NATPLAN Template

Before using this template, please read the SPREP NATPLAN Guidelines.

To obtain this Template in electronic format (MS Word 97 - computer disc) contact SPREP Marine Pollution Adviser - Fax (685) 20231 or email sprep@sprep.org

Italics indicate actual wording for inclusion in the plan.

[Square brackets] indicate text that will need to be developed and inserted.

PLAN AMENDMENT CERTIFICATION

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

[Name]
[Position]
[Organisation]
[Address]
[Contact Details]

Amendment		Section	Page	Entered	Date	Signature
No	Date					

NATIONAL MARINE SPILL CONTINGENCY PLAN

" NATPLAN "

For

[Pasifika - add country name]

[Add logo of Responsible Authority & Lead Agency if desired]

This plan has been developed to reflect the essential steps to initiate, conduct and terminate an emergency marine spill response in [Pasifika]

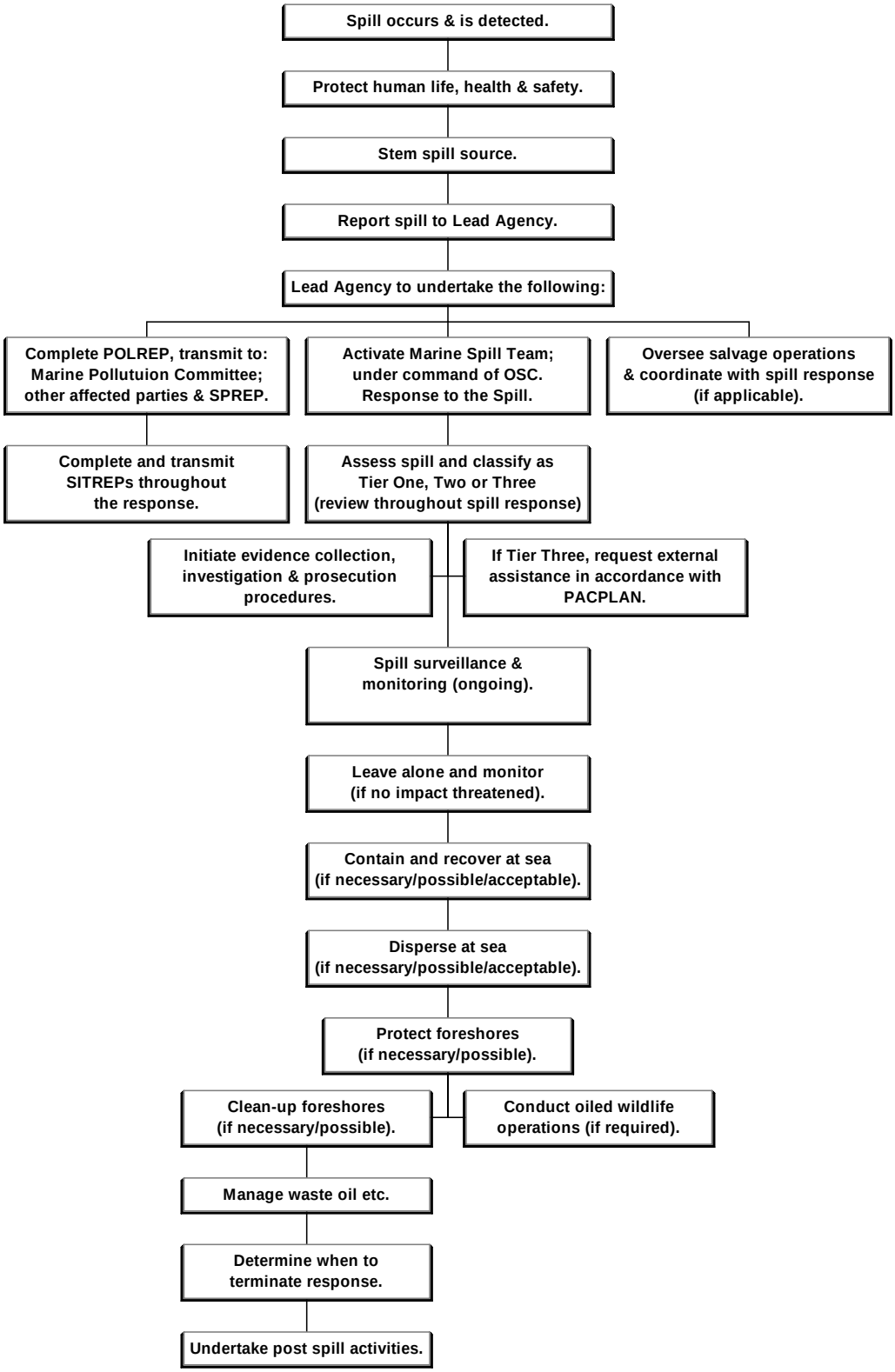
NATPLAN provides a concise and easy to follow guide to the management of spill response and associated linkages to supporting documentation.

