NATIONAL MARINE SPILL CONTINGENCY PLAN

Papua New Guinea's "National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances"

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"EMERGENCY 24 HOUR NUMBER"
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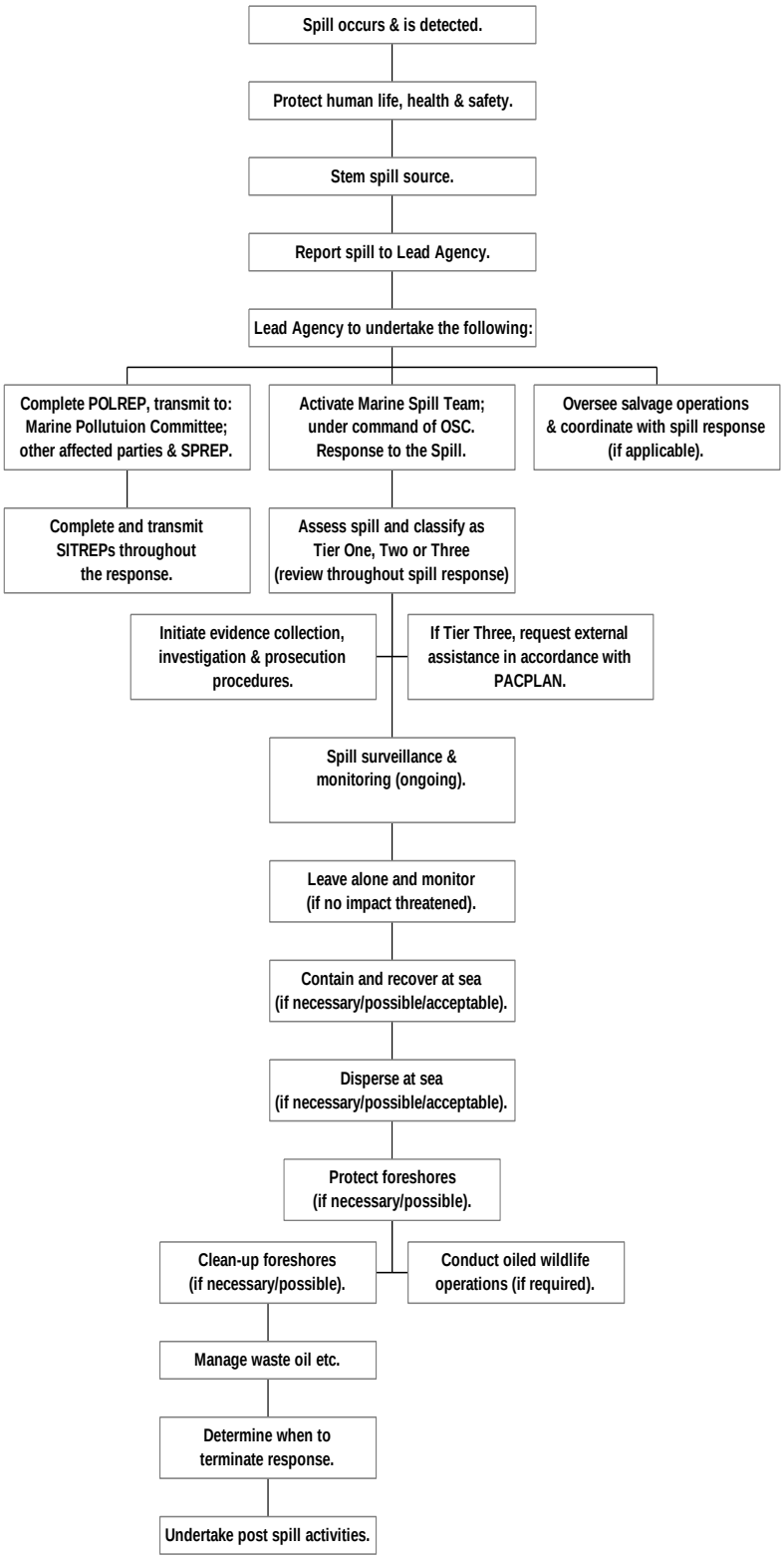

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Abbreviations

AAT	-	Area Assessment Team
AIP	-	Australian Institute of Petroleum
AMOSC	-	Australian Marine Oil Spill Centre
AMSA	-	Australian Maritime Safety Authority
ART	-	Area Response Team
CAA	-	Civil Aviation Authority
CMS	-	Controller Marine Service
DEC	-	Dept. of Environment & Conservation
DFA	-	Dept. of Foreign Affairs
DPALLG	-	Dept. of Prov. Affairs & Local Level Government
DPE	-	Dept. of Petroleum & Energy
DOT	-	Dept of Transport
EARL	-	East Asian Response Limited
EO	-	Environmental Officer
ESC	-	Environmental & Scientific Coordinator
FAO	-	Finance & Administration Officer
GRP	-	Glass Reinforced Plastic
IA	-	Industry Adviser
IC	-	Incident Controller
ICS	-	Incident Control System
IMO	-	International Maritime Organisation
LO	-	Logistics Officer
LIC	-	Local Industry Coordinator (MOSAP)
LTRS	-	Litres
MLO	-	Media Liaison Officer
MOSAP	-	Marine Oil Spill Action Plan
MOU	-	Memorandum of Understanding
MRCC	-	Maritime Rescue Coordination Centre
NC	-	National Coordinator
NDMO	-	National Disaster Management Office
NFA	-	National Fisheries Authority

NMSA	-	National Maritime Safety Authority
NMSC	-	National Marine Spill Committee
NATPLAN	-	National Marine Spill Contingency Plan
NSSS	-	Navigation Standard & Safety Services
OPRC 90	-	Oil Pollution Preparedness, Response and Cooperation 1990
OO	-	Operations Officer
ORT	-	On Site Response Team
OSC	-	On Scene Coordinator
OSCC	-	Oil Spill Control Centre
OSRT	-	Oil Spill Response Team
OSRICS	-	Oil Spill Response Incident Control System
OSSM	-	On Scene Spill Model
PACPLAN	-	Pacific Islands Regional Marine Spill Contingency Plan
P&I	-	Protection and Indemnities
PNGDF	-	Papua New Guinea Defence Force
PNGCFS	-	Papua New Guinea Civil Fire Service
PNGPCL	-	PNG Ports Corporations Limited
PACPOL	-	Pacific Ocean Pollution Prevention Programme
POLREP	-	Pollution Report
PO	-	Planning Officer
RIC	-	Regional Industry Coordinator (MOSAP)
SAR	-	Search and Rescue
SFHO	-	Safety, Fire & Health Officer
SITREP	-	Situation Report
SPREP	-	South Pacific Regional Environmental Programme
SSC	-	Scientific Support Coordinator

AMENDMENT

Suggested amendments or additions to the contents of this National Marine Spill Contingency Plan are to be forwarded in writing to:

The Executive Manager
Navigation Standard & Safety Services
National Maritime Safety Authority
P.O. Box 668
PORT MORESBY . NCD
Papua New Guinea

Or by facsimile: (675) 321 0873

Amendments received are to be recorded in the following table:

Amendment		**Section**	**Page**	**Entered**	**Date**	**Signature**
No	**Date**					

List of Appendices

1. INTRODUCTION

1.1 BACKGROUND

The Government of Papua New Guinea has developed this National Marine Spill Contingency Plan (NATPLAN) as part of its commitment to protecting its and our valuable coastal and marine resources from the threat of marine pollution incidents.

NATPLAN has been developed to reflect the essential steps necessary to initiate, conduct and terminate an emergency spill response on, or into the navigable waters of Papua New Guinea, on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

The first Papua New Guinea Oil Pollution Plan was published in 1981.However, in August 1990, the first Oil Pollution Plan was revised as National Marine Spill Contingency Plan (NATPLAN) to take into account and meet the obligations of Papua New Guinea under the Protocol Concerning Cooperation in combating Pollution Emergencies in the South Pacific Region (SPREP Pollution Protocol) of the Convention for the Protection of the Natural Resources and the Environment of the South Pacific Region (SPREP Convention). As well as obligations under the International Conventions of Marine Pollution and its annexes (MARPOL 73/78)and Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90).

The National Plan to combat Pollution of the sea by oil became operational on 20th December, 1996. The National Plan brings together the combined efforts and resources by relevant National Departments, PNG Ports Corporation Limited, and the Oil, Shipping and Exploration industries and semi Government organizations to provide a level of preparedness to the threat posed to the marine environment by ship-sourced oil and chemical spills.

In addition to the conventions mentioned above, Papua New Guinea has obligations under the Torres Strait Treaty. Part of the Torres Strait falls within a Protected Zone as defined in Article 10 of the Torres Strait Treaty.

The government of Papua New Guinea and Australia are obliged, under Article 13 of the Treaty, to take legislative and other measures necessary to protect and preserve the marine environment in, and in the vicinity of, the Protected Zone. This involves measures for the prevention and control of pollution from vessels in the zone.

1.2 AIMS, OBJECTIVES AND POLICY

The Aim of the NATPLAN is:

- To plan and provide for an appropriate response capability to prevent/minimise damage to marine and coastal environments and resources from marine pollution incidents.

The objectives of the Plan are to provide a national integrated system for responding promptly and effectively to marine oil pollution incidents by designating competent national and regional authorities and establishing:

- a national contingency plan for preparedness and response which includes the organizations involved, both public or private.

- provide the basis of planning for marine pollution and other maritime emergencies at a National level.

- to provide the organisational structure and procedures for the coordinated, timely and effective response to maritime spills of oil and other noxious and hazardous substances.

- to facilitate the implementation of the SPREP Pollution Protocol and Oil Pollution Preparedness, and Response Cooperation 1990 (OPRC 90) in Papua New Guinea.

- provide an adequate level of pre-positioned oil spill combat equipment, in line with the risk involved, and programmes for its use.

- to provide systems for the detection and reporting of marine spills within the area covered by the plan, including communications networks.

- to outline the counter-measures available to restrict the spread of a spill and minimise the environmental, economic and social impacts of a spill.

- to provide also a comprehensive National Training Programme to familiarise personnel at all levels with the requirements of planning and responding to needs arising from an oil spill. This programme includes conducting frequent exercises.

* to develop guidelines, within the frame work of the National Plan, for co-operation between the National Maritime Safety Authority and the Government of the neighbouring Countries, and National and Provincial Department, other Authorities and Industry, in the operational aspects of oil spill surveillance and response.

1.3 RESPONSIBILITY

Agencies having legal responsibility to ensure that response is made to oil spill incidents are:

- The PNG Ports Corporation Ltd for all Oil Spills in waters inside the designated limits of the harbours under their jurisdiction; and
- The National Maritime Safety Authority (NMSA) concerning oil spills in waters outside harbours limits within PNG's Territorial Sea and Exclusive Economic Zone (EEZ).
- (see also 2.2 responsible authority)

The lead agencies to take initial response action in the event of an oil spill incident (i.e. mobilise the initial (**INCIDENT CONTROLLER**) are:

- inside harbour limits:

- at oil industry terminals	-	Terminal operator;
- elsewhere in harbour limits	-	PNG Ports Corporation Ltd;

and

- outside harbour limits:

- at offshore platforms/terminals	-	Terminal operator;
- elsewhere outside harbour limits	-	National Maritime Safety Authority (NMSA)

1.4. TECHNICAL SCOPE AND TIERED RESPONSE CONCEPT

This National Plan covers the response to spills into the marine environment of all forms of pollutants, including oil, chemicals and other hazardous materials. However, it retains a primary focus on oil spills, as oil is the main pollutant likely to be spilled.

National Plan covers spills into the marine environment from all sources, including both shipping and shore-based facilities.

The National Plan is based on a tiered response concept:

Tier One (1)

- Small local spills, normally less than 10 tons, that are within the response capability and resources of an individual port or oil terminal within the country. covered by Oil Industry or Port Contingency Plans.

Tier Two (2)

- Medium Spills, local or at some distance from operational centres, ten (10) to a thousand (1,000) tons. The spills that are within the national capability and resources and are covered by the National Plan.

Tier three (3)

- Major Spills in excess of one thousand (1,000) tons that are of a magnitude and/or severity that is beyond the response capability and resources of the country; and/or

- That impact or threaten to impact within the jurisdiction of both Papua New Guinea and the neighbouring countries.

Tier three (3) spills are covered by this National Plan and also require activation of PACPLAN – the Pacific Islands Regional Marine Spill Contingency Plan and Australian National Plans or other international mutual assistance agreements.

Spill sizes and quantities should be considered as indicative only, as in some cases, a spill of less than one thousand (1,000) tons could be a major spill in sensitive areas and be classified as Tier 3. Similarly, in extreme cases a spill of less than ten (10) tons could be classified as Tier Two (2).

1.5 Integration with Other Contingency Plans

This plan is complimented with National Disaster Management plans, local, oil industry, site and port emergency plans as well as international support plans like PACPLAN.

1.6 GEOGRAPHICAL SCOPE

The geographical scope of the National Marine Oil Spill Contingency Plan, referred to hereafter as the NATPLAN Area, is all of the coastlines and all marine waters below highest astronomical tide within the 200 nautical miles (EEZ) limit of Papua New Guinea. (Figure one).

1.7 UNDERLYING PRINCIPLES AND PROTECTION PRIORITIES

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

Prevention: regulatory and physical measures to prevent incidents or mitigate the effects of the pollutant.

Preparedness: arrangements to mobilise and deploy all necessary resources and services.

Response: actions taken during and immediately after a pollution emergency to minimise effects.

Recovery: arrangements to restore the affected environment to normal.

NATPLAN is established on the following general principles:

- Every effort must be made by government and industry to **prevent** spills of oil and other hazardous materials from occurring, as the highest priority.

- Despite such efforts, for various reasons, spill will continue to occur from time to time, and it is necessary to have competent **Contingency Plans** in place to deal effectively with such spills at the local and national level. NATPLAN incorporates the Oil Industry Plans such as Oil Search Ltd Plan.

- The primary purpose of NATPLAN is to provide a national mechanism for the **prevention/minimisation of damage** to marine and coastal environments and resources from marine spills, and to hasten the **recovery** of any environment and resources damaged by marine spills.

- The response to marine spills under NATPLAN will always seek to maximise cooperation, coordination and integration **between government and industry**, and to adopt the most **cost-effective, efficient and practicable** response options available.

In the event of a marine spill requiring a response to be mounted under NATPLAN, the following protection priorities should be adhered to (ranked in order of priority):

- Human life, health and safety;
- Biological habitat;
- Rare and endangered species;
- Commercial resources;
- Cultural resources;
- Non-commercial property and amenity.

