timely, efficient and environmentally safe manner.

4.8.2 Individual members of the team will be given training tailored to their specific responsibilities in the team, from management level to equipment operator level. The following topics are a guide to the types of training that are available to spill responders.

- a) Basic safety, fire and health precautions to be taken in the vicinity of a spill;
- b) Overview of incident Command System (ICS) organization structure and position;
- c) Responsibilities;
- d) Incident Action Plans and the planning process cycle;
- e) Tactical operations planning;
- f) Actions to be taken to minimise the effects of a spill;
- g) Basic fate and effects of spilled oil in the environment;
- h) Introduction to the National Oil Marine Spill Contingency Plan;
- i) General oil spill response strategy;
- j) Emergency response organization structure and duties;
- k) Reporting procedures, requirements and responsibilities;
- l) Communications procedures during spill response;
- m) Safe, proper and efficient use of spill response equipment;
- n) Equipment, materials, supplies, contractors, services etc., available from outside sources;
- o) Safe & effective use of oil spill dispersants;
- p) Transfer, storage and recovery/disposal of oily wastes;
- q) Safe working practices on small boats;
- r) First aid;

- s) General spill response techniques and skills;

4.9 Exercises and Response Drills

4.9.1 The ultimate test of any contingency plan is measured by performance in a real emergency. It is vital therefore, that the National Oil Spill Contingency Plan (NOSCP) includes an ongoing programme to test the plan through realistic exercises. Exercises and response drills serve to evaluate the thoroughness and effectiveness of the response component of the Contingency plan under simulated conditions. Important elements of response capability to be tested are:

- a) Practicality (structure and organization);
- b) Communications;
- c) Equipment capability and response times;
- d) Adequacy of action plan; and
- e) Public, industry and media relations.

4.9.2 Drills will be conducted at sea or on-site using the resources that would be used in an actual spill. Hands-on experience with clean up equipment and techniques will be used where practical. Types of exercises to be considered include:

- a) Deployment of selected equipment (as in a training exercises);
- b) Call-out of personnel who would be involved or contacted during a spill event (including other government department officers, port and harbour personnel, oil industry company personnel, etc.); and
- c) Full scale exercises.

4.9.3 A national spill response exercise/drill should be held in on an annual basis. Such exercises should be joint government/oil industry activities and seek to further develop government /industry integration. Responsibility for organising these in-country exercises rests with the National Marine Pollution Committee. REMPETIC can provide technical advice and assistance in the development, conduct and monitoring of these exercises.

4.9.4 This exercise programme progressively prepares response teams to perform effectively in realistic representations of all the risks that the NOSCP has been designed to meet. In addition, response strategies will be tested and recommendations made for modification or improvement to the NOSCP.

4.10 Legal Basis

4.10.1 Article 6 Clause 2 (b) of the OPRC convention requires, inter alia, that In addition, each Party, within its capabilities either individually or through bilateral or multilateral co-operation and, as appropriate, in co-operation with the oil and shipping industries, port authorities and other relevant entities, shall establish:

4.10.2 A programme of exercises for oil pollution response organizations and training of relevant personnel; Clause 177 4 (b) of the Shipping (Marine Pollution) Bill 2001 lays down the identical requirement as stated above.

4.10.3 Technical report must be submitted following each exercise, with the intention of making pertinent corrections to the Plan.

- Monthly: Persons in charge of plans distribute response operation planning information to relevant personnel.
- Bimonthly: Response equipment field exercise with oil companies and communications exercise.
- Semester: Each Local level, with the participation of the National level, will conduct a pollution simulation exercise in its jurisdiction.
- Annually: the NODS, in conjunction with ADOMS and ABDF CG, will implement an exercise that involves national and international notification procedures and communications to facilitate the importing of resources and personnel.

4.11 Exercise and Response Drills: Exercise Categories

4.11.1 Four exercise categories are identified which allow different aspects of the plan to be exercised separately and promote understanding of the purpose and scope of the whole plan. They are:

- a) Notification Exercises: To test the procedures to alert and call out the response teams and are conducted through telephone and other means of communication, as stipulated in the response plan. They are used to test communications systems, check availability of personnel, evaluate travel options and the speed at which travel arrangements can be made, and assess the ability to transmit information quickly and accurately. This type of exercise will typically last one to two hours and may be held at any time, day or night, announced or unannounced.
- b) Table-top Exercises: These consist of interactive discussions of a simulated scenario among members of a response team but do not involve the mobilization of personnel or equipment. They focus on the roles and actions of the individuals, the interactions between the various parties and the development of information and response strategies. A table-top exercise might typically last four to eight hours and should be announced well ahead of time to ensure availability of personnel.

- c) **Equipment Deployment Exercises:** These involve the deployment of oil spill response equipment at particular locations in response to an oil spill scenario and in accordance with strategies laid down in the plan for a particular spill scenario. They test the capability of the response teams to respond to the three levels of oil spill incidents namely, Tier 1, Tier 2 and Tier 3 and provide experience of actual conditions and of oil spill scenarios while enhancing individual skills and teamwork. In some instances, an Equipment Deployment Exercise might be run in conjunction with a Table-top or an Incident Management Exercise. An equipment deployment exercise would typically last six to eight hours and should be repeated frequently until teams are acquainted with the equipment.

- d) **Incident Management Exercises:** These are often more complex in that they simulate several different aspects of an oil spill incident and involve third parties. Such an exercise may be of limited scope, for example, using own personnel to role-play the main external parties, or of full scope, when outside agencies and organizations are invited to provide personnel to play their own roles within the exercise. These exercises require significant planning in terms of availability of personnel, development of an adequate scenario and the physical arrangements for staging such events. An incident management exercise often lasts one to two days and incurs a high financial cost. Appropriate budget allocations should, therefore, be included in forward planning.

4.12 Applicable Legislation, Enforcement and Prosecution: Reporting, communication, legal, enforcement and finance

4.12.1 In Antigua and Barbuda, marine pollution is regulated under the [add name of relevant Act, if applicable oil pollution maritime act1995]. This Act is administered by the [add name of Responsible Authority, ideally the national maritime administration include coast guard].

4.12.2 Under this Act, it is an offence to discharge oil or allow oil to escape from any vessel (or oil operator???) [add details as relevant]. In the event of a marine spill, the ABDF CG, assisted by the NODS and other government departments, will arrange for the collection of all necessary evidence, including sampling and analysis of the pollutant and its suspected source, photographs, records of interview and inspection of records, vessels, equipment and other facilities; to assist the effective prosecution of any offence that may have been committed.

Reporting Systems

4.12.3 Upon notification of an oil spill, the ABDF CG, which is usually the initial contact point, shall immediately notify the Lead Agency which is NODS, who will in turn alert relevant support agencies. The format for the subsequent more detailed follow-up report - CARIBPOLREP- is contained in the Caribbean OPRC Plan. Reporting is a mandatory requirement under international conventions (see below) with similar requirements also reflected in national regulations.

Vessel Reporting

Ship Masters:

4.12.4 Masters or other persons in charge of vessels shall report, without delay, any sightings of oil on the surface of the water to the nearest coastal Island State or Territory as required by Article 4, Oil Pollution Reporting Procedures, Section (10) (a) of the International Convention on Oil Pollution Preparedness Response and Co-operation, 1990 (OPRC).

Ship Owner:

4.12.5 Most ships masters are obliged by an applicable regulation (under the law of Antigua, derived from international conventions to which the government is Party) to notify the nearest State or Territory of a marine pollution emergency that has arisen. Normally this obligation will fall upon the master of the ship, but if the ship has been abandoned, or if the master's report is incomplete, then the obligation on the ship owner to make a report may arise. The obligation to report, which parties to MARPOL 73/78 undertake to implement in their internal law for ships registered in their territory, is contained in Protocol I of that Convention.

Notification of the Flag State:

4.12.6 Under article 5(3) of MARPOL 73/78, the flag State is entitled to receive notification if any other State party denies the ship entry to its ports or offshore terminals or takes any action against the ship for the reason that it does not comply with MARPOL 73/78.

