Government of the Co-operative Republic of Guyana

NATIONAL OIL SPILL CONTINGENCY PLAN

0

AUGUST 2020

ACKNOWLEDGEMENTS

This Plan was developed utilising the following templates, guidelines, and documents:

1. The IMO Manual on Oil Pollution Contingency Planning
2. Regional Caribbean Island Oil Pollution Response and Cooperation Plan 2012 – For wider Caribbean region RAC/REMPEITC
3. The National Oil Spill Contingency Plan of Trinidad and Tobago 2010
4. The National Marine Pollution Contingency Plan of Antigua and Barbuda
5. The Guyana Draft - Procedures for local agencies to follow in the cases of Tier 2 and 3 Oil Spill responses Emergency

This plan was created by the National Oil Spill Contingency Plan Committee under the Chairmanship of the Civil Defence Commission (CDC).

POLICY STATEMENT

The Government of Guyana is conscious of the need to preserve and protect the environment from the ever-present risk of oil and other noxious chemicals that poses grave danger to the health of humans and all species that depend on a clean environment for life.

As Guyana seeks to develop its oil and other mineral industries, it recognises that a degree of risk is associated with the infrastructure that is built to support these industries, such as pipelines and the platforms, the oil handling facilities and the vessels that transport these products.

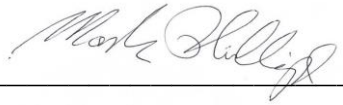
Therefore, the Government of Guyana sees the importance of developing measures that can aid in the prevention and if unavoidable, prompt and effective action to minimise the damage which may result from a major oil spill incident. The Government sees the need for the inclusion of every stakeholder, including the oil and shipping industries, in preparatory efforts and actions for these contingencies.

The Government of Guyana is therefore committed to take the appropriate measures in accordance with our national laws, industry best practices and all relevant International Conventions acceded to, verified or entered into force by the Government of Guyana.

The Government therefore assigns the responsibility for the preventing, preparing and combating of all oil and noxious chemical spills, within the territory of Guyana and it Exclusive Economic Zone to the Director General, Civil Defence Commission, named as the Competent National Authority (CNA) with the Director Maritime Safety, Maritime Administrative Department (MARAD) as Deputy for Maritime and the Executive Director, Guyana Energy Agency for land spills. The Coast Guard and the Guyana Energy Agency are being named as the On-Scene Commanders for maritime and land respectively.

These agencies, together with the National Oil Spill Committee, will be responsible for the development, updating and enforcement of a National Oil Spill Contingency Plan which will provide for coordinated response and the necessary training for such response. They will also approve the necessary staff to fill the Incident Command System who will be responsible for the planning for oil spill response and the surveillance required of the country's land and maritime zones for the timely detection of oil and other related emergencies.

The National Plan must address the need to undertake intensive capacity building to ensure that a Tier 2 response capability is nationally available, and mandate all industries operating in this field to also have a Tier 2 capability. In ensuring the appropriate training/equipment and other human resources are developed, the Competent National Authority must seek to continually research and develop new oil spill response and mitigation techniques and modern method to foster faster and more efficient coordination among the response agencies.



Honourable Brigadier (Ret'd) Mark Phillips
Prime Minister, Minister with responsibility for Disaster Risk Management 2020-08-23

PLAN CUSTODIAN

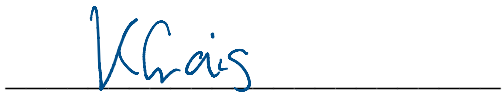
The responsibility for development, updating of, and amendments to this plan rests with the Civil Defence Commission (CDC).

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

This Plan shall also be revised based on experiences from actual incidents, drills and simulation exercises, considering 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 General of the Civil Defence Commission**.



Kester Craig, MPA, PMP
Lieutenant Colonel
Director General
Civil Defence Commission
August 23, 2020

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**

PLAN REVISIONS

National Oil Contingency Spill Plan	Version Date	Revised	Periodic Revisions			

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GLOSSARY OF ACRONYMS AND ABBREVIATION

AAR	After Action Report
AMPD	Average Most Probable Discharge
BAP	Branch Action Plan
CARIBPOLREP	Caribbean Pollution Report
CARICOM	Caribbean Community
CBDRMC	Community Based Disaster Risk Management Committee
CCA	Clean Caribbean and Americas (formally CCC)
CCC	Clean Caribbean Cooperative
CDC	Civil Defence Commission
CDEMA	Caribbean Disaster Emergency Management Agency
CIR(s)	Critical Information Requirement(s)
CLC	International Convention on Civil Liability for Oil Pollution Damage
CNA	Competent National Authority
COCG	Commanding Officer Coast Guard
COP	Common Operating Picture
DGGCAA	Director General of Guyana Civil Aviation Authority
DIC	Deputy Incident Commander
DMOB	Demobilisation Unit Leader
DMS	Director of Maritime Safety
DOCL	Documentation Unit Leader
DPIC	Deputy Incident Commander
EEZ	Exclusive Economic Zone
EI	Environmental Impact
EMS	Emergency Medical Services
EOC	Emergency Operations Centre
EPA	Environmental Protection Agency
ETA	Estimated Time of Arrival
FACL	Facilities Unit Leader

FSC	Finance/Administration Section Chief
FUND	International Oil Pollution Fund
GCAA	Guyana Civil Aviation Authority
GEA	Guyana Energy Agency
GDF	Guyana Defence Force
GGMC	Guyana Geology and Mines Commission
GMCS	Guyana Marine Conservation Society
GPF	Guyana Police Force
GRA	Guyana Revenue Authority
GWCMC	Guyana Wildlife Conservation and Management Commission
HAZMAT	Hazardous Material
HR	Human Resources
IMO	International Maritime Organisation
IAP	Incident Action Plan
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IOPC	International Oil Pollution Compensations Fund
IPIECA	International Petroleum Industry Environmental Conservation
ITOPF	International Tanker Owners Pollution Federation Limited
LEA	Law Enforcement Agency
LO	Legal Officer
LOFR	Liaison Officer
LSC	Logistics Section Chief
MARAD	Maritime Administration Department
MARPOL	International Convention for Prevention of Maritime Pollution from Ships
MCC	Maritime Coordination Centre
LCC	Land Coordination Centre
MOAA	Ministry of Amerindian Affairs
MOF	Ministry of Foreign Affairs
MOF	Ministry of Finance

MOH	Ministry of Health
MOHSSP	Ministry of Human Services and Social Protection
MOLGRD	Ministry of Local Government and Regional Development
MONR	Ministry of Natural Resources
MOPW	Ministry of Public Works
NATA	National Air Transport Association
NEBA	Net Environmental Benefit Analysis
NEMS	National Emergency Monitoring System
NEOC	National Emergency Operations Centre
NFP	National Focal Point
NFP-L	National Focal Point – Land
NFP-M	National Focal Point – Maritime
NGO	Non-Governmental Organisation
NOSC	National Oil Spill Committee
NOSCP	National Oil Spill Contingency Plan
NRA	National Response Agency
OC	On-Scene Commander
OP	Office of the President
OPRC	Oil Pollution Preparedness, Response and Cooperation
OSC	Operations Section Chief
OSHA	Occupational Safety and Health Agency
OSRICS	Oil Spill Response Incident Control System
OSRO	Oil Spill Response Organisation
PAC	Protected Areas Commission
PIO	Public Information Officer
POLREP	Pollution Report
POSTREP	Post-Incident Report
PPE	Personal Protective Equipment
PSC	Planning Section Chief
RDRMC	Regional Disaster Risk Management Committee
REMPEITC	Regional Marine Pollution Emergency, Information and Training Centre
RP	Responsible Party

SAR	Search and Rescue
SITL	Situation Unit Leader
SITREP	Situation Report
SMC	SAR Mission Coordinator
SOFR	Safety Officer
SOP	Standard Operation Procedure
SRU	Search and Rescue
UC	Unified Command
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environmental Programme
VIP	Very Important Person
VHF	Very High Frequency
VOC	Volatile Organic Compound
WWF	World Wildlife Fund

DEFINITION OF TERMS

Average Most Probable Discharge (AMPD) – (For Vessels) The lesser of 50 barrels or 1 percent of the cargo from the vessel during cargo oil transfer operations to or from the vessel.

Average Most Probable Discharge (AMPD) – (For Facilities) The lesser of 50 barrels or 1 percent of the volume of the worst-case discharge.

Caribbean Plan - This is the Caribbean Island Oil Pollution Preparedness, Response and Cooperation Plan prepared by IMO/REMPEITC – Carib The Caribbean Plan provides a framework under which Island States and Territories may co-operate at 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).

Contiguous Zone - This is the Zone Contiguous to 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 (UNCLOS).

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

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

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

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

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

Exclusive Economic Zone (EEZ) - For the purpose of the Plan, the Exclusive Economic Zone of Guyana extends seawards to 200 miles, from the baseline.

Facility - 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 oil and/or petroleum products have been deposited, stored, disposed of or placed or otherwise come to be located.

Flash Point – 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.

Competent National Authority – The Civil Defence Commission (CDC) of Guyana. The Competent National Authority (CNA) has overall responsibility for the response to oil spill

emergencies and has the Authority to make and implement decisions to mitigate the impacts of oil spills. Also referred to as the Lead agency.

National Focal Point – Means the agency that will receive spill reports and disseminate to all stakeholders. This is the CDC in Guyana.

National Incident Commander – The Person appointed and charged with the responsibility for the management and coordination of the overall oil spill response. The National Incident Commander/ Competent National Authority is the Director General CDC with Deputies for maritime spills, Director Maritime Safety of MARAD and for land spills it is the Director of the Environmental Protection Agency.

National Oil Spill Committee: The body that oversees the policy development, revision of the plan, development of draft legislation, and making recommendations on relevant international conventions that will increase the nation's capability to deal with pollution and minimise the incidents of pollution from oil spills in our environment. The committee, however, has no operational control over the CNA or the NRA.

National Oil Spill Contingency Plan (NOSCP) –This is Guyana's National Contingency plan that will provide for the coordinated response and training in event of oil spills.

National Response Agency (NRA) – Means the Agency appointed and charged with coordination and direction of the national pollution control efforts at the scene of an oil spill incident. The Coast Guard is the National Response Agency for Maritime and the Guyana Energy Agency for land. Referred to as the National On-Scene Coordinators.

Oil – Oil of any kind 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 – 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 minimising its effects or eliminating the threat. In Guyana this is a discharge of five (5) gallons and more.

Pollution – Contaminant of air, water, land, or other natural resources that will, or is likely to, create a public nuisance and cause health and environmental 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 of the purpose of minimising its effects or eliminating the threat.

Response – The organisation mounted to investigate a reported and, where feasible, to clean up the spill of oil or other noxious substance's, and to maximise the consequences and frequent further spillage.

Territorial Sea –This zone extends 12 nautical miles seawards from the baseline of Guyana.

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

1 INTRODUCTION

1.1 Background

The exploration, production, transporting, utilisation and storage of oil, gas and petroleum products in inland waters, land territory and the Exclusive Economic Zone (EEZ), increase the probability of spills occurring which can impact Guyana's land and marine ecosystems. This forms the basis for the development of this National Oil Spill Contingency Plan (NOSCP), in keeping with the Government of Guyana's commitment to protect lives, properties and our valuable resources from any threat of oil pollution.

1.1.1 This plan is designed to satisfy requirements under domestic legislation and policies, as well as international conventions including the International Convention for the Prevention of Pollution from Ships (MARPOL) and the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990. In the event of an oil spill in Guyana, all concerned Government agencies, all oil companies, shipping companies and other involved parties are required to follow the procedures established in this plan.

1.1.2 The effective management of any spill requires a high level of planning, preparation, and equipment. Collaboration and coordination with clearly outlined roles and responsibilities amongst key Government Ministries and departments, private sector, civil society, non-governmental organisations, international partners, and petroleum companies is paramount to the successful execution of this Plan.

1.2 Plan Authority and Custodian

1.2.1 The Responsibility for development, updating and amendments to this plan rests with the Civil Defence Commission (CDC). The plan shall be reviewed and updated every three years or as needed based on input derived from drills, exercises, actual oil spill incidents and changes in operating and legal environment. The Custodian of the Plan will be the CDC. The Plan Custodian will ensure that the revised plan is made available to all stakeholders.

TITLE		DESIGNATE
The Competent National Authority (Incident Commander)	-	Director General, CDC
Deputy Incident Commander (Maritime)	-	Director Maritime Safety, MARAD
Deputy Incident Commander (Land)	-	Chief Executive Officer, GEA

1.3 Provision for Approval, Control & Revision of the Plan

1.3.1 CDC will submit the plan to Cabinet for approval, which would then be a sub plan of the National Multi-Hazard Preparedness and Response Plan. The NOSCP will be a controlled document under the direction of the CDC. Full contact details for all holders of controlled copies of the plan are maintained on a register at the office of the CDC, in order to facilitate revisions and updating. Revision, updating and finalisation of the

plan will be guided by the established Terms of Reference of the National Oil Spill Contingency Planning Committee.

1.3.2 Revision of the Plan: The main body of the Plan may only be revised by agreement with justification of all members of the National Oil Spill Committee (NOSC) followed by the 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 information annexes, such as contact details and equipment inventory, will be revised, and updated regularly, and new informational appendices added as required, by the CDC, without the need for agreement by the Committee. Such revisions and updates will be circulated by the CDC 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 CDC, 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. CDC 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.

1.4 **Purpose and Objectives**

1.4.1 The purpose of this plan is to define responsibilities for the management of and operational response to the spillage of oil and petroleum products into the environment. This plan shall also account for oil and petroleum products entering Guyana's territorial waters from spills which occur in neighbouring states. This plan outlines the framework within which resources will be coordinated and deployed in

Guyana for the purpose of dealing with pollution of the land and marine environment from spills of oil and petroleum products.

1.4.2 The objectives are to:

a) Provide an appropriate system for monitoring, detecting, and reporting of spills of oil and petroleum products on land and maritime environments.

b) Coordinate deployment of human resources and equipment to respond to oil spills.

c) Coordinate scientific support and analyses to determine priority/sensitivity ratings of impacted or threatened areas.

d) Protect public health, welfare, natural resources in order to minimise environmental and economic impact

e) Provide a command structure, outlining agency and response personnel roles and responsibilities.

f) Establish a reporting procedure to provide information to all relevant national and international stakeholders

g) Establish 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 and implementation mechanisms immediate response to obtain regional and/or international support.

1.5 **Legislative Authority**

1.5.1 Coordination of the operations to respond to land and marine pollution as a consequence of oil spills lies within the remit of the Competent National Authority (CNA). This NOSCP should be implemented in such a manner to conform to local, regional, and international conventions, laws and regulations. In addition, this Plan must be responsive to Regional response frameworks such as the Regional Oil Spill Contingency Plan.

a) National (Local) Regulations and Legislation:

a. The Environmental Protection Act;
b. Disaster Risk Management Bill (Draft);
c. The Maritime Zones Act;
d. The Coast Guard Act (1990);
e. The Guyana Shipping (Marine Pollution) Act (Draft);
f. The Guyana Energy Agency Act
g. Petroleum (Exploration and Production) Act and Regulations 1986
h. Petroleum and Petroleum Products Regulations 2014,

i. Environmental Protection (Hazardous Waste Management) Regulations 2000
j. Environmental Protection (Water Quality) Regulations 2000
k. Protected Areas Act 2011
l. Wildlife Conservation Management Act 2016
m. Use of Dispersants
n. Fire Service (Amendment) Act 2009
o. National Integrated Disaster Risk Management Plan
p. National Multi-Hazard Preparedness and Response Plan
q. Maritime, Air and Land Search and Rescue Plans and SOPs
r. National Emergency Operations Centre Standard Operating Procedures
s. Regional, Municipality and Community Disaster Risk Management Plans

b) Regional:

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

c) International Regulations and Conventions:

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 (The Cartagena Convention)
e. Protocol concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region, 1983 and Protocol on Controlling Land Based Sources of Marine Pollution
f. International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990.

d) Agreements:

a. Bilateral Agreement with Trinidad and Tobago
b. Bilateral Agreements with Suriname

1.6 **Statement of Authority**

1.6.1 The CDC, mandated by Cabinet Note CP (97)2:2, is the authorised agency to manage oil spill incidents in Guyana. The roles and responsibilities are guided by the National Disaster Risk Management Policy and the National Multi-Hazard Preparedness and Response Plan. The CDC along with the NOSC will establish the Incident Command System structure to respond to any oil spill incident. Organisations and agencies

identified to carry out specific roles and responsibilities in this structure, whether public or private, are obligated to respond to any oil spill incident, drills or training.

The secretariat for administration of this plan is the CDC which houses the National Emergency Operating Centre (NEOC) in event of a national response.

1.7 **Mechanism for Activating the Plan**

1.7.1 The Plan shall guide daily operations and response to all discharges or potential discharges of oil into the navigable waters and on land. The NEOC will be activated when a tier 2 spill occurs or when otherwise directed by the CNA in consultation with MARAD, GEA, EPA and Coast Guard (GDF) in the event of an oil spill incident. The CNA will advise the Minister with responsibility for Disaster Management and apprise him/her of the situation.

1.7.2 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 policies and procedures of the Ministry of Home Affairs, the Guyana Revenue Authority and the Immigration Department of the Guyana Police Force.

1.8 **Scope**

1.8.1 This Plan is effective for oil spills on land, in navigable waters, or from any other source that may migrate to or flow into the navigable waters. It is intended to organise the activities of all the responsible agencies and to provide a command structure and an established method of operations for the agencies engaged in dealing with any incident.

The plan classifies levels of oil spill and the corresponding response mechanisms and procedures and illustrates structures and mechanisms for providing operational direction to authorities involved in oil spill response at national, regional and community levels.

1.8.2 Due to the proximity of Suriname, Trinidad and Tobago and Venezuela, a spill occurring in any one country may have direct or indirect social, economic, or environmental impacts on the others. Therefore, a good working relationship is to be established among the neighbouring territories in the interest of reducing impacts of major spills that occur near the borders. Additionally, a rapid response agreement of equal rights of access must be established. This is included in section 2.8 of the Caribbean Island plan.

1.9 **Geographical Area**

1.9.1 Guyana is on the North Eastern shoulder of South America with a land area of 83,000 square miles and a coastline of 248 nautical miles between 1 and 9 North Latitude and 56 and 62 West Longitude. It is bordered by the Atlantic Ocean to the North, Brazil to the South and South East and, Suriname to the East and Venezuela to the West.

The land comprises four (4) natural regions: The Low Coastal Plain, the Hilly Sand and Clay Region, the Highland Region and the Interior Savannahs. The Low Coastal Plain ranges from 26 to 77 kilometres wide and extends from the Corentyne River in the East

to the Cuyuni River in the North West. The Coastal Plain, which occupies about 5 percent of the country area, is home to more than 90 percent of its inhabitants, in addition to the country's main economic activities.

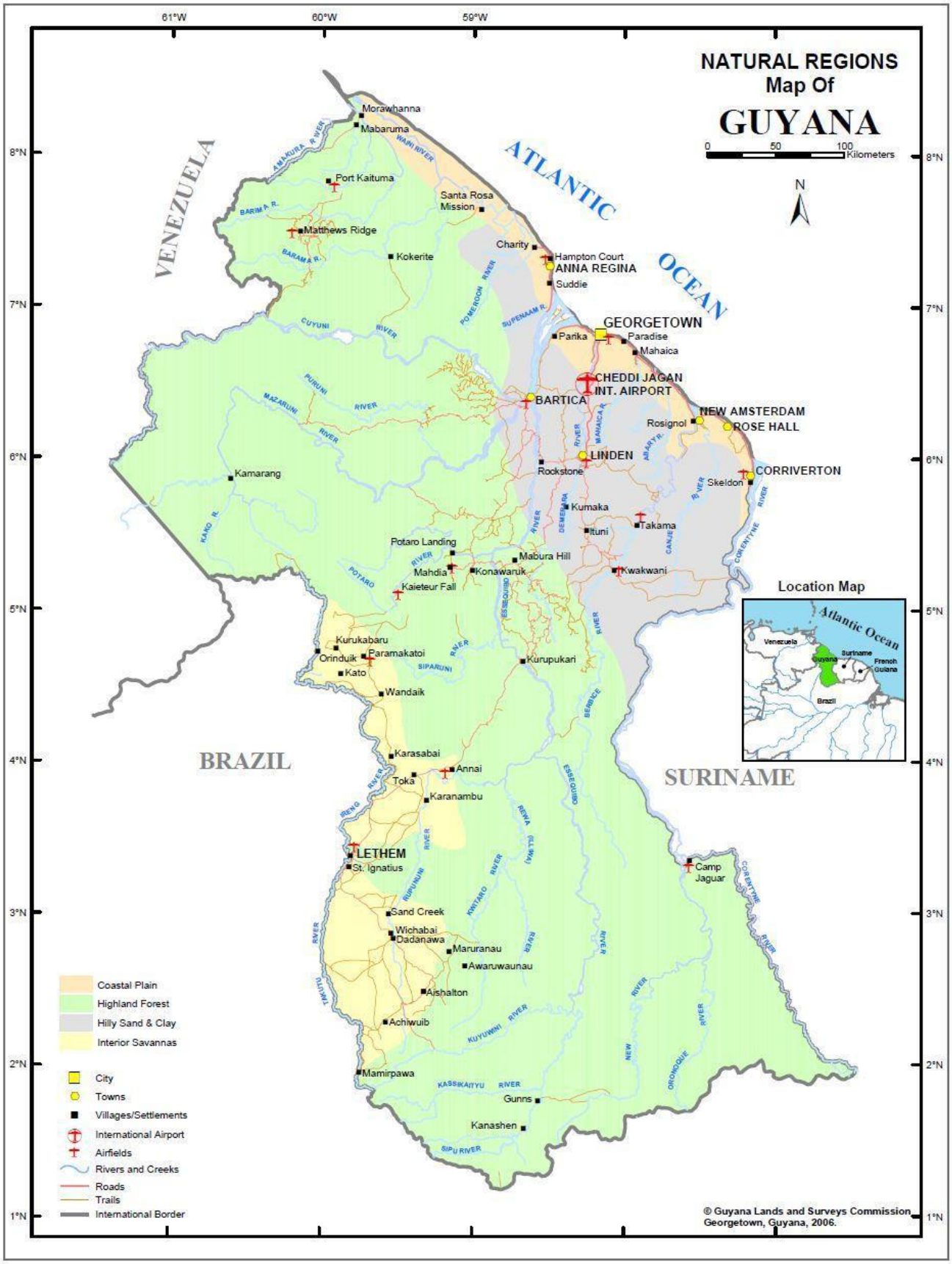

Figure 1 – Map Showing Natural Regions of Guyana

1.10 Exclusive Economic Zone

The Exclusive Economic Zone (EEZ) comprises an area of the sea beyond and adjacent to the territorial sea extending to a line every point of which is a distance of two hundred nautical miles from the nearest points of the baselines of the territorial sea and is so designated as the Exclusive Economic Zone (EEZ) of Guyana.