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

1.8 RISK ASSESSMENT

Papua New Guinea coastal environment is complex and varied, ranging between extensive stands of mangroves, tidal flats, coral reefs and sandy beaches. The flora and fauna supported by the ecosystems are even more complex, many of these being highly susceptible to damage from pollution or inappropriate pollution counter measures.

The primary aim of an oil spill response is to:

(i) protect life;
(ii) minimise the ecological impacts of spills; and
(iii) restore the area, as near as practicable, to before spill conditions.

Where persistent oils are carried by sea, whether in bulk as cargo or as bunker fuel, risk of pollution exists. The degree of risk is dependent on many variables including the seaworthiness of the vessel, weather condition, traffic density and safety of navigation.

The majority of the population of Papua New Guinea is concentrated on the coast, much of it near to the main ports areas. The economic and amenity use of coastal waters and foreshore makes the potential effects of a major marine pollution incident considerable.

The type of spills covered by this National Plan is the " at sea" type and may be the result of a marine casualty such as a collision, grounding, foundering or weather damage, under sea oil pipeline and drilling platforms are also potential

sources of pollution, however, whilst the National Plan could be requested to assist, spills from these sources are the responsibility of the operators.

1.9 POTENTIAL SPILL LOCATIONS

The likelihood of a spill occurring anywhere of the coast always exists, however, some areas have higher risk potential than others, due to the confines of approach channels and risk of collision with other vessels in the area.

The higher risk areas are the approaches to the main ports and offshore areas with significant traffic density:

- **Approaches to main ports at :** Port Moresby
  Alotau
  Lae
  Madang
  Daru
  Kavieng
  Kimbe
  Rabaul
  Wewak

- **Heavy traffic density areas :** Torres Strait
  China Strait
  Dampier Strait
  Jomard Entrance
  Raven Channel

1.10 SENSITIVE RESOURCE AREAS

A reference section on sensitive resource areas will be included in this section. Information is currently being researched through the Department of Environment and Conservation. The information concerning sensitive marine areas in PNG has been supplied by the National Fisheries Authority.

A preliminary map of the distribution of coastal resources is shown in figure two and the designation of environmental sensitivity gradings and protection priorities is shown in figure three.

Figure Two : Preliminary Map of the Distribution of Coastal Resources.

Figure Three: Environmental Sensitivity Grading.

A broad grading on a scale of 1.5 is shown at below

1	Exposed rocky headlands and platforms with high wave energy	Wave swept, most oil removed by natural processes within days according to wave energy.
2	Exposed sand beaches	Oil may sink and/or buried according to sand sub Strata. Generally oil will be removed naturally within weeks. Can be removed by mechanical means.
3	Exposed tidal flats and gravel beaches	Oil may penetrate and be buried. Depending on energy conditions. Oil may persist for sometime.
4	Sheltered rock coasts and high amenity Areas	If not protected oil may persist for sometime. Amenity areas most likely to cause public reaction.
5	Sheltered tidal flats, mangroves and Biologically sensitive areas	Most productive of aquatic environments. Oil may persist for years. Difficult to clean, protection of these environments should receive first priority.

Clean up Response

Rocky Foreshore:
If clean up action is required, use of low pressure salt water to disperse the oil back into the water should be considered where booms may concentrate the oil for recovery. Dispersant should only be used in the absence of significant biological activity.

Sand Beaches:
Preferred method is physical removal and disposal of oiled material. Dispersant may be used in the wave action zone to emulsify the oil before it reaches the sand.

Marshlands and Mud Flats.
No clean up action is usually preferable as the environmental damage already caused by the oil may be compounded by the effects of a labour force disturbing the roots of marsh plants and mangroves and trampling oil into the base sediments.
Mangroves – Leave it alone and monitor.

The Department of Environment and Conservation has designated the following areas within the different provinces as having high sensitivity.

WESTERN PROVINCE

Western Province:- Maza/Fly delta – Large mangrove and associated nursery habitats with seagrass beds, green sea turtles and dugong foraging habitats. **Maza Wildlife Management Area** is approximately 185,000 ha and supports the turtle and dugong population as well as crayfish breeding and migratory ground.

GULF PROVINCE

Gulf of Papua:- Vast shallow intertidal and soft bottom habitats with mangrove communities that comprise economically important nursery grounds for prawns and barramundi.

CENTRAL PROVINCE

Galley Reach:- A highly productive area of mangrove forest, fresh water wet-lands and coral reefs. This area supports commercially important species such as barramundi, crabs and the estuarine prawn production at Hisiu, Toutu and Aroa.

Papua Barrier:- This area extends from Galley Reach to Hood Point. The barrier reef provides habitats for green turtles, hawksbill turtles, reef fish and sustains a major subsistence fishery economy for local communities.

MILNE BAY PROVINCE

Dumoulin:- A rich reef area with mainly unknown resources. A rich spawning and production ground for giant clams.

Rossel Island:- Large reef systems and isolated pristine island areas wit mainly unknown resources.

Pocklington Reef:- Extensive reef systems, highly productive for giant clams.

Trobriand Reef and drop:- Extensive coral reefs, habitat for hawksbill turtles, beche–de-mer, giant clams and green turtles.

ORO PROVINCE

Tufi coastal fjords:- Coastal fjords, fringing reefs, sea walls, thermal vents, unique environment for eco-tourism.

MOROBE PROVINCE

Morobe Coast:–	Mangrove area, sea walls and leatherback turtle resting beaches.
Cape Certain:–	A unique area of ancient reef faces.
Vitiaz Strait:–	Reef and area of high up-welling.

MADANG PROVINCE

Volcanic Chain:–	Volcanic reefs, sea mounts and turtle resting beaches.
Madang Lagoon :-	Coral reefs, lagoon islands with mangrove patches rich with diverse marine life.

EAST SEPIK PROVINCE

Laing Island:–	A reef system with a Marine Research Station.
Sepik Delta:–	Mangrove, brackish lake systems, unique habitat for crocodiles.
Vokeo Island:–	Small pristine island systems.

WEST SEPIK PROVINCE

Northwest Coast:–	Extensive sandy beaches important turtle resting areas.

MANUS PROVINCE

Hermit Island:–	Discrete patches of reef with rich turtle resting grounds.
Manus Island Complex:–	Extensive reef and sea bird rookery island, unique green tree snails, diverse reef fish and abundant pelagic.

WEST NEW BRITAIN

Fullerborne:–	Extensive seagrass beds, fringing coral reefs with habitat and structural diversity.
Talasea:–	Nesting beaches for leatherback turtles.

EAST NEW BRITAIN

Duke of York Islands:-	Mangrove, seagrass beds and offshore deep water thermal vents.

Tigak Island:– Mangrove, seagrass beds, coral reefs, deep water mangrove lagoon and highly productive fishery area.

NEW IRELAND PROVINCE

Mussau Island:– Extensive reef systems, with certain areas relatively pristine dues to local traditional taboos.

Tanga, Tabar, Feni Islands:– Subsea volcanic formation, mineral – rich areas. An area of diverse habitat and unusual geomorphological formations.

Southern New Ireland:– A fragile area of fringing reefs.

NORTH SOLOMONS PROVINCE (BOUGAINVILLE ISLANDS)

Buka Islands:– Coral reef with diverse coral reef fish.

South Coast Bougainville:– Area of coral reefs and associated habitats, with swamp forest.

Borone Bay:– A largely unknown area with unusual hydrology coupled with steeply sloped shore fall – off..

Sketch map shows Marine Priority and Critical Watershed and sensitive Resource Areas on figure two (2) of Papua New Guinea Coastal areas.

The OIL SEARCH LTD "PNG Kutubu Petroleum Development Project (PDL-2), Oil Spill Contingency Plan" gives detailed information of sensitive resource areas in the vicinity of KUTUBU project operations and around part of the coast line of the Gulf of Papua.

The map series extends from the MORO Airstrip and CENTRAL PRODUCTION FACILITY, along the length of the pipeline and adjacent waterways to the mouth of the NAKARI RIVER. The area of coastline covered extends from the mouth of the GAMA RIVER eastwards to the mouth of the VAROI RIVER. The maps also indicate possible helicopter landing sites along the length of the pipeline.

2. ROLES AND RESPONSIBILITIES

2.1 National Marine Pollution Committee

The National Marine Pollution Committee consists of high level representatives from the following organisations:

- Executive Manager, Navigation & Safety Services, NMSA
- Director, Operations, PNG Ports Corporation Ltd
- First Assistant Secretary, Environment Division - DEC
- Executive Director, National Fisheries Authority
- Director – General, National Disaster Management Office
- Regional Industry Controller, Oil Industries
- Secretary, Coastal Shipowners Association, Inc.
- Assistant Commissioner, Operations, RPNGC.
- Superintendent, PNG Civil Fire Services
- Director, Dept. of Petroleum & Energy
- Assistant Secretary, Dept. of Provincial Affairs & Local Level Government
- Director, Marine Operations, PNG Defence Force.

The role of the Committee is to :

- Develop, implement and maintain the National Oil Spill Contingency Plan;
- Oversee the response operations to marine spills and monitor performance and effectiveness.
- Review local/facility contingency plans for consistency with National arrangements;
- Oversee national marine spill response training and exercises;
- Provide advice to government on general marine pollution issues and contribute to development of policy, legislation and other initiatives relating to the prevention and response to marine pollution; and
- Make available those facilities or resources, that may be useful in a response situation, consistent with the agencies authority and capability

2.2. Responsible Authority

The National Maritime Safety Authority is the responsible authority for all marine oil spills within Papua New Guinea waters. The Authority has legal

responsibility for the administration and enforcing the marine pollution legislation and the overall control and management of the National Plan.

The authority who has prime responsibility under the jurisdiction may assume the function of the responsible authority or may request another authority to act as responsible authority on its behalf, (eg. PNG Ports Corporations Ltd requests Oil Industry and or National Maritime Safety Authority to act as responsible authority.

2.3. Lead Agency

The National Maritime Safety Authority is the lead agency for all marine spills beyond the 3 nautical mile coastal waters. PNG Ports Corporations Limited is the lead agency for all marine spills within the ports limits and Oil Industry is the lead agency for all marine spills from the oil terminal in PNG. (also see section 1.3)
The lead agency has operational responsibility for commanding the response to marine spills, through the designated Incident Controller (IC). Refer to section 4 for further details.

2.4. Other Government Departments

All other government departments shall support the Lead Agency in accordance with the organisational structure outlined in section 4 below.

2.5. Responsible Party (Polluter)

The party responsible for causing the spill has the following responsibilities:

- Report the spill immediately to the Lead Agency.
- Take immediate action to stem the source of the spill.
- Take immediate action to contain the spill and prevent it from spreading
- Co-operate fully with the Lead Agency in the response to the spill under the direction of the Incident Controller (IC).
- Any legal obligations and responsibilities not covered above as required by relevant legislation, including those relating to meeting the costs of the spill response and clean-up and mitigation of any environmental and economic damage.

2.6. Oil Industry

All oil companies operating in Papua New Guinea have the following roles and responsibilities under the National Marine Spill Contingency Plan:

- Give highest priority to preventing spills from tankers, terminals, depots and other facilities owned and/or operated by them.
- Immediately report all marine spills from their facilities to the Lead Agency.
- Develop and maintain local marine spill contingency plans for all facilities that they own and/or operate, which are potential sources of spills, and ensuring that these plans are compatible and integrated with the National Marine Oil Spill Contingency Plan.
- Establish and maintain stockpiles of marine spill response equipment for all facilities that they own and/or operate, with the types and amounts of equipment being appropriate to the level of risk at each facility.
- Ensure that staff are appropriately trained in marine spill prevention and response.
- In the event of a spill from its facilities, the roles and responsibilities outlined under 2.5 above.
- Active participation in the National Marine Spill Committee and in planning, exercises and training activities.

2.7 Role of Protection and Indemnity (P&I) Clubs

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;

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

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;

- Notifying the P&I Club of incidents that occur in his area of responsibility
- To attend an incident scene if appropriate
- To appoint surveyors/experts to attend at the scene of a maritime casualty

- To liaise with governments, maritime authorities at the scene of a maritime casualty
- To monitor salvage operations, pollution containment/removal at the scene of the casualty
- To assist in posting security for claims and,
- To assist in carrying out investigations on cause of loss of vessel/cargo

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

3. POLLUTION REPORTS AND COMMUNICATION

3.1 Surveillance and Spill Detection

The initial detection of marine spill is not something that can be planned for. All personnel in various industries and government agencies involved in tasks where it is possible to be the first to observe a spill, including but not restricted to ships` crew, aircraft crew, oil company employees, port personnel and members of the provincial government, should be required to and be able to report a spill to the Lead Agency.

3.2 Initial Pollution Reports (POLREPS).

Recognising the importance of rapid dissemination of information in the event of a marine spill, any ship's master or crew, aircraft crew, oil company employee, port personnel or any other person observing a marine spill should immediately report the spill to the Lead Agency.

The Lead Agency should immediately complete a POLREP, using the standard format in Appendix Two, and immediately transmit this to all members of the National Marine Pollution Committee, any other affected/interested parties and to SPREP and AMSA via facsimile (Figure 5.)

24-HOUR EMERGENCY HOTLINE FOR MARITIME POLLUTION LEAD AGENCY

PHONE NO. (675) 3211244 FAX: (675) 3210873

Alternate Phone No: 3011111/3276666 –NDMO.

Appendix One contains contact details for the Lead Agency, all other members of the National Marine Pollution Committee, SPREP, AMSA and other relevant parties.

3.3 Situation Reports (SITREPS)

In order to provide periodic updates on pollution incidents, the Lead Agency should complete SITREPs, using the standard format contained in Appendix Three, and transmit these to all members of the National Marine Pollution Committee, any other affected/interested parties and to SPREP and AMSA via facsimile, at regular intervals throughout the spill response.

3.4 Post – Incident Reports (POSTREPS)

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

* Assessment of the response operation, including reference to equipment used, its effectiveness, additional equipment, and training needs.

* Documentation of clean-up costs.

* Assessment of environmental and economic damages.

* Details of problems encountered

* Recommendations regarding amendment or revision of National Plan.

When the Lead Agency has compiled this report, the Incident Controller and other personnel should meet with the National Marine Pollution Committee to review their collective experiences and compile an overall Post-incident Report (POSTREP), including of necessity, any recommendations for amending or revising the National Plan (NATPLAN)

3.5 Pacific Islands Regional Marine Spill Reporting Centre (PACREP)

SPREP has established and maintains the Pacific Islands Regional Marine Spill Reporting Centre (PACREP), at its office in Apia, Samoa.

PACREP is simply the SPREP fax number, which provides the focal point for receiving and relaying information concerning any marine pollution incident in the region. PACREP is a facility where:

* POLREPS of all marine spills in the region should be sent to by the Lead Agency where the spill occurs.