4.12.7 Under article 6 of MARPOL 73/78, the flag State must cooperate with other Parties in the detection of violations and the enforcement of the provisions of the Convention; if presented with evidence of a violation, the flag State must investigate the matter and, if satisfied that there is sufficient available evidence for proceedings to be brought for a violation, it must instigate such proceedings.

Communications:

4.12.8 In the event of an oil spill, the NODS will be the Co-ordination Centre. All information from the site of the spill and impacted areas will be fed into the communication system of the NODS by ship-to-shore/shore-to-ship VHF. If the spill reaches the coastline, a field site would be set up to feed information into the Control Centre. Each Field Team will be responsible for coordinating information to be fed into the Centre.

Compensation:

4.12.9 This gives force to the 1992 Protocol of the International Convention and Civil Liability for Oil Pollution damage (the CLC) and makes the owner of a ship carrying cargo of

persistent oil in bulk strictly liable for any pollution damage in the area of Antigua and Barbuda including the territorial waters, seabed, shores, beaches and ecology thereof.

4.12.10 The liability extends to post-spillage prevention and cleanup costs. Antigua and Barbuda does not have to prove that the ship was in any way at fault in causing the pollution. In cases where the costs of cleanup exceed the limited liability of the owner of the ship, Antigua and Barbuda may make a claim to the International Oil Pollution Compensation Fund in accordance with the 1992 Protocol of the Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage. It should be noted that none of these compensation schemes applies to illegal discharges. However, applicable local legislation may be in place to address illegal discharges. Further details on cost recovery schemes are presented in Chapter 8 of the Caribbean Plan.

Record Keeping and Preparation of Claims:

4.12.11 In order that financial claims may be processed with minimum delay, it is essential that accurate records are maintained for each clean-up location and include details of all actions taken; the reason for such action; personnel and equipment deployed; and consumable materials used. All meetings must be minuted and receipts of purchases preserved for future reference and for preparation of claims. The NODS and ABDF CG will have overall responsibility for ensuring that these very important records are maintained.

Post-incident Reports

4.12.12 Following resolution of the oil spill and termination of the response for a particular incident, the support agencies involved will be responsible for submission of an After Action Report to the Incident Commander not later than three days following closing of the response. The Incident Commander and the Response Agency shall be jointly responsible for submission of a comprehensive After Action Report, incorporating reports from all responsible agencies within 7 days of closing the particular response. Subsequently, the NODS will submit the final report to the Permanent Secretary/Minister, for their approval.

APPENDIX 1:

MAPS/CHARTS

THESE to be supplied by NODS/ ABDF CG

APPENDIX 2:

Risk Assessment

The following is a recommended methodology to conduct a risk assessment. Use as a guide the following headings:

- Description of Port and Associated Shipping/Boating Activities in country
- Potential Spill Locations
- Oil companies
- Fuel Imports
- Oil Characteristics
- Movement of spilled oil:
- Local water movement:

Figure 1: High Risk Areas for Marine Pollution Incidents

Shows location of shipping lanes, vessel refuelling and tanker discharge/loading facilities, pipelines and oil terminals in your country. More than one figure may be required (a separate map may be required for each island). **TO BE PROVIDED BY ABDF CG/ DIVISION/ FISHERIES**

APPENDIX 3:

Standard Reporting Formats

**ANTIGUA and BARBUDA
Pollution Report (POLREP)**

Should you observe or receive a report of a marine pollution incident, please:

- 1. Complete this POLREP in as much detail as possible;**
- 2. Fax it immediately to the Coast Guard or NODS on Fax No:**
- 3. NODS to fax to National Marine Pollution Committee members/other affected parties;**

Name/contacts of person completing this report: _____

Date/time of report: _____ Date/time of incident: _____

Location of incident: Latitude: _____ Longitude: _____

Description of location (e.g. name, distance and bearing to nearest landmark): _____

Nature and source of incident (indicate which of the following; identify vessels/specific source where possible):

ÉVessel aground/collision and leaking oil: _____

ÉVessel underway and discharging/leaking oil: _____

ÉVessel at anchor/moored/berthed and discharging/leaking oil: _____

ÉLand-based source: _____

ÉOil slick with no definite source: _____

ÉOther (please describe): _____

Visual appearance and extent of pollution (estimate area and quantity if possible): _____

Direction and rate of drift of pollution: -----

Wind speed & direction: ----- Sea state: -----

Tide: -----

Identity & position of vessels in the vicinity: -----

Photographs taken? ----- Samples taken? ----- Other action taken? -----

**Please submit this POLREP immediately!
(Attach additional information if required)**

**ANTIGUA and BARBUDA
Situation Report (SITREP)**

As the response to a marine pollution incident progresses, please:

1. Complete these SITREPs on a regular basis,
2. Fax them to affected/involved/interested parties

SITREP No. _____ Name/contacts of person completing this report: _____

Date/time of SITREP: _____ Date/time of incident: _____

Location of incident: Latitude: _____ Longitude: _____

Description of location (e.g. name, distance and bearing to nearest landmark): _____

Nature and source of incident (indicate which of the following, identify vessels/specific source where possible):

ÉVessel aground/collision and leaking oil: _____

ÉVessel underway and discharging/leaking oil: _____

ÉVessel at anchor/moored/berthed and discharging/leaking oil: _____

Land-based source: _____

Oil slick with no definite source: _____

ÉOther (please describe): _____

Visual appearance and extent of pollution (estimate area and quantity if possible):

Direction and rate of drift of pollution: _____

Wind speed & direction: _____ Sea state: _____

Tide: _____

Events since POLREP/last SITREP: _____

(Attach additional information if required)

APPENDIX 4: A

Equipment Inventories (last updated dd/mm/yy)

Appendix 4A: Equipment Inventory (last updated dd/mm/yy)

EQUIPMENT ITEM	OWNER	STORAGE LOCATION	CONTACT DETAILS
Absorbent materials			
Anti-Pollution Inventory			
Boat			
Boat			
Caterpillar Bulldozer 1			
Caterpillar loaders 2 & buckets			
.			

NODS TO ADD LIST AS CURRENTLY EXISTS IN COUNTRY
Insert as annex

APPENDIX 4 B

AVAILABLE RESOURCES LISTED BY COMPANY /DEPARTMENT

(Listing arranged by alphabetical order)

Name of Company: _____

Date of Compilation: _____

Data Compiled by: _____

MANPOWER	
Number	Type/Availability inc. specific Qualification and Name

EQUIPMENT							

APPENDIX 4 C

Inventory of Dispersants

TO BE PROVIDED BY NODS AND OTHER HOLDERS

Insert as annex

APPENDIX 5:

Marine Spills Investigation and Sampling Guideline

1. BACKGROUND

1.1 These procedures are issued by NODS for the guidance of government officers who may be required to investigate a marine spill and collect evidence, conduct interviews, take samples and undertake other procedures in order to identify the polluter and enable appropriate action to achieve prosecution. It must be noted that these procedures are intended as general guidelines only and that country-specific procedures under national legislation and legal systems should be followed. The powers of officers appointed under national marine pollution legislation should be established.

2. INTERVIEWS

2.1 General

2.1.1 It is important to interview a potential defendant, or attempt to conduct an interview, before a decision is made on whether to prosecute even if it appears that there is sufficient evidence to prosecute without an interview. The reasons for this approach are two folds:

- a) Fairness: a person should generally not be charged with a serious criminal offence without being given the opportunity to give his or her side of the story;
- b) Practicality: it can simplify the conduct of a prosecution if the defendant has admitted part or all of the facts on which the prosecution is based. This can reduce the number of witnesses and the length and cost of the proceedings. The opportunity should be taken to see what, if anything, the potential defendant is prepared to admit before charges are laid. Parliaments usually enact procedures that are binding upon police officers and other investigators who have a power of arrest, when interviewing people suspected of committing offences against the law. Those procedures should be clearly understood by an officer before undertaking an interview of a potential defendant.

2.2 Preparation for an Interview

2.2.1 Notebook and pen: The officer throughout the investigation should keep Comprehensive notes. It is important to include simple diagrams in notes to explain, for example, the position of oil in relation to a ship or the location of a particular piece of equipment on board the ship.