This plan consists of two main parts,
Part A: The core plan text designed to provide key supporting information to assist with spill response operations and planning.

Part B: Appendixes & Annexes which contain Operational information for Oil Spill Planning, Preparedness & Response.

Marine Spill Response – Action Checklist

24 – Hour Contact for Marine Pollution Reports [add telephone number]



CONTENTS

PLAN AMENDMENT CERTIFICATION ii
Marine Spill Response – Action Checklist 5
CONTENTS 6
1. INTRODUCTION 8
1.1 Background 8
1.2 Aim & Objectives 8
1.3 Technical Scope & Tier One, Two and Three Spills 9
1.4 Integration with Other Contingency Plans 10
1.5 Geographical Scope 10
1.6 Underlying Principles, Protection Priorities & Environmental Sensitivities 10
1.7 Risk Assessment 14
1.8 Types of Oils and Chemicals Transported in Region 14
2. ROLES & RESPONSIBILITIES 16
2.1 National Marine Pollution Committee 16
2.2 Responsible Authority 17
2.3 Lead Agency 17
2.4 Other Government Departments 17
2.5 Responsible Party (Polluter) 17
2.6 Oil Industry 18
2.7 Role of P&I Clubs 18
3. POLLUTION REPORTS & COMMUNICATIONS 19
3.1 Surveillance & Spill Detection 19
3.2 Initial Pollution Reports (POLREPS) 19
3.3 Situation Reports (SITREPS) 20
3.4 Post-Incident Reports (POSTREPS) 20
3.5 Media and Public Reporting 20
3.6 Pacific Islands Regional Marine Spill Reporting Centre (PACREP) 20
4. Incident Command & Control 21
4.1 Elements of Effective Control of Spill Response 21
4.2 Incident Control System and Marine Spill Response Team 21
4.3 Roles and Responsibilities of Marine Spill Response Team 23
4.3.1 Incident Controller 23
4.3.2 Planning Section 24
4.3.3 Operations Section 24
4.3.4 Logistics Section 25
4.3.5 Administration and Finance 25
5. RESPONSE ACTIONS & OPERATIONS 26
5.1 Phases of a Response 26
5.2 Secure Human Life, Health and Safety 27
5.3 Stabilising Spill Source & Intervention at Sea 27
5.4 Salvage of Casualty 28
5.5 Spill Assessment & Reporting 28
5.6 Spill Surveillance and Forecasting 29
5.7 Response Option Assessment Criteria 29
5.8 Leave Alone and Monitor 30
5.9 Containment & Recovery at Sea 30
5.10 Use of Oil Spill Dispersants 30
5.11 Foreshore Protection 31
5.12 Foreshore Clean-up 31
5.12.1. River Mouths 32
5.12.2 Coastal Swamps and Mangroves 33
5.13 Bioremediation 33
5.14 In-situ Burning 34