* The progress of a spill can be monitored, through the receipt of SITREPs from the Lead Agency where the spill occurs.

POLREPS received by SPREP through PACREP are entered into a Database and Geographic Information System, to provide a long-term picture of trends in marine spills throughout the region. This will assist updating of risk assessments and targeting of prevention, education, surveillance and

enforcement efforts, and provides a performance indicator for spill prevention efforts and state of the environment reporting. SPREP is responsible for reporting annual Spill Statistics from PACREP to 'interested parties.

The contact details for SPREP are contained in Appendix One and are provided on the Standard POLREP and SITREP transmission forms (Appendices Two and Three).

It should be noted that PACREP is NOT an emergency response facility, and is only functional during normal business hours. Its main purpose is for the collection, analysis and dissemination of spill information. All spills within Papua New Guinea territorial waters must be reported to Office of Transport, Maritime Transport Division as the Lead Agency.

3.6. Media and Public Reporting

When an incident occurs it is imperative to give the public prompt, accurate information on the nature of the incident and actions underway to mitigate the damage. Media and community relations personnel should ensure that all appropriate public and private interests be kept informed and their concerns are considered throughout a response.

4. INCIDENT COMMAND AND CONTROL

4.1 Elements of Effective Control of Spill Response

Establishing effective control and initiating a spill response requires a number of actions, these include:

- appointment of an Incident Controller,
- mobilising the Marine Spill Response Team,
- establishing a suitable incident control centre,
- establishment of effective communications,
- effective collation, transfer, display and storage of information,
- effective management of public and community relations (media and consultative processes).

4.2 Incident Control System and Marine Spill Response Team

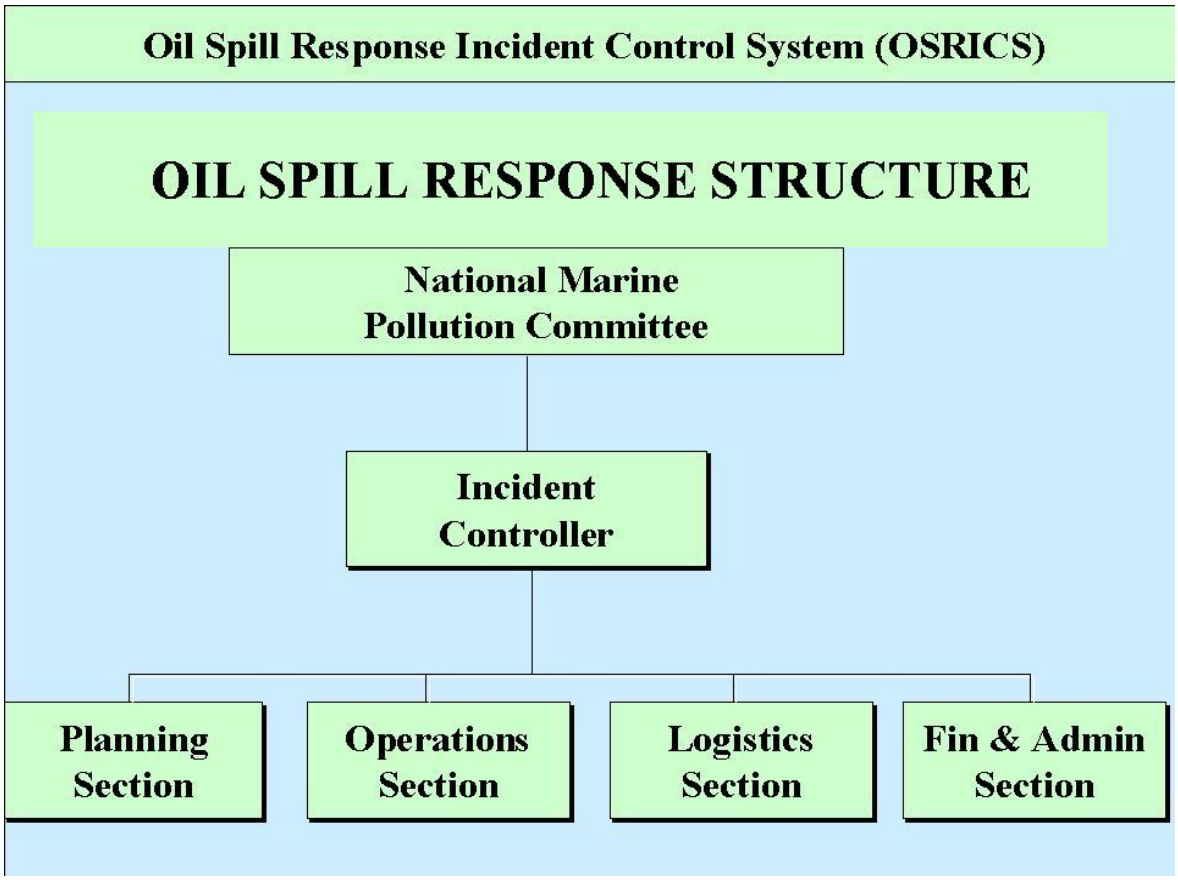
Response operations cannot be effectively carried out unless there is a clear organisational structure to command and control the response and trained individuals to carry out the response plans..

The overall structure of incident command and control system is depicted in Figure Five. In the event of a marine spill within Papua New Guinea waters, a Marine Spill Response Team based on this structure should be immediately established by the designated Lead Agency.

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 IC directs response efforts and co-ordinates all efforts at the scene and is the primary decision-making authority in relation to spill response activities. This is achieved through the Incident Control System especially modified to support oil spill response called the Oil Spill Response Incident Control System **(OSRICS).**

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



The responsibilities of the various Marine Spill Response Team can be summarised as follows:

- Planning Section - responsible for the provision of scientific and environmental information, the maintenance of incident information services, and the development of the Incident Action Plan.

- Operations Section - responsible for undertaking all response operations in the field.

- Logistics Section - responsible for the provision of resources to sustain the response.

- Finance & Administration Section - responsible for maintaining financial and administrative records of the response activities.

4.3 Roles and Responsibilities of Marine Spill Response Team

OSRICS lists four (4) major functions under which it is possible to group the tasks that need to be undertaken during a marine pollution response – Planning, Operations, Logistics, and Finance and Administration. These form the main elements of the organisation structure under OSRICS and are designated as Sections in the structure. Responsibility for carrying out the tasks is delegated to a Section Officer who reports to the Incident Controller (IC) forming an Incident Management Team (IMT). Sub-sections staffed by people with appropriate skills and experience to deal with particular tasks may be created within the sections.

The number of staff required to fill positions in the OSRICS structure can be varied according to the size and complexity of the incident and the number of staff available. In a major incident, all positions may be filled but in a lesser incident one person may fill a number of positions. In a very small incident, it may only be necessary to appoint an Incident Controller (IC) who will be able to carry out all management functions. Figure 4 above shows a typical OSRICS structure

Statutory Agencies should ensure that persons with appropriate experience and skills are identified so that they can be appointed to the following positions if a marine pollution incident occurs:

4.3.1 Marine Pollution Committee (MPC)

When a major incident occurs, the Statutory Agency shall nominate a senior management level Marine Pollution Committee (MPC) to take overall responsibility for managing the response. The MPC must be capable of ministerial as well as senior government, industry and media liaison.

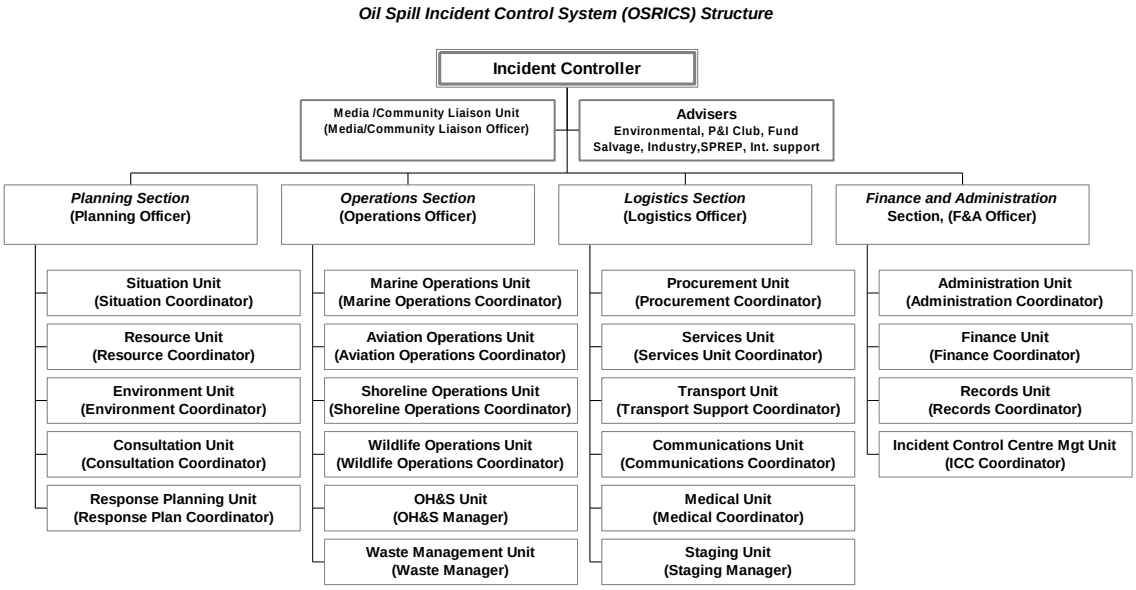
4.3.2 Incident Controller (IC)

The IC is responsible for the management and co-ordination of response operations at the scene of a pollution incident to achieve the most cost effective and least environmentally damaging resolution to the problem. The national government invests the IC with the authority necessary to command all national assets and resources that are deemed necessary to deal with the incident.

Relevant Departments and Statutory Agencies should ensure that the IC is assisted by a Response Team with appropriate planning, operational, scientific,

chemical, environmental, logistic, administrative, financial and media liaison skills.

Figure Five:. OSRICS Organisational Structure



4.3.3 Planning Officer (PO)

The Planning Officer is responsible to the IC for the provision of scientific and environmental information, maintenance of incident information services, and the development of Strategic and Incident Action Plans.

The Planning Officer shall ensure the distribution of all information to the Incident Management Team and to all response personnel generally.

4.3.4 Operations Officer (OO)

The Operations Officer is responsible to the IC for all response operational activities. This includes ensuring that the requirements of Incident Action Plans are passed on to operational personnel in the field, and for ensuring that the are carried out effectively.

4.3.5 Logistics Officer (LO)

In any emergency response there is a vital need to ensure that response personnel are provided with adequate resources to enable an effective response to be mounted and that these personnel are provided with the essential amenities. The Logistics Officer shall ensure that all resources are made available as required. This includes the procurement and provision of personnel, equipment and support services for operations in the field, and for the management of Staging Areas.

4.3.6 Finance & Administration Officer (FAO)

The relevant line Departments and Statutory Agencies shall identify appropriate individuals to act as Finance and Administration Officer (FAO) in accordance with relevant contingency plan requirements.

The Finance and Administration Officer shall be responsible for all financial, legal, procurement, clerical, accounting and recording activities including the contracting of personnel, equipment and support resources. In addition, the FAO is responsible for the management of the Incident Control Centre (ICC).

5. RESPONSE ACTIONS AND OPERATIONS

The ecological impact of a oil, fuel, chemical or hazardous substance spill can be minimised by good management and planning as well as the response actions put into effect by the Responsible Authority and Lead Agency. Such actions will largely depend on several factors;

- the type of oil, fuel or chemical(s) involved;
- the size of the spill;
- the location of the spill;
- prevailing sea and weather conditions at the spill site;
- the environmental sensitivity of the coastline/site impacted.

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

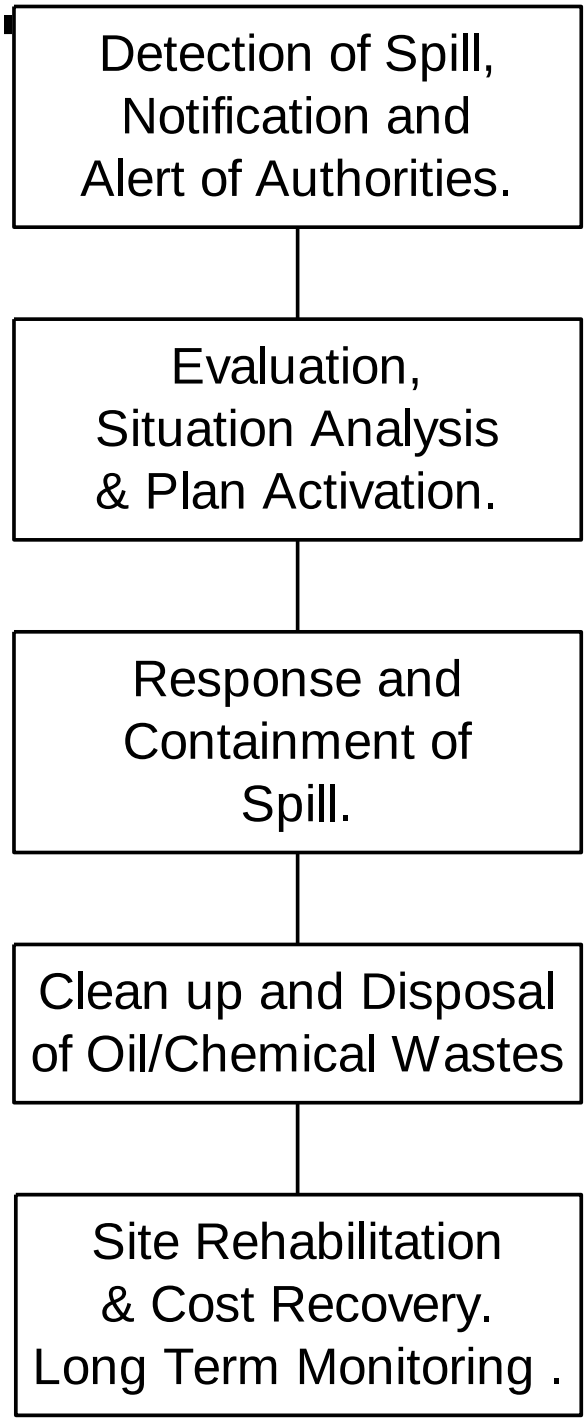
To ensure that these actions are taken, the IC should delegate relevant tasks to the Marine Spill Response Team. To assist in this process a Spill Response Action Checklist at the front of the NATPLAN summarises this sequence.

Depending on the nature of the spill, some of the actions listed below may not be applicable or may be carried out in parallel rather than in sequence, as determined by the IC.

5.1 Phases of a Response

There are five main phases to the overall process of responding to oil or hazardous chemical spills which can be summarised as follows in figure Six;

Figure Six – Five Phases of Response to Marine Spills.