2.2.2 Tape recorder: The interview should be taped if possible. It is advisable that all conversation, including informal introductions, be recorded. Should the potential defendant express apprehension that a recorder is being used, he/she should be advised that it is normal practice in such cases, and that a copy of the tape can later be made for him if he wishes. If the potential defendant would rather not take part in an interview if it is to be tape-recorded, but is otherwise prepared to be interviewed, proceed with the interview without tape recording it,

writing down questions and answers in a notebook as the interview progresses. This procedure should also be followed where there is no tape recorder readily available.

2.2.3 Camera: It is also desirable that the Officer has in his/her possession a camera (with flash and/or very fast film ASA 1000+), which could be used should there be any visible indications that a pollution incident has occurred.

2.3 Legal Representation during an Interview

2.3.1 A potential defendant is entitled to a legal representative if that person so wishes. Experience has shown that the presence of a legal adviser can be of help during the interview, providing his/her role is fully understood.

2.3.2 The role of any legal adviser attending an interview must primarily be to keep a watching brief on the proceedings. He/she should not interrupt the interview, but will be given the opportunity to confer with his/her client on request, usually when the questioning is complete. The interviewee will then be given the opportunity to add a clarifying statement to the response of any question or on any additional matter relevant to the investigation. In no circumstances shall the investigating officer/s enter into arguments with the legal adviser.

2.4 Use of an Interpreter

2.4.1 Where the services of an interpreter are used, a brief statement should be obtained from the interpreter stating name, address and experience. At the completion of the record of an interview that has been interpreted the following form of words should be added:

2.4.2 *“I hereby state that I have truly and faithfully, to the best of my ability, interpreted questions asked during the interview by into the Language and have truly and faithfully, to the best of my ability, interpreted the answers given by..... in the language into the English language.*

Signed

Name

Date.....”

2.5 Conduct of an Interview

2.5.1 Depending on national legislation, an officer may require a person to answer questions, for the purpose of ascertaining a number of things. These should be determined in relation to the Applicable national legislation. It is essential that prior to commencing the questioning the Officer begin by stating his/her own name, position and the purpose of the interview and the provision of the relevant legislation, which enables the Officer to require a person to answer questions.

2.5.2 Once this part of the interview has been conducted a short break should be taken. After this the Officer can conduct the second part of the interview but should do so only after cautioning the person as follows:

2.5.3 ***“Before proceeding further with this interview I caution you that you do not have to say or do anything and that anything you say or do may be used in evidence against you. Do you understand the terms of the caution I have just given you?”***

2.5.4 It is essential that the person interviewed understand that he/she is no longer under any compulsion to answer questions. If an Officer fails to give a caution, it is unlikely that any answers obtained will be admissible in evidence in the event that charges are laid. In addition to the above, Officers should, while interviewing, carefully bear in mind that:-

- a) They are not sitting in judgment but trying to ascertain the facts relating to the incident;
- b) They must express no opinion as to what should or should not have done,
- c) They must not enter into argument with the person being questioned nor in any way allow themselves to act or appear to act under bias or prejudice; and
- d) They must not ask questions designed to suggest a particular answer, *questions implying the adoption of one view of disputed facts, or questions resting on assumptions, which depend on knowledge not available to the person at the time of the incident.*

2.5.5 **Questions which a potential defendant might be compelled to answer, depending on the circumstances of the incident, and which should therefore form the first part of the interview, include:**

- (a) *Did you or anyone on your behalf report this pollution incident?*
- (b) *Was the (name of vessel) in the area at the time of the alleged incident?*
- (c) *If not, what was the location of the (name of vessel) at the time?*
- (d) *What was the (name of vessel) doing in the area?*
- (e) *Did you observe or are you aware of the incident? If so describe in detail.*
- (f) *What is the reason for the discharge?*
- (g) *What quantity was discharged?*
- (h) *Is the oil record book completed for all prescribed operations and is it up to date?*
- (i) *Is the anti-pollution equipment on board the vessel functional?*

2.5.6 **Questions which a potential defendant would not be compelled to answer, and which should form the second part of the interview, include:**

- (a) *May I have your full name*
- (b) *What is your permanent address*
- (c) *What is your date of birth*
- (d) *Where were you born*
- (e) *On (date/time) were you the Master of the (name of vessel – if applicable).*

- (f) Who owns (name of vessel)*
- (g) Is (name of ship) on charter*
- (h) (If so) to whom is the vessel chartered*
- (i) Where were you at the time of the incident*
- (j) What were you doing at the time of the incident*

2.5.7 The above questions are for guidance only. Providing the general procedures are adhered to, the questions to be asked are at the discretion of the Officer, taking into account the particular circumstances of the incident.

2.5.8 During a narrative answer, detailing the sequence of events, the Officer may find it beneficial to interrupt the narrative with questions on points requiring clarification, rather than waiting until the completion of the narrative. At the conclusion of the interview, the interviewee should be advised that the matter will be reported.

2.5.9 Two copies of the tape should be made on completion of the interview, with the original being sealed into its holder and signed over and dated by the interviewer and interviewee. The interviewer and interviewee each retain a copy. If a copy of a tape is not given to the suspect at the time of the interview, a copy should be made for the suspect as soon as practicable. The suspect should also be given a copy of any transcript that is made as soon as practicable. The copy is then used to type the transcript of the interview, which must include every öaahö and öummö.

3. OFFICER'S EVIDENCE

3.1 The Officer's report should begin with a statement of the Officer's name, position, the reason for the visit to the vessel or interview (if spill source not a vessel), time of boarding and location of vessel (or other facility if spill source not a vessel).

3.2 A transcript of the interview will form part of the report, together with relevant extracts from the vessel's logbook such as entries concerning ownership of the vessel, names of relevant crew, oil record book extracts, etc. The Officer should also include details of any other observation made, such as oil stains, damaged or leaking equipment, etc. If a potential point of discharge is identified, not necessarily conclusively, it is considered important that samples should be taken rather than leave the possibility untested. Signed statements should be obtained from the Master (or person in charge if the spill source is not a vessel) and any other member of the crew or staff called upon by the Master or person in charge as witness to the incident. As well as facts relating to the incident, these statements should include the witnesses' full name, address, position, qualifications, time on board the vessel and experience.

4. OBTAINING SAMPLES FOR ANALYSIS

4.1 In the aftermath of an oil spill, identification of the source of contamination is a vital component in achieving a successful prosecution and the allocation of costs. In the majority of

cases there is unlikely to be any dispute about the accuracy of an analysis. However, if there is a dispute it may be very difficult to prove an analysis beyond reasonable doubt. Correct sampling, storage, preparation and analysis of the polluting oil and its potential sources is therefore essential.

4.2 An Officer taking samples should if possible be accompanied by a second Officer so that the second Officer can provide corroborative evidence should the need arise. If taking samples from a ship, a ship's officer must accompany the Officer at all times.

4.3 Photographs of sample collection should be taken whenever possible. For environmental samples, photographs should be taken of the wider area (for example, the particular stretch of beach) as well as the specific location from which samples are to be taken. In all cases, photograph of the bottles should be taken once sampling is completed and bottles are sealed and tagged.

4.4 Samples should be taken from the likely source and from the water/foreshore. Samples from the sea should be taken before the oil is washed ashore. Every effort should be made to obtain an uncontaminated sample of oil for comparison purposes, particularly if prosecution is envisaged. It should be noted that it is particularly difficult and expensive to prove source connection without comparative source oils. To avoid cross contamination of samples, funnels or similar containers should only be used to aid sampling if a separate clean container is available for taking each sample. **Under no circumstances should plastic funnels be used.**

4.5 **Samples of a minimum of 100 grams and preferably of up to one kilogram should be taken in clear glass bottles with screw capped lids with either Teflon or aluminium liners.**

4.6 The lid should be firmly secured and then sealed using two of the security labels provided with the sample bottles (before sealing, secure continuity tag, see below). It should be noted that each security label is individually numbered. The labels should be placed on opposite sides of the jar and be firmly secured over the security tag string and the join between the lid and the jar so that the lid cannot be removed without disturbing the labels. If glass containers are not available, metal sample containers will suffice, although there is a possibility that the sample may be invalidated by introduction of metal from the container. **Plastic bottles should not be used.**

4.7 Wherever possible the Officer should take three samples from each tank or bunker. One sample should be used for analysis, one should be given to the Master or person in charge, and one should be retained in the event there is a later dispute about the analysis. If it is recognized, however, that it may not be possible to take more than one sample from each tank or bunker of a large vessel.