5.15 Oiled Wildlife Operations 34
5.16 Oily Waste Management 35
5.17 Chemical Spills/HAZMAT Response 35
6. EXTERNAL ASSISTANCE 35
6.1 Pacific Islands Regional Marine Spill Contingency Plan (PACPLAN) 36
6.2 Other Mutual Aid Arrangements 37
7. RESPONSE TERMINATION & POST-SPILL ACTIVITIES 37
7.1 Response Termination 37
7.2 Equipment Cleaning/Restoration and Return 37
7.3 Response Evaluation & Debriefing 38
7.4 Damage Assessment & Monitoring 38
7.5 Environmental Restoration & Rehabilitation 39
8. Cost Recovery & Reimbursement 39
9. EQUIPMENT 40
10. TRAINING & EXERCISES 40
10.1 Training of spill responders 40
10.2 Exercises and Response Drills 41
11. APPLICABLE LEGISLATION, ENFORCEMENT & PROSECUTION 42
12 . APPROVAL, CONTROL & REVISION OF THE PLAN 42
12.1 Approval of the Plan 42
12.2 Control of the Plan 42
12.3 Revision of the Plan 42

LIST OF FIGURES

Figure One: NATPLAN Area for [Pasifika]
Figure Two: Coastal Resource Map for [Pasifika]
[Add sub-maps for specific areas if needed - e.g. Figure 2A, 2B etc]
Figure Three: Environmental Sensitivity Ratings & Protection Priorities
[Add sub-maps for specific areas if needed - e.g. Figure 3A, 3B etc]
Figure Four: Locations of High Risk Areas for Marine Pollution Incidents
[Add sub-maps for specific areas if needed - e.g. Figure 4A, 4B etc]
Figure Five: Marine Spill Response Team
Figure Six: Organisation Structure – Response to Marine Pollution
Figure Seven: Five Phases – Response to Marine Spills

Part B: ATTACHMENTS & ANNEXES [To update……]

Appendix 1: MAPS including Site Sensitivity Area Charts
Appendix 2: Risk Assessment
Appendix 3: Reports Forms – Standard Pollution Report (POLREP) & Standard Situation Report (SITREP)
Appendix 4A: Equipment Inventory
Appendix 4B: Available Resources listed by Company/department
Appendix 5: Investigation and Sampling Guidelines
Appendix 6: Oil Product Specification
Appendix 7: SPREP Dispersant Use Guidelines
Appendix 8: Scenarios & Action Plan
Appendix 9: Media Plan
Appendix 10: Contact List

1. INTRODUCTION

1.1 Background

The Government of [Pasifika - add country name] has developed this National Marine Spill Contingency Plan (NATPLAN) as part of its commitment to protecting 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 [Pasifika], on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

This plan meets the obligations of [Pasifika] under the *Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region (Noumea Pollution Protocol)* of the *Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Noumea Convention)*. The Noumea Convention Protocols have now been revised to produce the Oil and HNS Protocols. This It also meets obligations under the *International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90)*.

In the event of a marine pollution incident in [Pasifika] all government departments and agencies and all oil companies, shipping companies and other relevant parties, which operate within [Pasifika], are required to follow the procedures laid down in this plan.

1.2 Aim & Objectives

The Aim of the NATPLAN for [Pasifika] is:

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

The Objectives of NATPLAN are:

- 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 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 facilitate the implementation of the Noumea Pollution Protocols and OPRC 90 in [Pasifika].

1.3 Technical Scope & Tier One, Two and Three Spills

This NATPLAN 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 [Pasifika] waters.

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

For the purposes of NATPLAN, spills are classified as Tier One, Two and Three spills. Classification is dependant upon the amount of pollutant spilt, or likely to be spilt, the resources required and level of support both Nationally and Internationally.

Tier One

- Small spills that are within the response capability and resources of an individual port or oil terminal within [Pasifika]. These spills would normally have low potential for environmental or economic harm and are usually covered by oil terminal or port specific response arrangements.
- *As a guide spills of this nature are in the range of less than 10,000Litres.*

Tier Two

- Medium spills that are within the national capability and resources of [Pasifika]. These spills would have a moderate potential for environmental and/or economic harm and are **c**overed by this NATPLAN.
- *As a guide spills of this nature are in the range of 10,000-100,000Litres*

Tier Three

- Major spills that are of a magnitude and/or severity that is beyond the response capability and resources of [Pasifika], and/or

- That impacts or threatens to impact within the jurisdiction of both [Pasifika] and neighbouring country(ies) and,

- The spill has the potential to cause extensive local or regional environmental damage and loss of resources.