5.2 Secure Human Life, Health and Safety

The highest priority when a spill has occurred is to take action to ensure that there is no threat to human life, health and safety. This protection of public health and safety as well response personnel should take precedence over all other actions to minimise environmental damage.

Every oil, fuel or chemical spill incident has its own unique dangers to which response personnel may be exposed. The protection of the public and response personnel should always be of prime importance in the decision making. In marine spill response situations, equipment or personnel should not be deployed:

- if the identity of the fuel oil or chemical(s) spilled and hazards are unknown;
- if weather or sea conditions pose an undue risk to personnel safety;
- if there is a threat of fire or explosion;
- if required personnel protective equipment is not available.

Operations should be suspended or terminated if an unsafe condition arises during a response operation.

Major vessel incidents such as fires, explosions, groundings etc can result in the need for the search and rescue of mariners. First priority should always be to the health and safety of personnel.

5.3 Stabilising Spill Source & Intervention at Sea

The second priority action is to attempt to stop the flow of oil (or other pollutant in the case of spills other than oil), in order to minimise the potential size, extent and severity of the spill.

All efforts must be focused on saving a vessel so that the problem is not compounded. Stablising 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.

With accession to the United Nations Convention on the Law of the Sea (UNCLOS), Papua New Guinea's jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits Papua New Guinea to intervene on the high seas against the wishes of the ship and cargo interests. This is only to the extent necessary to prevent, mitigate or eliminate grave and imminent danger to the coastline or related

interests from pollution or threat of pollution of the sea, following a maritime casualty, which may be reasonably expected to result in major harmful consequences.

The measures taken must be proportionate to the damage, whether actual or threatened, and must not go beyond what is reasonably necessary to achieve the ends of protection and must cease when those ends have been achieved.

Such measures may include:

- move the ship or part of the ship to another place;
- remove cargo from the ship;
- salvage the ship, part of the ship or any of the ships cargo;
- sink or destroy the ship or any part of the ship;
- sink, destroy or discharge into the sea any of the ship's cargo, or
- take over control of the ship or any part of the ship.

5.4 Salvage of Casualty

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

In accordance with Papua New Guinea's legislation the National Maritime Safety Authority has responsibility for safety issues relating to vessels on coastal or foreign voyages and will be responsible for ship operational matters. These functions include alerting and liaising with salvors, taking measures to minimise pollution release or outflow and other salvage activity.

The vessel's owner or master will normally appoint a salvor by signing a Lloyds Open Form Agreement. However, in cases where this does not occur, National Maritime Safety Authority may use its powers under the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Damage 1969, to either direct the Master/Owner to engage a Salvor or alternatively contract a salvor to undertake necessary work, with costs recoverable from the owner.

5.5 Spill Assessment & Reporting

Once attempts have been made to stem the flow of oil (or other pollutant), the nature, size, extent, severity and likely movement of the spill should be

assessed, and a POLREP completed and transmitted immediately to all members of the National Marine Pollution Committee, other affected/interested parties and SPREP and AMSA

The IC is responsible for the assessment of the spill to attempt to classify it as Tier One, Two or Three (refer section 1.3), and determine whether or not external assistance is required through activating PACPLAN or MoU with AMSA; (refer section 6 below). The assessment of Tier levels may change over time and should be periodically reviewed during the spill.

5.6 Spill Surveillance and Forecasting

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

- ⇒ direct observation (surveillance),
- ⇒ manual calculation using currents & winds,
- ⇒ and computer modeling.

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

Meteorological and hydrographic data should be obtained by the IC, through his support personnel, and analysed to obtain predictions of expected spill movement. Local knowledge from people such as fishermen and mariners should be used as a valuable source of expertise on likely spill movement.

It is essential that the results of such observations and predictions are transmitted to other parties likely to be affected by the spill (e.g. neighbouring islands).

In some areas, sophisticated spill trajectory prediction systems may be available, such as computer models. Information on the availability of such systems for various areas can be requested through SPREP and AMSA.

5.7 Response Options

A number of options exist for the treatment of oil which has been released into the marine environment. All may be effective to a degree, according to the conditions prevailing and the sensitivity of the environment under threat. The following briefly represent the basic response options available. Depending on the situation one or more of these options may be used.

- Surveillance;
- Control and Recovery;
- Application of dispersant;
- In-Situ Burning
- Shoreline Clean-up;
- Bioremediation.

5.8 Surveillance

Depending on the location of the oil spill, if there are no threats to environmentally sensitive areas or it is not likely that the oil will come ashore, biological and physical processes will naturally disperse most oil over a period of time. In these circumstances the best action may be to do nothing other than monitor the movement of the slick as leaving the oil to disperse and degrade naturally creates the least disturbance to the marine environment. It requires the support of sound advice to the media to clearly explain why no other action has been taken

5.9 Control and Recovery

The traditional response to marine spill is the containment and recovery of the oil. The decision to contain and recover the oil will be greatly influenced by prevailing sea and weather conditions. In some cases it may be better to allow the oil to come ashore, then mount a shoreline clean-up.

Using booms and skimmers, oil may be recovered from the surface of the water.

- This method is generally only effective in relatively smooth waters with a minimum influence of wind, tide or currents;
- Essential to this technique is an adequate supply of containers or tanks to take the recovered mixture of oil water and debris.
- Access to the area without causing further damage to the environment is also essential.

Use of booms alone may protect environmentally sensitive areas, allowing the oil to move to other areas from where it may be recovered or allowed to degrade naturally.

- Pre-planning to identify those areas that lend themselves to this technique under most conditions is advantageous.

NMSA have specialised mechanical containment and recovery equipment maintained at each ports and or regional offices and in Port Moresby and

Madang. More general pieces of mechanical equipment are also available from city and town authorities, other industries and from equipment hire companies.

5.10 Application of Dispersants

The use of oil spill dispersant to accelerate the dispersal of the oil slick can often be an effective response option. Oil spill dispersants reduce the surface tension of the oil, allowing the formation of very small droplets, which becomes suspended in the water column, where they can be rapidly dispersed, thus increasing the rate of biodegradation.

Where a sensitive environment, island or reef is under threat, the use of oil spill dispersants, preferably applied from aircraft, will be considered as an early response option. It should be recognised that the decision to use dispersants needs to be made s early as possible in the assessment of response options as there is a limited "window of opportunity" during which dispersant use can be successful due to the weathering of the oil.

The use of dispersant should be done in conjunction with expert environmental advice. Environmental agencies require that only those dispersants that have been tested an approved in accordance with "National Plan Guidelines for Acceptance" will be considered for use in PNG waters.

In determining whether or not to use dispersants, the Incident Controller, as well as environmental advice, will consider criteria such as:

- whether the oil is of a type amenable to dispersion;
- whether the area has active water exchange; or
- whether the area has an adequate depth of water.

The IC will maintain close consultation with the environmental personnel to ensure that all environmental considerations are taken into account including the nature of the resources under threat and the distance between the resource and the spill.

Consideration should be given for pre-approval of dispersant in designated areas, given certain conditions and restrictions. Pre-approvals will enhance the decision making process during an incident, and allow the decision on the use of dispersants to be made in the shortest possible time.

5.11 In-Situ Burning

Burning of the oil at sea has the potential of removing large quantities of spilt oil or fuels but has not been used extensively in oil spill response, either in PNG or overseas.

The application of in-situ burning could prevent oil coming ashore into populated areas or preventing oil contamination of environmentally sensitive habitats and wildlife. The technique offers the advantage of a quick removal process minimising shoreline contamination and reducing the quantity of oily waste products requiring treatment or disposal, as well as removing the oil before it spreads or moves to other areas under the action of wind and currents.

The disadvantages of in-situ burning is the inefficient combustion of the oil resulting in a visible black smoke plume. It has been perceived that atmospheric fallout of combustion by-products, soot, combustion gases and volatilised hydrocarbons could pose a health risk down wind. Recent research has shown that these emissions and their toxicity were lower than expected. Residues after in-situ combustion tests varied between 1-10% of the original oil.

The combustion behaviour of the oil spilled must be known prior to this option being considered for use. The field monitoring or plume dispersion modeling of the combustion cloud and fumes is a high priority in the decision to use this option. Great caution must be exercised with the in-situ burning of petrol spills as this must be carried out well away from population centres and can emit large quantities of radiant heat and fumes in the vicinity of the burn.

For in-situ combustion to be sustained the heat generated by the burning of the oil must overcome the cooling effect of the sea. Thin slicks do not burn and a minimum thickness of oil is required for combustion. Because oil spreads rapidly, especially low viscosity oils, the use of containment systems such as fire resistant booms, are sometimes required to maintain this minimum thickness. These booms are very expensive and not readily available within Pacific region or even Australia and often require full replacement after one use.

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

5.12 Shoreline Clean-up

Weather and other circumstances permitting, every effort should be made to either disperse or control and recover the oil as close as possible to the source of the spill. However, it is inevitable that some oil may come ashore. The location of a spill, oil type, weather conditions, rate of oil movement and speed of the response will determine whether the bulk of the spilled oil can be recovered before it reaches the shore.

Where oil does come ashore, the extent of clean-up of oiled coastal areas is to be carefully planned with the view of minimising further environmental damage which may result from the clean-up operation.

Sometimes, oil on shorelines may best be left to weather and degrade naturally. This is particularly true where oil impacts a sensitive area such as mangroves, salt marshes or mud flats. In these areas the clean-up operations can result in more environmental damage than the oil itself due to physical disturbance and substrate erosion.

The selection of shoreline clean-up techniques depends on many different factors, which include:

- type of substrate;
- amount of oil on the shoreline;
- depth of oil in the sediments;
- type of oil (tar balls, pooled oil, etc);
- presence of wildlife;
- prevailing oceanographic and meteorological conditions;
- environmental or culturally significant sites; and
- access and trafficability for equipment.

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

- removal of floating or pooled oil;
- removal of oiled material and vegetation;
- use of sorbent materials;
- low pressure flushing;
- mechanical collection and removal of oiled material;
- manual collection and removal of oiled material;
- use of Bioremediation agents; and
- dispersant application.

An important consideration during foreshore clean-up is to ensure that clean-up operations do not cause greater environmental damage than the spill itself (for example heavy machinery damaging sand-dunes, etc).

5.13 Bioremediation

Bioremediation is the artificial enhancement of hydrocarbon degrading organisms to consume and break down oil, has been widely advocate as an oil spill clean-up option. By accelerating the natural biological processes of

biodegradation, bioremediation aims to increase the rate of degradation, by either stimulating micro-organisms existing naturally in the area, or by seeding more micro-organisms.

However, the immediate environment is quickly depleted of available nutrients, especially nitrogen, which is necessary to support this increased population. Thus, most uses of bioremediation will require the application of fertiliser to the affected area. In some cases it may be beneficial to start fertiliser application before an area is affected.

Whilst bioremediation has not been a primary response strategy to an oil spill, it can however, be used to assist an area to recover from the effects of an oil spill. However, there is a lack of detailed information regarding the effectiveness and side effects of bioremediation in tropical environments. This to date has precluded authorities from incorporating bioremediation as a response option into current contingency plan.

The limitations of oil spill foreshore clean-up are exacerbated by the vast tropical areas of PNG, the sensitivity of mangroves and salt marsh foreshores and the remoteness of the region. The development of alternative environmentally sensitive and efficient clean-up technologies is required to provide PNG with a more complete response capability within these and other remote areas.

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

- addition of nutrients to the environment (fertilisation);
- culture and inoculation of in-situ or exotic organisms;
- culture and inoculation of genetically enhanced organisms.

The most effective bioremediation strategies for oiled foreshores have utilised the fertilisation technique.

5.14 Oiled Wildlife Operations

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

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

5.15 Oily Waste Management

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

Oil and oily wastes recovered in cleanup operations shall be disposed of in accordance with local legislation and by-laws.

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

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

Oily waste Management and handling arrangements are outlined in Appendix 6.

5.16 Chemical Spills/HAZMAT Response

As outlined under section 1.3, NATPLAN is designed to cover the response to spills into the marine environment of all types of pollutants, including oil, chemicals and hazardous materials (HAZMAT).

However, technical details within NATPLAN relate primarily to marine oil spills. This reflects the fact that oil is the main pollutant likely to be spilled in the region, and the fact that the discipline of oil spill response is far more developed and advanced than that of chemical spill/HAZMAT response.

In the event of a chemical/HAZMAT spill within the NATPLAN Area, the general procedures and arrangements of NATPLAN should be followed.

External assistance may be requested from Australia under the MOU as per OPRC 90 or via SPREP as per PACPLAN..

6. EXTERNAL ASSISTANCE

The Government of Australia and the Government of Papua New Guinea have signed a Memorandum of Understanding "strengthening maritime relations through mutual co-operation" dated on 25 July 1997 (Australia) and 2 September 1997 (PNG). Under this MoU, the two governments undertake to consult together on any matters pertinent to maritime issues. These include subjects such as proposed changes to legislation; developments in policy; technical co-operation and exchanges in maritime training; co-operation on safety, environmental pollution and legal matters; assistance in search and rescue, pollution and major disasters of a maritime nature; and matters raised by shipper organization; (see Appendix 9).

In addition to the above-mentioned MoU, and in order to give more detail and strengthen the content of that MoU specifically concerning oil pollution preparedness and response, the responsible Federal organization in Australia, the Marine Environment Protection Services of the Australian Maritime Safety Authority **(AMSA**) and the Papua New Guinea **NMSA** have made a further agreement entitled **"Memorandum of Understanding Between The Government of Australia and the Government of Papua New Guinea on Oil Pollution Preparedness and Response** " in accordance with the IMO International Convention On Oil Pollution Preparedness, Response Co-operation, (OPRC 1990), This MoU is concerned solely with oil pollution and enables close co-operation between the two organizations in planning; training; consultant expertise; research and development of oil pollution combating measures, techniques and equipment; response operations; obtaining vessels of opportunity; detection of violations of marine oil pollution legislation and enforcement of provisions of relevant international conventions; etc.

The Pacific Islands Regional Marine Spill Contingency Plan (PACPLAN) now endorsed by countries sets up a framework for the activation of a regional response to large marine spills that are beyond the response capability of one country or that have the potential to impact on more than one country. It allocates responsibilities in the event of marine spill incidents for the Secretariat, Pacific island members, non-island members and industry. It also provides a mechanism to address the responsibilities of countries to the SPREP Convention of 1986.

At Noumea, New Caledonia on 25 November 1986, the members of SPREP adopted the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (the SPREP Convention), with associated Protocols. The Convention includes a Protocol Concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region (SPREP Pollution Protocol). The Protocol provides a formal framework for co-

operation between Pacific Island Countries and Territories when responding to marine spills.