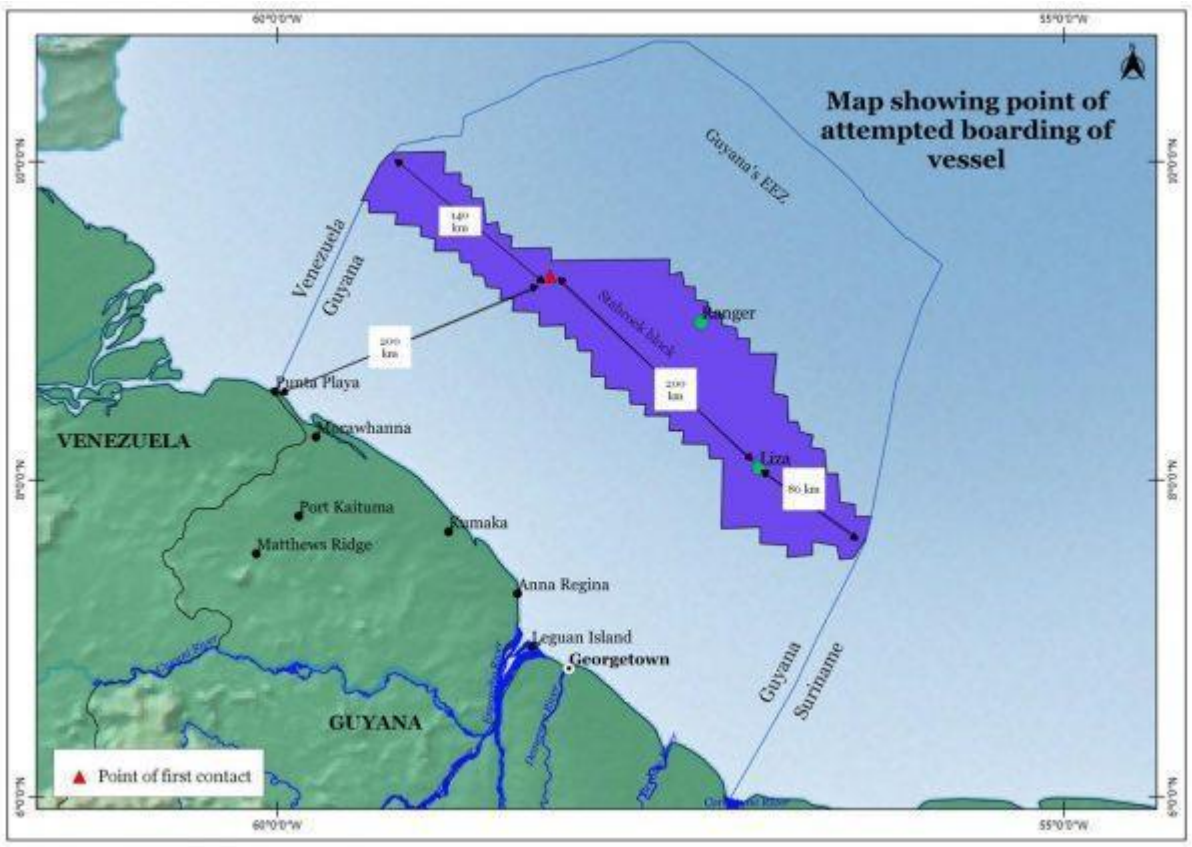

Figure 2: Map Showing Exclusive Economic Zone of Guyana

1.11 Activation

1.11.1 The Plan would be activated partially or fully for all tiers (tiers 1 – 3) of response to an oil spill in Guyana's geographical territory within the boundary of the EEZ.

1.11.2 It is the Responsible Party's duty to take the necessary actions, including making the required notifications to the Guyana authorities using the communications procedure detailed in this NOSCP, in the event of an oil spill incident during their operational activities.

1.11.3 Once notified, it is the decision of the CNA whether to further activate this NOSCP.

1.12 Underlying Principles, Protection and Environmental Sensitivities

1.12.1 This plan is governed by the following underlying principles:

a) Prevention: Regulatory and physical measures to prevent incidents or mitigate the effects and/or impacts of the pollutant. Every effort must be made by facilities, regulatory agencies and other stakeholders to prevent spills of oil from occurring, as the highest priority.

b) Preparedness: Arrangements to mobilise and deploy all necessary resources and services. Despite all efforts, spills may occur from time to time, which makes it necessary to have contingency plans in place to respond effectively at all levels.

c) Response: Actions taken during and immediately after an oil spill to minimise effects. The response to oil spills under NOSCP will always seek to maximise cooperation, co-ordination and integration among government, industry, and civil society, and to adopt the most cost-effective, efficient, and practicable response options available.

d) Recovery: The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural, and environmental assets, systems and activities. The primary purpose of the plan is to provide a national mechanism for the prevention/minimisation of damage to marine and terrestrial ecosystems and resources damaged by oil spills.

e) Liability Under Compensation: Arrangements that the polluter pays the full costs associated with the oil spill. This includes, but is not limited to, response, clean-up, recovery, and compensation.

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

a) Ensure the safety of citizens and response personnel

b) Incident stabilisation

c) Environmental Protection

d) Economic Protection

e) Cultural resources

f) Non-commercial property and amenity

All aspects of this national response plan should be implemented concurrently; however, safety and incident stabilisation are to be of highest priority. The NOSCP should not delay containment and removal decisions and should take actions to minimise adverse impact to the environment that begins as soon as a discharge occurs, as well as actions to minimise further adverse environmental impact from additional discharges.

The priorities set forth in this section are broad in nature and should not be interpreted to preclude the consideration of other priorities that may arise on a site-specific basis.

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

2 RISK ASSESSMENT

2.1 Introduction

2.1.1 Marine traffic, especially oil tankers, and cargo vessels in transit through the rivers and coastal waters, present the risk of major oil spill from collision, fire, explosion, and grounding. Pollution can also be caused by vessels pumping out their bilges or otherwise illegally discharging oil.

2.1.2 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 harbour areas. These spills are usually small in nature resulting from normal operations such as loading/unloading and bunkering of fuels.

2.1.3 The risk of oil spills resulting from shipping operations in, or in the vicinity of Guyana must be identified. The NOSCP will outline a response capability, in co-operation with industry, to address these risks.

2.1.4 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 have capabilities on-site to manage the response for a Tier 1 spill, and systems in place to effectively respond to Tiers 2 and 3 spills so that the Average Most Probable Discharge (AMPD) has minimal or no impact on the environment. All at-risk resources must be identified and mechanisms for protection outlined.

2.2 Assessment of Risks

2.2.1 A comprehensive Risk Assessment is to be completed which will assess the levels of risks for locations and resources within Guyana to the impacts of an oil spill. The Risk Assessment will be conducted utilising a Risk Assessment Methodology as outlined in Annex 7 of this plan, as well as other pertinent and useful baseline information and data currently existing and to be developed.

2.2.2 Preliminarily, the Low Coastal Plain and the Administrative Regions contained therein, namely Regions 1, 2, 3, 4, 5 and 6, are identified as the most at risk areas of Guyana to the impacts of an oil spill, and more particularly, an offshore spill. Given the location of the assigned blocks for current exploration and upcoming production offshore, Region 1 (Baima/Waini) can be preliminarily identified as the most at risk of the Coastal Regions of Guyana.

2.2.3 The likelihood of oil reaching shore following an oil spill offshore is to be assessed in the Risk Assessment, taking into consideration, among other things, travel distance, wave and wind activity and location of the oil rigs. Communities located immediately along and/or washed by the Atlantic Ocean are anticipated to be the most at risk, if oil is to reach shore following a spill. The animals and ecosystems which exist at these shorelines (such as mangrove forests), therefore are at risk of impacts of an oil spill. The specific impacts which can be anticipated will be investigated in full detail through the Risk Assessment, and this will also be a key reference document in the development of a Long-Term Recovery Plan to any oil spill.

2.2.4 Marine ecosystems and animals in and around the oil rigs are at highest risk, with some of the potential impacts being eye and skin irritation, death to species and habitat degradation. Endangered and extinct species within these environments are particularly vulnerable, due to their already low and diminishing population numbers. The Risk Assessment will identify the specific species and habitats within and around these locations and assess their levels of risks based on the threats faced, the possibility of occurrence, and the potential impacts to be faced in the case of an oil spill.

2.2.5 The Risk Assessment will assess the risks to livelihoods, however, preliminarily the agricultural sector can be identified with the highest risk due to the level of potential losses to fisherfolk in the instance of an oil spill.

3 TIERED RESPONSE PLANNING SYSTEM

3.1 For the purposes of the plan, spills are classified as Tier One (1), Two (2) and Three (3) spills, as seen in Figure 3 below. Classification is dependent upon the type and amount of spill, the resources required and the level of support both nationally, regionally, and internationally. Other factors that can determine the tier of response required are environmental sensitivity, socio-economic impacts, and threat to public health.

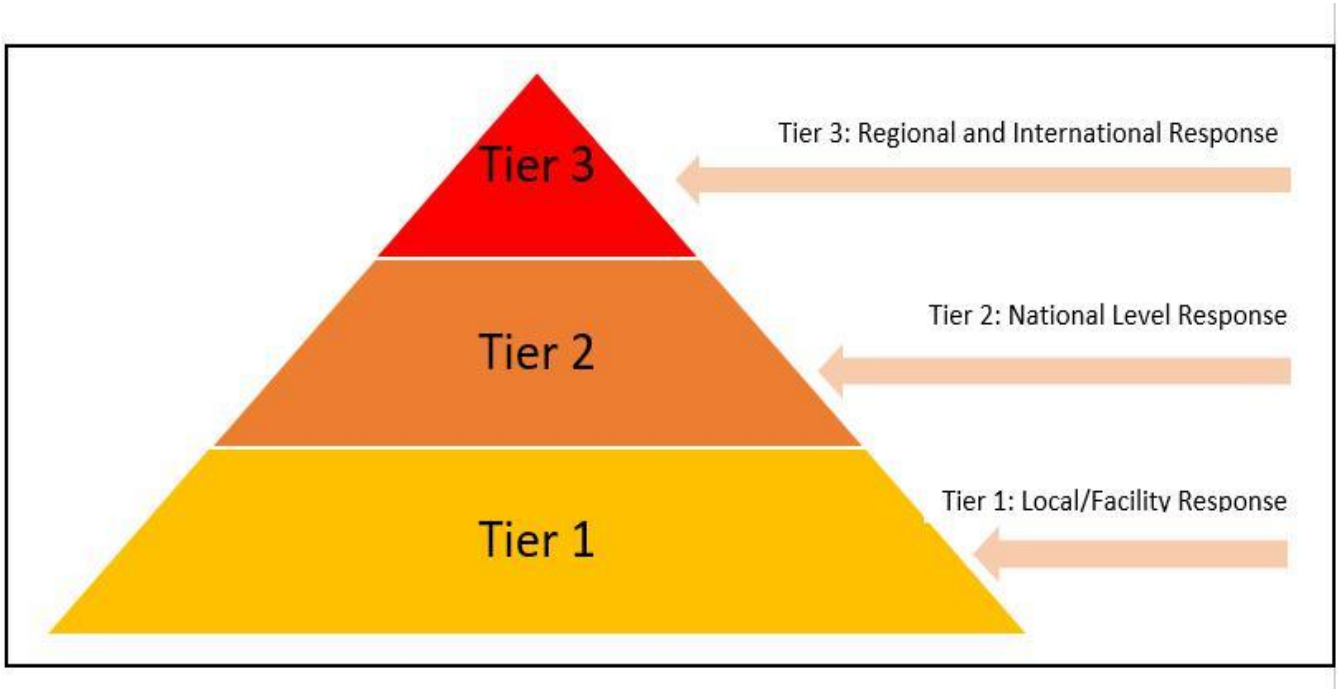

Figure 3 – Tiers of Response for Oil Spills

3.2 Facilities and vessels operating within the Exclusive Economic Zone of Guyana shall ensure that adequate equipment and personnel are on site to respond to a Tier 1 Spill. They shall also have a vessel or facility Response Plan which outlines a response to any scenario within the tiered response planning framework. Critically, all facilities must have an approved Oil Spill Contingency Plan. These plans should undergo regular or periodic testing for all tiers of the response. Additionally, operators should have the following: (including and not limited to) standing contracts with Oil Spill Response Organisations, equipment and personnel providers, and other mutual aid agreements.

4 OIL SPILL/EMERGENCY RESPONSE MANAGEMENT ORGANISATION

4.1 Government Responsibility

4.1.1 The management of oil spill issues in Guyana is vested in the National Oil Spill Committee (NOSC); the Management Framework for this committee is illustrated in Figure 4. The appropriate Government agencies from the NOSC will cooperate fully to respond expeditiously to an oil spill incident that affects or threatens to affect the environment.

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

4.1.3 Good communication between all levels of Government utilising available and outlined mechanisms are vital to successful implementation of the Plan. Any pollution incident that threatens the country or the environment shall be promptly reported to the CDC through the Deputy Incident Command for the specific type of spill (onshore or offshore).

4.1.4 Agencies possessing equipment and other resources that may be useful in a Government response to an oil spill incident shall make those resources available in response to the spill.

4.2 National Oil Spill Committee (NOSC)

4.2.1 The Government of Guyana has a fully formulated NOSC consisting of representatives from:

1. Civil Defence Commission
2. Guyana Defence Force (Coast Guard and Air Corps)
3. Maritime Administration Department
4. Ministry of Health
5. Ministry of Legal Affairs/Attorney General Chambers
6. Ministry of Agriculture (Fisheries, Crops and Livestock Divisions)
7. Ministry of Public Works
8. Ministry of Foreign Affairs
9. Guyana Civil Aviation Authority
10. Guyana Hydrometeorological Service
11. Shipping Association of Guyana
12. Guyana Police Force (including the Immigration Department)
13. Guyana Fire Service
14. Environmental Protection Agency
15. Guyana Energy Agency
16. National Pesticide and Toxic Chemical Board
17. Guyana Marine Conservation Society
18. Department of Energy
19. Guyana Geology and Mines Commission
20. Ministry of Finance
21. Guyana Revenue Authority
22. Guyana Wildlife Conservation and Management Commission

23. Ministry of Local Government and Regional (Sanitation Management Unit)
24. Private Sector Commission/Georgetown Chambers of Commerce and Industry (Oil & Gas lead)
25. Ministry of Human Services and Social Protection (Occupational Health & Safety Unit)

4.2.2 The responsibilities of the NOSC shall be as follows:

a. To recommend improvements to, implement and maintain the NOSCP,

b. Oversee the response to oil spills and monitor performance and effectiveness,

c. Review local/facility contingency plans for consistency with National systems,

d. Oversee national oil spill response training and exercises,

e. Make available those facilities or resources, that may be useful in a response situation, consistent with the agency's authority and capability,

f. Provide advice to government on general oil spill pollution issues and contribute to development of policy, legislation and other initiatives relating to the prevention, preparedness, mitigation, and response to oil spill pollution,

g. Promote public awareness of, and appropriate community participation in oil spill prevention, preparedness, mitigation, and response,

h. Develop and evaluate procedures to promote a coordinated response,

i. Monitor reports, evaluate the likely impact of reported pollution incidents, and remain aware of the CNA's actions and plans,

j. Give guidance on actions of local, national, bilateral, and international agencies in supplying necessary support to the response,

k. Garner support from other agencies (Industrial – Scientific groups) to assist appropriately where/when needed, and

l. The membership of the NOSC becomes part of the NEOC during oil spill incidents, advises and supports the CNA in the response.

4.2.3 When the NOSC is convened for the purpose of addressing its responsibilities under this plan, the Chairman shall be the Director General of CDC and the Vice Chairman shall be the Executive Director of the EPA.

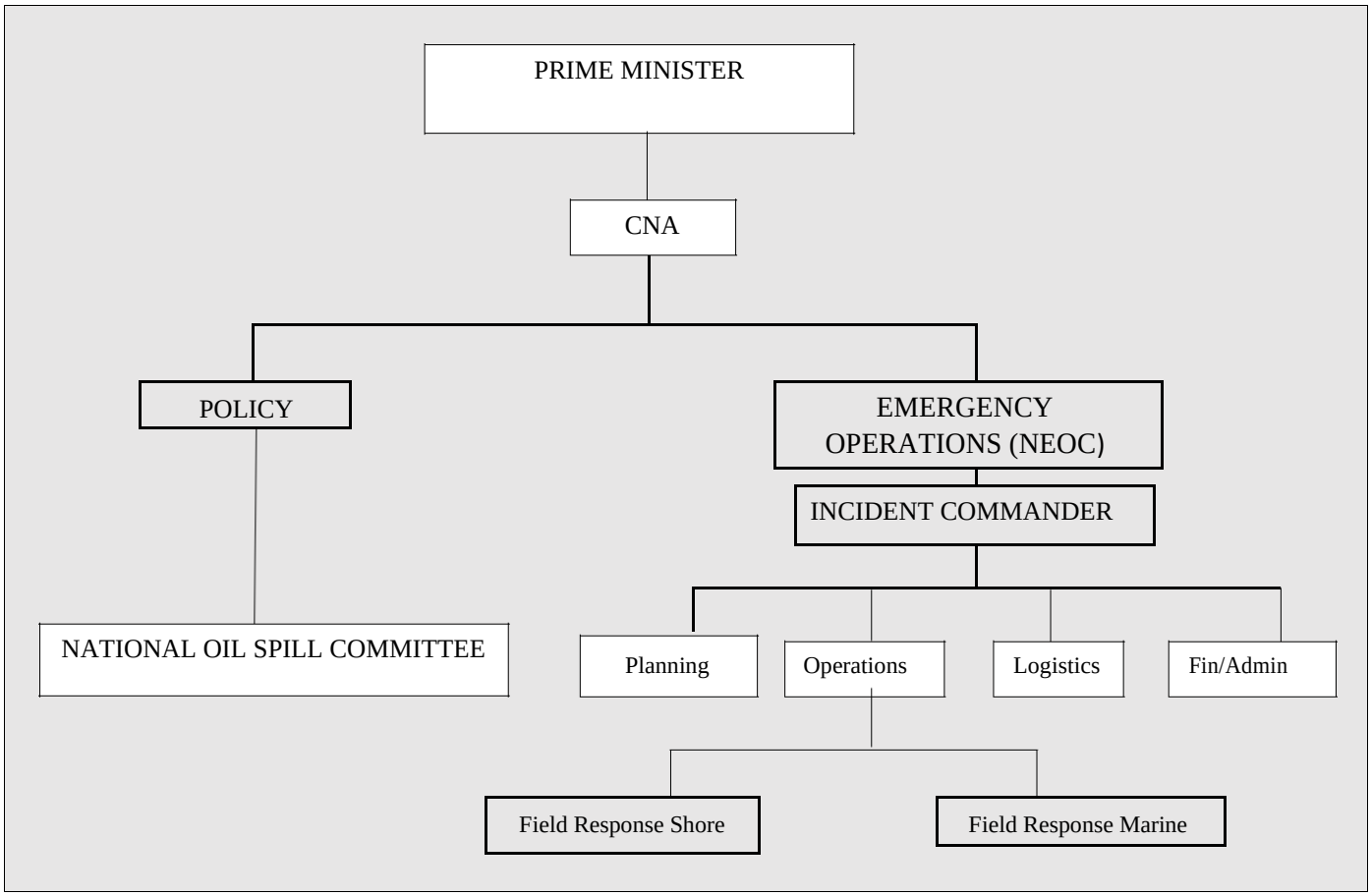

Figure 4- Guyana's National Oil Spill Management Structure

4.3 **Responsibilities of Agencies**

4.3.1 Many of the agencies which comprise the membership of the NOSC will have specific roles and responsibilities in the response to an oil spill. These roles are categorised under one of the following areas of the response operations:

a. Monitoring/Detection

b. Notification/Alerting

c. Initial Assessment

d. Response

e. Clean Up and Disposal

f. Termination

g. Cost Recovery and Compensation

h. Long Term Recovery

4.3.2 Offshore Oil Spill Response

Agencies will assume specific responsibilities for **offshore spills** as outlined in **Table 1** below; the National Focal Point-Marine (NFP-M) shall be the Maritime Administrative Department (MARAD), and, as such, MARAD will serve as the Deputy Incident Commander in the response to an offshore spill.