- *As a guide spills of this nature are greater than 100,000Litres.*

Tier Three spills are covered by this NATPLAN and also require activation of PACPLAN - the Pacific Islands Regional Marine Spill Contingency Plan or other international mutual assistance agreements.

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

Allocation of any one spill to a particular Tier can only been done at the time of the spill, according to an assessment by the Lead Agency.

Because in reality spills do not fall into convenient categories, the boundaries between Tiers will inevitably be blurred. The Lead Agency must therefore be prepared to involve the next highest Tier from the earliest moments, as it is easier to stand down an alerted system than to escalate a response by calling up unprepared reserves.

1.4 Integration with Other Contingency Plans

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

[Insert names of relevant disaster plans & other contingency plans]

1.5 Geographical Scope

The geographical scope of NATPLAN, referred to hereafter as the NATPLAN Area, is all of the coastlines and all marine waters below highest astronomical tide within the 200 nautical mile limit of [Pasifika]

Figure One: The NATPLAN Area for [Pasifika].

[Add map showing the 200 nautical mile EEZ limit for Pasifika]

1.6 Underlying Principles, Protection Priorities & Environmental Sensitivities

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 founded on the following general principles:

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

- Despite such efforts, for various reasons, spills will continue to occur from time to time, and it is necessary to have competent **contingency plans** in place to deal effectively with such spills, at the local and national level. NATPLAN constitutes the national contingency plan for [Pasifika].

- 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 environments and resources damaged by marine spills.

- The response to marine spills under NATPLAN will always seek to maximise co-operation, co-ordination 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 (in order of priority accepted internationally):

- Human life, health and safety.
- Biological habitat.
- Rare and endangered species.
- Cultural resources.
- Commercial 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.

Tropical coastal foreshores can be classified into a number of broad scaling of sensitivity to oil pollution as follows.

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 and tourist operator concern.
5	Sheltered tidal flats, mangroves and Biologically sensitive areas	Most productive of coastal environments. Oil may persist for many years. Difficult to clean, protection of these environments should receive first priority.

The clean up options used must be tailored to suit the needs and sensitivities of the foreshore contaminated. Response authorities must ensure that expert environmental opinion is sought

on the correct methods to use in the different coastal environments to ensure further damage is not done to sensitive ecosystems.

Further information on the advantages and disadvantages of various cleanup and response options is contained in section 5. Response Actions and Operations.

These cleanup options can be summarised as follows.

Clean up Response

Rocky Foreshore:
If clean up action is required, the use of low pressure sea water to disperse the oil back into the water should be considered where booms deployed in the near shore can concentrate the oil for recovery. Dispersant may be used by should only be used in the absence of significant biological activity. Physical cleaning techniques are also widely used.

Sandy Beaches:
Preferred method is physical removal and disposal of oiled material.

Marshlands and Mud Flats.
Expert opinion should be sought in these situations. Water flushing techniques can be used but sometimes no clean up action may be preferable. These environments are very sensitive to physical damage from the impacts of responders disturbing the roots systems of marsh plants and mangroves and trampling oil into the soft sediments.

The distribution of coastal resources is shown in Figure Two and the designation of environmental sensitivity ratings and protection priorities is shown in Figure Three

[Add sub figures for specific areas if necessary].

Figure Two: Coastal Resource Map.

[Add Figure Two. More than one figure may be required (e.g. if Pasfika is made up of more than one island, a separate map may be required for each island). Refer section 10 of Explanatory Notes for further information]

Figure Three: Environmental Sensitivity Ratings & Protection Priorities

[Add Figure Three. More than one figure may be required (e.g. if Pasifika is made up of more than one island, a separate map may be required for each island).

[Detail areas that warrant specific attention.]
[Identify in particular;

- Marine parks
- Reserves and national parks
- Special protected areas
- World heritage areas
- RAMSAR wetlands etc]

[Refer section 10 of Explanatory Notes for further information]

1.7 Risk Assessment

International data suggests that 80% of marine oil spills occur within port or harbour areas. These spills are usually small in nature resulting from normal operations such as loading/unloading and bunkering of fuels.

[Add details of PACPOL risk assessment]

[Add summary of risk assessment, a few paragraphs only. Refer section 9 of Explanatory Notes for further information].