4.8 The labels on the bottles should be completed. The Officer should enter the following information:

(a) *Unique sample identification number;*

(b) *Date sealed and who sealed it.*

4.9 In addition, the Officer should keep a separate record of details including number and dispatch details, as well as the numbers of the security labels used and which jar they were secured to. In cases of emergency where it is necessary to obtain samples from the water/foreshore and there is no sampling equipment available use any container provided it is clean rinse the container in sea or river water prior to sampling.

5. CONTINUITY OF SAMPLES

5.1 To be admissible as evidence, samples taken must be proved conclusively to be in an appropriate person's possession until the analyses resulting there from have been introduced as evidence. This requires that rigid controls be instituted and maintained to establish continuity for the samples from the time of initial sampling.

5.2 A sample may be considered in a person's "possession" or "custody" if:

- a) It is in actual physical possession of an appropriate person whether the individual who collected it or one to whom it has been properly transferred.
- b) It is in an area where an authorized person can keep it under surveillance; or it is under lock and key where it cannot be tampered with.

6. STORAGE AND DELIVERY OF SAMPLES

Samples should be kept in a cool, dark, dry place under lock and key. A metal cabinet or locker in an air conditioned room is an adequate location provided the room, the locker or both can be locked and access limited. Ideally, all samples should be stored in a locked refrigerator at a temperature of 1.6° to 4.4° (35°- 40°F).

Then samples should be sent to a suitably equipped and qualified laboratory for analysis. If there is no suitable laboratory in your country, the SPREP office in Apia can advise suitable laboratories where samples can be analyzed. When samples are required to be sent by courier to the testing laboratory, the bottle should be carefully packed in metal or any other crush resistant container. The outer container should clearly indicate that the contents are fragile.

Part Three – Checklist

When the PLAN has been completed the ten questions below should be used to assess its adequacy.

1. Has there been a realistic risk assessment to determine the nature and size of the possible threat, and the resources most at risk, bearing in mind the probable movement of the spilled pollutant?

2. Have priorities for protection been agreed, taking into account the sensitivity and value of the resources and the viability of the various protection and clean-up options?
3. Has a strategy for protecting and cleaning the various areas at risk been agreed and clearly explained in the plan?
4. Has the necessary organizational structure, roles and responsibilities of those been involved been clearly stated, with no grey areas?
5. Has a marine spill response equipment strategy been established and are the levels and type of equipment sufficient and appropriate to deal with the anticipated size of spills? If not, have back-up resources been identified and, where necessary, have mechanisms for obtaining their release and entry to the country been established?
6. Have temporary storage sites and final management options for waste oil and oily waste been identified?
7. Are the spill assessment and reporting procedures fully explained as well as the need for continual review of the progress and effectiveness of the response operation?
8. Are arrangements for ensuring effective communication between shore, sea and air in place?
9. Have all aspects of the plan been exercised and tested and nothing significant found lacking?
10. Is the plan compatible with plans for adjacent areas (e.g. neighboring countries), the region (i.e. OPRC) and other emergency plans (e.g. national disaster management plan).

2. (adapted from ITOPF).

APPENDIX 6:

Oil Product Specifications in Antigua and Barbuda

TO BE ADDED BY THE MARINE POLLUTION COMMITTEE

APPENDIX 7:

ENVIRONMENTAL DIVISION DISPERSANT USE GUIDELINES

ENVIRONMENTAL GUIDELINES FOR THE USE OF OIL SPILL DISPERSANTS

1. Introduction

The response to marine oil spills requires the application of a variety of techniques in order to prevent/minimize damage to the environment and marine and coastal resources from the oil spill.

In the event of an oil spill at sea, the best option is often to leave the spill alone and monitor its movement, allowing natural processes to degrade the oil slick over time. Should surveillance and forecasting indicate that the spill may impact on coastlines, the possibility of physically containing and recovering the oil at sea to prevent such impact should be pursued.

The ability to conduct effective containment and recovery operations at sea will be limited by the nature of the spill, available equipment, physical conditions and logistical considerations. In many instances, especially in open water, containment and recovery at sea may not be possible. In the event that containment and recovery is not possible, or is only partially effective, another possible option to prevent or minimize the spill from impacting on the coast is to disperse it at sea, using chemical dispersants.

Dispersants can be applied to the spill from vessels or aircraft. The techniques and equipment available for the application of dispersants should be outlined in the relevant national marine spill response plan (NATPLAN) for the county/territory where the spill has occurred. As with containment and recovery at sea, the effective use of dispersants will be limited by the nature of the spill (including the type of oil and its dispersability), the availability of dispersant stocks and application equipment, physical conditions and logistical considerations. In many instances, effective dispersal of oil at sea may not be possible.

The inappropriate use of dispersants can cause worse environmental impacts than undispersed oil. Dispersants are pollutants themselves, and their use can temporarily increase the toxicity of the oil, by increasing its surface area to volume ratio and thereby increasing the release of the toxic components of the oil into the marine environment. If used in very shallow water and on shorelines, they can cause the oil to penetrate into sediments, creating potential long term pollution problems.

Caribbean island countries are endowed with valuable marine and coastal resources which may be extremely sensitive to pollution, including the inappropriate use of chemicals such as oil spill dispersants. Even the best-intentioned oil spill responders can cause more environmental damage than they prevent if proper procedures are not followed.

The use of dispersants in the Caribbean islands region should therefore only occur under strict supervision by competent environmental and scientific authorities, and in accordance with the

Environmental Guidelines for the Use of Oil Spill Dispersants (this document). If dispersants are used in accordance with these guidelines, they represent a very useful oil spill response tool.

2. General Guidelines

- É When sensitive environments, including reefs and coastal resources, are under threat from an oil spill at sea, the use of chemical dispersants to prevent the oil from reaching the sensitive environment should be considered.
- É The decision to use or not to use dispersants should be made by the designated On Scene Commander (OSC), as identified in the relevant national marine spill response plan (NATPLAN), in accordance with advice from the designated Scientific and Environmental Support Coordinator (SESC) and in accordance with these guidelines.
- É The decision to use or not to use dispersants should be based on an evaluation of the impacts that may occur if dispersants are used versus the impacts that may occur if dispersants are not used.
- É It may be necessary to accept impacts on one resource in order to minimize impacts on a more valuable resource.

Dispersants should NOT be used if:

- É Physical/mechanical containment and recovery techniques are possible and effective.
- É The oil is not amenable to dispersant. Highly viscous oil and oil that has weathered for two days or more may not be amenable to dispersant. A simple field test to check the dispersability of oil is outlined in Appendix One of these guidelines.
- É The area is shallower than five metres at lowest tide during the time of the spill.
- É The area is enclosed, such as a lagoon, bay and/or harbour, and does not have an active water exchange rate.
- É The area contains eggs or larvae of ecologically important species (e.g. corals) or commercial fisheries species.
- É To assist and speed-up dispersant use decision making, each Pacific island country/territory should pre-designate dispersant use/non-use zones, and present these as a map(s) in their NATPLAN.
- É The determination and mapping of dispersant use/non-use zones should be based on the criteria presented in these guidelines.

3. Habitat-Specific Guidelines

SENSITIVE AREAS Areas for Critical Protection

Area	Location	Critical Period of Year
Ports		
Beaches		
Fisheries		
Reefs		
Birds		
Mangroves		
Industrial		
Cultural		
Tourism		
ESAs		

3.1 Coral Reefs

- É Generally, dispersed oil is **MORE DAMAGING** to coral reefs than un-dispersed oil.
- É Dispersant should NOT be used on oil that is over a coral reef, unless:
 - É The oil is likely to impact on mangroves downstream of the reef (i.e. the impact of dispersed oil on coral reefs is preferable to the impact of un-dispersed oil on mangroves).
 - É Dispersant SHOULD be used to prevent oil in OPEN WATER from reaching a coral reef (providing the general guidelines above are followed).