Activity/ Task	Agency/cies		Description of Responsibility/ies	Remarks
	Category	Agency Name		
Monitoring/ Detection	Lead	MARAD	- Coordinate with the shipping industry to ensure that vessels report any sighting of oil spill immediately to the Georgetown Lighthouse - Monitor all messages and communication from aircraft and maritime vessels - Verification of information received (through different agencies)	Georgetown Lighthouse – 226-9871 **All agencies are required to report marine incidents of oil spill to MARAD Georgetown Lighthouse**
	Support	GGMC	- Relay onsite/real time information on oil spill - Provide technical assistance in understanding spilled resource and its origin - Conduct periodic monitoring of exploration and production activities	Assumption: GGMC will have a presence on the rigs and the FPSOs; this does not include a physical presence on other vessels.
	Support	Coast Guard (GDF)	- Conduct reconnaissance patrols for verification of reports of oil spill sightings and report to MARAD immediately - Conduct patrols and report sightings of oil spills immediately to MARAD - Collection of sample pollutant and forward to EPA and GGMC to facilitate analysis	
	Support	CDC	- Monitor public, communities, and regions through the NEMS for incidents of oil spill and report immediately to MARAD	
	Support	EPA	- Conduct periodic monitoring of exploration and production activities	
	Support	Air Corps (GDF)	- Conduct aerial reconnaissance and surveillance - Support verification of reports of oil spills through aerial observation	

	Support	Trawlers Association, Artesian Fishermen, Fisheries Dept.	- Monitor for oil spills	
	Support	Aircraft Owners Association/NATA	- Monitor for oil spills - Report sighting of oil spills to GCAA (Air Traffic Controllers)	
	Support	GCAA	- Communicate all reports of sighting of oil spill by aircraft immediately to MARAD	
	Support	GEA	- Relay onsite/real time information on oil spill	
	Support	Responsible Party	- Monitor and report all incidents of oil spill to EPA, GEA (rivers), MARAD, CDC, Third party response companies for all tiers of spill	
↓				
Notification/ Alerting	Lead	MARAD	- Inform all relevant maritime agencies on verified sighting of oil spill, including Responsible Party - Inform CNA on verified sighting of oil spill - Inform mariners on verified sighting of oil spill (Notice to Mariners)	Assumption: MARAD Georgetown Lighthouse has contact details for all relevant agencies
	Support	CDC	- Alert relevant govt ministries and agencies and RDRMS, CDEMA, Regional Centre for oil response (RAC-RAMPEITC), Min. with responsibility for DRM	
	Support	EPA	- Notify Min. with responsibility of Environment, Wildlife, Mangrove, Marine Conservation, Dept. of Environment, Department of Energy, etc.	
↓				
Notification/ Alerting Countries	Lead	MoFA	- Notify relevant international bodies, neighbouring countries and entities - Notify international maritime authorities via MARAD.	MoFA would have to be guided on which international authorities to notify by relevant agencies.
↓				
Initial Assessment	Lead	EPA	- Define membership of assessment team - Coordinate and lead assessment	The aim of the initial assessment is to determine impact, synopsis of spill behaviour

			- Prepare assessment report including maps and recommended response and submit to the CDC and MARAD - Ensure participation of Responsible Party in the initial assessment - Assist in identifying high risk areas, ecologically sensitive zones, vulnerable resources, and priorities for protection.	
	Support	GGMC	- Provide investigative technical support (causes, flow rate, etc.)	
	Support	Air Corps/Aircraft Owner Association/NATA	- Provide aerial support to conduct assessment	
	Support	Guyana Hydrometeorological Service	- Provide information on oceanographic and atmospheric(climatologicalandhydrological) conditions for assessment	
	Support	Coast Guard	- Provide maritime security and transport - Support data collection, analysis, and interpretation	
	Support	CDC	- Monitor assessment - Aid in coordination and acquisition of resources - Make a determination of spill tier and appropriately activate NEOC	
	Support	MARAD	- Support data collection - Conduct analysis modelling and projections -Providetransportationsupport,including mobilisation of private operators - Provide technical support for marine traffic control	
	Support	Responsible Party	- Provide oil spill information, including source, quantity, time, etc.	
	Support	WWF, PAC, GWCMC, GMCS	- Assist n conduct of initial assessment	

Response	Lead	GDF Coast Guard	- Provide On-Scene Command - Lead the operational response with oversight from Maritime Operations Centre - Deploy and manage resources for response - Establish staging area - Provide maritime security in operating area - Conduct search and rescue where necessary	The response is aimed at removing, containing, disposing of oil Deployment of resources will be in conjunction with Responsible Parties.
	Support	CDC	- Acquire national resources and equipment to support response - Coordinate the activities of the NEOC	
	Support	Responsible Parties	- Activate response plan - Provide timely updates to MARAD, CDC, EPA, Coast Guard - Deploy resources for response, including third party resources where necessary	All responsible parties must ensure that appropriate and verifiable mechanisms are in place to adequately respond to all tiers of spills
	Support	Response Contractors	- Provide oil spill response resources as needed, including personnel	
	Support	GFS	- Provide EMS - Respond to any fire related event - Conduct and monitor in situ burning - Assist in search and rescue where necessary	
	Support	GDF Air Corps	- Conduct aerial surveillance and continued monitoring - Provide medical evacuation as required - Coordinate with other air service providers - Provide support for search and rescue	
	Support	Aircraft Owners Association/NATA	- Provide air assets and personnel as required	
	Support	MARAD	- Activation of Maritime Operations Centre - Coordinate all agencies involved in operations - Provide communication with vessels - Submit requests for resources to the NEOC - Coordinate deployment of key personnel and equipment	
	Support	Transport and Harbours	- Supply sea going vessels and personnel as required - Assist in transporting of resources	

	Support	Guyana Wildlife Conservation & Management Commission	- Give guidance as it related to sensitive flora and fauna areas - Wildlife rescue and evacuation	
	Support	Guyana Marine Conservation Society	- Give guidance as it related to sensitive flora and fauna areas (marine) - Wildlife rescue and evacuation, protection of sensitive sites	
	Support	EPA	- Provide environmental oversight and specialist advice on environment during response - To ensure that environmental damage is minimised - Provide advice/guide to control environmentally threatened resources/activities - Provide advice relating to spill management, operations, logistic and technical issues. - Provide advice on dispersant use (and monitor its application) and other strategies related to EP Act - Advice and oversight of disposal of waste and other materials recovered from spill response clean-ups etc. - Coordinate with GWCMC and PAC and Fisheries for wildlife rehabilitation. - Assist in mitigation of spill effects on coastal waters - Ensure health and safety of response teams in collaboration with MoH	
	Support	MoH	- Provide ambulances, personnel, and other medical resources - Liaise with private health facilities to supplement available resources - Offer advice for health-related matters - Facilitate medical evacuations (local and international)	
	Support	GGMC	- Provide continued technical support on spill behaviour (causes, flow rate, etc.)	
	Support	GRA	- Facilitate expedited clearance of resources	
	Support	Ministry of Home Affairs	- Expediting procedures for entrance and medical evacuation of persons	

	Support	Trawlers Association	- Assist in acquisition of vessels	
	Support	GPF	- Provide traffic control where necessary - Lead any criminal investigative process where necessary	
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Clean up and disposal	Lead	EPA	- Manage, advise, and collaborate on clean-up and termination - Conduct Net Environmental Benefit Analysis (NEBA) to advise on termination - Liaise with responsible party/parties on clean-up operations - Coordinate and advise on disposal – Enforce provisions of EP Act and MEAS and conventions relevant to oil spills.	Clean-up is a conditional phase; it would be dependent on the level of spill and outcomes of the initial assessment and response
	Support	Responsible party/parties	- Provide personnel, technology, equipment to conduct clean-up and disposal activities - Responsible for execution and financing of clean-up and disposal of spill	
	Support	Affected agencies-wildlife, fisheries, protected areas	- Provide support and coordination for clean-up of affected areas and wildlife	
	Support	RDRMCs/CBDRMCs	- Provide support and coordination for clean-up of affected areas e.g. farms, waterways, residential areas, etc.	
	Support	Private companies (Third party companies)	- Provide equipment and personnel to support clean-up as required	
	Support	MARAD	- Ensure salvaging of wrecks	
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Termination	Lead	CDC	- Issue termination order, based on advice from EPA	
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Cost Recovery Compensation	Lead	Ministry of Legal Affairs	- Advise and coordinate for compensation etc.	
	Support	All relevant agencies (EPA, GGMC, MOFA, GEA, etc.)	Support in compensation claims based on acts, regulations, and function.	Petroleum Act & Regulations, EP Act, Maritime Zones Act, etc.
	Support	Oil Companies/ Tankers/polluters	-Liability for long term recovery and compensation - Coordinate with key stakeholders – wildlife, protected areas, etc.	
↓				
Long Term Recovery	Lead	EPA	- Assess and estimate cost of damages to the environment and advise on recovery needs - Enforce maritime pollution and other relevant laws, regulations, and conventions	

Table 1 – Roles of Organisations in Offshore Oil Spill Response

4.3.3 Onshore Oil Spill Response

Agencies will assume specific responsibilities for **onshore spills** as outlined in **Table 2** below; the National Focal Point-Land (NFP-L) shall be the Guyana Energy Agency (GEA), and, as such, GEA will serve as the Deputy Incident Commander in the response to an onshore spill.

Activity/ Task	Agency/cies		Description of Responsibility/ies	Required Resources
	Category	Agency Name		
Monitoring/ Detection	Lead	GEA	- Coordinate with facilities to ensure that parties report any sighting of oil spill immediately to the Oil Spill Response Centre at GEA (to be established) - Monitor all messages and communication from reporters on spills - Verification of information received (through different agencies)	GEA – Head of Fuel Marking Division, 226-4424, 615-3659 **All agencies are required to report incidents of oil spill on land to GEA**
	Support	EPA	- Conduct periodic monitoring of exploration and production activities	

	Support	GGMC	- Relay onsite/real time information on oil spill - Provide technical assistance in understanding spilled resource and its origin - Conduct periodic monitoring of exploration and production activities	
	Support	Aircraft Owners Association/Air Corps, NATA	- Conduct aerial reconnaissance and surveillance - Support verification of reports of oil spills through aerial observation - Monitor for oil spills - Report sighting of oil spills to GCAA (Air Traffic Controllers)	
	Support	GCAA	- Communicate all reports of sighting of oil spill by aircraft	
	Support	GPF/GFS/GDF/MoAA/RDCs/RDRMs	- Conduct surveillance, observation, and reporting in their regular duties	
	Support	Responsible Party	- Monitor and report all incidents of oil spill to GEA (rivers), Third Party response companies for all tiers of spill	
	Support	GFS	- Conduct routine inspections of facilities	
	Support	CDC	- Monitor public, communities, and regions through the NEMS for incidents of oil spill and report immediately to GEA	
Notification/ Alerting	Lead	GEA	- Inform all relevant land agencies on verified sighting of oil spill, including Responsible Party - Inform CNA on verified sighting of oil spill - Inform affected communities on verified sighting of oil spill	Assumption: GEA has contact details for all relevant agencies
	Support	CDC	- Alert relevant govt ministries and agencies and RDRMS, CDEMA, Regional Centre for oil response (RAC-RAMPEITC), Min. with responsibility for DRM	
	Support	EPA	- Notify Min. with responsibility of Environment, Wildlife, PAC, Dept. of Environment, Department of Energy, etc.	

Notification/ Alerting Countries	Lead	MOFA	- Notify relevant international bodies, neighbouring countries, and entities - Notify international authorities via GEA	
Initial Assessment	Lead	EPA	- Define membership of assessment team - Coordinate and lead assessment - Prepare assessment report including maps and recommended response and submit to the CDC. - Ensure participation of Responsible Party in the initial assessment - Assist in identifying high risk areas, ecologically sensitive zones, vulnerable resources, and priorities for protection.	The aim of the initial assessment is to determine impact, synopsis of spill behaviour
	Support	GGMC	- Provide investigative technical support (causes, flow rate, etc.) for mining related incidents, and exploration and production	
	Support	GEA	- Provide information on capacity and type of petroleum products on site - Provide information on constructed and installed prevention equipment	
	Support	Oil Facilities and companies	- Provide oil spill information, including source, quantity, time, etc.	
	Support	GFC	- Provide investigative technical support for forest related incidents	
	Support	GDF	- Provision of transportation support (air, land, and sea)	
	Support	GFS	- Form part of assessment team	
	Support	RDCs/RDRMS	- Support the assessment teams (logistics, information, etc.)	
	Support	WWF, PAC, GWCMC	- Assist in conduct of initial assessment	
	Support	MoH	- Provide support in initial assessment as required	

Response	Lead	GEA	- Activation of Emergency Operations Centre - Lead the operational response - Deploy and manage key personnel and resources for response - Establish staging area - Coordinate all response agencies - Submit requests for resources to the NEOC	The response is aimed at removing, containing, disposing of oil Deployment of resources will be in conjunction with Responsible Parties.
	Support	CDC	- Acquire national resources and equipment to support response - Coordinate the activities of the NEOC	
	Support	GPF	- Provide security in operating area - Provide traffic control where necessary - Lead any criminal investigative process where necessary - Lead search and rescue efforts where necessary	
	Support	EPA	- Provide environmental oversight and specialist advice on environment during response - Ensure that environmental damage is minimised - Provide advice/guide to control environmentally threatened resources/activities - Provide advice relating to spill management, operations, logistic and technical issues. - Provide advice on dispersant use (and monitor its application) and other strategies related to EP Act, where necessary - Provide advice and oversight on disposal of waste and other materials recovered from spill response clean-ups etc. - Coordinate with GWCMC, PAC, etc. for wildlife rehabilitation. - Ensure health and safety of response teams in collaboration with MoH	
	Support	GGMC	- Provide continued technical support on spill behaviour (causes, flow rate, etc.)	
	Support	GDF (Coast Guard, Air Corps)	- Provide transportation support as required - Assist in search and rescue where necessary	

	Support	GFS	- Provide timely response to fires (containment of fires, and prevention of further fires) - Provide Emergency Medical Services - Assist in search and rescue where necessary	
	Support	MoPW	- Provide equipment to support response as required, in collaboration with MoLGRD and RDCs	
	Support	MoLGRD, RDCs, RDRMS	- Coordinate local resources and support to response operations	
	Support	MoH	- Facilitate ease of access for medical evacuations - Provide ambulances, personnel, and other medical resources - Liaise with private health facilities to supplement available resources - Offer advice for health-related matters	
	Support	Interest groups – Wildlife, mangroves, etc.	- Give guidance as it related to sensitive flora and fauna areas - Conduct wildlife rescue and evacuation, protection of sensitive sites - Provide human resources to support response activities	
	Support	Responsible Parties	- Activate response plan - Provide timely updates to GEA - Deploy resources for response, including third party resources where necessary	All responsible parties must ensure that appropriate and verifiable mechanisms are in place to adequately respond to all tiers of spills
	Support	Response Contractors	- Provide oil spill response resources as needed, including personnel	

Clean up and disposal	Lead	EPA	- Manage, advise, and collaborate on clean-up and termination - Conduct Net Environmental Benefit Analysis (NEBA) to advise on termination - Liaise with responsible party/parties on clean-up operations - Coordinate and advise on disposal – Enforce provisions of EP Act and MEAS and conventions relevant to oil spills. - Assess and estimate cost of damages to the environment and advise on recovery needs - Enforce pollution and other relevant laws, regulations, and conventions	Clean-up is a conditional phase; it would be dependent on the level of spill and outcomes of the initial assessment and response
	Support	Responsible party/parties	- Provide personnel, technology, equipment to conduct clean-up and disposal activities - Responsible for execution and financing of clean-up and disposal of spill	
	Support	Affected agencies-PAC, GCWMC, etc.	- Provide support and coordination for clean-up of affected areas and wildlife	
	Support	RDCs, RDRMs/CBDRMs	- Provide support and coordination for clean-up of affected areas e.g. farms, waterways, residential areas, etc.	
	Support	Private companies	- Provide equipment and personnel to support clean-up as required	
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Termination	Lead	CDC	- Issue termination order, based on advice from EPA	
↓				
Long term Recovery	Lead	EPA	- Monitor progress towards long term recovery - Enforce regulations regarding long term recovery	
	Support	Responsible Parties	- Liable for long term recovery	
↓				
Cost Recovery & Compensation	Lead	Ministry of Legal Affairs	- Advise and coordinate for compensation etc.	
	Support	Responsible Parties	- Liable for all associative and permissible compensation	

	Support	All relevant agencies (EPA, GGMC, MOFA, GEA, etc.)	Support in compensation claims based on acts, regulations, and function.	Petroleum Act & Regulations, EP Act, GEA Act, etc.

Table 2 – Roles of Organisations in Onshore Oil Spill Response

4.4 **Responsible Party/Polluter**

4.4.1 The course of action immediately following an oil spill of any magnitude is for the Responsible Party/Polluter to undertake all necessary actions and expenditures and in any 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 specific responsibilities:

a. Reporting the spill immediately to the National Focal Point/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 CNA in the response to the spill under the direction of the CNA.

4.4.2 The CNA, in collaboration with the National Focal Point (NFP) for the relevant type of spill (Marine or Land) and other members of the NOSC, should be providing oversight of the response and assisting the responsible party in determining the appropriate response actions. If the responsible party is not taking appropriate actions, then the CNA shall provide written direction outlining specific instructions and priorities consistent with the National Oil Spill Contingency Plan to the Responsible Party. If the responsible party continues to fail to meet their obligations, then the CAN shall reappoint clean up responsibilities and seek reimbursement for costs from the Responsible Party.

4.5 **Protection and Indemnity Club (P&I Club)**

4.5.1 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 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.

4.5.2 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.

4.5.3 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 Salvers and ships masters and will be a valuable conduit for information flow.

4.6 **Incident Command & Control - Elements of Effective Control of Spill Response:**

4.6.1 In Guyana, oil spill response will be executed using the Incident Command System (ICS). Establishing effective control and initiating a spill response requires several actions. These include:

a. ICS activation Procedures

b. Mobilising the Marine or Land Spill Response Team

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).

4.7 **Incident Command System for Oil Spill Response:**

4.7.1 Response operations cannot be effectively carried out unless there is a clear organisational structure to command and control both the response activities as well as the trained individuals to carry out the response plans. In the event of an oil spill, a specific Incident Command System Structure will be activated, as in Figure Four.

4.7.2 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 ICS directs response efforts and coordinates all

efforts at the scene and is the primary decision-making authority in relation to spill response activities.

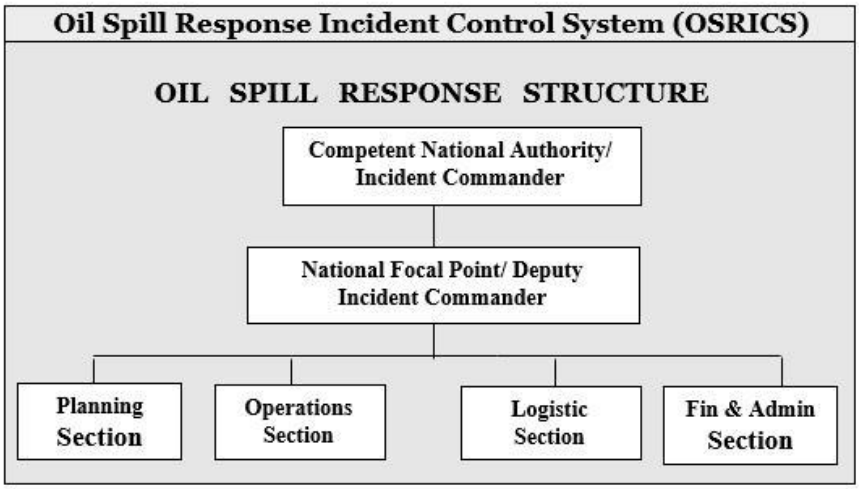

Figure 5- Oil Spill Response Incident Control System

4.7.3 The ICS allows flexibility for the escalation or reduction in the organisational/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 Deputy Incident Commander.

4.7.4 **Incident Commander (IC):** The CNA shall function as the Incident Commander (IC) in the event of any activation of the ICS for an oil spill response. The IC shall be responsible for the coordination of the activities of the National Emergency Operations Centre, and the acquisition of national resources and equipment to support response.

4.7.5 **Deputy Incident Commander (DIC):** The NFP for the relevant category of spill (Maritime – MARAD, Land - GEA) will function as the Deputy Incident Commander (DIC) respectively. The DIC will be responsible for the activation and operation of the relevant Operation Centre (Maritime or Land), as well as ensuring effective On-Scene Command.

4.7.6 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 CNA, the DIC with the authority necessary to command all national assets and resources as deemed necessary to deal with the incident.

4.7.7 **On-Scene Command:** The Coast Guard (GDF) will provide on-scene command for a marine spill, while the GEA will provide this function for a land-based spill.

4.7.8 The ICS will also comprise of various sections, where entities will have specific responsibilities in alignment with the overall aim of the section and their institutional mandate. The full ICS for oil spill response is illustrated in Figure 6 below:

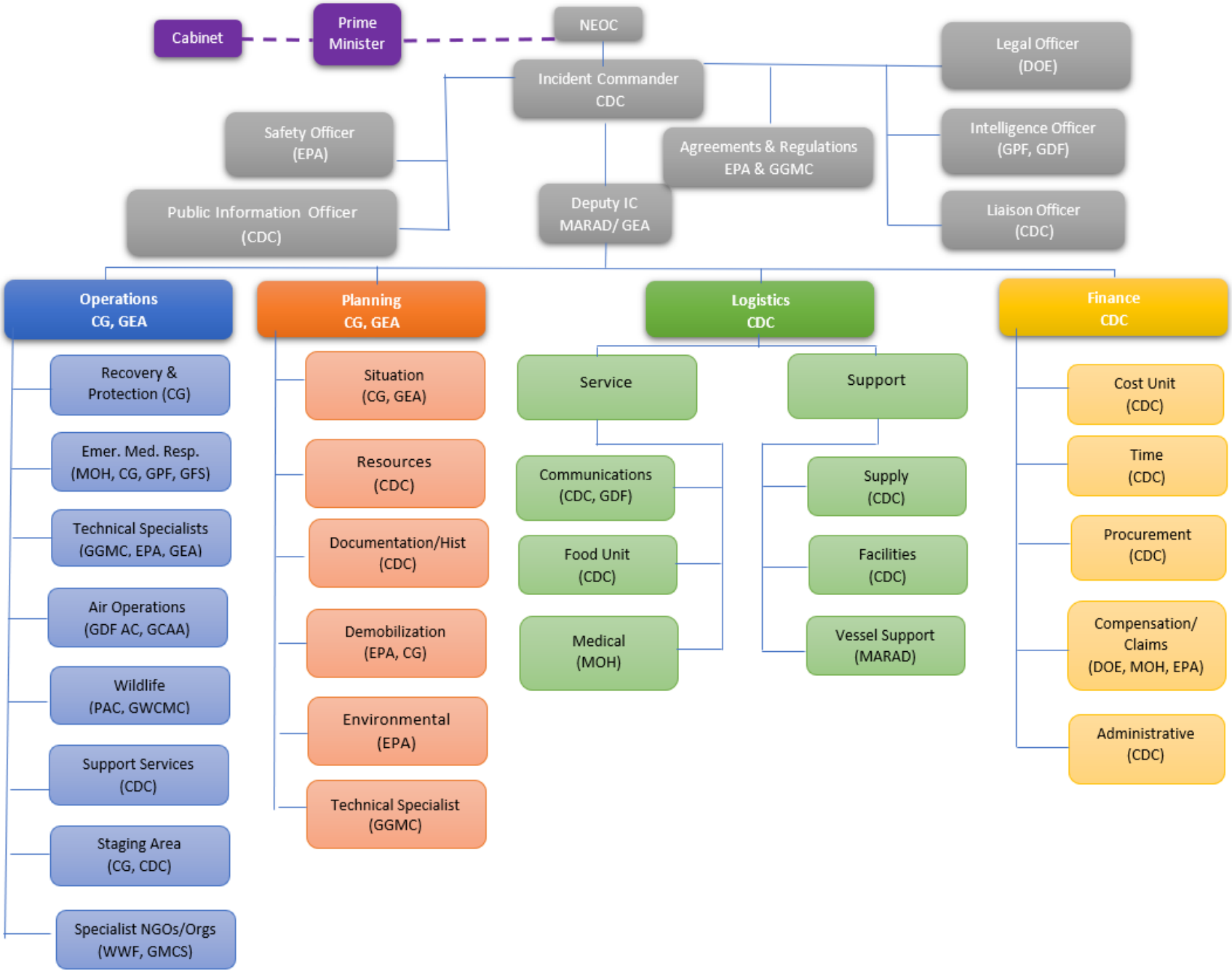

Figure 6 – Organisational Chart of the Incident Command System for Oil Spill Response

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

4.7.10 **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. Six of the most common units in the Operations Section during an oil spill are:

a. Marine Unit – all activities undertaken by waterborne craft and equipment.

b. Aviation Unit – All activities undertaken utilising fixed wing aircraft or helicopters.

c. Shoreline Unit – all clean-up activities undertaken on the shoreline.

d. Wildlife Unit – all activities involved in the collection and treatment of oiled wildlife.

e. OH&S Unit – all activities related to the implementation of the Occupational health & Safety Plan provisions.

f. Waste Management Unit – all activities related to the containment and disposal of recovered oil and oil debris.

The agencies identified to constitute and lead specific sub-units of the Operations Section are illustrated in Figure 7 on the following page. The Operations Section, however, is not limited to the membership and sub-units indicated in the Figure and may be expanded as required.