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

[Type of spills expected, realistic scenarios]

1.8 Types of Oils and Chemicals Transported in Region

[From outcomes of the PACPOL Risk Assessment Project]

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

Figure Four: High Risk Areas for Marine Pollution Incidents

[Add Figure Four showing location of shipping lanes, vessel refuelling and tanker discharge/loading facilities, pipelines and oil terminals in your country. More than one figure may be required (e.g. if country is made up of more than one island, a separate map may be required for each island). Refer section 9 of Explanatory Notes for further information].

2. ROLES & RESPONSIBILITIES

2.1 National Marine Pollution Committee

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

- [Add name of national maritime administration] (Chair of the committee).
- [Add name of port authority/corporation].
- [Add name of national environment/conservation administration].
- [Add name of national fisheries/marine resources administration].
- [Add name of national disaster/emergency management administration]
- The oil industry.
- The shipping industry.

[Add names of other organizations as applicable; e.g.:

- Police department.
- Fire department.
- Public works department.
- Energy department.
- Local governments/island councils/village councils (for local plans).
- The Military.
- Environmental Non-Government Organisations (NGOs)]

The role of the committee and its members are to:

- Develop, implement and maintain the NATPLAN.
- Oversee the response 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.
- Make available those facilities or resources, that may be useful in a response situation, consistent with the agencies authority and capability.

- 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

- Promote public awareness of, and appropriate community participation in marine pollution prevention, preparedness and response.

2.2 Responsible Authority

The [add name national maritime administration or other if different] is the Responsible Authority for all marine spills within [Pasifika] waters.

The Responsible Authority has legal or statutory responsibility for administering and enforcing the national marine pollution legislation and for the overall management of the NATPLAN.

2.3 Lead Agency.

The [add name of national maritime administration or other if different] is the Lead Agency for all marine spills within [Pasifika] waters.

The Lead Agency has operational responsibility the response to marine spills, through the designated Incident Controller (IC). The lead Agency has the responsibility for taking physical action to mitigate the impacts of the spill on the environment. Refer section 4 below for further details.

In some cases the Responsible Authority and the Lead Agency may be the same entity.

2.4 Other Government Departments

Regardless of which agency bears lead responsibility all other government departments shall support the Responsible Authority and 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:

- Reporting the spill immediately to the Responsible Authority Lead Agency.

- Taking immediate action to control or stem the source of the spill.

- Taking immediate action to contain the spill and prevent it from spreading.

- Co-operating 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 [Pasifika] have the following roles and responsibilities under NATPLAN:

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

- Immediately reporting all marine spills from their facilities to the Responsible Authority or Lead Agency.

- Developing and maintaining local marine spill contingency plans for all facilities that they own, manage and/or operate as well as ensuring that these plans are compatible and integrated with NATPLAN.

- Establishing and maintaining stockpiles of marine spill response equipment for all facilities that own, manage and/or operate, with the types and amounts of equipment being appropriate to the level of risk at each facility.

- Ensuring that personnel are appropriately trained in marine spill prevention and response.

- In the event of a spill from its facilities, the roles and responsibilities outlined in section 2.5 above.

- Actively participating in the National Marine Pollution Committee and in planning, exercises and training activities.

2.7 Role of 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 liase 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 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 and will be a valuable conduit for information flow.

3. POLLUTION REPORTS & COMMUNICATIONS

3.1 Surveillance & Spill Detection

All maritime oil and chemical spills should be reported to the Responsible Authority and recorded systematically. Vessel incidents such as groundings, collisions, fires, explosions or other accidents or incidents should also be reported as these can often lead to the release of cargoes or vessel fuels and oils.

Under the *International Convention for the Prevention of Pollution from Ships (MARPOL* 73/78) there is an obligation on the master of a vessel to report any marine pollution incidents without delay, and to the fullest extent possible, to the coastal State in order to facilitate necessary counter-pollution actions. Mandatory reporting requirements for incidents involving harmful substances are contained in article 8 and Protocol 1 to MARPOL 73/78.

All personnel in industry, government agencies, members of the general public, as well as crews of civil and military aircraft, should be required to, and be able to, report a spill to the Responsible Authority or Lead Agency 24 hours a day.