3.2 Seagrass Beds

- É Generally, dispersed oil is **MORE DAMAGING** to seagrass beds than un-dispersed oil.

- É Dispersant should NOT be used on oil that is over a seagrass bed, unless:
- ✓ The oil is likely to impact on mangroves downstream of the seagrass bed (i.e. the impact of dispersed oil on seagrasses is preferable to the impact of undispersed oil on mangroves).
 - ✓ The area containing the seagrasses is well flushed.
- É Dispersant SHOULD be used to prevent oil in OPEN WATER from reaching seagrass beds (providing the general guidelines above are followed).

3.3 **Mangroves**

- É Generally, dispersed oil is LESS DAMAGING to mangroves than un-dispersed oil.
- É Dispersant MAY be used on oil that has already impacted on mangroves, providing:
- É The general guidelines above are followed.
 - É The dispersant can be applied manually in a controlled manner to prevent defoliation of the mangrove trees and penetration of oil into mangrove sediments.
 - É Dispersant SHOULD be used to prevent oil in open water or even oil over other sensitive resources, such as coral reefs and sea grass beds, from reaching mangroves (providing the general guidelines above are followed).

3.4 **Sandy Beaches**

- É Oil threatening to impact on a sandy beach should be allowed to.
- É Beaches provide the best oil containment and collection barrier, and physical/mechanical recovery of beached oil is relatively straightforward.
- É Dispersants SHOULD NOT be used to prevent oil from beaching. This will cause unnecessary pollution of the marine environment when the oil can be readily recovered after it has beached.
- É However, in many situations, beaches in the Caribbean islands region will be closely associated with fringing coral reefs and sometimes mangroves and sea grass beds. In such circumstances the guidelines above relating to those habitat types should take precedence.

É Where a beach has high amenity/commercial value (e.g. for recreation and tourism), protection of ecological resources should take precedence as it is far easier to clean an oiled beach than an oiled reef, sea grass bed or mangrove.

É Dispersants SHOULD NOT be used on oil that has already impacted on a sandy beach, unless:

✓ The maximum amount of oil possible has been removed by physical/mechanical means.

✓ The dispersant is applied in a highly controlled manner, just before the advancing tide, to prevent oil penetrating into the substrate.

3.5 **Rocky Shores**

É By nature, rocky shores are usually high energy environments.

É High energy environments are best suited to self-cleaning if impacted by an oil spill.

É Dispersants SHOULD NOT be used to prevent oil from impacting a rocky shore. This will cause unnecessary pollution of the marine environment when the oil may be readily removed by natural forces after it has impacted a rocky shore.

É However, in many situations, rocky shores in the Caribbean islands region will be closely associated with fringing coral reefs and sometimes mangroves and seagrass beds. In such circumstances the guidelines above relating to those habitat types should take precedence.

TO BE VERIFIED

3.6 **Bird & Turtle Rookeries**

É Generally, dispersed oil is FAR LESS DAMAGING to wildlife than un-dispersed oil.

É Un-dispersed oil can cause severe impacts on wildlife.

É Dispersant SHOULD be used to prevent oil in open water or even oil over other sensitive resources, such as coral reefs and sea grass beds, from reaching bird and turtle rookeries (providing the general guidelines above are followed).

3.7 **Physical Structures**

É It is possible to use dispersants to remove oil from physical structure such as seawalls, wharves, buoys and boat hulls, and also to clean oiled pollution response equipment.

- É However, a number of non-toxic, biodegradable de-oilers are now available that are more effective and less harmful than dispersants for this purpose.
- É If dispersants must be used for this purpose, any resulting run-off should be contained and physically/mechanically collected for proper disposal.

Appendix One

Field Test to Establish the Dispersability of Oil

Background

If the use of chemical dispersants to treat an oil spill is being considered, it is important to establish whether or not the spilled is amenable to dispersion. Many oils, especially highly viscous (thick) oils and oil that has been exposed to the environment for several days (and is therefore weathered), may not respond to dispersants.

The simple field test outlined below will allow response authorities to gain a rapid indication of the dispersability of the oil. If the oil is not found to be amenable to dispersion, then dispersants SHOULD NOT be used. If the oil is found to be amenable to dispersion, then dispersants might be used, but ONLY if all other requirements, including environmental approvals and considerations, are met.

Equipment Required

- É Clean 20-25ml screw-top test tube with screw cap and neutral plug.
- É Clean, wide-mouth jars for obtaining oil from the scene of the spill.
- É Glass pasteur pipettes and bulbs or eye-droppers.

Test Procedure

- É Collect a small amount of oil from the scene of the spill.
- É Collect a small amount of dispersant from the dispersant stockpile
- É Collect a small amount of clean seawater.
- É Fill test tube to 2/3 with the seawater (must be at same temperature as sea-surface at the scene of the spill).
- É Add 1ml of the oil to the surface of the water in the test tube with pasteur pipette or eye dropper. DO NOT let the oil touch the sides of the test tube. Note the curved under surface of the oil as it floats on top of the water.
- É With test-tube slightly above eye level, add one or two drops of the dispersant directly onto the surface of the oil, using a CLEAN pipette or eye dropper.
- É Keep the test tube very still and observe the under-surface of the oil for any change.

- É If the curved under-surface of the oil has flattened out and taken on a dull appearance, the dispersant has penetrated and combined with the oil.
- É If there is evidence of clear-liquid emanating from the underside of the oil, the dispersant has passed through the oil and not combined with it.
- É Carefully screw the cap onto the test tube.
- É In a smooth and steady manner, invert the test tube 180° and back to the upright position six times.
- É Assist bio-degradation through increasing the surface area of the oil that can be attacked by bacteria.
- É A key component of dispersants is surface-active-agent (surfactant).
- É **Surfactant has molecular structure where:**
 - ✓ one part is attracted to oil (oleophilic)
 - ✓ one part is attracted to water (hydrophilic)
- É Reduces interfacial tension between oil and water.
- É Promotes droplet formation and prevents re-coalescing.
- É To work, dispersant must be effectively distributed through the oil.
- É Dispersant therefore contains a solvent which carries the surfactant and penetrates the oil.
- É If oil is very viscous (thick), or aged and weathered, solvent cannot penetrate the oil and dispersant will be ineffective.
- É Therefore, must ensure oil is dispersible before using dispersant.

Figure One: Dispersants in Action



TYPES OF DISPERSANTS

First Generation (late 1660's).

- É Based on industrial cleaners and degreasers.
- É Contain solvent based on aromatic hydrocarbons.
- É Extremely toxic.
- É Used on Torrey Canyon spill off English coast in 1967.
- É Devastating impact on marine life.

Second Generation (after Torry Canyon)

- É Known as "conventional" or hydrocarbon-based dispersants.
- É Purpose-made for oil spills.
- É Contain solvent based on low aromatic or non-aromatic hydrocarbons.
- É 1,000 x less toxic than first generation, but still toxic.
- É Contain 85-75% solvent and 15-25% surfactant.
- É Apply "neat" (un-mixed) to the oil slick, at dispersant: oil ratio of between 1:1 and 1:3.
- É Not suitable for application from aircraft, apply from vessels. Example: BP-AB.

Third Generation (mid 1970's)

- É Known as "concentrate" dispersants.
- É Contain solvent based on glycol or alcohol.
- É Contain less solvent and more surfactant.
- É Even less toxic than second generation (but still toxic).
- É Can be applied neat (straight) or mixed with sea-water, at neat dispersant: oil ratio of between 1:5 and 1:30.
- É Better for application from aircraft, also good for application from vessels.

Examples: Later COREXIT range, Shell VDC/VDC Plus, ARDROX range.

Approved dispersants for Antigua and Barbuda are: **To be decided by National Committee**

List of Approved Dispersants

CHEMICAL NAME	COMPANY	DATE APPROVED	APPROVAL PERIOD	EXPIRY DATE	USES

When should dispersants be used?