The SPREP Pollution Protocol requires Parties to:

- Take initial action at the national level to respond to pollution incidents (marine spills).

- Co-operate with other Parties in the response to pollution incidents.

- Establish and maintain, within their respective capabilities, the means of preventing and responding to pollution incidents, including;
- Enacting relevant legislation.
- Developing and maintaining contingency plans.
- Designating a Responsible Authority.

- Exchange information with each other and report all pollution incidents to relevant authorities and other parties likely to be affected.

- Provide assistance, within their capabilities, to other Parties who request such assistance.

- Facilitate the movement of personnel and materials needed for the response to a pollution incident into, out-of and through its territory.

- Develop and maintain, where appropriate sub-regional and bilateral arrangements for preventing and responding to pollution incidents.

PACPLAN now provides the framework for co-operative regional responses to major marine spills in the Pacific Islands region, including broad aims and objectives, underlying spill response philosophies and priorities, roles and responsibilities of relevant organisations, regional and international linkages and mechanisms for accessing regional and international assistance.

7. RESPONSE TERMINATION AND POST-SPILL ACTIVITIES

7.1. Response Termination

In any marine spill response operation, a point is reached where the cost and effort involved in continuing clean-up operations outweigh the benefits to be gained. The IC, in consultation with his support personnel under the Marine Spill Response Team and the Members of the National Marine Spill 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.

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

7.2. Equipment Cleaning/Restoration and Return

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:

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

All oil collected from cleaning operations must be disposed of in accordance with the oily waste management procedures in NATPLAN (Appendix Six).
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.

7.3. Response Evaluation and Debriefing

As soon as possible after termination of clean-up, a full de-brief session should be held. 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 NATPLAN, so as to improve the effectiveness of any future spill response.

7.4. Damage Assessment and Monitoring

Following a marine spill it is necessary to conduct post-spill damage assessment and monitoring activities, in order to scientifically and quantitatively assess:

- ecological damage
- impacts on commercial resources and activities such as fisheries, acquaculture and tourism

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

- determination of compensation claims
- better understanding of the effects of spills and the ability of the environment to recover from such effects.
- better understanding of the effects and effectiveness of the various clean-up techniques used.
- Identification of any necessary ongoing restoration and rehabilitation requirements for damaged environmental and resources.

The following general principles should apply to post-spill damage assessment and monitoring

- The Department of Environment and Conservation, should organise joint government/industry monitoring teams, to undertake coordinated and integrated studies. This will avoid duplication of effort and the possibility of conflicting results that may be used for compensation claims.
- Assessment and monitoring should aim to be as quantitative as possible, and the basis of any quantitative assessment stated.
- Data collection should commence as soon as possible after the spill
- Monitoring must be designed so as to be statistically valid and rigorous, with the levels of confidence clearly stated.
- The use of sound pre-spill baseline data is essential to the success of post-spill damage assessment and monitoring. The Dept. of Environment and Conservation should rapidly identify all such data, including that held by National Fisheries Authority, Universities and research institutions.
- The monitoring design should include the identification and monitoring of control sites.

- 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.
- All organisations involved in post-spill damage assessment and monitoring should keep detailed records of all costs and expenses associated with these activities.
- The results obtained should be published in the scientific literature, to assist the development of the spill response discipline in general.

7.5. Environmental Restoration and Rehabilitation

Following a spill, it may be necessary to undertake activities to restore and rehabilitate damaged ecosystems and resources, for example replanting mangroves killed by a spill, rehabilitating beaches damaged by clean-up activities or transplanting coral to a high-use tourist area impacted by a spill.
Responsibility for Post-Spill restoration and rehabilitation should generally rest with the Department of Environment and Conservation, which provides the ESC on the spill response team. The following general principles should apply to post-spill restoration and rehabilitation.

- Areas requiring restoration and rehabilitation should be identified during post spill damage assessment. (refer to section 7.4).
- In determining the best options for the restoration and rehabilitation, techniques that seek to complement and make use of natural forces to the fullest extent possible should be selected, including the option of allowing natural recovery without active intervention.
- The effects and effectiveness of restoration and rehabilitation efforts should be assessed through rigorous monitoring, as part of post-spill damage assessment and monitoring activities (refer section 7.4
- All organisations involved in restoration and rehabilitation should keep detailed records of all costs and expenses associated with these activities.
- The results obtained should be published in the scientific literature, to assist the development of the spill response discipline in general.

8. COST RECOVERY AND REIMBURSEMENT

It is the responsibility of the Responsible Authority (see 1.3 and 2.2) to initiate cost recovery actions direct with the polluters representative, eg P&I Club correspondent. If required to negotiate or to take legal action to achieve full settlement of amounts incurred in the response. 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.

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

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 NATPLAN.

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

9. EQUIPMENT

The national equipment inventory is a joint government/industry arrangement, with both parties contributing and having access to the equipment. In general the oil industry provides the equipment necessary to respond to Tier one spills from its facilities, and government provides the balance of the stockpile necessary to bring the capability up to Tier two level.

A list of equipment available in Papua New Guinea, storage locations and contact details is contained in Appendix Five.

Additional equipment may be available through external assistance (refer section 6).

10. TRAINING AND DRILLS

The training component is an essential element in the implementation of prompt and effective oil spill response. All oil spill response personnel must be provided with the training needed to ensure they fully understand their responsibilities and are capable of performing assigned spill response tasks and duties in a safe, efficient and environmentally sensitive manner.

It is recommended training and re-training be provided after a new plan is developed or an existing one is, modified, or new equipment supplied. The training schedules must be responsive to changes such as;

- new employees;
- transfer or promotion which involved changes in spill response duties;
- new equipment; or
- revised response procedures and plan revisions.

Exercises must be conducted annually and training repeated or upgraded when performance observed during drills or actual spill response reveals need for improvement.

10.1 TRAINING: OIL SPILL RESPONSE TEAM PERSONNEL

Individual members of the team will be given training tailored to their specific responsibilities on the team. The following topics should be covered at least once a year:

- basic safety, fire and health precautions to be taken in the vicinity of a spill;
- actions to be taken to minimise the effects of a spill;
- basic fate and effects of spilled oil in the environment;
- introduction to the National Marine Spill Contingency Plan;
- general oil spill response strategy;
- emergency response organization structure and duties;

- reporting procedures, requirements and responsibilities;
- communications procedures during spill response;
- safe, proper and efficient use of spill response equipment;
- safe use of dispersant;
- transfer, storage and recovery/disposal of oily wastes;
- safe helicopter operation including personnel safety, internal loading and slinging operations, hand signals and radio communication;
- safe working practices on small boats;
- first aid;
- general spill response techniques and skills; and
- confidentially and discussion with media.

The Incident Controller and other senior personnel will also receive training on the Incident Control System (ICS) which will include classroom and table-top drills and exercises. Such training is mainly for a major spill incident requiring international assistance at a large Tier 2 or Tier 3 response.

Topics to be covered are:

- overview of Incident Control System (ICS) organization structure and position responsibilities;
- "sizing up" spill and development of activity list by the Assessment team;
- development of General Plan;
- incident Action Plans and the planning process cycle;
- tactical operations planning;
- health and safety plans;

- communications plans;
- environmental operations plan;
- air operations plans;
- medical plan;
- guidelines to interviews with media and channelling communications;
- equipment, materials, supplies, contractors, services etc available from outside sources; and
- relationships and organization of other national, regional and international oil spill response organisations.

10.2 EXERCISES

Exercises serve to evaluate the thoroughness and effectiveness of the response component of the Contingency plan by testing under simulated conditions. The Plan will be exercised annually. Important elements of response capability to be tested are;

- practicality (structure and organization);
- communications;
- equipment capability and response times;
- adequacy of action plan; and
- public, industry and media relations.

Exercises will be conducted at sea or on-site using the resources which would be used in an actual spill. Hands-on experience with clean up equipment and techniques will be used where practical.

Types of exercises to be considered include:

- deployment of selected equipment (as in a training exercises);
- call-out of personnel who would be involved or contacted during a spill event (including other government department officers, PNG
- Ports Corporations Ltd personnel, oil industry company personnel, etc.); and
- full scale exercises.

11. APPLICABLE LEGISLATION, ENFORCEMENT AND PROSECUTION

Discharge from Ships

In Papua New Guinea, operational discharges from ships and the construction of ships to minimise the risk of pollution are regulated by the International Convention for the Prevention of Pollution from Ships 1973/78 (known as the MARPOL 73/78). The Convention specifies when, where and how a substance can or cannot be discharged, and will apply in PNG by the Prevention of the Pollution of the Sea Act; Chapter 371 and National Maritime Safety Act, 2003 and other related environment Act..

Under this Acts, it is an offence to discharge and/or dispose of marine pollutants and other hazardous substance into the sea around PNG Coastal waters and waterways.

In the event of a marine spill, the Responsible Authority, assisted by the National Maritime Safety Authority as Lead Agency 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.

Appendix Seven (7) contains Investigation and Sampling Guidelines.

12. APPROVAL, CONTROL AND REVISION OF THE PLAN.

12.1 Approval of the Plan

The National Marine Spill Contingency Plan NATPLAN) has been approved by Cabinet, with such approval requiring written endorsement of the plan by all members of the National Marine Spill Committee.

12.2 Control of the Plan.

The National Maritime Safety Authority as the Lead Agency will control the National Plan (NATPLAN). Contact details for all holders of controlled copies of National Plan are maintained on a register at the Office of the National Maritime Safety Authority, in order to facilitate revisions and updating.

12.3 Revision of the Plan

The main body of National Plan (NATPLAN) may only be revised by agreement of all members of the National Marine Spill Committee followed by approval by Cabinet.

Any member of the Committee may submit proposed revisions to the main body of National Plan to the committee for consideration.

Technical information contained in informational appendices, such as contact details and equipment inventory, will be revised and updated regularly, any new informational appendices may be added as required, by Lead Agency, without the need for agreement by the Committee. Such revisions and updates will be circulated by the Lead Agency to all registered holders of controlled copies of the plan.

The accuracy of technical information contained in informational appendices, which relates to individual committee members, is the responsibility of each Committee member. Committee members and other parties to the plan should report to the Lead Agency, any changes in circumstances, including levels of risk of marine spill, capability to manage marine spills, internal administrative arrangements and contact details, that may require revision and updating of the plan. National Maritime Safety Authority will be responsible for circulating such updates to all registered holders of controlled copies of the plan.

13. COMMUNICATION

13.1 Emergency Communication

The communication system is of fundamental importance and must be capable of providing good quality communication in the marine environment for the majority of reasonably expected Spill situations.

13.2 Area Assessment Team

National Maritime Safety Authority, Maritime Rescue Coordination Centre (MRCC) is developing the regional base communication capability through obtaining HF sets for each of the Regional Maritime Offices. The oil spill response equipment been procured by DOT includes PTC "Pagers" and hand held marine VHF sets. These "Pagers" will be distributed to members of the Area Assessment Team (AAT) in order that the Marine Controller, in his role as Incident Controller (IC), can muster the team quickly as possible.

Currently the "Pager" facility is only available in Port Moresby, Rabaul, Lae, and Madang. It is planned that Alotau will also have a "Pager" facility in the future, and in the longer term, so will Daru. Each Regional Maritime Office will also be equipped with 3 sets of hand held two-way VHF Marine radios, to enable communication with all other involved agencies.

In the longer term, PNG Telikom advise that a Coastal VHF network is being developed through PNG which is scheduled to be completed in the near future. This will enable VHF communications throughout PNG.

Each of the Shell, Mobil and BP terminal managers in Port Moresby, Lae, Rabaul and Madang has four (4) Motorola hand-held two-way radios which are used for tanker discharge operations, but which are available for oil spill response.

13.3 Tier 2 and 3 SPILLS

In the event of a tier 2/3 spill, communication facilities will be required at the operation centre where the IC sets up base. Initially the Police will be requested to provided their mobile facilities, whilst Telikom set up more comprehensive telephone, telex and facsimile services at the command centre.

13.4 OIL SEARCH LTD - RAPID DEPLOYMENT COMMUNICATION SYSTEM

Oil Search Ltd have access to two separate emergency response Rapid Development Communications System (RDCS), which are the Response Vehicle System (RVS) and the Portable Command System (PCS), developed and maintained by the Chevron Corporation of the U.S.A. These systems are designed to provide reliable communications capabilities to support a fire, pipeline break, tanker spill or other similar type of incident. The RDCS's are transportable by land, sea or air, and can be used in conjunction with the communications systems of existing Chevron Operations, oil spill cooperatives, other oil companies, government and public safety agencies or as a totally independent stand alone system. Depending on the overall requirements, equipment from either unit can supplement the other. The RDCS include provision for telephone and data services to remote locations; two separate radio systems (logistical and operational); air to ground and marine radios, weather receiver, weather station and power station systems.

Appendix 1:
Emergency Contact Details
Maritime Rescue Coordination Centre (MRCC), NMSA

Personnel	Phone	Facsimile
Rescue Coordination Centre - 24 Hours	(675) 321 1244 (675) 321 3033	(675) 321 0873

Emergency Response Department (ER), NMSA

Personnel	Phone	Facsimile	Mobile
Manager, ER Eka Elore	(675) 321 3033	(675) 321 0873	(675) 681 3721
Emergency Response Officer Karo Guria	(675) 321 3033	(675) 321 0873	(675) 690 7323
Emergency Response Officer Steven Fareho	(675) 321 3033	(675) 321 0873	(675) 689 3896

Executive , NMSA

Personnel	Phone	Facsimile	Mobile
Executive Manager, NS & S Virgil Toanchina	(675) 321 1244	(675) 321 0873	(675) 682 2207
General Manager Chris K. Rupen	(675) 321 1244	(675) 321 0873	
Executive Manager, CS Saiho Doana	(675) 321 1244	(675) 321 0873	
Manager – Surveys/Inspection Cyril Mudalige	(675) 321 3033	(675) 321 0873	
Manager – Finance/Admin. Patrick Korowa	(675) 321 1244	(675) 321 0873	
Manager – Navaids Eric Petrus	(675) 321 3033	(675) 321 0873	
Manager – Hydrographic Joseph Kunda	(675) 321 1244	(675) 321 0873	

PNG Ports Corporation Ltd

Personnel	Phone	Facsimile	Mobile
Regional Port Manager George Pukai	(675) 321 1637	(675) 321 3606	
Supt. Pilotage John W. Nuga	(675) 321 1400	(675) 321 2440	

Oil Industry and Exploration

Personnel	Phone	Facsimile	Mobile
Manager, Marine Operation – InterOil PNG Ltd - POM Robert Leo	(675) 322 8780 (675) 322 8799	(675) 322 8742	
Operations Manager, InterOil Refinery Napanapa	(675) 309 9100	(675) 309 9188	(675) 687 8363 (GM)
Operations Manager ExxonMobil – POM	(675) 322 2204	(675) 322 2228	
Operations Manager Oil Search Ltd - POM			

Government Department & Semi Govt. Bodies

Personnel	Phone	Facsimile	Mobile
First Assistant Secretary – Dept. of Environment & Conservation	(675) 325 0194	(675) 325 0182	
Director – General National Disaster & Emergency Centre			
Manager, Surveillance National Fisheries Authority	(675) 321 2643	(675) 320 2016	

Deputy Commissioner – Operations	(675) 322 6317	(675) 322 6173	
Director, Marine Operations PNG Defence Force	(675) 324 2346 (675) 324 2217	(675) 311 2095	
Superintendent PNG Fire Services (Civil)	(675) 325 2007 (675) 325 5269	(675) 325 3087	

Shipping Industry

Personnel	Phone	Facsimile	Mobile
Operations Manager, Steamship Shipping Port Moresby	(675) 322 0426 (675) 322 0420 (675) 321 1174	(675) 321 2815 (675) 321 1301	

Australian Maritime Safety Authority
Rescue Coordination Centre (RCC), Australia

Personnel	Phone	Facsimile	Telex
Rescue Coordination Centre – 24 Hours	05 612 6230 6811	05 612 6230 6868	62349

SPREP Samoa

Personnel	Phone	Facsimile	Mobile
Marine Pollution Adviser	05 685 21929	05 685 20231	

Appendix 2: Pollution Report (POLREP) Form

PAPUA NEW GUINEA

POLLUTION REPORT (POLREP)

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

1. *complete this POLREP in as much details as possible;*
2. *fax it immediately to the national Lead Agency for marine pollution (675) 3210873*
3. **Lead Agency to fax to National Marine Pollution Committee members/other affected parties;**
4. Please also fax it to SPREP at + (685) 20231

Name/contact of person completing this report:.....