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 Responsible Authority or Lead Agency.

It is essential that a 24-hour hotline number be established and maintained to provide a focal point to government, industry and the general public.

24-Hour Emergency Hotline for [Pasifika]
Marine Pollution Lead Agency:
[Add phone no.]

The Lead Agency in consultation with the Responsible Authority should assess the implications of the situation and make a decision on whether any response is likely to be required. The Lead Agency should also consider whether other parties need to be made aware of a potential pollution situation if operational personnel need to be placed on standby.

The Lead Agency should immediately complete a POLREP, using the standard format contained in Appendix Two, and urgently transmit this to all members of the National Marine Pollution Committee, any other affected/interested parties and to SPREP via facsimile (see 3.6 below).

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. These SITREPs should be frequently complied from field information and transmitted to all members of the National Marine Pollution Committee, any other affected/interested parties and to SPREP via facsimile, at regular intervals throughout the spill.

3.4 Post-Incident Reports (POSTREPS)

After a pollution incident, the Lead Agency should prepare a brief report 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 damage.
- Details of problems encountered.
- Recommendations regarding amendment or revision of NATPLAN.

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 if necessary, any recommendations for amending or revising NATPLAN.

3.5 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. (See Annex ? Media Plan)

3.6 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 (685) 20231, 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 data. All spills within [Pasifika] must be reported to the Responsible Authority or Lead Agency.

4. Incident Command & 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

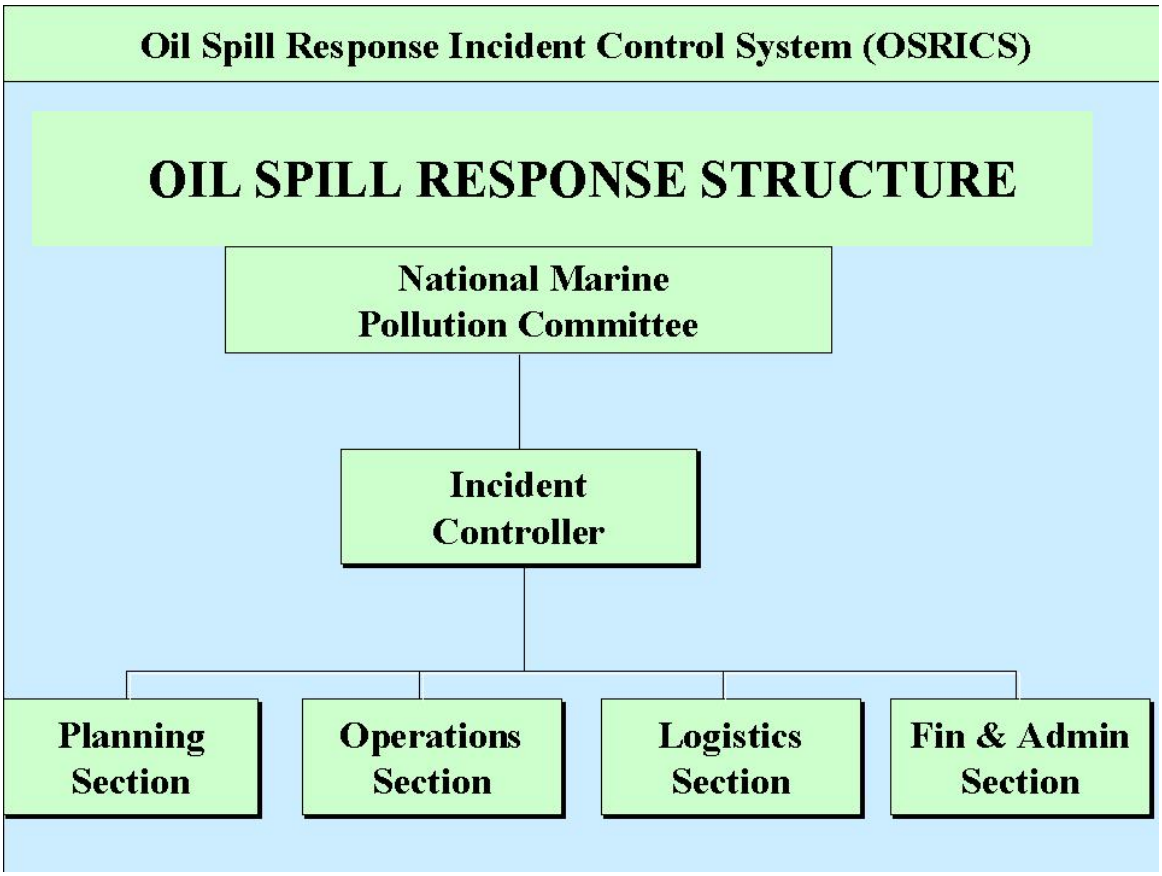
Response operations cannot be effectively carried out unless there is a clear organisational structure to command and control the response and trained individuals to carry out the response plans.