- É Main use of dispersant is to break oil up when it is still at sea.
- É Prevent oil from impacting on the shoreline.
- É Physical containment & mechanical recovery of the oil is preferable.
- É Use dispersants at sea only when physical containment & mechanical recovery is not possible/feasible.
- É Do not use dispersants in inshore, shallow and/or enclosed waters
- É Dispersants can be used on shorelines and structures (e.g. oiled seawalls), but can cause serious impacts and must be highly controlled.
- É Dispersant can be used for cleaning oiled pollution equipment (e.g. booms). Runoff must be contained, collected and disposed of properly to prevent further pollution of the environment.
- É The decision to use or not use dispersants must balance the environmental impacts that may occur if dispersant is used, against the environmental impacts that may occur if the oil slick is left untreated.
- É The On Scene Commander should obtain scientific and environmental advice when making on decision on dispersant use (refer to Dispersant Guidelines).
- É Should pre-designate dispersant use/non-use areas in the national plan and the On Scene Commander should comply with these.

- É DO NOT use dispersants on oil that is not dispersable. This is a total waste of dispersant and causes unnecessary additional pollution.
- É Oil that is highly viscous (thick) or has been at sea more than several days (aged and weathered), is generally not dispersable.
- É Conduct a small scale field test first

Figure Two: Dispersant Use Decision Tree

Methods of Application

Method of application depends on:

- É Type of dispersant (conventional or concentrate).
- É Size/location of the spill.
- É Availability of vessels/aircraft and application equipment.

Apply from a vessel:

- É Can use Conventional or Concentrate dispersant.
- É Spill must be within range of available vessels.
- É Vessels must be equipped with, or be capable of being fitted with, dispersant storage system, pumps and spray system.
- É Can use fire monitors fitted to tugs boats etc., but:
 - ✓ Difficult to control.
 - ✓ High dilution rates.
 - ✓ Excessive consumption/application of dispersant.
 - ✓ Poor coverage of water jet.
 - ✓ Should not use hydrocarbon-based dispersants in fire pump system.
- É Purpose-built spray booms are best.
- É When spray boom fitted at bow of vessel, vessel assists mixing of the dispersant with the oil, although dispersant can be pushed out to sides of the vessel and therefore not mix thoroughly.
- É When spray boom fitted towards stern, may be necessary to tow breaker boards behind the vessel to assist mixing.
- É Advantages include:

- É Relatively inexpensive.
- É Do not need dedicated vessels, can fit storage tank, pump and spray booms to vessels of opportunity (e.g. fishing vessels).
- É Relatively low tech and flexible.
- É Limitations include:
 - ✓ Low treatment rates.
 - ✓ Difficulty with locating slicks (unless assisted by an aircraft).
 - ✓ Limited range.

Figure Three: Application of Dispersant from Vessels

Application from Aircraft

- É Use Concentrate dispersant (can be diluted to achieve greater efficiency)
- É Spill must be within range of available aircraft.
- É Aircraft must be equipped with, or be capable of being fitted with, dispersant storage system, pumps and spray system.
- É Can use helicopters with purpose-built dispersant bucket and spray booms.
- É Can use crop-dusting aircraft.
- É Can use purpose-fitted aircraft.
- É Advantages include:
 - ✓ Allows rapid response.
 - ✓ Allows good surveillance, identification of the oil slick and evaluation of dispersant success rates.
 - ✓ Allows much higher treatment rates than vessels, can cover larger areas of an oil slick in a shorter period.
 - ✓ Allows much more efficient use of dispersant.
- É Limitations include:
 - ✓ Expensive.
 - ✓ Availability of suitable aircraft.
 - ✓ Range of the aircraft.
 - ✓ Carrying capacity of the aircraft.

Figure Four: Application of Dispersant from Aircraft.

Land-based Application

- É Dispersant can be used to clean-up shorelines and structures such as seawalls that have become oiled.
- É However, potential to cause further environmental damage is high and alternative methods should be explored first.
- É Physical/mechanical clean-up of shorelines and structures may be harder work, but may be the best option.
- É If dispersants are used on shorelines/structures; remove bulk oil by physical/mechanical means first.
- É Be extremely careful to ensure oil does not penetrate into the sediment (spray just ahead of the advancing tide)
- É Can use Conventional or Concentrate dispersant (Concentrate better, as less toxic).
- É High dilution rates.
- É Excessive consumption/application of dispersant.
- É Poor coverage of water jet.
- É May
- É For greatest control apply manually using personal -back-pack sprays.
- É Do not spray dispersants around with Fire trucks or similar pumping equipment:
- É Difficult to control.

Corrode/damage fire pump system.

Figure Five: Land-based Application of Dispersant

Health & Safety Considerations

- É Dispersants are chemicals which must be handled correctly.
- É They should be stored away from heat and direct sun-light, in a dry storage area, and containers should be checked regularly for deterioration/leaks.
- É Containers should be clearly marked with their contents and any necessary safety data.

É Handling should be done in well ventilated areas and personnel should keep to windward.

É Personnel must wear:

- ✓ Closely fitting face shield or goggles with mouth/nose mask.
- ✓ PVC loves.
- ✓ Protective clothing (full cover plastic overalls & chemically resistant safety footwear).

In the event of fire, use: Chemical powder or carbon dioxide extinguishers, or foam.

É In the event of leak/spillage:

- ✓ Stop leak immediately.
- ✓ Contain with sand or absorbent material.
- ✓ Soak-up with absorbent material and dispose of properly.

É N.B.: Spilled dispersant will make decks very slippery.

- ✓ Remove polluted clothing.
- ✓ Wash with large quantities of water.
- ✓ Call a doctor if problems develop.

É In the event of eye contact:

- ✓ Wash with water for at least 15 minutes.
- ✓ Do not apply anything else to the eyes unless doctor prescribes.
- ✓ Ensure injured person checked by a doctor as soon as possible.

É In the event of inhalation:

- ✓ Transfer injured person to well ventilated area.
- ✓ Call a doctor immediately.
- ✓ If breathing stops, administer artificial respiration.

É In the event of ingestion:

- ✓ Call a doctor immediately.
- ✓ Administer large quantities of water (unless unconscious, in which case DO NOT administer anything).
- ✓ DO NOT administer alcohol, milk or fatty foods.
- ✓ DO NOT induce vomiting.

NB: These are general guidelines only. All stocks of dispersants MUST have a safety data card. The specifications of the safety data card must always prevail.

APPENDIX 7B

OIL SPILL MANAGEMENT OPTIONS

Salvage of Casualty

In the event of an incident involving a damaged or disabled ship, it is paramount that the salvage industry be involved in the response as soon as possible. Salvage activities may need to be arranged for taking the vessel in tow, refloating a grounded vessel, or reducing or stopping a discharge of pollutant to minimize environmental damage resulting from the casualty.

It is essential that these operations be undertaken as soon as possible. In accordance with Antigua legislation, (Port Authority/ ADOMS?) has responsibility for safety issues relating to vessels on coastal or foreign voyages and will be responsible for ship operational matters. These functions include alerting and liaising with salvors, taking measures to minimize pollution release or outflow and other salvage activity. The vessel's owner or master will normally appoint a salvor by signing a Lloyds Open Form Agreement. However, in cases where this does not occur, (Port Authority/ ADOMS?) may use its powers under the *International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Damage 1969*, to either direct the Master/Owner to engage a Salvor or alternatively contract a salvor to undertake necessary work, with costs recoverable from the owner.

Response Option Assessment Criteria

Alternative control and protection options shall be assessed to determine whether they can adequately protect human health and the environment in both the short term and long term from the unacceptable risks posed by the oil or hazardous substance spill. When assessing the appropriate response options the criteria the Planning Unit and IC should use are;

- É Overall protection of human health and the environment,
- É Short and long term effectiveness on reducing flow, mobility or toxicity of pollutant,
- É Implementability of option and availability of equipment and materials,
- É Government/community acceptance of option,
- É Relative cost compared to other options.