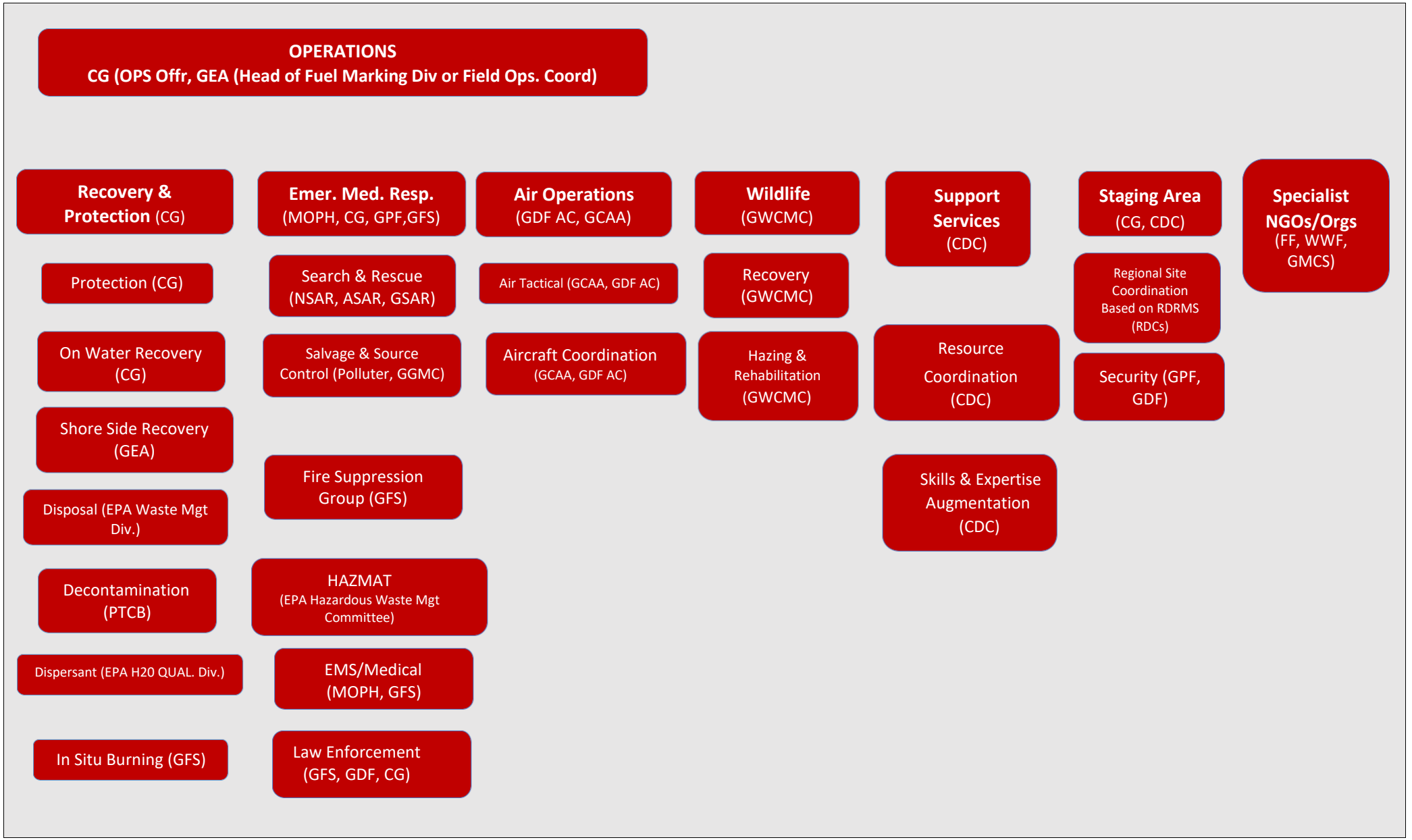

Figure 7 – Hierarchy Chart of the Operations Section for Oil Spill Response

4.7.11 **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 several sub-units in a major incident to enable it to meet its responsibilities more effectively. The sub-units identified, and their roles can include but are not limited to:

a. Situation Unit - responsible for the collection, processing, and organisation of information.

b. Resource Unit – responsible for information on the deployment of resources.

c. Environment Unit - responsible for the collection and collation of environment data and advice.

d. Consultation Unit - responsible for the coordination and development of community and commercial consultation interventions.

e. Response Planning Unit - responsible for the coordination, development, and review of incident action planning.

The agencies identified to constitute and lead specific sub-units of the Planning Section are illustrated in Figure 8 on the following page. The Planning Section, however, is not limited to the membership and sub-units indicated in the Figure and may be expanded as required.

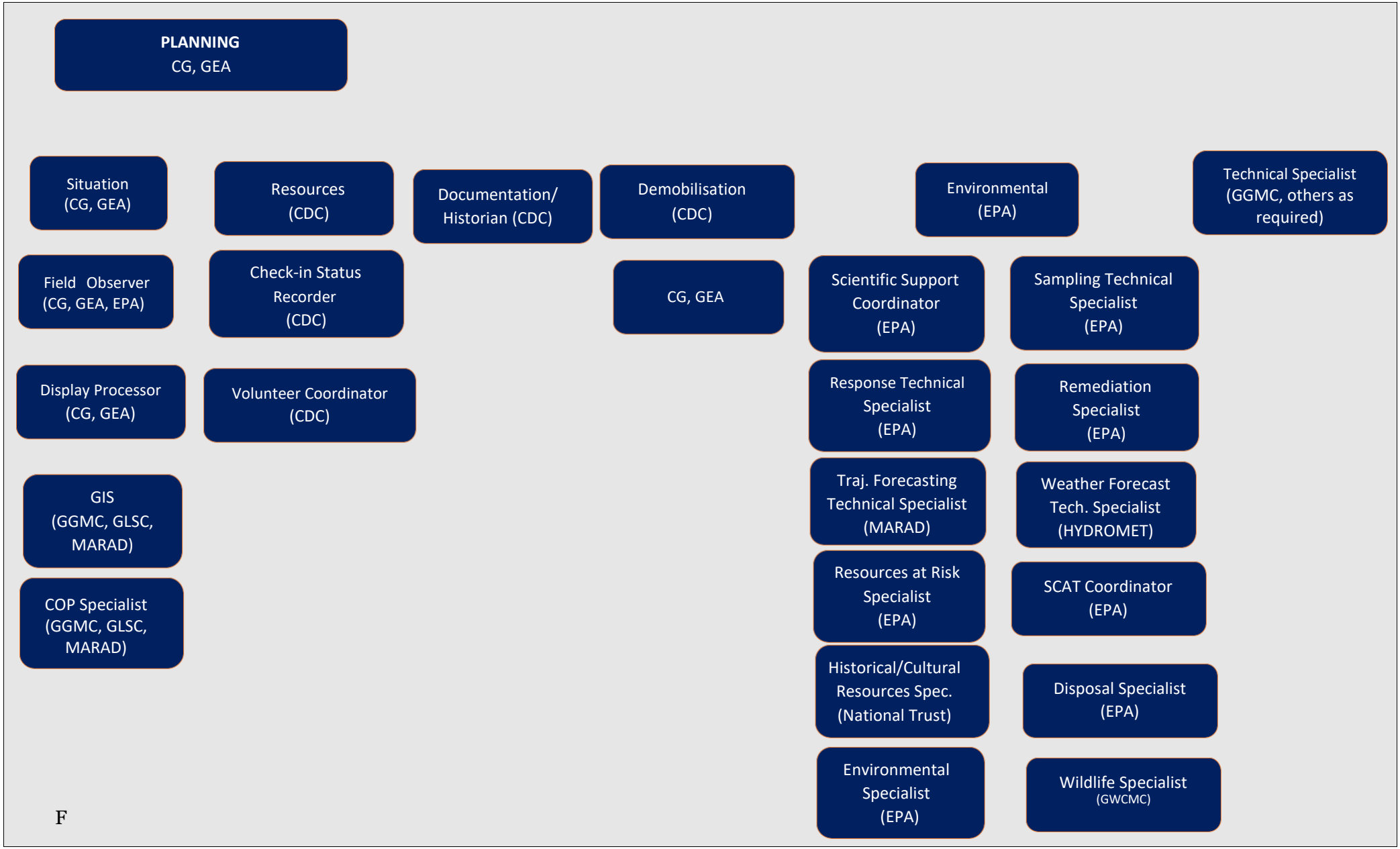

Figure 8 – Hierarchy Chart of the Planning Section for Oil Spill Response

4.7.12 **Logistics Section:** In any emergency, there is a vital need to ensure that response personnel are provided with adequate resources to enable an effective response and that personnel are provided with the essential amenities. To carry out these functions, a Logistics Section should be established to ensure that resources are made available as required. The following are some of the most common units found in the Logistics Section:

a. Procurement Unit – responsible for acquisition of personnel and equipment.

b. Services Unit – responsible for the acquisition of services and facilities.

c. Transport Unit – responsible for the provision of aviation, land and sea transport services.

d. Communications Unit – responsible for the provision of communications services and support.

e. Medical Unit – responsible for the provision of medical services.

f. Staging Area Unit – responsible for the activation and management of assembly and staging areas.

The agencies identified to constitute and lead specific sub-units of the Logistics Section are illustrated in Figure 9 on the following page. The Logistics Section, however, is not limited to the membership and sub-units indicated in the Figure and may be expanded as required.

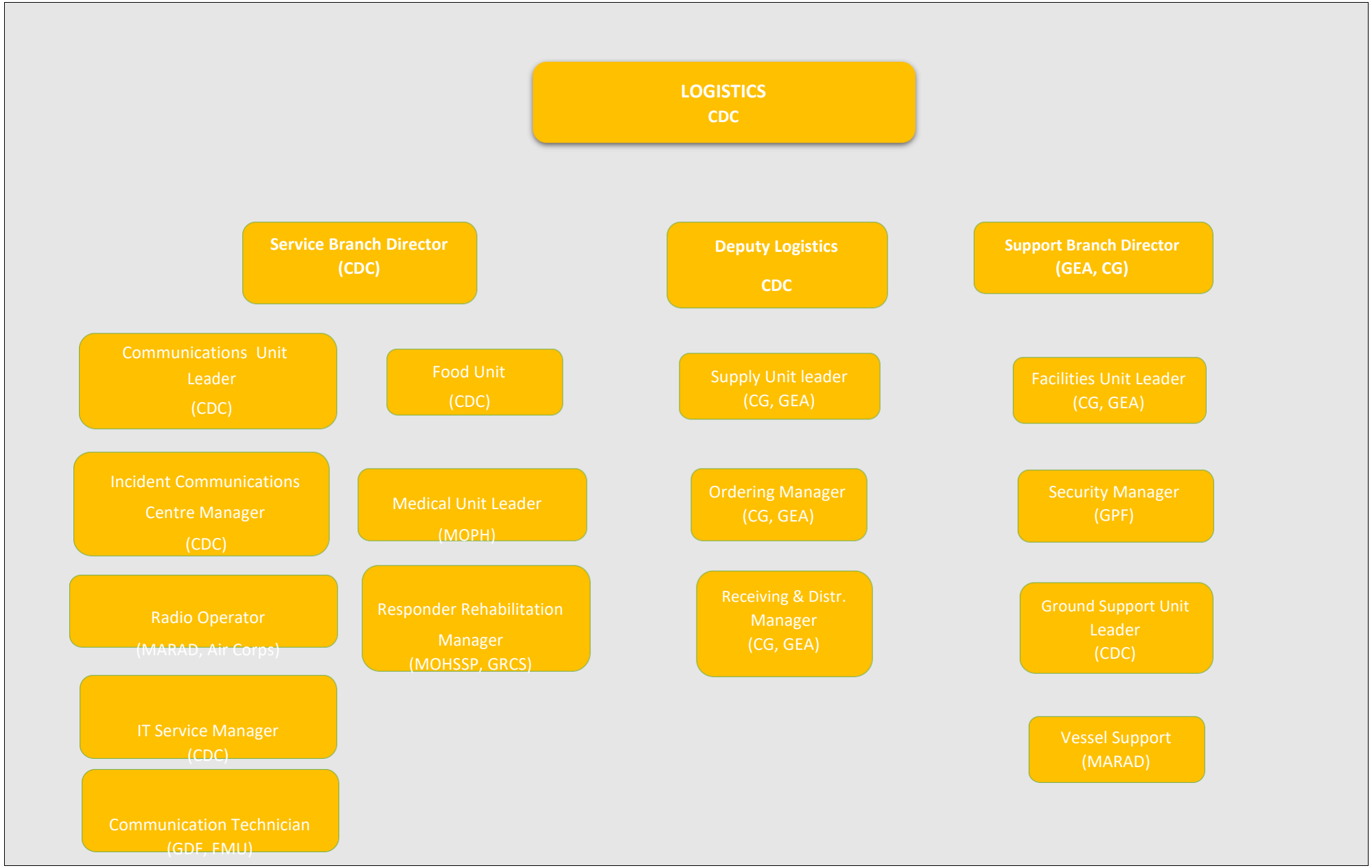

Figure 9 – Hierarchy Chart of the Logistics Section for Oil Spill Response

4.7.13 **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 recovers 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 – responsible for administrative services.

b) Finance Unit – responsible for the provision of financial services.

c) Records Unit – responsible for the collation of incident records.

d) ICC Management Unit – responsible for the management of the Incident Control Centre.

The agencies identified to constitute and lead specific sub-units of the Administration and Finance Section are illustrated in Figure 10 on the following page. The Administration and Finance Section, however, is not limited to the membership and sub-units indicated in the Figure and may be expanded as required.

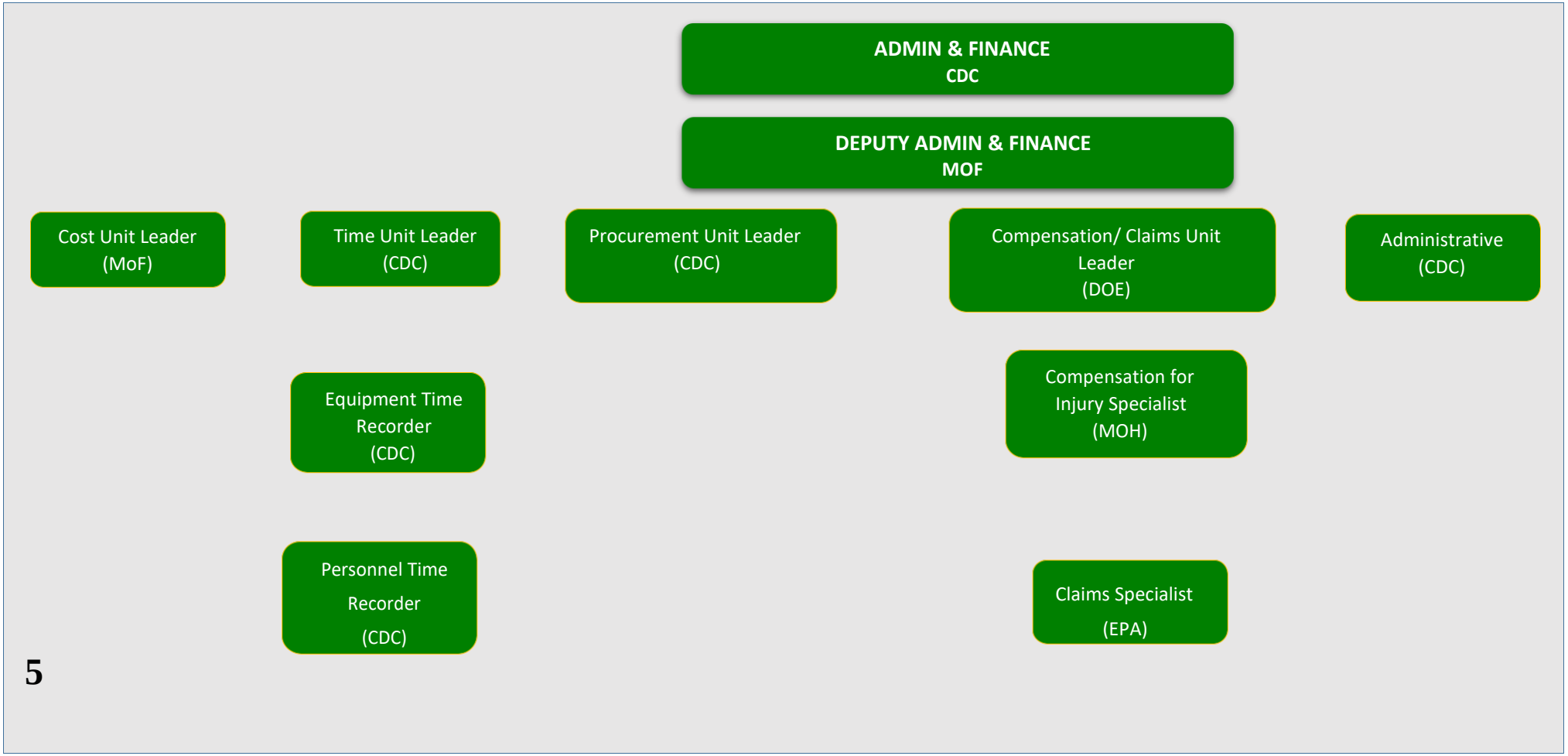

Figure 10 – Hierarchy Chart of the Administration and Finance Section for Oil Spill Response

5 NOTIFICATIONS, ALERTS AND REPORTING

5.1 Introduction

5.1.1 All oil spills over five (5) gallons shall be reported to the Competent National Authority through the NFP (MARAD – maritime, GEA – land) and the systems of notification established within this plan. All notifications of oil spills received, regardless of amount are to be recorded systematically by the NFP.

5.1.2 Incidents such as groundings, collisions, fires, explosions, or other accidents should also be reported as these can often lead to the release of petroleum and petroleum products.

5.2 Discovery

5.2.1 Recognising the importance of rapid dissemination of information in the event of a spill, any ship's master or crew, aircraft crew, oil company employee, port personnel, another person in control of activities conducted with regards to petroleum or petroleum products or any other person observing a spill shall immediately report the spill to the NFP. It is essential that the 24- hour hotline numbers be maintained to provide a focal point to government, industry, and the general public.

5.2.2 **Maritime**

5.2.3 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 NFP-M 24 hours a day.

5.2.4 **Land**

5.2.5 Under the Petroleum and Petroleum Products Regulations, any licence holder or person in control of activities conducted with regards to petroleum or petroleum products must immediately inform the NFP-L after a spill has occurred.

For the purposes of notification of the siting of an oil spill, the emergency hotlines can be utilised; in the instance where an emergency hotline receives notification of an oil spill, the information should be immediately forwarded to the relevant NFP.

5.2.6 Upon notification of an oil spill, the NFPs shall immediately notify the CNA who will in turn alert relevant support agencies. The format for the subsequent more detailed follow-up report – CARIBPOLREP – is contained in the Annex 3. Reporting is a mandatory requirement under international conventions with similar requirements also reflected in national legislation, Shipping Act 1998, Petroleum and Petroleum Products Regulations.

5.3 **Supplemental Notifications**

5.3.1 The NFPs in consultation with the CNA will determine the way in which the initial assessment will be conducted, the implications of the situation and whether any response is likely to be required. The NFPs should also consider whether other parties need to be aware of a potential pollution situation and if operational personnel need to be placed on standby.

5.4 **Reporting**

5.4.1 The National Response Authorities (NRAs) should immediately complete a Pollution Report (POLREP), using the standard format contained in Annex3 and Annex 5. These situation reports should be frequently compiled from field information and transmitted to all members of the National Oil Spill Committee, any other affected/interested parties, at regular intervals throughout the spill.

5.4.2 After an oil spill incident, the CNA, DIC, responsible party, and other response personnel should meet with the NOSC to review their collective experiences. The CNA shall then compile a Post-Incident Report (POSTREP), including if necessary, any recommendations for amending or revising the NOSCP. The POSTREP should be completed no later than one (1) month after the incident has been declared terminated.

5.4.3 The POSTREP should include:

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. Recommendations regarding amendment or revision of NOSCP.

5.5 **Applicable Legislation: Reporting,**

5.5.1 In Guyana oil spill pollution is regulated under the Environmental Protection Act and the Guyana Shipping (Marine Pollution Act) draft. These Acts are administered by the EPA and MARAD, respectively.

5.5.2 Under these Acts, it is an offence to discharge oil or allow oil to escape from any vehicle, container, vessel (or oil operator). In the event of a marine spill, the CG assisted by the MARAD 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.

5.6 **Media and Public Affairs**

5.6.1 When an incident occurs, it is imperative to give the public prompt and accurate information on the nature of the incident and actions underway to mitigate the damage. The Public Communications Officer and Liaison Officer should ensure that all appropriate public and private interests are kept informed in a timely manner and their concerns are considered throughout the response. (See Annex 6 - Public Relations)

5.7 **Communications**

5.7.1 In the event of an oil spill on water and land, the Maritime Coordination Centre (MCC) or the Land Coordination Centre (LCC) will be the Coordination Centres, respectively. All information from the site of the spill and impacted areas will be fed into the communication system of the CDC by the MCC or LCC. Each Response Team will be responsible for coordinating information to be fed into the MCC or LCC.

6 OIL SPILL ASSESSMENT

6.1 Introduction:

6.1.1 Once positively identified, the hydrocarbon slick should be described and quantified. The Bonn Agreement Oil Appearance Code (Table 3) can be utilised to estimate the spill volume from a visual assessment of oil on the sea surface. A maximum and minimum volume estimate can be calculated where Bonn colour codes are utilised to allow a suitable assessment of potential pollution in the sea. An example of how to calculate the approximate volume of an 'oil slick' is described in the Aerial Surveillance Response Technique.

Colour code / Appearance	Example	Layer Thickness/Description (im)	Litres (L)/km^2
1. Sheen (silvery/grey) Appearance is due to their thickness.		0.04 to 0.30 Very thin films of oil that reflect the incoming light slightly better than the surrounding water.	40 - 300
2. Rainbow Rainbow oil appearance is independent of oil type.		0.30 to 5.0 Oil films with thicknesses near the wavelength of different coloured light exhibit the most distinct rainbow effect.	300 - 5,000
3. Metallic The appearance of the oil in this class is oil type dependent.		5.0 to 50 Metallic will appear as a quite homogeneous colour that can be either blue, brown, purple or another colour.	5000 - 50,000
4. Discontinuous true colour The broken nature of the colour is due to thinner areas within the slick.		50 to 200 For oil slicks thicker than 50 µm the true colour will gradually dominate the colour that is observed.	50,000 - 200,000
5. Continuous true colour Homogenous colour can be observed with no discontinuity as described in Code 4.		200 to > 200 The true colour of the specific oil is the dominant effect in this category. This category is strongly oil type dependent.	200,000 - >200,000

Table 3 - Bonn Oil Appearance Code

6.2 Spill Assessment Tier Level:

6.2.1 Once the amount of oil spilled has been calculated and the product type has been identified, the tier of response needs to be determined. Several factors to consider when determining the tier of the spills include response resources required for clean-up operations, environmental impact, cross boundary spill, immediate safety concerns, and impact to local

communities. Some spills may have some but not all elements of the next higher tier. The International Petroleum Industry Environmental Conservation Association (IPIECA) has created a classification of oil spills, which has been adopted for the purposes of this NOSCP for the classification of oil spills which may occur. Notwithstanding, in some cases it may be appropriate to classify at a higher tier even if not all elements of that tier are met in the initial assessment. It is important to always assume a worst case and respond aggressively during the initial stages of a response. Figure 11 below depicts the classification tool which will guide the determination of the tier level of a spill.