Date/time of report: ..... Date/time of incident: .....

Location of incident: Latitude: .....Longitude:.....

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

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

* Vessel aground/collision and leaking oil.....
* Vessel underway and discharging/leaking oil:.....
* Vessel at anchor/moored/berthed and discharging/leaking oil:.....
* Land-based source.....

*Oil slick with no definite source: .....

*Other (please describe):.....

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

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Direction and rate of drift of Pollution:
.....

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Wind speed & direction: ..... Sea sate: ..... Tide.....

Identit & position of vessels in the vicinity:.....

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Photographs taken?: ..... Samples taken?: ..... Other action taken?:.....

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

Appendix 3: Situation Report (SITREP) Form

PAPUA NEW GUINEA

SITUATION REPORT (SITREP)

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

1. complete these SITREPs on a regular basis,
2. fax them to affected/involved/interested parties
3. please also fax them to SPREP at + (685) 20231.

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

Date/time of SITEP: ..... Date/time of incident: .....

Location of incident: Latitude: ..... Longitude: .....

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

.....

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

* Vessel aground/collision and leaking oil: .....

* Vessel underway and discharging/leaking oil: .....

* Vessel at anchor/moored/berthed and discharging/leading oil.....

* Land-based source: .....

* Oil slick with no definite source: .....

* Other (Please describe): .....

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

.....

.....

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Direction and rate of drift of pollution: .....

Wind speed & direction: ..... Sea state: ..... Tide: .....

Events since POLREP/last SITREP: .....

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(Attach additional information if required)

Appendix 4: Oil Characteristics
Note on PNG Oil Distribution and Characteristics

1. Fuel Imports into PNG.

1.1 SHELL: Uses vessels of about 40,000 dwt to bring products from Singapore. Usual voyage distribution is Port Moresby, Lae and Madang; or Port Moresby, Lae and Honiara, or Lae, Rabaul and Honiara.

1.2 MOBIL : Import bulk fuels (Aviation Gasoline, Kerosene, Petrol and Diesoline) on foreign tankers, which are discharged into shore storage tanks at Port Moresby, Lae, Madang and Rabaul.

1.3 BP: Import bulk fuels on foreign registered tankers. Centre of operations is in Lae.

2. Fuel Distribution within PNG.

2.1 SHELL: The imports into Port Moresby and Madang are used for local supply only. To all intents and purposes there is no internal distributed from these two (2) ports. The products are distributed from Lae and Rabaul to Regional Centres (Kimbe, Kavieng, Lorengau, Wewak, Oro Bay, Misima and Lihir with the possibility of Vanimo) by coastal tankers of about 1,5000 dwt based in Lae and Rabaul.

2.2 Shell distribute four (4) grades of products (Avgas, Petrol, Distillate (Diesoline 7 Kerosene) and Black Fuel Oil (only to Misima). These products are pre-blended on importation.

2.3 Typical Characteristics of Shell Products.

	Density (kg/M^3)	Viscosity (cSt)	Pour Point (^0C)	Flash Point (^0C)
Petrol	690	-	-	- 40
Diesel	850-920	1-8-5.8	13	
Min.65, Av.70+				
Fuel Oil	985	80-125	18	
Min.65, Av.80+				

2.4 MOBIL: Products brought into Port Moresby and Madang are used for local demand. The Storage tanks at Lae and Rabaul are used for

distribution of products to Wewak, Vanimo, Alotau, Kimbe, Bialla and Small ports in the Solomon Islands using Small coastal tankers.

2.5 Bulk diesoline is supplied direct to OK Tedi Mining Ltd.; from Port Moresby by ship to Kiunga.

2.6 Diesoline from Lae is delivered to Lutheran Shipping in Popondetta, Finschafen, Wasu, Lablab and Aitape, and consort Express Line in Samarai.

2.7 Diesoline from Rabaul is delivered to logging camps at Ulamona, Putput Harbour, Stetin Bay, Open Bay, Lassul Bay, and to the areas of Pomio (South Coastal). Silovuti (West New Britain) and Lak and Kulube (New Ireland).

2.8 Mobil's outlets in Wewak, Vanimo Alotau, Kimbe and the Hargy Oil Palm Plantation in Bialla and replenished by the "Petrol Trader" from Lae or Rabaul.

NATIONAL STOCKPILE

Appendix 5: Equipment Inventory (last updated 14/11/2001).

NATIONAL MARITIME SAFETY AUTHORITY HQ. PORT MORESBY.

Item	Owner	Type	Qty.	Storage Location	Contact Details
	National Maritime Safety Authority			POM	NMSARCC POM (675) 321 1244 M/Ph: (675) 681 3721 GM (NMSA) (675) 321 1244
Weir Skimmer		GT 185	2	"	
RODisc Skimmer		Disc 15 Skimmer	1	"	
Boat Spray Pump		ABS	2	"	
ROMop Machine		OM 240 DP	3	"	
Absorbent Boom Roll		Roll	20	"	
Absorbent Boom Pads		Pads	20	"	
Booms- Sheltered Water		Maximax – Self Buoyancy	360m	"	
Booms- Shoreline Barrier		L/Sea Inflatabl	150m	"	
Boom – Medium Duty		Super Max Self Buoyanc	300m	"	
High Pressure Washer/Vaccum System		Hydraulic Pump Unit	1	"	
Safety Protective Clothings		Boots/Overalls/Hats	7 of each	"	
Hardware Tools		Portable/ Tool Boxes	6	"	
DISPERSANTS DRUMS		Dasic Slickgone NS	2400 litres	"	
	AUXILIARY EQUIP.				

Power Pack Hydrostatic - Pump		Hydrostat	2	POM	
Anchor Kits + Chains/Ropes		Danforth	5	"	
BackPack Sprayset		P/Container.	4	"	
Spray Arms – Boat Spray		Stainless steel	2 pair	"	
Portable Generator Set.		Honda Pump	2	"	
Spares/Tools. Boxes			6	"	
Air Blower			2	"	
FASTANK 2000 Ltrs.		Storage	2	"	
RO DISC Skimmer		Pump	1	"	
Hydraulic Hose Reel		"	2	"	
VHF Transcevier		Handheld	5	"	

NMSA – NAVAIDS DEPOT – MADANG.

				Location	**Contact Details**
	Transport Dept.			Navaids Depot Madang	Manager Navaids 8522698
Disc Skimmer		Ro-Disc 15	1		
Booms–Sheltered Water		M/Max-Self Buoyancy	200 m	"	
Booms-Shoreline Barrier		Land/Sea Inflatable	50 m	"	
Anchor Kits + Fittings		Danforth	2	"	
Dispersants		Dasic Slickgone NS	20 Drums	"	
Boat spray. Sets		ABS	2	"	
Absorbent Pads		Pads	4 Bales	"	
Absorbent Booms Rolls		Rolls	12 Rolls	"	
RO Mop Machine		OM 240 DP	1	"	
High Pressure and Hot- Water Cleaner		Hydraulic Pump Unit	1	" "	
Shoreline Cleanup Hardware- Tools		Various	2 of each	"	
Safety Protective Clothings		Various	5 of each	"	
	AUXILIAR EQUIP.			"	
Spray Arms		Stainless Steel	2 pair of each	"	
RO – Disc Pump		L70AE-DETMR	1	"	
Portable Generator Set		Honda Pump	1	"	
Air Blower		Portable	1	"	
Spare/Tool Boxes		Various	3	"	
Boom –Medium duty		Supermax Self Buoyance	300 metres		

NMSA - ALOTAU. MBP

				Location	**Contact Details**
	Transport Department			Marine Office Alotau, MBP	CMS (675) 6411051
Weir Skimmer		GT 185	1	"	
Booms –Shoreline Barrier		Sea/Land Inflatable	50 m	"	
Booms Sheltered Water		Supermax Self Buoyance	160 m	"	
Anchor Kits + Fittings		Danforth	2	"	
Dispersant – Drums		Dasic Slickgone NS	2,400 litres	"	
KNAPSACK Spray Sets.		Plastic Container	2	"	
Sorbent Booms		Rolls	18 Rolls	"	
RO Mop Machine		OM 240 DP	1	"	
Fastank 2000 L.		Storage	1	"	
Shoreline Cleanup Hardware - Tools.		Various	2 of each Item	"	
Safety/Protective Clothings		Various	7 of each Item	"	
Sorbent		Pads	6 Bales	"	
	AUXILIARY EQUIPMENT				
PowerPack Hydrostatic Pump		Hydrostat	1	"	
Hose Reel		Hydraulic	1	"	
VHF Transceiver		Handheld	3	"	
Spare Parts/Tool Boxes		Various	3	"	
Honda Generator - Portable		Honda Pump	1	"	
Air Blower		Portable	1	"	

NMSA OFFICE - LAE. MP

				Location	**Contract Details**
	Transport Department			Maritime Office Lae, Morobe	(675) 4726020
Weir Shimmer		GT 185 Hydraulic	1	"	
Booms Sheltered Water		Supermax Self Buoyancy	160 metres	"	
Booms Shoreline Barrier		Land/Sea Inflatable	75 metres	"	
Anchor/Chains/Fittings		Danforth	3	"	
Oil Dispersant		Dasic Slickgone NS	2,400 litrs	"	
KNAPSACK Spray Sets		Plastic Container	2	"	
Sorbent		Pads	6 Bales	"	
Sorbent Booms		Rolls	18 Rolls	"	
RO– Mop Machine		OM240 DP	1	"	
FASTANK 2000L		Storage Tank	1	"	
Shoreline Cleanup Hardware Tools		Various	2 of each	"	
Safety/Protective Clothings		Various	7 of each	"	
	AUXILIARY EQUIPMENT				
PowerPack Hydrostatic		Hydraulic Pump	1	"	
Hose Reel		Hydraulic	1	"	
VHF Transceiver		Handheld	3	"	
First Aid Kit		Box (S)	1	"	
Portable Generator		Honda Pump	1	"	
Spares/Tools Boxes		Various	3	"	
Air Blower		Portable	1	"	

NMSA OFFICE - RABAUL . ENBP

				Location	**Contact Details**
	Transport Department			Maritime Office Rabaul, ENBP	(675) 9821433 (675) 9821307 Marine Controller
Weir Skimmer		GT 185 Hydraulic	1	"	
Booms –Sheltered Water		Supermax Self Buoyance	160 metres	"	
Booms – Shoreline Barrier		Land/Sea Inflatable	50 metres	"	
Anchor/Chains/Fittings		Danforth Galvn.	3	"	
Oil Dispersant		Dasic Slickgone NS	2,400 litres	"	
KNAPSACK Spray		Plastic Container	2	"	
Sorbent		Pads	6 Bales	"	
Sorbent Booms		Roll	18 Rolls	"	
RO Mop Machine		OM240 DP	1	"	
FASTANK 2000L		Storage tank	1	"	
Shoreline Cleanup Hardware Tools		Various	2 of each	"	
Safety/Protective Clothings		Various	7 of each	"	
	AUXILIARY EQUIPMENT				
PowerPack Hydrostatic Pump		Hydraulic Stat	1	"	
Hose Reel		Hydraulic	1	"	
VHF Transceiver		Handheld	3	"	
First Aid Kit		Box (S)	1	"	
Portable Generator		Honda Pump	1	"	
Spares/Tools Boxes		Various	3	"	
Air Blower		Portable	1	"	

NMSA OFFICE - MADANG (CMS

				Location	**Contact Details**
	Transport Department			Maritime Office Madang, MP	(675) 8522152 (675) 8522242 Marine Controller
Weir Skimmer		GT 185 Hydraulic	1	"	
Booms- Sheltered Water		Supermax Self Buoyancy	160 metres	"	
Booms – Shoreline Barrier		Land/Sea Inflatable	50 metres	"	
Anchor/Chains/Fittings		Danforth Galvn.	2	"	
Oil Dispersants		Dasic Slickgone NS	2,400 litrs	"	
KNAPSACK Spray Sets		Plastic Container	2	"	
Sorbent		Pads	6 Bales	"	
Sorbent Booms		Roll	18 Rolls	"	
RO–Mop Machine		OM240 DP	1	"	
FASTANK 2000L		Storage tank	1	"	
Shoreline Cleanup Hardware Tools		Various	2 of each	"	
Safety/Protective Clothings		Various	7 of each	"	
	AUXILIARY EQUIPMENT				
PowerPack Hydrostat Pump		Hydraulic stat	1	"	
Hose Reel		Hydraulic	1	"	
VHF Transceiver		Handheld	3	"	
First Aid Kit		Box (S)	1	"	
Portable Generator		Honda Pump	1	"	
Spares/Tools Boxes		Various	3	"	
Air Blower		Portable	1	"	

Appendix 6 – Oily Waste Management Handling Arrangements

1. Introduction

1.1 These procedures are issued for the Oily Waste Management and Handling Arrangements. Proper waste and handling is imperative to prevent cleaned areas from becoming re-contaminated and to protect unaffected areas. Waste disposal operations at major spills will be coordinated with the Department of environment and Conservation and the Department of Petroleum and Energy and where appropriated local residents and non-landowning residents affected by the incidents.