It is the responsibility of the Planning Section to develop a Response Action Plan (RAP) that must include;

- Clear environmental objectives for the plan (e.g. protection / clean-up)
- A strategy for the response and necessary action to be undertaken by the Operations Section
- Clear time-lines for actions to phases of the plan and,
- Concise statements of responsibilities for the set actions/tasks.

Leave Alone and Monitor

Should surveillance and forecasting indicate that the spill is unlikely to impact on coastlines and is likely to remain in open water, then the best option maybe to leave the spill alone, allowing natural physical and biological degradation to occur at sea. The response to marine spills under NMPCP should always seek to complement and make use of **natural forces** to the fullest extent possible. However, it is vital that the movement of the spill is closely monitored, through continuing surveillance and forecasting. The monitoring shall be lead by the Coast Guard in consultation with Met Office, Fisheries and Civil Aviation. The next stage of response operations should be activated if even the slightest possibility of coastal impact arises.

Containment & Recovery at Sea

Should surveillance and forecasting indicate that the spill might impact on coastlines, the possibility of containing and recovering the oil at sea to prevent such impact should be pursued. [The techniques and equipment available for containment and recovery at sea should be outlined in the NMPCP, and will need to be inserted into accompanying Annex]. The ability to conduct effective containment and recovery operations at sea will be limited by the nature of the spill, available equipment, physical conditions and logistical considerations. In many instances, especially in open water, containment and recovery at sea may not be possible.

Use of Oil Spill Dispersants

In the event that containment and recovery is not possible, or is only partially effective, another possible option to prevent or minimize the spill from impacting on the coast is to disperse it at sea, using chemical dispersants. Dispersants can be applied to the spill from vessels or aircraft [The techniques and equipment available for the application of dispersants should be outlined in the NMPCP, and will need to be inserted into accompanying Annex].

The criteria for the use of chemical dispersants in the Caribbean Region are established in the Caribbean Island OPRC Plan Chapter 10.

The Environment Division will be responsible for the approval of the use of dispersants in Trinidad and Tobago waters in accordance with the criteria agreed for the Region unless there are special overriding considerations at the time. It must be noted, however, that for chemical dispersants to be effective, they must be applied on fresh oil in order to maximize the limited window of opportunity for their use ó often within 24-48 hours following a spill. This window of opportunity may be expanded in some cases to 72-96 hours depending on the oil type and dispersant to be used. Dispersants must not be used in sensitive areas as determined by the EMA or the Fisheries Division.

It is further emphasized that only licensed and approved dispersants are permitted. This does not include commercial detergents -- which must never be applied. As an added feature, for

approved dispersants, testing must be done by each operator to show that their dispersants can function adequately within the environments and oils on which it would likely be utilized. This must be determined by small-scale real-life exercises.

As with containment and recovery at sea, the effective use of dispersants will be limited by the nature of the spill (including the type of oil and its dispersability), the availability of dispersant stocks and application equipment, physical conditions and logistical considerations. In many instances, effective dispersal of oil at sea may not be possible.

In addition, the inappropriate use of dispersants can cause worse environmental impacts than undispersed oil. Dispersants are pollutants themselves, and their use can temporarily increase the toxicity of the oil, by increasing its surface area to volume ratio and thereby increasing the release of the toxic components of the oil into the marine environment. If used in very shallow water and on shorelines, they can cause the oil to penetrate into sediments, creating potential long-term pollution problems. The use of dispersants should therefore only occur under strict supervision by competent environmental and scientific authorities and in accordance the Environmental Guidelines On the Use of Oil Spill Dispersants set by the Environmental Division and the Fisheries Division. If dispersants are used in accordance with the Guidelines, they represent a very useful oil spill response tool and it is advised that the nominated environmental unit of the response team be involved in the planning and use of dispersants. To ensure only approved dispersants are used in Antigua waters the National Marine Pollution Committee shall maintain a schedule of dispersants and other response chemicals that may be authorized for use on oil spills at sea or on shorelines.

Foreshore Protection

In most circumstances, despite best efforts to contain and recover and/or disperse a spill at sea, a weather-driven spill is highly likely to impact on coastal environments and resources. Efforts will therefore have to be made to protect foreshores. Options include the use of oil spill booms to physically prevent oil from impacting on the foreshore, or to direct it to preferred collection points (such as a sandy beach), where it can be recovered. **[The techniques and equipment available for foreshore protection should be outlined in the NMPCP, and will need to be inserted in the Annex].**

The ability to conduct effective foreshore protection operations will be limited by the nature of the spill, available equipment and personnel, physical conditions and logistical considerations. In virtually every situation, it will only be possible to protect a relatively small area of foreshore. It is therefore absolutely necessary to clearly establish protection priorities, in accordance with the relative environmental sensitivities and resource values of the threatened coastal environments and resources. The designation of environmental sensitivity ratings is shown in Figure Three

Foreshore Clean-up

In the likely event that a spill does impact on coastal resources and environments, it may be necessary to conduct foreshore clean-up operations. However, before proceeding with cleanup,

the option of leaving the oil (or other pollutant) alone and allowing natural physical and biological degradation to occur, should be considered. However, this option is only likely to be acceptable in very remote, unpopulated areas or with high-energy wave environments.

Where oil does come ashore, the extent of clean-up of oiled coastal areas is to be carefully planned with the view of minimising further environmental damage that may result from the clean-up operation. Sometimes, oil on shorelines may best be left to weather and degrade naturally. This is particularly true where oil impacts a sensitive area such as mangroves, salt marshes or mud flats. In these areas the clean-up operations can result in more environmental damage than the oil itself due to physical disturbance and substrate erosion. The selection of shoreline clean-up techniques depends on many different factors, which include:

- É Type of substrate;
- É Amount of oil on the shoreline;
- É Depth of oil in the sediments;
- É Type of oil (tar balls, pooled oil, etc);
- É Presence of wildlife;
- É Prevailing oceanographic and meteorological conditions;
- É Environmental or culturally significant sites; and
- É Access and mobilization of equipment.

Shoreline clean-up methods may consist of one or more of the following methods, depending on the extent of oiling and the shoreline environment:

- É Removal of floating or pooled oil;
- É Removal of oiled material and vegetation;
- É Use of sorbent materials;
- É Low pressure flushing;
- É Mechanical collection and removal of oiled material;
- É Manual collection and removal of oiled material;
- É Use of Bioremediation agents; and
- É Dispersant application.

[The techniques and equipment available for foreshore clean up should be outlined in the NMPCP, and will need to be inserted in Annex].

An important consideration during foreshore clean up is to ensure that clean-up operations do not cause greater environmental damage than the spill itself (for example heavy machinery damaging sand-dunes, etc). Also that wastes collected are kept to a minimum to avoid costly waste disposal and loss of foreshore materials and biota.

Equipment such as the following can be used on foreshore clean-up operations if available.

- É Rope mops
- É Sorbents materials and booms
- É Skimmers
- É Direct suction equipment (vacuum trucks)
- É Water flushing equipment
- É Other mechanical equipment etc.

Coastal Swamps and Mangroves

Coastal swamps and mangroves are very fragile and important ecosystems and a high level of protection should be placed on these coastal environments.

- Oil should be prevented from entering coastal swamps by using dispersant on marine spills well off-shore;
- Booms should be deployed so as to restrict flow of oil into the mangrove area;
- Oiled swamps should not be cleaned unless:
- Access is readily available and sediment is firm;
- The mangroves do not have aerial roots (pneumatophores)
- Seek expert environmental advice before using dispersant on or near mangroves;
- Manually clean up mangrove areas must be strictly supervised.

Bioremediation

Bioremediation is the artificial enhancement of hydrocarbon degrading organisms designed to consume and break down oil. By accelerating the natural biological processes of biodegradation, bioremediation aims to increase the rate of degradation, by either stimulating microorganisms existing naturally in the area, or by seeding more microorganisms. However, the immediate environment is quickly depleted of available nutrients, especially nitrogen, which is necessary to support this increased population. Thus, most uses of bioremediation will require the application of fertiliser to the affected area. In some cases, it may be beneficial to start fertiliser application before an area is affected. Whilst bioremediation has not been a primary response strategy to an oil spill historically, it is now receiving renewed attention and can be used successfully to assist an area to recover oil foreshores from the effects of an oil spill.