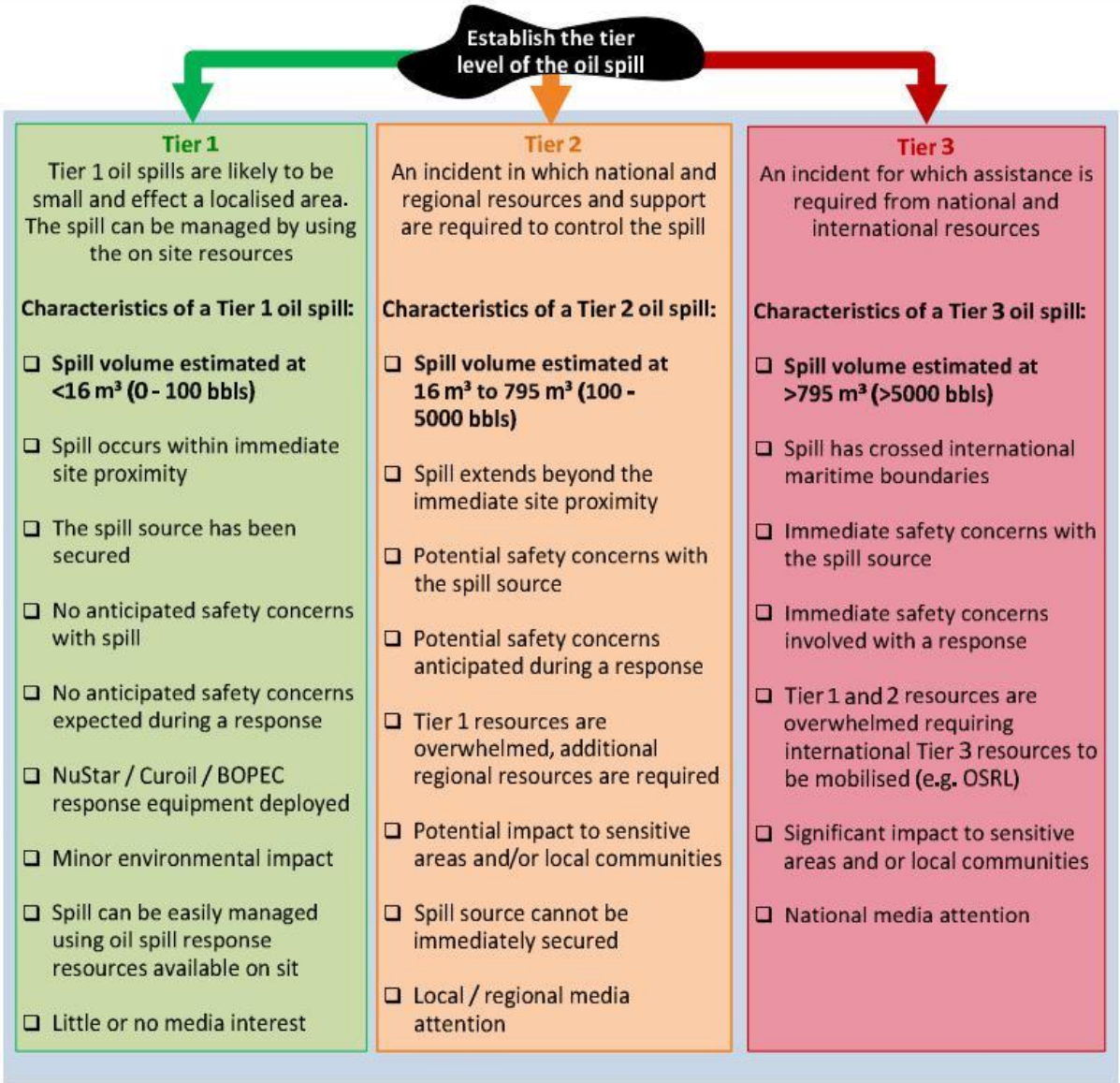

Figure 11 – Tool for Oil Spill Tier Classification

6.3 **Upscaling and Downscaling**

6.3.1 An oil spill is a dynamic event which has the potential to escalate unexpectedly. If any element of a tier 3 response is met, then the incident should be classified as a tier 3 incident

until the elements of a tier 3 response are eliminated. The ICS structure is modular and has the ability to expand and contract as the incident requirements change.

6.3.2 When determining the tier of response, it's best to look at total spill potential. For example, after a collision at sea a vessel might only release a small portion of its cargo but there might be the potential for a total loss of all cargo on board. It is best to respond to the total potential of the spill than the current discharged amount. For oil spill industries operating within Guyana these worst-case discharge scenarios must be outlined in vessel or facility response plans.

6.4 Spill Movements and Spill Surveillance

6.4.1 Using real time environmental data to conduct a trajectory is critical in determining resource allocations and response strategies. Regionally there is technology available for conducting trajectories, aerial surveillance, and satellite monitoring of spills. RAC-REMPEITC can assist in providing technical support upon request.

7 RESPONSE RESOURCES

7.1 A list of all response resources available for national level response to an oil spill is to be compiled and maintained by the CNA. This list shall be updated by the CNA on an annual basis; the current list of response resources is indicated in Annex 2.

8 RESPONSE STRATEGIES

8.1 Oil Spill Preparedness

8.1.1 **Legislation and Regulations:** The Government of Guyana has the following legislation and regulations in place to deal with the issue of oil spills: Environmental Protection Act Chapter 20:05, and the Guyana Shipping (Marine Pollution) Act, Public Health Act, the Petroleum Products Regulation of 2014, the GEA Act. The Disaster Risk Management (DRM) Bill, currently in draft, will also be relevant to oil spill management once enacted.

8.1.2 **Contingency Plan:** The NOSCP is the authority and contains the guidelines for the management of oil spills in Guyana. Ongoing data gathering, risk assessments and environmental sensitivity mapping will be done to enhance and update the current plan.

8.1.3 **Response Equipment and Supporting Resources:** Response equipment is held by the Coast Guard, the Guyana Energy Agency and other agencies as listed in Annex 2. This equipment is backed up by the human and other resources available from several agencies, in both the private and public sector.

8.1.4 **National Oil Spill Response Centres:** The MCC and LCC are designated sites where equipment is available to provide the necessary requirements to fulfil the provisions of the Plan. During an incident, the MCC and LCC 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 CNA. The designated sites for the MCC and LCC are located at:

a. MARAD (MCC) - Kingston
b. GEA (LCC) – Quamina Street, South Cummingsburg

8.2 Oil Spill Mitigation

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

a. Incident Assessment

b. Mobilisation of Resources

c. Incident Management

d. Use of clean up strategies and techniques, for example in situ burning and use of dispersants

e. Containment and Recovery

f. Monitoring and Evaluation

g. Shoreline Protection and Clean up

h. Waste Management

i. Termination of the response and

j. Post Spill Assessment.

8.3 Response Actions and Operations

8.3.1 The ecological impact of an oil spill can be minimised by good management and planning as well as the response actions put into effect by the NOSCP and the NRAs. Such actions will largely depend on several factors:

a. The type of oil or fuel 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 area impacted.

8.3.2 In commanding the response to the spill, the On-Scene Commander should ensure that defensive actions begin as soon as possible to prevent, minimise, or mitigate the threat to the environment or public health from the pollution.

8.4 Phases of a Response

8.4.1 There are eight (8) phases which guides the overall process of responding to oil spills; the Figure 11 below provides a summary.

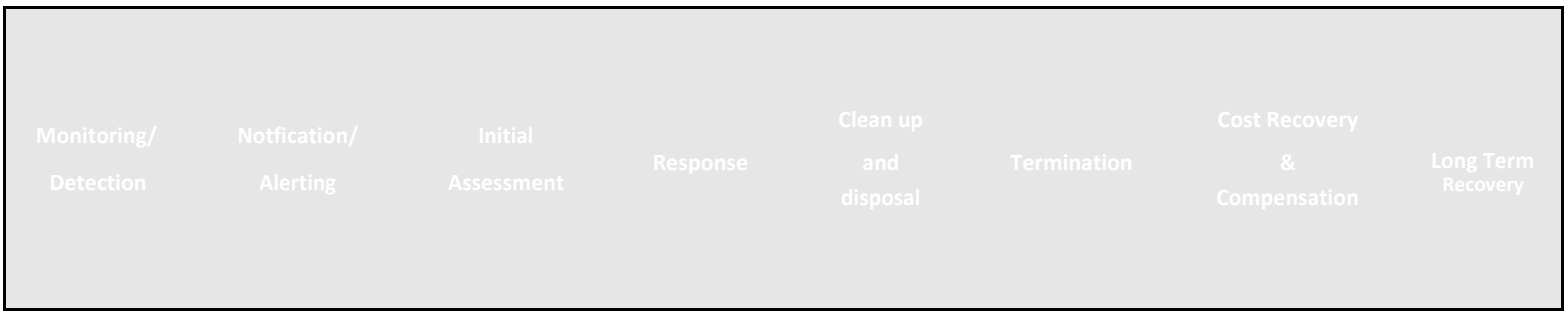

Figure 12 - Seven Phases – Response to Oil Spills

8.5 Phase I – Monitoring and Detection of an Oil Spill

8.5.1 The discovery of a pollution incident may be made through normal surveillance activities, through observation from a ship, aircraft, fishermen, government agencies, owners and operators of storage and transport facilities or by those who caused the incident or by the alertness and concern of the general public.

8.5.2 Throughout all 10 Administrative Regions of Guyana, partner agencies and organisations must routinely monitor all activities that may contribute to oil spill incidents. This shall be in keeping with the Regional Disaster Risk Management Systems.

8.5.3 All agencies, responsible parties and organisations shall utilise the best available analogue and digital detection means and systems to ensure early identification of any oil spill occurrence.

8.5.4 Consistent and accurate monitoring of trends such as operator safety history, tidal and weather patterns, etc. that may give rise to oil spills must be robust to ensure early detection of oil spills.

8.5.5 All ships as well as onshore and offshore platforms are required to develop and have in place clearly defined means of monitoring and detection systems that are integrated into their oil spill contingency plans.

8.6 Phase II - Notification and Alerting of Local, Regional and International Authorities

8.6.1 Reports of Oil Spills are to be sent immediately to the NFPs (MARAD and GEA, depending on the type of spill), which will int turn forward the information to the CDC through its National Emergency Monitoring System. The NFPs, open notification of a spill is to work with the CNA in determining the level of response required and whether there is a need to activate an appropriate response.

8.6.2 Early notification is critical to ensuring that the responsible party is held financially responsible. Early notification also enables appropriate and effective response actions are undertaken. The agency receiving the report shall obtain the:

a. Name and telephone number (or radio frequency and call sign) 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)

The requisite reporting template(s) are set out in Annex 3 and Annex 5.

8.6.3 The Ministry with the responsibility for Diplomacy and Foreign Affairs will guide and assist in providing notification to relevant international maritime authorities, international bodies, neighbouring countries, and organisations. Alerts will be provided to relevant national authorities, regional and international agencies such as CDEMA and Regional Centre for oil response, as outlined in the roles indicated in this plan.

8.7 Phase III – Initial Assessment

8.7.1 Upon receiving a report, the NFP shall record the information in a Pollution Logbook and investigate jointly with the CNA and other relevant agencies to confirm its validity. The following will be evaluated:

a. Magnitude and severity of the spill

b. Potential impacts of the spill including geographic zones as well as hazards to life or property

c. Available response time; and

d. Resource requirements and adequacy

8.7.2 The EPA will lead the initial assessment and determine which agencies will play a role in the assessment. The initial assessment is to be conducted with the objective of assessing the situation and determining all pertinent facts (such as the nature, amount, location, probable direction, and time of travel of the material, resources available/needed and the areas that may be affected.) The initial assessment should also assist in identifying high risk areas, ecologically sensitive zones, vulnerable resources, and priorities for protection.

8.7.3 The EPA should ensure participation of Responsible Party in the initial assessment. Other agencies are expected to play significant roles in the initial assessment, and details of these can be found in Section 4 of this Plan.

8.7.4 The initial assessment is aimed at classifying the tier of spill and determining whether external assistance is required. The assessment of Tier levels may change over time and should be periodically reviewed during the spill.

8.7.5 In the event of a pollution incident, the first official to arrive 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.

8.7.6 Annex 2 of this Oil Spill Contingency Plan provides detailed tools for oil spill assessment and should be used with the below information to make a final determination of spill tier. The magnitude and severity of the spill will be determined by the Initial Assessment team utilising the following tier system and guidance:

a. Tier One: Small spills that are within the response capability and resources of an individual port or oil terminal within Guyana. 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 10,000 Litres (0-100 barrels).*

b. Tier Two: Medium spills that are within the national capability and resources of Guyana. These spills would have a moderate potential for environmental and/or economic harm. *As a guide spills of this nature are in the range of 100-5,000 barrels.*

c. Tier Three: Major spills that are of a magnitude and/or severity that is beyond the response capability and resources of Guyana, and/or; that impacts or threatens to impact within the jurisdiction of both Guyana 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 5,000 barrels.*

8.7.7 Based on this assessment, the CNA and deputised agencies provide response directives to the relevant NRA. The NRA shall notify members of the relevant Spill Response Team as appropriate. The NRA and the CNA shall, determine whether the situation warrants convening a meeting of the NEOC. If warranted by the results of this investigation, the CNA shall implement the plan, coordinating resources and undertaking the activities within the Response Phase.

If the NRA determines that National resources would not be adequate to remedy the situation, the NRA shall consult the CNA and obtain authorisation to obtain other outside help through the Ministry of Foreign Affairs. The NRA shall record all steps and decisions taken.

8.7.8 **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 appropriate response options. There are three main ways a spill trajectory can be determined:

a) Direct observation (surveillance),

b) Manual calculation using currents and wind.

c) Computer modelling.

8.7.9 Visual observation of any spill is essential and the NRA, through support personnel, should arrange for charter, military, or commercial aircraft to assess and monitor the movement of the spill.

8.7.10 Meteorological and hydro graphic data should be obtained by the NRA, through support personnel, to analyse and 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 countries). In some areas, sophisticated spill trajectory prediction systems may be available, such as computer models.

8.7.11 **Spill Assessment and Reporting**: Once attempts have been made to stem the flow of oil (or any other petroleum based 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 NEOC or any other affected/interested parties.

8.8 Phase IV – Response

8.8.1 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 Annex 3 and Annex 4. Decisions as to priority of protection and containment of facilities and coastline will be aided/guided by the Environment Protection Agency and coastal sensitivity maps.

8.8.2 The spill area should be isolated to protect life and health. As soon as possible after the spill discovery, initiate actions to restrict the spreading of the oil and to stop the discharge at its source.

8.8.3 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 authorised by the EPA with concurrence of the officials charged with health/sensitive area responsibilities.

8.9 Phase V – Clean Up and Recovery

8.9.1 This phase consists of those 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.

8.9.2 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.

8.9.3 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, it should be transferred 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.

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

a) Evaporation – Light, non-persistent oils such as gasoline and jet propellent 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 – 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) Burning – an option worthy of high consideration when: the options for reuse 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 resource that requires protection. The operation requires major logistical support and unique equipment. Availability of dispersants that are most effect 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 a road construction/repair shall be

considered. Dispose of unusable materials at land fill dumps in a manner approved by EPA.

8.9.5 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.

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

8.9.7 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.

8.9.8 **Stabilising Spill Source and 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 minimise the potential size, extend and severity of the spill. All efforts must be focused on saving a vessel so that the problem is not compounded. Stabilising 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.

8.9.9 With accession to the United Nations Convention on the Law of the Sea (UNCLOS), Guyana's jurisdiction extends to the EEZ and the Territorial Sea extends to 12 miles from the coastline. This permits Guyana to intervene on the high seas against the wishes of a 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 include:

a) Move the ship or part of the ship to another place

b) Remove cargo from the ship to another place

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.

8.10 Phase VI – Termination

8.10.1 The CNA shall be responsible for the Termination of the oil spill response. Termination of the response shall only be done when all relevant agencies have indicated a satisfaction that clean up and disposal of all spilt oil have been completed.

8.10.2 The CNA will issue a Termination Order to indicate such satisfaction to all relevant parties; response and clean-up operations are to be halted only after issuance of the Termination Order.

8.11 Phase VII – Cost Recovery and Compensation

8.11.1 It is imperative to undertake actions that result in the discharger incurring the costs of 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 NRA is 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.

8.11.2 **Documentation:** The NRA 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 – all government and 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.

8.11.3 **Cost Recovery:** The strategy guidelines for cost recovery are to be elaborated and established by the NOSC committee, in keeping with existing legislations. Where necessary, appropriate legislation may need to be developed and enacted in order to implement the cost recovery strategy. This NOSCP outlines, however, that cost recovery actions for both onshore and offshore oil spills are to be led by the Ministry of Legal Affairs (MoLA), and

supported by all relevant national agencies who are able to provide and verify claims of losses and damages from an oil spill.

8.12 PHASE VIII – LONG TERM RECOVERY

8.12.1 The EPA shall spearhead the processes for long term recovery following an oil spill. Long term recovery will be aimed at ensuring that the environment, including communities, flora, and fauna, are restored and all impacts of the oil spill are addressed.

8.12.2 The EPA shall coordinate the development and implementation of Long-Term Recovery Plan, which shall be based on an assessment of the impacts of the oil spill on the built and natural environment.

8.12.3 The Responsible Party/parties shall be liable for Long-Term Recovery and shall work with the EPA and other relevant agencies to ensure that the actions outlined in the Long-Term Recovery Plan are implemented.

8.13 External Assistance

8.13.1 The EPA will be the agency assigned to lead the conduct of the initial assessment. Should the team assess a spill to be a Tier Three spill, it will activate a Request for Assistance through the CNA and The Ministry of Foreign Affairs.

8.13.2 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.

8.13.3 **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 NRA with regards to the incident.

8.13.4 If in the opinion of the NRA the clean-up operations are inadequate for the size and scope of the spill, the NRA will assume responsibility for the clean-up. 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 NRA should ascertain the polluters' intentions with respect to active involvement in the operations as soon as possible following any spilt. Where the NRA 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.

8.13.5 **Contamination of Neighbouring State**. If it is determined by the IC that the pollution incident will affect Guyana coastal waters and sensitive areas or a neighbouring state, he/she shall make an immediate report using the communication procedures in Annex 3 **CARIBPOLPREP FORMAT.**

9 WASTE MANAGEMENT

9.1 Introduction

9.1.1 Proper temporary and final disposal of oily waste is key to an effective response. The Waste Management Plan considers worst case scenarios for all expected oil production, shipping, storage, and processing as well as the efficiency of response equipment to determine total required storage capacity and procedures for management of waste recovered and produced.

9.2 Waste Designation

9.2.1 The National Solid Waste Management Authority is responsible for designating recovered product as hazardous waste and will assist in determining if recovered product can be recycled or should be disposed of and provide input on the best method of disposal.

9.3 Waste Handling, Interim Storage, and Transport

9.3.1 Response personnel shall ensure that they use proper Personal Protective Equipment (PPE) to minimise exposure to hazardous substances. The Incident Commander/On Scene Commander is responsible for ensuring proper identification of hazardous substances during a response as well as ensuring response personnel understand the hazards and safety precautions necessary for handling hazardous waste. Hazardous waste storage facilities should be clearly marked and easily identifiable.

9.3.2 Decontamination is a critical aspect of a response than can greatly reduce residual contamination of staging areas, worksites, and support facilities. A decontamination plan should be established at the onset of an incident to reduce exposure to personnel. A decontamination plan typically identifies designation of different zones (as shown in Figure 13 on the following page):

a) Hot Zone – The working area of a response (full PPE required)

b) Warm Zone – The warm zone, also known as the contamination reduction zone, is the transition area between the spill site and the support area (decontamination corridor)

c) Cold Zone – The cold zone, also referred to as the support zone, is the area outside of the spill site (staging area, Incident Command Post, etc.)