2. Waste Characteristics

2.1 Response operations will create liquid and solid/semi solid wastes which are further classified as Oily and non-oily. The following is a summary of these types of wastes and associated response operations that generate the wastes.

2.2 Liquid Wastes

* Oily – Oily liquid wastes (i.e. recovered oil, oily water and emulsions) can be handled, stored and disposed of in a similar way to those generated during normal oil production, refining and terminal operations. The largest volumes will be produced by vacuum devices and skimmers. Additionally, oily water and emulsions will be generated by vessel and equipment cleaning operations.

* Non-Oily – Response operations will also produce quantities of non-oily liquid wastes generated by the temporary storage area and storm water collection systems, vessel and equipment cleaning and office and field operations (i.e. sewage).

2.3 Solid/Semi – Solid Wastes.

* Oily–Oily solid/semi – solid wastes that will be generated by containment and recovery operations include damaged or worn-out booms, non-cleanable equipment, used sorbent materials, saturated soils, contaminated beach sediments, driftwood and other debris

- Non-Oily – Non-Oily solid/semi-solid wastes will be generated by spill response support operations and office and field operations (i.e. rubbish).

3. Safety Considerations

3.1 Care must be taken to avoid or minimise direct contact with oily wastes. All personnel handling or coming into contact with oily wastes should wear protective clothing. A barrier cream can be applied prior to putting on gloves to further reduce the possibility of oily waste absorption. Safety goggles should be worn by personnel involved in waste handling activities where splashing might occur. Hydrocarbon vapour exposure from waste storage and handling areas should be monitored and personal respirators worn if necessary.

3.2 Oily liquids or solids must be treated as fammable material and stored away from potential ignition and heat sources.

4. Separation of Waste Types

4.1 The different types of waste materials generated during response operations require different disposal methods. To facilitate disposal of wastes they will be separated by type for temporary storage, transport and disposal. Table J1 lists some options available to segregated oily wastes. The table also indicates the method that may be used to separate free and/or emulsified water from the oily liquid waste.

5. Transfer

5.1 During response operations it may be necessary to transfer recovered oil and oily debris from one point to another several times before the wastes are ultimately incinerated or disposed of at an appropriate disposal site. Depending on the location of response operations; any or all of the following may occur:

* from portable or vessel – mounted skimmers into portable steel tanks, the storage tanks of the skimming vessel; or a barge,

* directly into the storage tank of a vacuum device;

* From a skimming vessel to barge;

* from vacuum device storage tank to a barge;

* from a barge to a tank truck or portable tank;

* from a tank truck to a processing system (oil/water separator);

* from a processing system to a recovery system and/or incinerator;

* directly into impermeable bags that, in turn, are placed in impermeable containers;

* from containers to trucks;

* from trucks to lined pits; and

* from lined pits to incinerators and/or land fills.

5.2 Generally there are four classes of transfer systems that may be used to effect oily waste transfer operations:

* pumps;
* vacuum systems;
* belt/screw conveyors; and
* wheeled vehicles

5.3 TABLE J2: shows comparative evaluation of sixteen types of transfer systems that might be available for transfer operations. A brief discussion of each of the transfer systems follows:

5.3.1 PUMPS: rotary pumps, such as centrifugal pumps, may be used when transferring large volumes of oil, but may not be appropriate for pumping mixtures of oil and water. The extreme shearing action for centrifugal pumps tends to emulsify oil and water, thereby increasing the viscosity of the mixture and causing low, inefficient transfer rates. The resultant emulsion would also be more difficult to separate into oil and water fractions. Lobe or "positive displacement" pumps work well on heavy, viscous oils, and do not emulsify the oil/water mixture. Double acting piston and double acting diaphragm pumps are reciprocating pumps that can also be used to pump oily wastes.

5.3.2 VACUUM SYSTEMS: a vacuum truck may be used to transfer viscous oils, but without the use of a skimming device, they usually pick up a very high water/oil ratio.

5.3.3 BELT/SCREW CONVEYORS: Conveyors may be used to transfer oily wastes containing a large amount of debris. These systems can transfer weathered, debris- laden oil either horizontally or vertically for short

distance (e.g. 30 metres) but are bulky and difficult to set up and operate.

5.3.4 WHEELED VEHICLES: Wheeled vehicles may be used to transfer liquid wastes or oily debris to storage or disposal sites. Such vehicles have limited transfer rate (e.g. 100 barrels per load) and require good site access.

6. Storage

6.1 Temporary storage of oil and oily debris may be required until a final disposal method has been selected. Segregation of wastes according to type will facilitate subsequent incineration and/or disposal. Storage method used depends on:

* type and volume of material to be stored;

* duration of storage; and

* access

6.2 During an oil spill incident, the volume of oil recovered and dealt with effectively will depend upon the storage capacity available. Some short-term storage options are summarised in Table J3. Most of these can be used onshore or offshore. It bags or drums are used for storage, the container must be clearly marked and/or colour-coded to indicate the type of materials/waste contained and/or the ultimate disposal option. Ensure that the space available is capable of supporting the weight of both the container and the waste content.

6.3 Storage pits must be lined with a liner that extends over the whole area (see Figure J1), and located on ground that is as level as possible, at least 2 metres above the high water mark of streams, rivers and lakes, and where surface drainage is dispersed, not concentrated.

7. Transport

7.1 Oily wastes and debris may be transported by boats, trucks, or in some cases by helicopter. However, precautions must be taken to ensure that transport operations do not result in a spill in a non-affected area.

8. Disposal

8.1 There are a number of disposal alternatives available for recovered oil and oily debris from large scale clean-up operations, but the most practical in PNG involve.

* Recovery to production, terminal or storage tank facilities;
* in-situ burning;
* on-site incineration;
* disposal in pits; and
* land farming

8.2 TABLE J1 shows treatment and disposal options for oil and oily wastes. Oily debris containing vegetation, rubbish or other materials would be burned on-site or transported to an appropriate site for incineration and/or disposal.

8.2.1 RECEOVERY TO STORAGE FACILITIES: Wherever practical, oil should be reclaimed. Oil that has been recovered by oil/water separation, either on-site or at the treatment facility, may be transported to an oil company terminal for storage and/or reclamation. Disposal of large volumes of recovered oil/water from offshore response activities will have to be arranged at a refinery or other facility.

8.2.2 ON-SITE INCINERATION: There are a variety of incinerators that can be considered for disposal of oily debris in the field. The one chosen depends on the location of the spill and incinerator site, the materials to be disposed of, overall size of the clean-up operations, and environmental considerations.

* Incineration Equipment – three types of field incinerator systems are most commonly used for on-site incineration, rotary kiln, air-curtain incinerator, open flame oil burner. TABLE J4 summarises the materials that each type of incinerator can burn.

* Field Incineration Process – usually a field incineration process consists of four major steps

  (i) planning the operation;
  (ii) preparing the site;
  (iii) operating the site; and
  (iv) restoring the site on completion

The complexity of each step will depend on many factors including, spill size, type of clean-up operation, equipment available, terrain, weather environmental, government and landowners requirements.

* personnel and Public Safety – Due to the heat and flame generated by most field-usable incinerators, and potential flammability of oil-soaked debris, safety of the public and personnel safety is of primary importance. In may situation, heavy plant equipment will be operating in conjunction with site preparation and operation, requiring additional safety consciousness and consideration. A site safety officer should be designated to establish a site safety programme and continually monitor safety or hygiene related problems. Such person can also be placed in charge of site security. Safety items addressed must include:

* fire control systems;
* personnel protective equipment;
* protection of the general public;
* noise protection;
* general safety procedures; and
* exposure to hydrocarbon liquid, vapour or smoke

8.2.3 DISPOSAL IN PITS. - Depending on the local situation and ability to obtain approval from the appropriate government authorities, agencies and landowners, disposal in a landfill in proximity to the spill site should be considered. A landfill site can be developed, as illustrated in **Figure J5,** if a suitable location can be found close enough to the spill site. Considerations include volume of contaminated materials and accessibility to heavy equipment. Small hand dug or formed pits may be practical depending on the total volume to be disposed.

8.2.4 LAND FARMING. – Land farming uses the natural forces of hydrocarbon degradation by bacteria. Degradation rate can be improved by aeration and nutrient addition. Land farming the preparation of a field(s)

surrounded by water run-off collection ditches which are led to a central oil/water separator. Oily sludge and oiled materials are spread on the filed(s) up to a maximum thickness of approximately 30 cm. Sludge and soil are mixed by ploughing, tilling, etc. Nutrient (containing nitrogen) is sprayed on and preferably harrowed in. After periodic aeration (ploughing, tilling, etc.) Biodegradation will take place and another sludge layer may be applied.

TABLE J 1 : OILY WASTE SEPARATION AND DISPOSAL METHODS

TYPE OF MATERIAL	SEPERATION METHODS	DISPOSAL METHODS
Liquids		
Non-emulsified oils	Gravity separation of free water	Incineration Reclamation of oil
Emulsified oils	Emulsion broken to release water by: * heat treatment * emulsion breaking chemicals * mixing with sand * centrifuge * filter/belt press	Incineration Reclamation of recovered oil
Solids		
Oil mixed with sand	Collection of liquid oil leaching from sand during temporary storage Extraction of oil from sand by washing with water or solvents Removal of solid oils by sieving	Incineration Reclamation of recovered oil Direct disposal to landfill Stabilisation with inorganic material Degradation through land farming composting
Oil mixed with cobbles or pebbles	Screening Collection of liquid oil leaching from materials Extraction of oil from materials by washing with water or solvent	Incineration Reclamation of recovered oil
Oil mixed with wood, seaweed and sorbents	Screening Collection of liquid oil leaching from debris during temporary storage	Incineration Direct disposal to landfill Degradation through land farming or composting
Oil mixed with seaweed or natural sorbents	Flushing of oil from debris with water	Degradation through land farming or composting
Tar balls	Separation from sand by sieving	Incineration Direct disposal to landfill

TABLE J 2 : COMPARATIVE EVALUATION OF OIL SPILL TRANSFER SYSTEM

CHARACTERITICES OF TRANSFER SYSTEMS	CENTRIFUGAL PUMP	LOBE PUMP	GEAR PUMP	SCREW PUMP	VANE PUMP	FLEXIBLE IMPELLER	SCREW/AUGER PUMP	PROGRESSING CAVITY	PISTON PUMP	DIAPHRAGM PUMP	AIR CONVEYOR	VACUUM TRUCK	PORTABLE VACUUM	CONVEYOR BELT
High Viscosity Fluids	1	5	5	5	3	2	5	5	5	3	5	4	4	5
Low Viscosity Fluids	5	2	2	2	3	4	1	3	3	4	5	5	5	1
Transfer rate	5	2	1	1	3	4	1	2	2	3	4	5	3	2
Debris tolerance														
* silt/sand	5	3	1	1	1	4	5	5	3	4	5	5	5	5
* gravel/particles	5	2	1	1	1	2	5	3	2	3	5	5	4	5
* seaweed/string matter	2	3	4	3	2	2	4	4	2	3	4	4	3	5
Tendency to emulsify fluids	1	4	3	3	3	3	5	5	3	3	5	5	5	5
Ability to run dry	5	3	2	1	2	3	4	3	2	5	5	5	5	4
Ability to operate cont'ly	5	3	2	2	2	3	3	3	3	2	3	3	3	3
Self priming	1	3	2	2	2	5	1	5	4	4	5	5	5	5
Suction/head	2	3	2	2	3	4	1	5	4	4	5	4	3	-
Back pressure/head	1	5	5	5	4	3	4	5	5	2	1	1	1	3
Portability	5	3	3	2	4	4	3	2	2	4	-	-	2	1
Ease of repair	5	3	2	2	3	4	3	2	3	5	1	1	2	3
Cost	5	3	2	2	3	3	1	2	3	5	1	1	2	2
Comments	E	B	B	B	-	F	A	B	B	A	F	F	F	-
Comments	J	-	-	J	-	-	-	-	D	C	G	G	G	-
Comments	-	-	-	-	-	-	-	-	-	D	1	1	-	-

Key to ratings: 5 = Best; 1 = Worst

Key to comments: A. Normally require remote power sources, thus safe near flammable fluids. F. Can also pump air at low pressure

B. Should have a relief valve in the outlet line to prevent bursting hoses. G. Transfer is in batches not continuous

C. Air powered units tend to freeze up in sub-freezing temperatures. H. Waste must be in separate container for efficient transfer D. Units with work ball valves are difficult to prime I. Transportable with its own prime mover

E. Some remotely powered types are designed to fit a tanker's butter worth hatch J. High shear action tends to emulsify oil and water mixes

TABLE J 3 : TEMPORARY STORAGE METHODS

Container	On shore	Off shore	Solids	Liquids	Notes
Barrel	**X**	**X**	**X**	**X**	May require handling devices.
Tank Trucks	**X**	**X**		**X**	Consider road access.
Dump/Flat Bed Trucks	**X**		**X**		May require impermeable liner and cover. Consider flammability of vapours at exhaust.
Barges		**X**	**X**	**X**	Liquids only in tanks. Consider venting of tanks
Portable oil storage tanks	**X**	**X**		**X**	Consider problems of large volumes of water in oil. Requires handling equipment or helicopters for movement.
Bladders	**X**	**X**		**X**	May require special hoses or pumps for oil transfer.
Pits	**X**	**X**	**X**	**X**	Lines required.

TABLE J 4 : INCINERATORS USED FOR DIFFERENT OIL SPILL WASTES

Waste Material Categories	**Liquid**	**Physical State Semi-solid**	**Solid**
OILS			
Uncontaminated (crudes, refined products)	**2,3**	**1,2**	
Emulsions (crudes, some refined products)	**1,2,3**	**1,2**	
Weathered (tar balls, burned oil residue)		**1,2**	**1,2**
OIL DEBRIS			
Small combustible (sticks, cups, sorbent pads)		**1,2**	**1,2**
Large combustibles (logs, seaweed, mats, pilings)		**1,2**	**1,2**
Small non-combustible (sand, rocks, metal, soil)			**1**

KEY

Field Incinerator types:

1. Rotary kiln

2. Air-curtain incinerator

3. Open flame oil burner

Appendix 7: Marine Spills Investigation and Sampling Guidelines

1) BACKGROUND

These procedures are issued by SPREP for the guidance of government officers who may be required to investigate a marine spill and collect evidence, conduct interviews, take samples and undertake other procedures in order to identify the polluter and enable appropriate action to achieve prosecution.

It must be noted that these procedures are intended as general guidelines only and that country-specific procedures under national legislation and legal systems should be followed.