Bioremediation of oil spills can incorporate three general techniques to artificially enhance the biological degradation of oil:

- É Addition of nutrients to the environment (fertilization);
- É Culture and inoculation of in-situ or exotic organisms;
- É Culture and inoculation of genetically enhanced organisms.

The most effective bioremediation strategies for oiled foreshores have utilized the fertilization technique.

In-situ Burning

Burning of the spilt oil or fuels at sea has the potential of removing large quantities of spilt oil or fuels but has not been used extensively in oil spill response in the region. The application of in-situ burning could prevent oil coming ashore into populated areas or preventing oil contamination of environmentally sensitive habitats and wildlife. The technique offers the advantage of a quick removal process minimising shoreline contamination and reducing the quantity of oily waste products requiring treatment or disposal, as well as removing the oil before it spreads or moves to other areas under the action of wind and currents.

The disadvantage of in-situ burning is the inefficient combustion of the oil resulting in a visible black smoke plume. It has been perceived that atmospheric fallout of combustion by products; soot, combustion gases and volatilised hydrocarbons could pose a health risk down wind. Recent research has shown that these emissions and their toxicity were lower than expected. Residues after in-situ combustion tests varied between 1-10% of the original oil. The combustion behaviour of the oil spilled must be known prior to this option being considered for use. The field monitoring or plume dispersion modelling of the combustion cloud and fumes is a high priority in the decision to use this option. Great caution must be exercised with the in-situ burning of petrol spills as this must be carried out well away from population centres and can emit large quantities of radiant heat and fumes in the vicinity of the burn.

For in-situ combustion to be sustained the heat generated by the burning of the oil must overcome the cooling effect of the sea. Thin slicks do not burn and a minimum thickness of oil is required for combustion. To enable in-situ combustion to work the oil must have sufficient volatility and light oils must have 2-3 mm thickness and for heavy oils 8-10 mm thickness. Because oil spreads rapidly, especially low viscosity oils, the use of containment systems such as fire resistant booms, are sometimes required to maintain this minimum thickness.

In-situ burning of oil spills in open waters is receiving greater attention by response agencies world-wide as it offers a very viable and cheap option to stop oil spreading, especially in remote areas where the lack of equipment or weather conditions limits conventional open water containment and clean-up.

Oiled Wildlife Operations

It is highly likely that wildlife will become contaminated in the event of a spill, including sea birds and shorebirds, marine reptiles (e.g. nesting turtles) and marine mammals.

[The techniques and equipment available for rescuing, cleaning and rehabilitating affected wildlife should be outlined in the NATPLAN and will need to be added. Because of the complexity of such operations, it may be necessary to have a separate oiled wildlife plan as a sub-set of NATPLAN or detailed annex].

Oily Waste Management

An often-difficult problem created by oiled foreshore clean-up is the generation of quantities of recovered oil and oily waste, which needs to be treated, recycled and/or disposed. The problems of oily waste management are exasperated on small islands such as those of the region, due to severe limits on management options. Oil and oily wastes recovered in clean-up operations shall be disposed of in accordance with local legislation and by-laws.

Temporary oily waste storage sites must be selected taking into account;

- ▲ Accessibility of the storage site
- ▲ Distance from where oily wastes are collected
- ▲ Oil type
- ▲ Composition of contamination e.g. vegetation, sand, sorbents
- ▲ Volume of oil/contaminants
- ▲ Potential for groundwater pollution
- ▲ Potential for flooding from tidal movement
- ▲ Compatibility with on-site and adjacent land use
- ▲ Proximity to environmentally sensitive areas
- ▲ Wildlife access to site e.g. birds.

[Oily waste management arrangements should be outlined in the NMPCP, and will need to be inserted in an associated Annex.]

5.17 Chemical Spills/HAZMAT Response

As outlined previously is designed to cover the response to spills into the marine environment of all types of pollutants, including oil, chemicals and hazardous materials (HAZMAT). However, technical details within NATPLAN relate primarily to marine **oil** spills. This reflects the fact that oil is the main pollutant likely to be spilled in the region, and the fact that the discipline of oil spill response is far more developed and advanced than that of chemical Spill /HAZMAT response. In the event of a chemical/HAZMAT spill within the NATPLAN area, the general procedures and arrangements of NATPLAN should be followed.

APPENDIX 9

MEDIA PLAN

An experienced and well-informed Media Liaison Officer (MLO) appointed by the ABDF CG and assisted by NODS will be the media liaison. The MLO shall ensure adequate liaison between the ICø team and the media. All quires received from the media should be directed to this person.

Before releasing any information, the MLOø's action should have the approval of either the Lead Agency or the IC, depending on the size of the spill incident.

APPENDIX 10

CONTACT NUMBERS

**EMERGENCY 24-HOUR NUMBER
NODS**

**Tel: (xxx) xxxxx Fax: (xxx) xxxxx
National Disaster and Emergency Services
Tel: (xxx) xxxxx or (xxx) xxxxx**

Organization	Phone	Fax	Mobile/Home	Email

Radio Contacts	<i>HF Channel/Freq</i>	<i>UHF Channel/Freq</i>	<i>VHF Channel/Freq</i>
<i>Marine comms:</i>			
<i>Aviation comms:</i>			
<i>Land-based comms</i>			

APPENDIX 11

ROLES AND FUNCTIONS

Command Team

- 1) **Public Relations Coordinator** ó The Public Relations Coordinator, under the general direction of the OSC will:
 - i. establish and direct a news office at or near the operational response center
 - ii. maintain liaison with the NC, interested parties including media, government press and concerned industries
 - iii. provide the public with timely and accurate reports on the nature of the incident and the steps being taken to cope with the problem
 - iv. provide the lead in all matters concerning relations with the public

Field Operations Team

The Field Operations Team is formulated to oversee the deployment of equipment and manpower. In events when the polluter has accepted operational responsibility, the field team will monitor operations during major spills under the general direction of the OSC. The following are some of the responsibilities of the key personnel serving on the operations team:

- 1) **Operations Coordinator** ó The Operations Coordinator will:
 - i. coordinate field activities
 - ii. direct work crews ashore/afloat and inland
 - iii. provide logistical and resource back-up
 - iv. oversee equipment maintenance
 - v. provide field operation reports (SITREPS) to the OSC regularly
 - vi. maintain records of progress
- 2) **Equipment Maintenance Manager:** The Equipment Maintenance Manager will:
 - i. maintain all units in a response condition
 - ii. advise operations coordinator of any shortages
 - iii. maintain continual liaison with support agencies on matters of equipment operations
- 3) **Communications Coordinator:** The Communications Coordinator will:
 - i. coordinate flow of information between the clean-up sites, the On Scene Commander (OSC) and the National Coordinator (NC)
 - ii. arrange for the installation of all necessary communications equipment at the Response Centers
 - iii. ensure that a competent radio operator is on duty at all times
 - iv. ensure that a proper log is maintained of **all** traffic

- 4) Technical Marine Surveyor:** The Technical Marine Surveyor will:
- i. conduct damage surveys of all vessels and facilities on behalf of the government
 - ii. provide the OSC with appropriate reports and recommendations following any such survey referred to above, or as a result of any incident regarding the advice of such a surveyor
- 5) Administration Coordinator ó Public Works** The Administration Coordinator will be responsible for the financial aspects. Along with the OSC, he/she will:
- i. negotiate contracts for necessary equipment and manpower
 - ii. be responsible for staffing and labour relations
 - iii. authorize disbursements for local purchases
 - iv. continue to liaise with the NC for the release of necessary funds
 - v. maintain records and documentation, as well as log of all proceedings i.e. meeting, discussions, etc.
 - vi. maintain logistical needs
 - vii. provide local industrial equipment availability inventory

The invoiced inventory represents those items that are being house at our Marine Department, Point Wharf ó 1000ft boom (with anchors)/skimmer/collapsible storage tank

The other equipment is housed on the Sea Island Jetty ó includes 600ft boom, dispersant spray system/dispersant chemical and hoses.