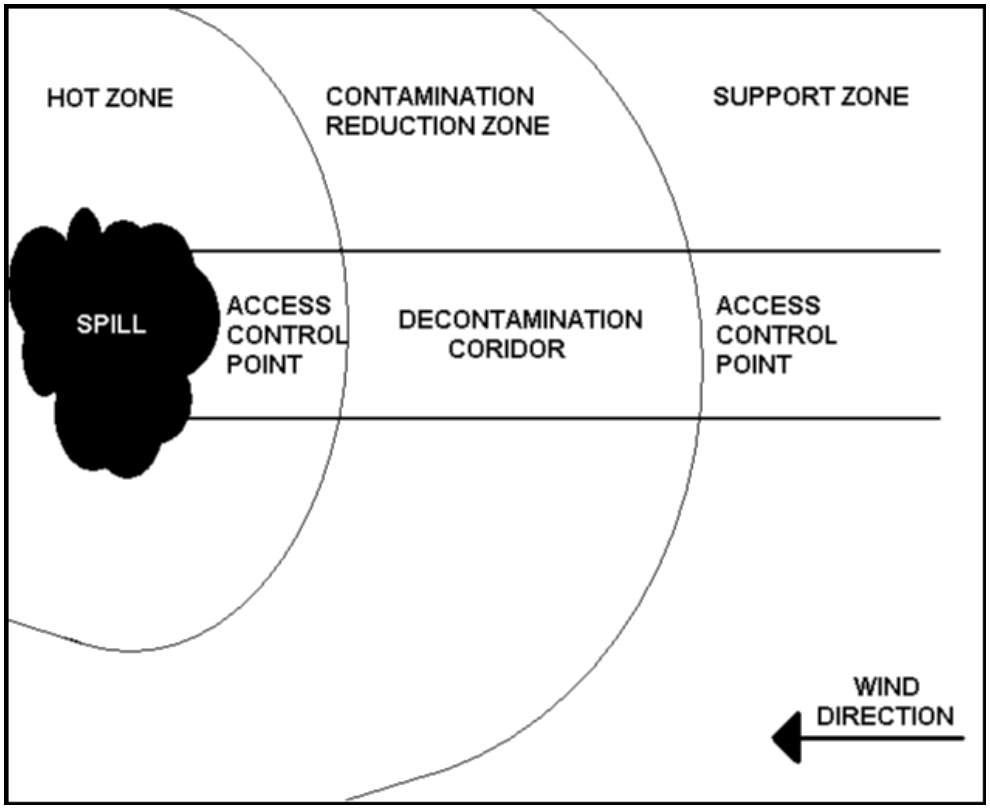

Figure 13 - Decontamination Zone Designations

9.3.3 In addition to designating the zones a decontamination plan will also outline procedures for partial and full decontamination of personnel and procedures for decontamination of equipment. An example of a decontamination corridor setup is below in Figure 13. This section of the play typically contains the following:

a) Tool drop

b) Initial wash station

c) Secondary wash station

d) Oily outer layer removal

e) Final wash station

f) Clean clothing

g) Wastewater removal

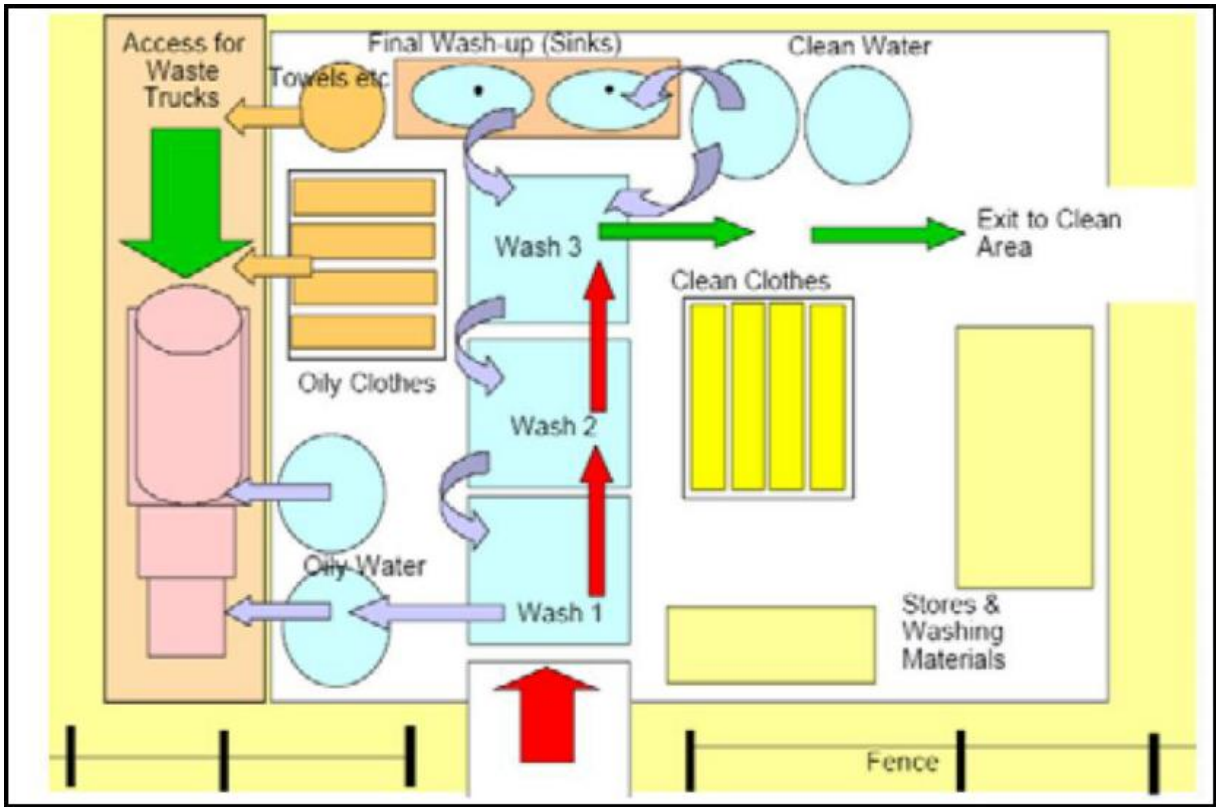

Figure 14 - Decontamination Corridor Example

9.3.4 Recovered wastes as well as those produced in decontamination must be properly stored and disposed of. Due to the limited storage capacity available procedures such as decanting should be used to maximise storage availability. Decanting is authorised by the Incident Commander/On Scene Commander and should be conducted only when the recovered product has had the opportunity to separate and then should only be conducted in boomed off containment area with sorbent materials to capture any residual product.

9.3.5 Another method of temporary storage can be to use plastic lined pits to temporarily store oiled materials. However, this should only be utilised when all other storage options have been exhausted and when the impacts of such storage have been evaluated to have a net environmental benefit over not collecting the product.

9.3.6 Transportation and disposal of hazardous substances shall be tracked from generation of the hazardous waste to final destruction to ensure proper disposal. Storage, transport, and disposal should only be done with pre-approved entities identified by the lead agency.

9.4 Waste Re-Use, Treatment and Disposal

9.4.1 The EPA will advise on the procedures to be followed for the treatment and disposal of spilt oil, and/or the re-use of any oil spilt (if applicable).

9.4.2 The EPA will ensure that its advice is in keeping with environmental regulations and guidelines, and that the re-use, treatment and disposal of oil which was spilt is done in a way which will prevent further pollution and will minimise the impact on the environment.

9.5 Equipment Cleaning/Restoration/Return

9.5.1 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 freshwater, immediately after use.

9.5.2 All oil collected from cleaning operations must be disposed of in accordance with the oily waste management procedures outlined in Environmental Protection Act and other relevant guidelines. 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.

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

9.5.4 The use of pre-spill baseline data is essential to the success of post spill damage assessment and monitoring. The EPA should rapidly identify all such data, including that held by government environment and fisheries agencies, universities, and research institutions.

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

9.5.6 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.

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

9.5.8 The results obtained from the post-spill damage assessment should be published in the scientific literature, to assist the development of the spill response discipline in general.

10 DEMOBILISATION AND RESPONSE TERMINATION

10.1 Response Termination

10.1.1 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 NRA, 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.

10.1.2 The advice of the nominated scientific/environmental experts, 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. The CNA in consultation with the environmental agencies will be the authority to terminate the clean-up activities.

10.2 Recovery Policy Procedures

10.2.1 Once clean-up operations are completed, it may be necessary to restore affected areas. The degree of restoration of the affected area/s will be determined by the National Committee by 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.

10.2.2 Consideration must be given to replacing contaminated beach sand, replanting mangrove, marsh, and sea grass beds.

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

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

10.3 Response Evaluation and Debriefing

10.3.1 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 CNA. 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, to improve the effectiveness of any future spill responses. After the completion of the review, the CNA will prepare a concise report of lessons learnt and any operational deficiencies noted and submitted to the NOSC for action.

10.4 **Damage Assessment and Monitoring**

10.4.1 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.

10.4.2 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 requirement for damaged environments and resources.

10.4.3 The Environment Protection Agency 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 EPA shall 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 quantitate as possible, and the basis of any qualitative assessments stated.

c) Monitoring must be designed 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 EPA 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 must 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.

10.5 Environmental Restoration and Rehabilitation

10.5.1 Following a spill, it will be necessary to undertake activities to restore and rehabilitate damaged ecosystems and resources, for example replanting mangroves killed by the spill or rehabilitating beaches damaged by clean-up activities.

10.5.2 Responsibility for Post-Spill restoration and rehabilitation should generally rest with the Environment Protection Agency. The following general principles should apply to post-spill restoration and rehabilitation.

a) Areas requiring restoration and rehabilitation must be identified during post spill damage assessment.

b) In determining the best options for the restoration and rehabilitation, techniques that fully seek to compliment and make use of natural forces should be selected, including the option of allowing natural recover without active intervention.

c) The effects and effectiveness of restoration and rehabilitation efforts shall be assessed through rigorous monitoring, as part of post-spill damage assessment and monitoring activities.

d) All organisations involved in restoration and rehabilitation shall keep detailed records of all costs and expenses associated with these activities.

e) The results obtained must be published in the scientific literature, to assist the development of the spill response discipline in general.

10.6 Cost Recovery and Reimbursement

10.6.1 It is the responsibility of the CNA through the Ministry of Legal Affairs, 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 and recovery, 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,

10.6.2 The reimbursement of the costs of a marine spill response and recovery shall be covered by the polluter, under existing legal regimes (such as relevant national legislation, the Civil Liability Convention 1992 and the Fund Convention 1992).

10.6.3 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 NOSCP.

10.6.4 The NRAs 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 and Responsible Party.

10.7 Training of Spill Responders

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

10.7.2 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)
c) Incident Action Plans and the planning process cycle
d) Tactical operations planning
e) Actions to be taken to minimise the effects of a spill
f) Basic fate and effects of spilled oil in the environment
g) National Oil Spill Contingency Plan overview
h) General oil spill response strategy
i) Emergency response organisation structure and duties
j) Reporting procedures, requirements, and responsibilities
k) Communications procedures during spill response
l) Safe, proper, and efficient use of spill response equipment
m) Resources (equipment, materials, supplies, contractors, services etc.) available from outside sources
n) Safe and effective use of oil spill dispersants
o) Transfer, storage, and recovery/disposal of oily wastes
p) Safe working practices on small boats
q) First aid
r) General spill response techniques and skills.

10.8 **Legal Basis**

10.8.1 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 a programme of exercises for oil pollution response organisations and training of relevant personnel; Shipping (Marine Pollution) Act lays down the identical requirement as stated above.

10.8.2 A technical report must be submitted following each exercise, with the intention of making pertinent corrections to the Plan.

- Bi-annually: Response equipment field exercise with oil companies and communications exercise.

- Bi-annually: Each local level, with the participation of the national level, will conduct a pollution simulation exercise in its jurisdiction.

- Annually: the CNA in conjunction with NRA and CDC will implement an exercise that involves national and international notification procedures and communications to facilitate the importing of resources and personnel.

10.9 **Exercise and Response Drills: Exercise Categories**

10.9.1 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 mobilisation 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 (6) to eight (8) 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 stimulate several different aspects of an oil spill incident and involve third parties. Such an exercise may be of a limited scope, when outside agencies and organisations 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.

10.9.2 Appropriate budget allocations should, therefore, be included in forward planning.

10.10 Exercises and Response Drill Requirements

10.10.1 The ultimate test of any contingency plan is measured by performance in a real emergency. It is vital therefore, that the 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) Practically (structure and organisation)

b) Communications

c) Equipment capability and response times

d) Adequacy of action plan; and

e) Public, industry, and media relations.

10.10.2 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 conducted include:

a) Deployment of selected equipment (as in training exercises)

b) Notification Drill - 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

10.10.3 A national spill response exercise/drill is to be held in on a biennial 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 through the CNA. RAC/REMPEITC can provide technical advice and assistance in the development, conduct and monitoring of these exercises.

10.10.4 A tabletop exercise shall be conducted bi-annually, and a full scale exercise every other year. These are to be mandatory and are to maintain minimum activities to be carried out by the lead agency.

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

10.11 Compensation:

10.11.1 This gives force to the 1992 Protocol of the International Convention on 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 Guyana including the territorial waters, sea bed, shores, beaches and ecology thereof.

10.11.2 The liability extends to a post-spillage prevention, recovery and clean-up costs. Guyana does not have to prove that the ship was in any way at fault in causing the pollution. In cases where the costs of clean up exceed the limited liability of the owner of the ship, Guyana 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.

10.12 Record Keeping and Preparation of Claims:

10.12.1 In order that the 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 CNA and CDC will have overall responsibility for ensuring that these very important records are maintained.

10.13 Post-Incident Reports

10.13.1 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 AAR to the IC not later than three days following closing of the response. The IC and the Response Agency shall be jointly responsible for submission of a comprehensive AAR, incorporating reports

from all responsible agencies within 7 days of closing g the particular response. Subsequently, the CNA will submit the final report to the Minister, for their approval.

11ANNEXES

11.1 List of Annexes

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11.2 Annex 1 – Contact List: Government Ministries and Agencies' Contacts

The contents of this Annex have been intentionally removed.

11.3 Annex 2 – List of Oil Spill Equipment: Oil Spill Response Resources Available in Guyana

The contents of this Annex have been intentionally removed.

11.4 Annex 3 – CARIBPOL Report Format

11.4.1 Message Routing Procedure (CARIBPOLREP)

After receipt of the initial report of an oil spill incident the Lead Agency may require conformation of the spill sighting. After the spill has been confirmed the Lead Agency, utilizing the Caribbean Oil and Hazardous Material Spill Alerting Mechanism will prepare a CARIBPOLREP message to notify neighbouring Island States and Territories that may be affected by the spill.

The CARIBPOLREP message will be sent directly to neighbouring islands and to REMPEITC-Caribe, (Tel (+5999) 868-4612 or 868-3409, Fax (+5999) 868-4996 / email: rempeitc@cep.unep.org . – 24 hour notification through the Dutch Caribbean Coast Guard and Aruba (5999-463-7700 / email: rcc.curacao@gmail.com or rcc.curacao@rnnavy.mindef.nl)

Once the initial CARIBPOLREP message has been sent subsequent messages will be routed through the established routing network until the spill emergency has been concluded.

11.4.2 CARIBPOLREP FORMAT

11.4.2.1 The following is a summarized list of the composition of the CARIBPOLREP message.

HEADING

1. Date time group:
2. From:
3. To:
4. Copy:
5. Subject:

SITUATION

1. Date and Time.
2. Position.
3. Incident.
4. Outflow.
5. Characteristics of Pollution.
6. Source and Cause of Pollution.
7. Wind direction and speed.
8. Current or tide.

9. Sea state and visibility.
10. Drift of pollution.
11. Forecast.
12. Source of Report

ACTION TAKEN

1. Implementation of National Contingency Plan.
2. Incident surveillance.
3. Photographs or samples.
4. Names of other states informed.

FUTURE PLANS

Various types of information such as anticipated changes of command; reducing information exchange to encompass only relevant, affected parties; etc.

ASSISTANCE R EQUESTED

1. Source of assistance.
2. Estimated cost.
3. Prearrangement for delivery.
4. Assistance to where and how.
5. Other states requested.
6. Names and passport numbers of persons.
7. Description of equipment.
8. ETA and arrival information.
9. Place of embarkation.
10. Place of disembarkation.

If the CARIBPOLREP is used in exercises, the text is to be introduced with the word EXERCISE and finished with this word three times. Each of the subsequent reports which deal with the exercise is to be introduced and finished with the word EXERCISE as well.

11.4.3 CARIBPOLREP EXPLANATION

HEADING	**REMARKS**
1. Date time group:	The day of the month as well as the time of day the message.
2. From:	Lead Agency of the Island State or Territory that is initiating the message.
3. To:	Focal Point Agency of other Island States of Territories that may be affected by the spill. Initiating Lead Agencies shall pass information directly to other Island States of Territories that may be affected by the spill.

4. Copy:	Regional Marine Pollution Emergency, Information and Training Centre Wider Caribbean (REMPEITC- Caribe), Willemstad, Curacao, requesting the REMPEITC-Caribe pass the
5. Subject:	CARIBPOLREP, sequential number of the report and the name of the vessel on facility involved in the spill incident.

SITUATION

1. Date and time:	Date and time of the incident.
2. Position:	Lead Agency of the Island State or Territory that is initiating the message.
3. Incident:	The nature of the incident should be stated here, such as BLOWOUT, TANKER GROUNDING, TANKER COLLISION, OIL
4. Outflow:	The nature of the pollution, such as CRUDE OIL, CHLORINE, DINITROL, PHENOL, etc., as well as the total quantity in tons of the outflow and/or the flow rate, as well as the risk of further outflow. If there is no pollution but a pollution threat, the words NOT YET followed by the
5. Characteristics of Pollution:	Gives type of pollution, e.g., type of oil with viscosity and pour point, packaged or bulk chemicals, sewage. For chemicals, give proper name or United Nations number, if known. For all, give also appearance, e.g., liquid, floating solid, liquid oil, semi-liquid sludge, tarry lumps, weathered oil, discoloration of sea, visible vapour. Any markings on drums, containers, etc., should be given.

6. Source and Cause of Pollution:	e.g., from vessel or other undertaking. If from vessel, say whether as a result of a deliberate discharge or casualty. If the latter, give brief description. Where possible, give name, type, size, call sign, nationality and port of registration of polluting vessel. If vessel is proceeding on its way, give course, speed and destination.
7. Wind Direction and Speed:	Indicates wind direction and speed in degrees and MPH or meters per second (m/s), specify which. The direction always indicated from where the wind is blowing.
8. Tides and Direction of Current:	Indicates current direction and speed in degrees and knots and tenths of knots. The direction always indicates the direction in which the current is flowing.
9. Sea State and Visibility:	Sea state indicated as wave height in meters. Visibility is in nautical miles.
10. Drift of Pollution:	Indicates drift course and speed of pollution in degrees and knots and tenths of knots. In case of air pollution, (gas cloud), drift speed is indicated in meters per second (m/s).
11. Forecast:	e.g., arrival on beach with estimated timing. Results of mathematical models, or computer trajectory modelling.
12. Reporting Source:	Indicates who has reported the incident. If a ship, ship on Scene name, homeport, flag and call sign must be given. Ships on scene can also be indicated under this item by name, home port, flag and call sign, especially if polluter cannot be identified and the spill is considered to be of recent origin.

ACTION TAKEN

1. Implementation of National Contingency Plan:	Indicate if National Contingency Plan has been activated. If appropriate, give name of Lead/ Response Agency and On-Scene-Commander.
2. Incident Surveillance:	Indicate type of spill surveillance such as aerial or vessel. Number of over flights per day, etc.
3. Photographs or Samples:	Indicates if photographs or samples from the pollution have been taken. Contact numbers of the sampling authority should be given.
4. Names of Other States Informed:	Lead agency initiating message concerning the spill incident should name the other Island States that have been notified directly. It is important to have timely, state to state notification with a copy to REMPEITC-Caribe to follow-up. List Island States to whom the alert has been addressed.

2.	Estimated Cost:	Requirements for cost information to requesting Island State or Territory of delivered assistance.
3.	Prearrangement Delivery of Assistance	Information concerning customs clearance, access to territorial waters, etc. in the requesting Island or Territory.
4.	Assistance to Where and How	Information concerning the delivery of the assistance, e.g., rendezvous at sea with information on frequencies to be used, call sign and name of on scene commander of the requesting Island State or Territory or land-based authorities with telephone number, fax, telex number, or email and contact person.
5.	Other States Requested:	Only used if not covered by 4.4.5.1 if further assistance is later needed by other Island States or Territories.
6.	Personnel Names, Passport info:	Names of persons responding from an assisting Island State including their passport numbers. This information is necessary to facilitate rapid entry into the requesting Island State or Territory.
7.	Description of Equipment:	A brief description of the equipment including serial and model numbers. Also included a list of any component parts that are being shipped with the equipment.

8. ETA and Arrival Information:	Time and place of arrival of equipment and of personnel should be given to accommodate clearance with customs and immigration officials in the requesting Island State or Territory.
9. Place of Embarkation:	The responding Island State should include the airport or seaport where responding personnel are deporting from. The information should give flight names and numbers and/or vessel names.
10. Place of Disembarkation:	The responding Island State should give the airport or seaport where responding personnel will be arriving at in the requesting country.
11. Spare:	Any relevant information pertaining to the spill should be included such as results of field inspections or surveys. Statements of ship's personnel. Vessel and cargo owners and if the owners are members of a co-operative association, etc.

11.4.4 **EXAMPLE: CARIBPOLREP MESSAGE NO. 1**

(Heading)

Date Time Group: 181100GMT

From: Lead Agency Grenada

To: Lead agency St Vincent, Trinidad/Tobago, St. Lucia

Copy: REMPEITC-Caribe, Curacao

(Subject)

CARIBPOLREP No 1: M.T. West Passage

(Situation)

Tankship M.V. West Passage on fire and in danger of sinking

Date and Time: Fire reported 180745GMT

Position: Vessel at 12º-30'N
61º-15'W

Incident: Engine room fire spreading to cargo tanks. Some crude oil reported to be leaking. Risk of loss of vessel and entire cargo of 156,000 tons. Oil is forming a slick to the west.

Source of Pollution: Ruptured cargo tanks - 3 starboard, 3 center and 3 port.

Wind Direction/Speed: Wind is from 090 degrees (East) at 10 miles per hour.

Current: Current is towards 270 degrees (West) at approximately 1 Knot. Sea State & Visibility: Wave height 3 feet (1 m) and visibility is 10 miles.

(Action Taken)

Air sea rescue units enroute.

Crew still aboard the vessel.

Grenada Lead Agency activating National Contingency Plan and has commenced aerial surveillance.

Name of Other States and Territories Informed: Informed all other Caribbean Plan members for information alert only at this time.

11.4.5 EXAMPLE: CARIBPOLREP MESSAGE NO. 2

(Heading)

Date Time Group: 181645GMT

From: Lead Agency Grenada

To: Trinidad/Tobago Lead Agency for Action

Copy: REMPEITC-Caribe, Curaçao

(Subject)

CARIBPOLREP No 2: M.T. West Passage leaking oil.

(Situation)

Tankship M.V. West Passage on fire, leaking oil, and in danger of sinking.

Date and Time: Fire reported 180745 GMT

Position: Vessel now dead in the water at 12 -30'N 61 -15'W.

Incident: Vessel sustained engine from fire which spread to cargo tanks and is out of control. Crew has abandoned vessel and air sea rescue units on scene. Vessel contains 156,000 tons of Arabian crude. Oil slick observed from aerial observations to be spreading west northwest. Slick 1/2 mile (1000m) wide and 8 miles (13 km) long

Wind Direction/Speed: Wind is from 140 degrees at 15 mph (7 m/s)

Current: Current is towards 270 at approximately 1 knots.

Sea State & Visibility: Wave height 4 feet (1.3 m) and visibility is 10 miles (16 km)

Request Assistance: Request vessel dispersant spray equipment and available dispersant chemicals. Inform the Grenada Lead Agency of the quantity and type available. Request dispersant spray operating personnel to accompany equipment.

Estimate Cost: If known, cost of rental rate for dispersant spray equipment, dispersant spray chemicals by the drum and daily charges for operating personnel.

Assistance to Where/How: Assistance needed at mobilization area at the Port of St. George, Grenada as soon as possible. Please arrange air transportation equipment and operating personnel.

(Action Taken)

Grenada Response Agency assuming on scene responsibility for pollution abatement in Grenada's EEZ. Chemical dispersant response to oil at sea initiated.

Name of Other States Informed: Vincent, Trinidad/Tobago, St. Lucia for information

11.5 Annex 4 – Use of Dispersant (as presented in the Caribbean Island OPRC Plan)

1.0 General Dispersant Policy for Island States and Territories

1.1 The Caribbean Plan envisions that each Island State or Territory will develop its own policy pertaining to the use of dispersants in its Exclusive Economic Zone (EEZ). The dispersant policy adopted by the State or Territory will be part of its National Contingency Plan.

1.2 Scientific studies over the past several years have shown that the new generations of dispersants, in themselves, exhibit low toxicity even at application concentrations ten times those prescribed. Studies have also shown that the concentration of dispersed oil in the water column drops off significantly at depths below three meters and, given reasonable flushing, dispersed oil does not remain in the area of application for any significant length of time as it is distributed and diluted by the currents. More or less, aggressive use of dispersants may be warranted. Each Island State and Territory is encouraged to establish guidelines based on its own environmental considerations and circumstances within its own territorial seas.