The powers of officers appointed under national marine pollution legislation should be established.

2) INTERVIEWS

a) General

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

(1) Fairness: a person should generally not be charged with a serious criminal offence without being given the opportunity to give his or her side of the story;

(2) Practicality it can simplify the conduct of a prosecution if the defendant has admitted part or all of the facts on which the prosecution is based. This can reduce the number of witnesses and the length and cost of the proceedings. The opportunity should be taken to see what, if anything, the potential defendant is prepared to admit before charges are laid.

Parliaments usually enact procedures that are binding upon police officers and other investigators who have a power of arrest, when interviewing people suspected of committing offences against the law. Those procedures should be clearly understood by an officer before undertaking an interview of a potential defendant.

b) **Preparation for an Interview**

- Notebook and pen: Comprehensive notes should be kept by the officer throughout the investigation. It is important to include simple diagrams in notes to explain, for example, the position of oil in relation to a ship or the location of a particular piece of equipment on board the ships.
- Tape recorder: The interview should be taped if possible. It is advisable that all conversation, including informal introductions, be recorded. Should the potential defendant express apprehension that a recorder is being used, he/she should be advised that it is normal practice in such cases, and that a copy of the tape can later be made for him if he wishes. If the potential defendant would rather not take part in an interview if it is to be tape-recorded, but is otherwise prepared to be interviewed, proceed with the interview without tape-recording it, writing down questions and answers in a notebook as the interview progresses. This procedure should also be followed where there is no tape recorder readily available.

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

c) Legal Representation During an Interview

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

The role of any legal adviser attending an interview must primarily be to keep a watching brief on the proceedings. He/she should not interrupt the interview, but will be given the opportunity to confer with his/her client on request, usually when the questioning is complete. The interviewee will then be given the opportunity to add a clarifying statement to the response of any question or on any additional matter relevant to the investigation.

In no circumstances shall the investigating officer/s enter into arguments with the legal adviser.

d) **Use of an Interpreter**

Where the services of an interpreter are used, a brief statement should be obtained from the interpreter stating name, address and experience.

At the completion of the record of an interview that has been interpreted the following form of words should be added.

"I hereby state that I have truly and faithfully, to the best of my ability, interpreted questions ask during the interview by ..... into the ..... language and have truly and faithfully, to the best of my ability, interpreted the answers given by ..... in the ..... language into the
English language.
Signed .... Date ....."
Name

e) **Conduct of an Interview**

Depending on national legislation, an officer may require a person to answer questions for the purpose of ascertaining a number of things. These should be determine din relation to the applicable national legislation.

It is essential that prior to commencing the questioning the Officer begins by stating his/her own name, position and the purpose of the interview and the provision of the relevant legislation, which enables the Officer to require a person to answer questions. Once this part of the interview has been conducted a short break should be taken cautioning the person as follows:

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

It is essential that the person interviewed understands that he/she is no longer under any compulsion to answer questions. If an Officer fails to give a caution, it is unlikely that any answers obtained will be admissible in evidence in the event that charges are laid.

In addition to the above, Officers should, while interviewing, carefully bear in mind that:-

- they are not sitting in judgement but trying to ascertain the facts relating to the incident;

- after this the Officer can conduct the second part of the interview by should do so only after.

- they must express no opinion as to what should or should not have done,

- they must not enter into argument with the person being questioned nor in any way allow themselves to act or appear to act under bias or prejudice; and

- they must not ask questions designed to suggest a particular answer, questions implying the adoption of one view of disputed facts, nor questions resting on assumptions which depend on knowledge not available to the person as the time of the incident.

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

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

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

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

(g) Is (name of ship) on charter
(h) (if so) to whom is the vessel chartered
(i) Where were you at the time of the incident
(j) What were you doing at the time of the incident

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

During a narrative answer, detailing the sequence of events, the Officer may find it beneficial to interrupt the narrative with questions on points requiring clarification, rather than waiting until the completion of the narrative.

At the conclusion of the interview, the interviewee should be advised that the matter will be reported.

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

The copy is then used to type the transcript of the interview, which must include every “aah” and “umm”.

3) **OFFICER’S EVIDENCE**

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

A transcript of the interview will form part of the report. Together with relevant extracts from the vessel’s logbook such as entries concerning ownership of the vessel, names of relevant crew, oil record book extracts, etc. The Officer should also include details of any other observation made, such as oil stains, damaged or leaking equipment, etc. If a potential point of discharge is identified, not necessarily conclusively, it is considered important that samples should be taken rather than leave the possibility untested.

Signed statements should be obtained from the Master (or person in charge if the spill source is not a vessel) and any other member of the crew or staff called

upon by the Master or person in charge as witness to the incident. As well as facts relating to the incident, these statements should include the witnesses' full name, address, position, qualifications, time on board the vessel and experience.

4) **OBTAINING SAMPLES FOR ANALYSIS**

In the aftermath of an oil spill, identification of the source of contamination is a vital component in achieving a successful prosecution and the allocation of costs. In the majority of cases there is unlikely to be any dispute about the accuracy of an analysis.

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

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

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

Samples should be taken from the likely source and from the water/foreshore. Samples from the sea should be taken before the oil is washed ashore.

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

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

The lid should be firmly secured and then sealed using two of the security labels provided with the sample bottles (before sealing, secure continuity tag,

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

Wherever possible the Officer should take three samples from each tank or bunker. One sample should be used for analysis, one should be given to the

Master or person in charge, and one should be retained in the event there is a later dispute about the analysis. If is recognised, however, that is may not be possible to take more than one sample from each tank or bunker of a large vessel.

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

(i) unique sample identification number:

(ii) date sealed and who sealed it

In addition, the Officer should keep a separate record of details including number and dispatch details, as well as the numbers of the security labels used and which jar they were secured to.

In cases of emergency where it is necessary to obtain samples from the water/foreshore and there is no sampling equipment available use any container provided it is clean rinse the container in sea or river water prior to sampling.

5) **CONTINUITY OF SAMPLES**

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

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

- It is in actual physical possession of an appropriate person whether the individual who collected it or one to whom it has been properly transferred.

- It is in an area where it can be kept under surveillance by an authorised person; or it is under lock and key where it cannot be tampered with.

6) **STORAGE AND DELIVERY OF SAMPLES**

Samples should be kept in a cool, dark, dry place under lock and key. A metal cabinet or locker in an air conditioned room is an adequate location provided the room, the locker or both can be locked and access limited. Ideally, all samples should be stored in a locked refrigerator at a temperature of 1.6^0 to 4.4^0 (35^0-40^0F).

Then samples should be sent to a suitably equipped and qualified laboratory for analysis. If there is no suitable laboratory in your country, the SPREP office in Apia can advise suitable laboratories where samples can be analysed.

When samples are required to be sent by courier to the testing laboratory, the bottle should be carefully packed in metal or any other crush resistant container. The outer container should clearly indicate that the contents are fragile.

Appendix 8: Memorandum of Understanding Between The Government of Australia and The Government of Papua New Guinea on Oil Pollution Preparedness and Response

1. In accordance with the provisions contained in the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90), the Australian Maritime Safety Authority and the Papua New Guinea National Maritime Safety Authority, who are respectively the national authorities responsible for marine oil pollution control, hereby place on record the intention to promote mutual co-operation on marine oil pollution preparedness and response.
2. In the event of a marine oil pollution incident, the national authority responsible for marine oil pollution control can request assistance from the other party. The requesting authority shall be the sole judge of the need for such assistance.
3. Requests for assistance will be directed through the same channel as are used for Maritime Search and Rescue incidents, i.e.
    * Australian Search and Rescue
    - PNG Search and Rescue/Oil Pollution Control Centre
4. Each national authority will keep the other party advised of the designations of officers who are authorised to request assistance under this Memorandum.
5. Subject to availability of relevant resources under their direct control, the individual national authorities undertake to provide equipment, materials and personnel for the purpose of assisting response to an oil pollution incident. Equipment, material and personnel under the control of industry, State Governments, port authorities, etc. may also be made available following a special approach by the national authority receiving the request.
6. Reimbursement for costs of assistance will be determined in accordance with OPRC 90, except where such costs are recoverable from the polluter.
7. Experienced personnel will accompany specialised equipment at the discretion of the providing authority and as agreed with the requesting authority.
8. To facilitate Customs requirements all material and equipment will be entered on behalf of the national government concerned. This also applies to equipment and material from sources other than the national authority.

9. Transport of equipment, supplies and personnel will be by the most convenient means and will be arranged at the time of each incident after consultation between representatives of each national authority.
10. In case of urgency, transport may be by military aircraft of either the Australian or Papua New Guinea Defence Forces depending upon availability.
11. Recognising the problem of transferring oil and providing adequate storage for recovered oil, every assistance will be given to obtain a suitable vessel to accept transferred or recovered oil. All costs associated with obtaining such a vessel will be subject to negotiation between the owners of the vessel and the requesting authority or owner of the damaged vessel causing pollution.
12. National authorities, having regard to commercial considerations, undertake to consult together on matters pertinent to pollution of the marine environment by oil including

    a. information on changes in equipment and material;
    b. copies of contingency plans and legislation relating to oil pollution;
    c. information on significant oil pollution incidents;
    d. mutual visits by personnel responsible for oil pollution preparedness and response;
    e. performance of regular exercises and training for oil pollution combating; and
    f. promotion of research and development of oil pollution combating measures, techniques and equipment.

13. National authorities undertake to co-operate in the detection of violations and the enforcement of the of the provisions of relevant international conventions controlling pollution from ships.
14. This Memorandum of Understanding will come into effect at the date of signing and will remain in effect unless terminated by either party, giving the other party six months written notice of its intentions to terminate.

IN THE WITNESS WHEREOF, the undersigned being duly authorised by the Government of Australia has signed this Memorandum of Understanding on this 25th day of July one thousand nine hundred and ninety-seven.

Paul McGrath
Chief Executive
Australian Maritime Safety Authority
For the Government of Australia

IN THE WITNESS WHEREOF, the undersigned being duly authorised by the Government of Papua New Guinea signed this Memorandum of Understanding on this 02nd September one thousand nine hundred and ninety – seven.

Miria Ume
Secretary
Department of Transport
For the Government of Papua New Guinea

Appendix 9

NATIONAL MARITIME SAFETY AUTHORITY

PNG National Marine Spill Contingency Plan

REQUEST for ASSISTANCE

Requesting Country/Territory: ----------

Responsible Authority: ---------- **Contact Person:** _____

Phone no: ---------- **Fax no:**---------- **Email:**----------

Request to:---------- **Fax no:**----------

Nature of Pollution Incident:----------

Type of pollutant spilled:---------- **Quantity:**----------

Location of spill (latitude & longitude):----------

Source of spill:----------

Environmental impacts (actual and threatened): ----------

Action taken to date:----------

Assistance Required:----------

Technical Advice? If yes, in what areas?----------

Personnel? If yes, what area of expertise? ----------

Equipment? If yes, what types and for what purpose?:----------

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Are Customs, immigration and quarantine procedures cleared for incoming personnel and equipment?

Details:----------

Are logistics, including transport and accommodation, in place for incoming personnel and equipment?

Details: ----------

(Attach additional information if required)

Appendix 10:

PAPUA NEW GUINEA NATIONAL MARITIME SAFETY AUTHORITY

CHARTER AGREEMENT

IT IS MUTUALLY AGREED between the owner and the National Maritime Safety Authority, on behalf of the PNG Government, that the owner will let, and the Maritime Safety Authority will take the vessel for the period of hire at the agreed rate for the purpose of combating pollution of the sea by oil within such parts of the area of operations as the Maritime Safety Authority representative may direct subject to the following conditions namely :

1 . Prior to commencement of the hire the owner and master of the vessel shall ensure that the vessel complies with all laws concerning registration, safety equipment and safety inspection, operation and certification.

2. The owner will offer the vessel in a seaworthy condition, manned in accordance with all legal requirements, and place it at the disposal of the National Maritime Safety Authority at the specified port at the commencement of the hire.

1. The owner will pay the wages of the crew during the hire and, subject to condition 7, will bear the cost of maintenance and other outgoings arising during the period of the hire. The cost of fuel may be borne by the National Maritime Safety Authority.

2. The master will be responsible for the safe navigation of the vessel and will be the sole judge as to whether it is prudent to put to sea or remain at sea at any given time, having regard to the state of the weather and associated circumstances.

3. Subject to condition 4 the master and crew will obey all reasonable and lawful orders of the National Maritime Safety Authority representative including orders relating to :

(a) carriage of persons other than crew on board the vessel, up to the safety capacity of the vessel;

(b) fitting to the vessel of pollution control equipment supplied by the National Maritime Safety Authority;

© carriage, operation and use of pollution control equipment and materials taken onboard the vessel; and

(d) voyages and tasks to be undertaken by the vessel.

4. Time lost through any defect of the vessel or its equipment, or any unreasonable act or omission of the owner, the master or the crew to be deducted from the period of hire.

5. The National Maritime Safety Authority shall , with respect to matters arising from the use of the vessel for the purpose of this Agreement:

(a) to the extent that the owner is not otherwise covered by insurance, indemnify the owner against all actions, claims and demands, other than those for or relating to Workers Compensation, for which the owner shall be liable on account of death or injury to any person, or the loss of or damage to property; and

(b) to the extent that the owner is not otherwise covered by insurance, compensate the owner for loss of or damage to the vessel, including pollution damage, and for the loss of the value of cargo that may be aboard the vessel at the commencement of hire.

6. The hire may be terminated by the National Maritime Safety Authority representative or by the owner, at any time upon either of them giving 24 hours' notice in writing to the other.

7. Any notice which the owner may desire to give to the PNG Government under this Agreement may be given by the owner or master to the National Maritime Safety Authority or its representative may wish to give to the owner under this Agreement may be given by the PNG Government representative to the owner or master.

8. The specific facts of the Agreement shall be as contained in the SCHEDULE to this Agreement. The expressions set out in Column 1 of the SCHEDULE shall have reference to the meanings set out opposite them in Column 2 of the SCHEDULE.

THE SCHEDULE

COLUMN 1	COLUMN 2
Vessel	
Owner	
Skipper/Master	
Specified Port	
Area of Operations	within a radius of nautical miles from
Commencement of Hire	…….. am on ……./……./……..
	…….. pm on …../……./…….
Period of Hire	…….. days of 24 hours
Agreed Rate proportionately	K ……. a day and for and part of K ……. a day
National Maritime Safety Authority Representative	The person signing this agreement on behalf of the National Maritime Safety Authority or any person nominated by him to be the National Maritime Safety Authority representative for the purpose of this Agreement.

Date this ……. day of ……20….

……. **……..**

Owner National Maritime Safety Authority