1.3 It is the position of the Island States and Territories that use of dispersants using the following parameters will cause no significant environmental harm from such use. It is the policy of the Island States and Territories that when combating spilled oil within its territorial seas, the OSC as authorized by the Lead Agency, may use dispersants without prior notifications to other Island States and Territories under the following parameters:

a) The area of application is not less than one nautical mile from any shoreline, nor closer than three nautical miles up-current from important marine fisheries or coral reef ecosystems which are less than 20 feet from the water's surface;

b) The water depth should exceed 10 meters (30 feet) in the area in which the dispersant will be applied;

c) The method of application is one recommended by the manufacturer

d) The rate of application is as recommended by the manufacturer;

e) The dispersants, exhibiting low toxicity; and

f) The Lead Agency will notify potentially affected downstream Island States and/or Territories whenever dispersant use is intended to be conducted beyond its territorial seas.

1.4 In the event the OSC determined that the use of dispersants is necessary and if it is apparent that downstream Island States and/or Territories may be affected, then concurrence for such use must be obtained from the potentially affected Island States and Territories outside the parameters of section 10.3.3.

1.5 Response operations, including the application of dispersants, will not be conducted in the EEZ of another Island State or Territory without prior concurrence of the Lead Agency of that Island State and/or Territory.

1.6 During a dispersant operation, the OSC should determine the effectiveness of the dispersant application by on-scene observation and/or by laboratory testing. Application of dispersants should be discontinued if proven to be ineffective.

1.7 To establish an updated list of dispersants stockpiled in the region, each Island State or Territory will submit to the Focal Point Agency (IMO Regional Consultant) the quantity, size of storage containers, brand name, type, and location of storage. (Example: 12-55 gallon plastic lined drums of Corexit 9527). The updated

information will be submitted on an EQUIPMENT/DISPERSANT LOCATION page for insertion in Chapter 5 of the Caribbean Plan.

2.0 Application of Dispersants

2.1 The best combination of dispersants and application method must be selected for the specific situation. On the open sea they can be applied from surface vessels and from aircraft. It is very important to use proven equipment which has been properly calibrated and to follow the instructions of the suppliers of equipment and dispersants.

2.2 Spraying operations should be started as soon as possible after it has been decided that dispersant use will form part of the response. Many oils will form stable water-in-oil emulsions (chocolate mousse) of which the viscosity will be higher than that of the original oil. The extent of emulsification and the stability of the emulsion will depend upon the type of oil, sea state and temperature. The viscosity also increases because of the evaporation of lower molecular weight hydrocarbons. Both processes may have taken place to a considerable extent within a couple of hours after the spill and thus dispersant effectiveness may be reduced if application is delayed. After oil has emulsified into mousse, it is very difficult to disperse. Treatment with dispersants should, therefore, start before the mousse formation or extensive weathering has taken place.

2.3 Supplying an adequate quantity of dispersant to deal with a large spill can often be a problem. Spill response managers should include in their contingency plans an inventory of suitable dispersants and should be aware of how this supply can be augmented from additional resources. In the event that the supply is inadequate, spill response managers should prepare to use a combination of response techniques.

2.0 Operational Use and Application of Dispersants

3.1 In general, dispersants are applied either by surface vessels equipped with dispersant spray booms and support equipment (pumps, hoses, dispersant drum/tank) or by aircraft (fixed-wing or helicopter) using specially designed spray equipment and systems. In general, dispersants are only minimally effective when applied by means of fire monitors. Proper use of dispersants requires the appropriate dosage in terms of amount of chemical per unit area, such as gallons per acre, litres per hectare, etc. The dosage is extremely variable and depends on the type of dispersant, type of oil, slick thickness, temperature, viscosity, and other characteristics of the spilled oil. The actual flow rates are a function of the vessel/aircraft speed, the pump capacity, the dilution rate, and the effective swath width covered.

3.2 Surface Application. Most surface dispersant spray systems existing in response inventories utilize a reduction pump system that dilutes a dispersant concentrate with seawater before being sprayed on the surface through multiple-nozzle spray booms. Mounting spray booms ahead of the vessel's bow wave and wake assist in proper application of the dispersant to the oil. Vessel sprays and pump system flow rates must be periodically calibrated to assure the desired dosage. Despite improvements in vessel spraying equipment, the technique will always have some limitations, due to the low treatment rates and inherent difficulties of location oil slicks from a vessel.

3.3 Aerial Application
In contrast, aerial spraying offers the advantages of rapid response, good surveillance, high treatment rates, optimal use of dispersant and better evaluation of dispersant treatment.

List of National Pesticide and Toxic Chemical Board Approved Chemicals for Oil Spill Response*

CHEMICAL NAME	COMPANY	DATE APPROVED	APPROVAL PERIOD	EXPIRY DATE	USES
COREXIT EC 9500	GYSB/Muneshwers	- -	- -	- -	Dispersant

11.6 Annex 5 – Initial Oil Spill Notification Report

NATIONAL OIL SPILL CONTINGENCY PLAN INITIAL OIL SPILL NOTIFICATION REPORT	
COMPANY NAME:	DATE:
Location of Loss -	
Date Discovered:	Time discovered:
Commodity Lost	
Estimated Quantity Lost	Method of Estimation:
Estimated Recovery	
Estimated Net Loss	
Type and Extent of Pollution:	
Loss First Discovered by:	
Address;	
First Reported to Ministry by:	Date:
Cause of Loss:	
Reason for Loss	
Corrective Measures Taken	
Measures Taken to Prevent Recurrence	
Damage to Equipment Due to Loss -	
Person Injured	Address
Injury	
Person Injured	Address
Injury	
Remarks	
Date	Signed
(for Official use only) Comments of Investigation Officer	
Investigation officer Date	

INSTRUCTIONS FOR PREPARATION OF THE INITIAL OIL SPILL NOTIFICATION REPORT

Name of Form:	Initial Oil Spill Notification Report
Objective:	To report to the MARAD/GEA any loss of petroleum products by companies producing, transporting, storing, refining and marketing petroleum and petroleum products.
Frequency:	As occurs. This report shall be submitted in the case of a significant or material loss of petroleum or petroleum product or any unusual or significant event resulting in the loss of petroleum or a petroleum product.
Date due:	Within four working days following discovery of a physical loss.
Copies:	Original plus two copies.
Distribution:	CDC, EPA
Company Name:	Enter name of the reporting company responsible for the loss.
Date:	Enter date of submission of this report.
Location of Loss:	Enter brief description of geographical location of loss.
Date discovered:	Enter date loss was discovered.
Time discovered:	Enter time of day loss was discovered.
Commodity Lost:	Identify what commodity was lost.
Estimated quantity Lost:	Enter quantity lost and unit of measure.
Estimated quantity recovered:	Enter quantity of material recovered and specify unit of measure.
Estimated net loss:	Enter estimated net loss of material. This figure is obtained by subtracting estimated quantity recovered from estimated quantity lost.
Method of Estimation:	Enter brief description of method used in estimating loss and recovery specifying unit of measure used.
Type and extent of pollution:	Enter brief description of any pollution that may have occurred because of loss of material.
Loss first discovered by:	Enter name of person who discovered loss.
Address:	Enter home/office address of person who discovered loss.
First reported to MARAD/GEA by:	Enter name of person who first reported loss to MARAD/GEA

Date:	Enter date loss was reported to MARAD/GEA
Cause of Loss:	Enter brief description of cause of loss.
Reason for Loss:	Enter brief description of reasons for cause of loss.
Corrective Measures taken:	Enter brief description of measures taken to prevent continuation of loss.
Measures taken to prevent Recurrence:	Enter brief description of measures taken to prevent recurrence of loss
Damage to equipment due to loss:	Enter brief description of damage to equipment due to loss of material.
Persons injured:	Enter name of any persons injured due to loss of material, or due to cause of loss of material. For each person injured a notice of personnel injury form must be prepared and submitted to the MARAD/GEA.
Address:	Enter address of each person injured.
Injury:	Enter brief description of each injury.
Remarks:	Enter other relevant comments.
Signed:	Persons responsible for investigation of loss will sign this report.
Date:	Enter date report was signed.
Comments of Investigating Officer:	Investigating officer of the MARAD/GEA will enter his comments here.
Investigating Officer:	The investigating officer will sign this report after he has investigated loss of material
Date:	Investigating officer will enter the date he signed this report.

11.7 Annex 6 – Public Relations

Introduction

A major maritime incident or 'disaster' attracts the attention of the print and electronic media. The response from reporters is likely to be immediate and, depending on the scale and nature of the incident, it may attract the attention of national and international media. The requirements of the media are immediate and sustained. The sheer numbers that arrive at the scene within a very short time exacerbate the problem of satisfying these requirements.

Such emergencies can place enormous demands on all those involved in the response. Media interest, particularly if it is international, can create pressure throughout a 24-hour period.

Recent years have seen a rapid advance in telecommunications and information technology capabilities. Television channels devoted entirely to output are with us to stay. The impact made at the scene of the disaster by those engaged in gathering material for the media can be massive and it is vital to prepare for the influx of media representatives.

Failure to consider the media response at an early stage may have serious implications for the management of the whole incident.

It is essential that the media team:

- Identifies the agencies that are responsible for handling various aspects of the situation.
- Ensures that media activity does not interfere with the operational activity of the emergency services; and
- Ensures that the media do not harass human casualties.

The media team recognizes an incident that has major media potential.

The alerting procedure currently in place at CDC is as follows:

- On receiving a report of pollution, the receiving party must immediately contact the relevant NFP
- The NFP will alert the relevant authorities.

Media Relations personnel within government agencies should work with their RP counterparts in preparing and releasing news releases. This is critical in order for both the RP and the Government to be conveying a consistent message to the public.

Media management and public information will be disseminated out of the Incident Command Post. The Information Officer will organise media releases and conferences, as necessary. For emergency situations, such as announcements on danger to the local population, necessity of evacuations etc., the Information Officer will issue announcements on local media. All such releases should be approved by the IC.

The Second Stage

In the first few minutes of the incident, possibly within an hour, NCA needs to establish a spokesperson to give the briefest confirmation of the incident.

If it is clear that the situation is a serious one and is likely to continue for some time but NCA has not had sufficient time to assess the situation, any statements should be brief and factual. They should deal only within the areas of responsibility of the person making them. It is the responsibility of NCA, in any incident, to agree to the release of further information. It should be his responsibility to be aware of media demands from the outset.

In order to minimize the risk of issuing conflicting or misleading information to the media, and bearing in mind the necessity for fast but accurate information and that press officers are likely to be co-located, all agencies should adopt the following approach:

- To inform the agreed initial lead agency public relations officer before giving verbal statements to the media and restrict comments to matters concerning the agency that they represent;
- Before issuing news releases, to consult with the lead agency Communications Officer. If it proves impossible to contact the lead agency in advance (for example, due to communication difficulties) inform the lead agency as soon as possible afterwards;
- To contact those persons within their own organisation who the media may contact, or who may wish to make statements, and to brief them on the requirement for co-ordination with the lead agency public relations officer;
- If and when the incident develops to a different phase (for example, coastline clean-up operations) to consider making the lead agency the relevant local authority or Area Controller; and
- When arriving on scene, to liaise urgently with other press officers and to make contact with the lead officer to ensure that their contact details are quickly available.

Sample Initial Press Release

An oil spill has occurred at (location) from (responsible party, if known). It was discovered at (time and date). The following areas have been affected: (fill in)

Cause of the spill is being investigated by (fill in) and clean-up operations are underway by (fill in). The amount of product spilled is (amount) (or is not known or is being calculated by the (fill in).

Brief statement of operations being undertaken and by whom:

The spilled material is/is not considered to be a health hazard. The following precautions should be taken by members of the public in the (fill in area(s)).

Further updates will be given at (time, date).

11.8 Annex 7 – Risk Assessment

Guyana is on the North East shoulder of the continent of South America, and at the south end of the Caribbean Sea. These are no dedicated shipping lanes on the coast of Guyana except for the entrances to the main rivers in Guyana, namely Demerara, Essequibo and Berbice, with port Georgetown being the main commercial centre for shipping. These conditions result in Guyana waters especially the Demerara River areas, becoming a place of risk because of the high marine traffic and can be prone to spills or discharges of all types of oily residue from ships.

The areas most threatened in Guyana are as follows:

OPERATIONS PRESENTING RISK	LOCATION
Offshore oil and gas exploration and production	Blocks (xxx)with Atlantic Ocean
Oil terminals on land	With regard to the information requested, please see below a list of all licenced terminals. The GEA classifies GEA classifies"terminals"as the fixed locations at which legally imported fuel can be marked. Sol Guyana Inc.Ramsburg,Providence EBD;BB Rome,Agricola,Greater Georgetown Rubis Guyana Inc.-Ramsburg, Providence GUYOIL –Heathburn, East Bank Berbice, Providence ,EBD China Zhonghao-Lot A Block 2,Public Road, Land of Canaan, EBD Lynwil Trading International Inc.-Christianburg,Linden The GEA is further required to annually publish a list of all licence holders. Please see said list attached. The coordinates are not available for all licence holders. With regard to insurance, the GEA only requires applicants for licences for trucks and tankers to provide copies of valid insurance policies. The [precise terms and conditions of these policies is not known by the GEA.
Disposal of waste oil, bilge, cargo and tank residue	Demerara, Berbice and Essequibo Rivers and approaches. liquid

Oil Spill Trajectories

Forecasting Slick Movement

It is equally important to be able to forecast the probable movement of a slick as well as likely changes in properties of the oil after it has been spilled. This allows sensitive resources in the path of the slick to be identified and, if appropriate, response measures to be put into effect. The task of forecasting the position of

an oil slick can only be accomplished if data on winds and currents are available since both contribute to the movement of floating oil. Other factors to be considered are waves and tides.

The Effect of Wind
It has been found empirically that floating oil will move downwind at about 3% of the wind speed. In the presence of surface water current, an additional movement of the oil equivalent to the current strength will be imposed in any wind-driven motion. If the wind is negligible, which is rarely the case; the oil will move only under the influence of currents and tides.

Extract from South American Pilot Vol. IV
Guyana lies on the Northeast shoulder of South America, and within the northeast Trade Winds of the North Atlantic Ocean. Over open sea, east to northeast winds predominate throughout the year. Winds from between north and east account for approximately 80% of all winds in most months: however, slight variations of frequency occur in October (70 %) and in September and November (75%). From May through November, east winds have a higher frequency than all other winds.

Winds force 3 (12-19 kph) and 4 (20-30 kph) occur on 60-70% of occasions, with up to 30% force 5 (31-40 kph) during the months December to February, but less than 3% July – September. Wind force 6 (41-50 kph) occur on about 10% between December-February, but less than 3% between July-September. Gales force 7 (51-62 kph) and 8 (63-74 kph) or more occur only rarely and then in association with brief squalls or during the passage of a hurricane when such winds can blow from any direction. Generalized data on wind speed and direction is given for guidance only. Real time data will be required during an actual spill incident.

The Influence of Currents and Tides
Surface currents dominate the movement of the slick unless the winds are extremely strong. Close to land, tidal currents must be taken into account, but farther out to sea their contribution is minimal since they are cyclic and tend to cancel out over time, although rarely ever completely. This gives rise to a residual current, which will determine the long-term movement of the slick.

The following is given as a guide to the predominant flows in the seas around Trinidad and Tobago.

NOTE: The South Equatorial Current is sometimes referred to as the Guiana Current

Computer Modelling
Of interest for oil spill contingency planning are the predicted time of history of surface oil spread and drift, the predicted weathering state of the oil versus time, and the predicted shoreline impacts for drifting oil. In addition, stochastic modelling, also known as hind casting, can be used to determine the origin of spills.

Various organizations and companies have developed oil spill computer models which can provide valuable support to both contingency planners and pollution response teams. It should be stressed that, though the use of models may be desirable, such models are not essential for effective planning and response. The models are able to make predictions about the trajectory and fate of spilled oil and cannot readily replace the need to monitor a spill physically in the event of an actual incident. This can be done effectively only from aircraft, by personnel fully trained in the interpretation of visual observations of oil on water.

11.9 Annex 8 – In Situ Burning (As presented in the Caribbean Island OPRC Plan)

In-Situ Burning

1.1 In-situ burning is another tool for oil spill response. There are limitations on its effectiveness as presented below. There are also health concerns from the resultant smoke; however, recent studies indicate these health concerns may be negligible except immediately downwind of burning oil.

1.2 It is the policy of the Island States and Territories that there is no objection to the use of in-situ burning as a response tool when the burn will not be closer than 12 miles from any adjacent Island State or Territory. Should the OSC desire to use in-situ burning at lesser distances from adjacent Island States or Territories, prior concurrence must be obtained from the Lead Agency of said Island States and/or Territories. In-situ burning shall not be undertaken without due consideration for the safety of all personnel.

Technical Information on In-Situ Burning

1.3 Recent research indicates that controlled in-situ burning of spilled oil may be a practical means of removing substantial amounts of oil from the water surface under some circumstances.

Considerations in use of in-situ burning include:

a) Containment of oil
b) Weathering prior to ignition
c) Ignition
d) Maintenance of burning
e) Smoke which is produced
f) The environmental consequences of burning
g) Collection and disposal of the residue and
h) Wind and sea conditions.

1.4 If in-situ burning is successful, it may be possible to remove over 90% of the oil from the water surface.

1.5 Containment of the oil by means of a boom to a minimum of 3mm thickness is necessary for ignition. Fire-resistant booms for containment while burning are commercially available but are expensive.

1.6 Weathering of the oil can make it difficult to ignite. If the oil contains more than 20% water, special techniques of ignition will be needed. Most oils appear to be ignitable even though weathered unless they contain emulsified water; an exception can be highly refined heavy products such as asphalt.

Igniters that are available include:

a) The Heli-torch (helicopter-transported device for ejecting burning gelled gasoline (napalm) onto the oil surface

b) Incendiary devices developed by Environment Canada
c) Such simple means of ignition as use of burning rags or burning oil-soaked sorbent masses.

1.7 Maintenance of burning. Oil will continue to burn after ignition until it is about 1mm in thickness, after which it will self-extinguish.

1.8 Smoke that is produced will likely be on the order of 10% by weight of the oil which is burned. The smoke particles appear all to be less than 10 microns in size. Observation and mathematical modelling indicate that the smoke will rise rapidly owing to heat and rapidly become diluted. Smoke from a 3,500-gallon burn becomes non-visible about 10km from the fire.

1.9 The environmental effects of burning appear to be minor or negligible within a few hundred meters down-drift from the burn pool. Concentrations of particulates are less than the US National Ambient Air-Quality Standards. There are no dioxins or benzo-furans produced, and the concentrations of poly nuclear aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs) are low.

Heating of the water surface appears to be limited to the first few centimetres at most. The residue from burning is highly viscous but, in most cases, floats on the water surface. However, in a few cases the residue from burning has sunk.

1.10 Collection of the burn residue can be relatively simply effected by use of nets or other mechanical devices, and it may be disposed of by burning.

1.11 The limits of wind and sea conditions for burning have not yet been established, except that it will be difficult to ignite the oil if the wind speed is too high. The limit of wind speed will likely depend on the degree of weathering. For a freshly spilled light crude oil or light product, the limiting wind speed is likely to be on the order of 20 knots. If the oil is heavier or highly weathered, the limiting wind speed will be less.

11.10 Annex 9 – Training and Exercises

1.0 Introduction

The ultimate test of any contingency plan is measured by performance in a real emergency. It is vital therefore, that the NOSCP includes an ongoing programme to test the plan through realistic exercises.

2.0 Purpose

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.

3.0 Legal Basis

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 Affairs, port authorities and other relevant entities, shall establish:

A programme of exercises for oil pollution response organizations and training of relevant personnel.

The members of the Plan, at each level, will have periodic and regular exercises that involve the NRAS and the CNA to familiarize themselves with the operative procedures of the emergency response. The NRAS and the CNA should also coordinate its training exercises with any local industry exercises.

4.0 Exercise Categories

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:

- notification;
- tabletop;
- equipment deployment; and
- incident management (limited and full-scale deployment)

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.

- **Tabletop 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 tabletop exercise might typically last four to eight hours and should be announced well ahead of time to ensure availability of personnel.

- **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 Tabletop 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.

- **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.

5.0 Training

A continuous training programme must be in place to train new personnel and to maintain the skills of persons already trained and experienced in oil spill management.

Since persons are continuously coming into and leaving the employ of the Government Service, this warrants that the training programme be ongoing and sustained.

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11.11 Annex 10 – Salvage: Details of Operations

1.0 Introduction

Following almost all serious incidents, the ship-owner engages commercial salvo's to deal with the casualty and secure the cargo and bunkers. The initial salvage options may include firefighting, counter-flooding, internal transfers, other actions to stabilize the ship, and perhaps emergency towing to bring the casualty to calmer waters or a safe haven.

Subsequent salvage actions may involve cargo and bunker transfer operations, diving operations, beaching the casualty or grounding it in shallow water and patching or filling holes. If a ship has grounded salvors may attempt to refloat it using tugs and perhaps by pressuring flooded tanks or compartments with air to increase buoyancy. In exceptional cases when the salvage of the ship is not practicable, the only way of minimizing pollution may be to tow it a long way offshore and sink it.

2.0 Emergency towing arrangements

Where there is a serious risk of harm to persons or property, or a significant risk of pollution, it may be necessary to initiate emergency towing arrangements. Such arrangements should be unambiguous, agreed by all parties where possible, and activated as swiftly as practicable. Standard operational procedures should apply irrespective of whether an Emergency Towing Vessel (ETV) is under charter to MSD, tasked from appropriate local harbour, industry or NOSC resources, or is a salvage tug of opportunity.

3.0 Emergency towing requirement – considerations

It is difficult to establish strict or prescriptive criteria for when to use an ETV. Individual circumstances must dictate the appropriate response.

4.0 Present emergency towing arrangements

Incident Commander holds comprehensive databases of tugs available locally and contact details.

5.0 Agreements for Salvage and Towage (AST)

The Incident Commander has arrangements in place for emergency chartering of local tugs. For salvage "Lloyds Standard Form of Salvage Agreement" (LOF 1995) will be used, while for towing the "Standard Towage Conditions" as attached hereto will be used in the absence of any acceptable alternative provided by the tug owner. These agreements cover activation, contractual arrangements, liabilities and operational procedures, should Incident Commander request assistance from any local tug as part of the response to an incident. Some tugs may not be altogether suitable for emergency offshore towing. Weather conditions may restrict their use. Their role may therefore be to provide "first-aid" prior to the arrival of a more suitable vessel.

Any local tug tasked initially by Incident Commander is de facto under contract. The CNA must therefore fund it. Where necessary and appropriate, the CNA will seek to recoup its costs.
The AST provide for any subsequent commercial agreements made between a ship-owner and a tug operator to offset any potential cost to CNA for the initial charter of the tug.

6.0 Shelter for damaged ships

Except in the most severe incident, a ship is likely to retain some of its cargo and bunkers. It may be desirable to carry out a cargo and bunker transfer operation from the stricken ship to prevent or minimize further spills. It may help to move the ship to a more sheltered area such as a port or oil terminal.

It is safer to carry out cargo and bunker transfer operations in sheltered areas. However, the decision to use an area moves the risk of pollution to an area that the incident might otherwise not have affected. DMS considers carefully whether to use a sheltered area and, if so, which to select. DMS has in mind that time may be short and the damaged ship may not be in a condition to travel very far.

7.0 Emergency cargo and bunker transfer operations

The Incident Commander has access to emergency transfer equipment for use in off-loading oil or hazardous substances from a damaged or disabled ship. This ensures that there is suitable equipment available in Guyana for cargo and bunker transfer operations.

The equipment provides a total transfer capability, including pumps, power packs, hoses, fenders, communications equipment, protective clothing, breathing apparatus, and inert gas generators.

Incident Commander needs to lift equipment by air to the deck of a damaged ship, using NOSC helicopters (operational commitments permitting). When the Incident Commander uses NOSC units he consults the GCAA about the most suitable airfield from which to lift equipment by air.

The Incident Commander provides details of the equipment to lift:

- Weights and dimensions of the equipment, especially of the heaviest item;
- The position of the casualty; and
- The estimated time of arrival of the equipment by road.

11.12 Annex 11 – Equipment Staging Areas

Staging areas have been selected to accommodate various modes of transportation including overland, air and water. Each location has the means to move equipment and materials quickly and efficiently. These locations have been selected so that they are strategic to coastal terminals and main shipping routes where there is the highest risk of spills.

MAIN RECEIVING AREAS	LOCATION
CJIA	Timehri

The primary staging areas are:

PRIMARY STAGING AREAS	LOCATIONSNN
Ogle Airport	Ogle
Coast Guard	Ruimveldt

In addition, facilities will be able to accommodate the preparation, fueling (as appropriate), deployment, retrieval, and decontamination (where and if appropriate) of the following countermeasures:

- Containment (booms, ropes, chains, anchors, sorbent booms)
- Removal (skimmers, power packs, hoses, connectors, sorbents)
- Transfer (pumps, hoses, connectors, power units)
- Storage (containers, membranes, tanks)
- Dispersion (dispersants, spray arms and buckets, connectors, other fittings)
- In situ burning (as appropriate - aircraft, Heli torch, gel, fire-resistant boom, igniters)

11.13 Annex 12 – Spill Response and Clean-Up Strategies

This Appendix describes applicable oil spill response strategies. Details on how to perform the operations will be made available in a reference manual or training program.

Considerations for Developing Spill Response Strategies

Planning & Logistics	Response (including monitoring) as soon as practicable (4-6 hours) for Tier 1 spills. Response time (including monitoring) to be as soon as practicable for Tier 2 spills. Response time to be within 24- 48 hours for Tier 3 spills.
Spills on Land	Contain spills on land as close to the source as possible, if safety allows. Every effort should be made to ensure that the spill does not reach water, where its containment and recovery are much more difficult and the potential environmental impacts are much greater. Containment can be achieved by using: • a berm or dyke around the spill source (berms can be constructed from earth or sand bags); or • a trench or ditch down slope of the source.
Spills on Water (Open Sea)	Options may include booming, skimming, removal, storage, dispersants and in-situ burning. Booms are commonly placed: • across a narrow entrance to the ocean, such as a stream/river outlet to close off that entrance so that oil can't pass through into marshland or other sensitive habitats. • in places where the boom can deflect oil away from sensitive locations, such as mangroves, shellfish beds, beaches used by piping plovers as nesting habitats etc.. • around a sensitive site, to prevent oil from reaching it. **Small and medium size spills** It is recommended to use a skimmer(s) in conjunction with a Side Fitted Single vessel sweep (single or double sided) with the skimmer(s) placed in the apex of the sweep boom(s). "V" shaped sweeps are strongly recommended because of its excellent maneuverability. **Large oil spills** For larger oil spills, the Side Fitted Single Vessel "V" Sweep configuration may be combined with a large "U" configuration with an open apex. The oil - which is concentrated by the large "U" - will be guided into a narrow stripe behind the U-sweep, and may immediately be contained and recovered by the Side Fitted Single Vessel

	Sweep following right after the "U". **Oil Recovery** The recovery vessel's forward movement will force the floating oil - trapped inside the sweep – to concentrate at the apex of the boom formation. Allow the oil layer to build up before starting the skimmer. An oil layer of at least 2.5 to 5 cm (1-2") is recommended. No type of skimmer will work efficiently in a real-life situation without the presence of sufficient amounts of oil. But on the other hand the oil should continuously be pumped away as it enters the skimming zone. Otherwise it may escape under the boom. It is a question of obtaining a balance, and only the actual situation can indicate where this balance is. It is always better to start skimming too early than too late. In the first case, you may recover more water than necessary (dependent on type of skimmer), but in the second case you may lose the oil under the boom. If you recover too much water, it is not necessarily a big problem, as long as the type of skimmer pump used does not emulsify oil and water. Recovered water can easily be decanted from the storage tank, to be discharged in front of the sweep. In this way, any oil in the decanted water will be recovered again. Dispersant application involves the spraying of chemicals by aircraft or boat to accelerate the natural dispersion of the oil.
Spills on Water (Rivers)	The aim is to keep the recovery equipment fixed to the river bank or structures in the river, while the water with the spilled oil is doing the work. Always try to deflect the oil to the slow side (the inner bank at a curve) of the river, if possible. The speed of the river current may require that the booms are positioned in a very small angle relative to the direction of the current. This is due to the fact that the speed of the water perpendicular to any section of boom must be less than 0.7 knots. The skimmer must be placed in a way which ensures the maximum flow of oil to it. In some situations it is possible to form a small circulation area close to the river bank, where the deflected and concentrated oil will rotate in a direction driven by the incoming oil, flowing along the boom. In this way the oil moves away from the critical entrainment zone at the apex, thus better avoiding loss of oil under the boom. Another very efficient way to ensure this takes place is to dig a small pond right next to the river. The river and the pond must be connected with one or two ditches. Use the boom

	to guide the oil into the pond. Both solutions work very well with the skimmer placed in the middle of the circulating oil. It may not always be possible to drive a truck all the way to the river bank, as the ground is too soft or muddy. It may be necessary to man-carry the recovery equipment to the river. So low weight is of essence here. Large debris must be deflected before it enters the boomed area. Rakes used from small boats will be quite useful. In some situations it is even possible to deflect large debris by means of a steel wire stretched across the river in or below the water surface, and placed in a small angle relative to the direction of the current.
Spills on the Shoreline	Spills on shorelines are threatening to the wildlife environment and may result in the most costly recovery method. It should therefore be avoided by recovering as much oil as possible in the open water. The different shoreline types falling within the affected area should be identified and quantified and the most appropriate clean-up strategy for each considered. Factors to be taken into account include amenity value, whether beaches are easily accessible for heavy equipment and the ability of the beach to support such vehicles. **Manual clean-up followed by natural weathering of the remaining oil is preferred for ecological reasons.** Chemicals used on shoreline clean-up must be approved by the Relevant Authorities for the intended use. This approval must be obtained in writing, prior to application during an incident**.** Associated safety and environmental risks must be carefully evaluated and legal issues addressed, as is the case for all response options There are several ways of acting in the event of an oil spill on the shoreline, but they all depend on the actual situation: **Sandy Beaches** ***Small to medium size spill:*** Use beach cleaning machines or bulldozers on the beach if it will carry the weight of such vehicles. If there is no significant surf, you can wash and push the oil back into the sea, to be recovered by a small shallow water skimmer, operating in an area surrounded by a beach boom. Dig a hole under the skimmer if the water is too shallow. Use a Fastank or a rigid open container for temporary storage. ***Larger spills/light to medium viscosity:*** Fence in the oil by means of a shoreline boom and operate a shallow water skimmer from the beach. If possible, try to push or wash the oil on the beach back into the water in order to let the skimmer recover it. Severe surf will make this operation difficult, if not impossible. A skimmer head or pump with a self-adjusting weir lip - mounted on a "Hiab" type hydraulic crane - a so called "Sweeper", is a very useful tool for this type of spill response. The skimmer- or pump head can always be placed in the best recovery position, remotely controlled from the beach, a vessel, or a barge. Fast to operate and safe for personnel. Pump the oil to a land-based storage or to a sea-based facility such as a barge or a towable storage bladder (TSB). ***Larger spills/high viscosity:*** As just above, but due to the viscosity it may be necessary to dismantle the skimmer pump from the floats and use it for transfer of the spilled oil. Sometimes the oil emulsion in the water next to the beach will be so highly viscous

that a skimmer cannot sink into the oil. It will stay on top of it. Therefore, a skimmer pump, mounted on a "Hiab" type hydraulic crane, is also a useful tool.

Stony or Rocky Beaches

Small to medium spill/light to high viscosity: Use absorbents for small amounts of oil and when gentle treatment is required. For larger amounts the best way to recover the oil from a rocky coast is to wash the oil back into the sea, using fire hoses or high pressure- or hot water cleaners, and let a small shallow water skimmer recover it there. Work in an area fenced-in by a shoreline boom. Use a Fastank or a rigid open container for temporary storage.

It must always be considered whether it is environmentally feasible to pressure wash a coast line. If there are important living organisms at risk, and the spill is too big for using absorbents, a more gentle treatment with bio-degradable detergents or surface washing agents could be the option. No action at all may in some cases be the best solution.

Large spill/light to medium viscosity: As above for small spills. However, larger skimmers and pumps can be used. Operate the skimmer from the shore, from a vessel, or from a barge, and store the oil in a land or sea-based temporary storage facility. A skimmer head or pump with a self-adjusting weir lip - mounted on a "Hiab" type hydraulic crane - a so called "Sweeper", is a very useful tool for this type of spill response. The skimmer- or pump head can always be placed in the best recovery position, remotely controlled from the beach, a vessel, or a barge. Fast to operate and safe for personnel. Let nature finalize the cleaning process, or use a bio-degradable detergent or surface washing agent. Use absorbents whenever feasible.

Large spill/high viscosity: As just above, but dismantle the skimmer pump from the floats for transfer of the oil. A skimmer can be used by means of a feeder which can force heavy oil into the transfer pump. Sometimes the oil emulsion in the water next to the beach will be so highly viscous that a skimmer cannot sink into the oil. Therefore a skimmer pump, mounted on a "Hiab" type hydraulic crane, is also a useful tool here. Let nature finalize the cleaning process, or do the final cleaning using a bio-degradable detergent or surface washing agent.

Gravel Beaches Subject to Tidewater

Gravel beaches and tidewater cause special problems for oil spill responders. When the tide goes down, the oil sinks with the water level deep into the gravel and at every high tide the oil will be back at the surface. If you try to wash the top layer of gravel at low tide, it may appear clean until after the next high tide. Then new oil "from the deep" will cover the beach.

A careful assessment of the pros & cons of cleaning must be performed prior to doing anything to these beaches.
Natural degradation may be the fastest and safest way for the environment.

Wetlands, Mangrove Swamps and Marshes	These areas are priority for protection. The main protection options are booming and mechanical recovery. If oil enters these areas the main clean-up options are: - Natural Recovery – no action - booming and skimming of oil on the water surface in creeks; - pumping of bulk oil from sediment surface, depressions and channels; - low pressure water flushing of free oil from sediment surface and vegetation into areas where it may be collected; and - Use of absorbent materials with subsequent collection and disposal. **No Action/Natural Recovery** There are several circumstances under which it is appropriate to do nothing. The foremost of these situations is when clean-up would cause more harm than benefit to mangroves or other associated habitats, or when shorelines are inaccessible. When no clean-up is conducted, oil will slowly degrade and be removed naturally, assisted by natural and storm-generated flushing. Spills of light oils, which will naturally evaporate and break down very rapidly, do not require clean-up. Such light oils are usually gone within days. Furthermore, light fuel oils such as gasoline and jet fuels typically impart their toxic impacts immediately, and clean-up can do little to reduce the damage. It is important to recognize, though, that even where no clean-up is advisable, light oils can cause significant injury and contaminated mangrove habitats may require many years to recover. Clean-up also is not recommended for small accumulations of oil, regardless of product type. Impacts caused by light accumulations generally do not warrant the trade-offs associated with clean-up activity. Even for major spills, there may be cases for which it is best to take no action, depending on the nature of the oiling and the characteristics of the mangrove forest affected. Generally, clean-up should not be conducted in interior areas of mangrove forests because of the risk of damaging mangrove roots and seedlings, trampling oil into the sediment where it will degrade much more slowly, and spreading oil into previously unoiled areas. Exceptions may be made if access is possible from upland areas or if vegetation is sparse enough to permit access without injury to pneumatophores and prop roots. If clean-up is attempted in interior mangroves, experienced personnel must constantly oversee clean-up crews to prevent further injury. In any case, attempts should be made to control the movement and spread of any mobile oil within the mangroves to prevent contamination of adjacent areas.

Several response techniques described below, including barriers, passive collection, and flushing can be used to help control and contain oil.

Barrier Methods – Booms

Several forms of barriers can deflect or contain oil, including booms, sediment berms, dams, and filter fences. Barriers can be used along mangrove shorelines and inlets to prevent oil entry. Proper strategic boom deployment in sheltered lagoon areas may be highly effective in trapping large quantities of oil and reducing oil impact to interior mangroves. To be effective, barriers must be deployed immediately after a spill before oil moves into mangrove areas. This means that appropriate types and sufficient amounts of barrier materials must be stockpiled and available at the time of the spill, and that strategies for boom placement and deployment have already been established and tested. Because of the soft substrate and sensitivity of prop roots and pneumatophores, barrier methods should be deployed carefully and maintained vigilantly to prevent physical damage during installation and removal. Untended boom that breaks loose can become entangled in the mangrove fringe, breaking off pneumatophores, prop roots, and juvenile plants. Where barrier methods are not an option, mangrove forests will remain vulnerable to contamination. For example, booms generally cannot be deployed successfully along mangrove shorelines with strong currents or along sections of mangrove shorelines behind shallow flats. Booms are usually not effective with light oils because they can readily mix into the water column and pass under floating boom. Heavier oils are more likely to remain at the water surface and so are more easily controlled with booms, although very heavy oils can sometimes become negatively buoyant and pass under boom.

Pumping/Vacuuming

Vacuuming can remove pooled oil or thick oil accumulations from the sediment surface, depressions, and channels. Vacuum equipment ranges from small units to large suction devices mounted on dredges, usually used outside vegetated areas.

Generally, vacuuming should be conducted only at the outer fringe of mangrove forests; it is most feasible and least damaging where vegetation is not very dense, enabling easy access.

Vacuuming can be used effectively on heavier and medium oils, providing they are still reasonably fluid. Lighter, more flammable petroleum products such as jet fuel and diesel generally should not be vacuumed.

Use of Sorbents

Sorbent boom or other sorbent materials can be placed at the fringe of oiled mangrove forests to passively recover any mobile oil, including sheens. Sorbents are oleophilic and either absorb or adsorb oil. They can be composed of either synthetic or natural materials, and they come in a variety of forms, including sausage boom, “pompom” or snare boom, sheets, rolls, pellets, and loose particulates. Sorbents vary in their effectiveness depending upon oil type, degree of oil weathering, and sorbent absorption or adsorption capacity. Sorbent materials must be placed and removed carefully to

	minimize disturbance of sediments and injury to mangrove roots. Sorbent materials must be closely monitored to ensure they do not move and damage mangrove roots, and must be removed when they become saturated or are no longer needed. Sorbents have been used to wipe heavy oil coating from mangrove surfaces. Before using sorbents in this way, consideration should be given to associated physical damage. This activity is best conducted only in areas where substrate is firm enough to prevent oil mixing into it. **Low-Pressure Ambient Water Flushing** Low-pressure flushing with ambient seawater can wash fluid, loosely adhered oil from the sediment surface and mangrove vegetation into areas where it can be collected, as long as it can be done without resulting in significant physical disturbance of the sediment. Generally, flushing is most feasible at the outer fringe, but can sometimes be used to remove oil trapped within the mangrove forest. Flushing at water levels high enough to submerge sediments may help minimize impact to the substrate. If substrate mixing is likely or unavoidable, responders should allow the oil to weather naturally. Flushing is not effective with heavy oils, such as Bunker C, or highly weathered oils. Oil should be flushed only during ebbing tides to move it out where it can be collected. Flushing can be a useful technique to help control the movement and spread of mobile oil in mangrove areas to prevent contamination of adjacent areas. When flushing free-floating oil, care should be taken to minimize emulsification.
Coral Reefs	There are many factors that influence the effect of an oil spill on an ecosystem and these must be taken into consideration when dealing with coral reefs. Some of the most obvious factors are: - The amount and type of oil spilled; - The degree of weathering of the oil prior to contact with corals; - The extent of the contamination; - The presence of other stress factors, such as high sedimentation; - Physical factors such as storms, rainfall and currents – the state of the tide during the initial contamination is very important; - The nature of the clean-up operation; - The type of coral; and - Seasonal factors, e.g. coral spawning. The goal of spill response in coral areas is the same as in any other habitat—to minimize damages caused by the accident and any associated spillage. Choosing response methods carefully, with an understanding of the sensitivities of the reef environment, will minimize any additional impacts incurred from the clean-up. Skimmers and booms are the main options that can be used however the following should be noted:

	• Booms should be tended regularly so they do not harm shallow reefs • When anchoring booms care should be given not to damage corals **NOTE:** a) Chemicals should never be used in these sensitive areas. b) It is recognized that these areas are not generally easily accessible and heavy clean-up operations may cause physical damage. Care must be taken in any associated clean-up activity to minimize damage.
VOCs and SVOCs	VOCs and SVOCs require specialized equipment for detection and monitoring. Every report that indicates the possibility of the presence of VOCs and SVOCs must be investigated promptly and immediate steps taken to detect and identify the offending substance and source. Isolation of the source then becomes the top priority followed immediately by addressing human concerns of both health and safety.
Spill Monitoring	Spill monitoring includes safety and occupational health conditions, existing and possible environmental threats and for river and offshore spills, trajectory modelling.
Removal	Techniques for skimming and collection of oil released onto land or into water. Transfer Equipment needed to move collected liquids and solids to interim storage and disposal facilities.
Oil Recovery	When large volumes of oil have been contained either through natural or mechanical containment it will be necessary to remove or recover the oil. In rivers, this will generally occur in excavated trenches, adjacent to berms or natural barriers, or back water areas. Vacuum trucks are ideal at clean-up sites accessible by road and where a large volume of oil has pooled in an area that is generally free of water. The truck must be positioned at a safe distance so that there is no possibility of fire or explosion**.**
Control Points	Specific geographical locations, primarily on rivers, which provide for the pre-planning of staging and deployment locations for oil spill response equipment. Pre-identification required of access, work area size, boat launches, equipment storage, natural boom anchors, water depth, water speed, flow patterns and water hazards.
In-situ Burn	As presented in the Caribbean Oil Spill Plan and in Appendix N.
Post-Spill Activities	Personnel decontamination, equipment cleaning, spill debris disposal, and maintenance, debriefing and review of strategies following an incident.

11.14 Annex 13– Acceptable Minimum Standards for Wastewater, Remediated Soil and Recovered Oil

WASTEWATER OR RUNOFF WATER

For ON-SITE and OFF-SITE treatment, wastewater generated through the treatment of contaminated material, run off from work site, decontamination of response equipment or leaching of residues of treatment process must meet the Water Pollution Rules (2001) as amended in 2006 standards before final disposal to a receiving water body.

RESIDUAL MATTER/REMEDIATED SOIL

All residues and soil being remediated at an ex-situ bioremediation site must comply with the following minimum standards. These standards also delineate the maximum permissible levels of contamination (action level) above which treatment will be required for an industrial area or zone:

Parameter	Standard
TPH	<1%
pH	6-8
Conductivity	< 4 mhos/cm
Sodium Adsorption Ratio (SAR)	<12
Chlorides	<1000 ppm

RECOVERED OIL

Any oil recovered from treatment process must meet the following specifications:

Parameter	Standard
Water content	<2%
Sulphur content	<5%
Solids content	<1%
Lead content	<170 ppm
Other trace metals	<1000 ppm

11.15 Annex 14 – Deepwater Response Requirements

INTRODUCTION

With the advent of operators moving into deeper waters offshore there exist a greater challenge in terms of accessibility, visibility, disperse-ability and containment of an oil spill at these depths. It has become necessary to place specific emphasis on deep water operations and its specific needs (such as ROVs and additional response vessels) in order to satisfy the MEEA that the likelihood of such an event taking place is minimized as much as possible and the extent of damage to the environment is also minimized.

This section is subject to review pending outcomes and findings from the GOM-Deep Water Horizon incident.

For the purpose of this document deep water has been defined as greater than 1000 ft because of issues related to accessibility and the water depths of future blocks to be allocated.

PURPOSE AND OBJECTIVE

The purpose of this section is to establish the requirements for safely conducting deep-water oil spill response in anticipation of deep-water exploration and production activities in the offshore environment of Trinidad and Tobago in the near future. The requirements established in this appendix are specific to deep-water and will support the NOSCP.

PREVENTION/MITIGATION

Disaster Management has to start with knowing the risks that threaten a project, vulnerability or exposure to the risks and the equipping oneself with requisite layers of protection or barriers for arresting and mitigating the possible failure events.

RESPONSE READINESS REQUIREMENTS

The following categories have been identified as critical in order to respond to a deep water incident.

- *ROV Operating Capabilities*

    - *Secure the availability of ROV(s) in Trinidad and Tobago to be able to respond to deep-water incidents.*

    - *Remotely Operated Vehicles (ROV's) should have the capability to perform all anticipated underwater tasks will need to be available on the drilling rig.*

- *The ROV must be accompanied with an adequate stock of spares and tooling available on site to ensure ROV operability and availability as when required.*

- *Use of ROV's for application of subsea dispersants.*

- *Subsea Dispersant Application*

  - Operators and selected response contractors should have available the capabilities to apply dispersants at the source (subsea) of the oil spill.

- *Accessibility of Response Vessels*

  - The capability to make a rapid response in deep water requires access to a diverse fleet of vessels as given below:

  → Dynamically Positioned (DP) Vessels

  - Secure the availability of DP vessels in Trinidad and Tobago and the region to be able to respond to deep-water incidents.

  → Firefighting capability

  - Secure the availability of fire-fighting vessels in Trinidad and Tobago to be able to respond to deep-water incidents.

- *Containment Vessels*

  - Secure the availability of containment vessels in Trinidad and Tobago to be able to respond to deep-water incidents.
  - The physical size, class, location, and capacity of Floating, Storage Production and Offloading Vessels and tankers must be adequate.
  - Port, refinery and processing facilities should be adequate to accommodate these vessels.

- *Accessibility of Additional Rigs*

  - Demonstrate the capability to source additional rigs within a reasonable time frame.
  - Duty of care to assist.

- *Disposal or Processing of Recovered Oil*

  - Response agencies should be able to have access to suitable options to safely treat, store and dispose the recovered oil in Trinidad and Tobago and internationally.

- *Response times*

    - Response times to mobilize vessels, rigs, air craft and other equipment need to be determined and incorporated in all agreements/contracts and spill plans.

- *Chemical Management*

    - Chemical management programme e.g. dispersants, biocide and other chemicals released to environment and their fate and behaviour in the environment.