The overall structure of incident command and control system is depicted in Figure Five. In the event of a marine spill within [Pasifika] 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 or OSRICS.

Figure 5: Marine Spill Response Team (Oil Spill Response Incident Control System)



The responsibilities of the various roles within the 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

The OSRICS system allows flexibility for the escalation or reduction in the organisational /management structure as the scale of the response increases or diminishes. The number of personnel comprising each of the sections, and its sub units, will be determined by both the size of the incident and the needs of the Incident Controller.

The roles and responsibilities the various members of the Marine Spill Response Team are as follows:

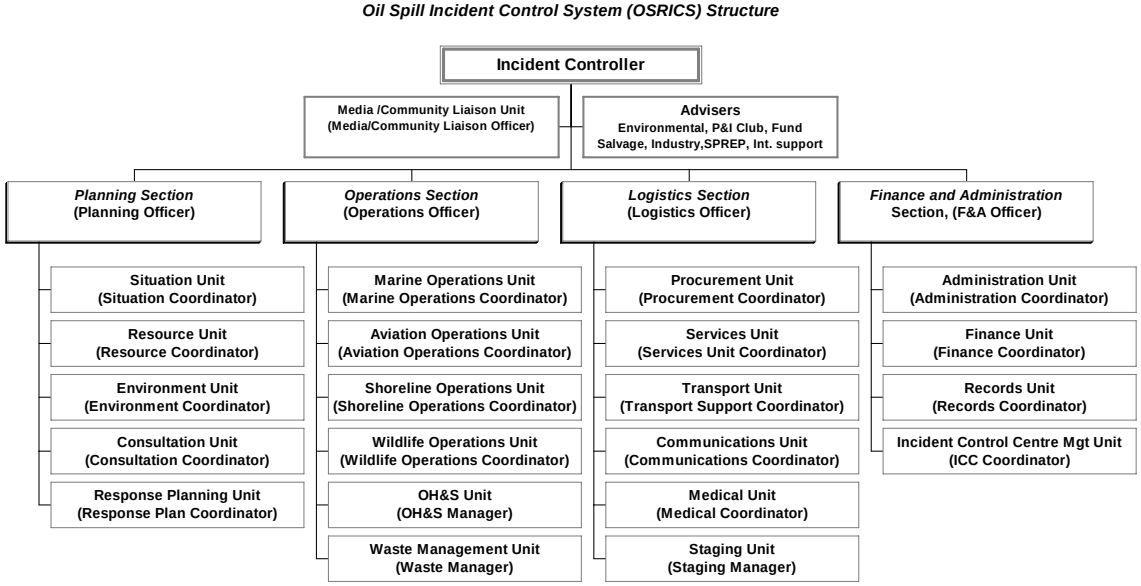
4.3.1 Incident Controller

Incident Controller (IC): The [add position title e.g. Director of Maritime Department, Harbour Master or whoever the government designates] of the Lead Agency is designated as the IC for all marine spills within [Pasifika] waters.

In the event of a marine spill, the IC will assume operational responsibility for commanding the response to the spill and will control and direct the use of all resources. The national government invests the IC with the authority necessary to command all national assets and resources as deemed necessary to deal with the incident.

In carrying out his/her role, the IC shall be supported by an incident response team comprising the personnel and organisational structure outlined in Figure Six.

Figure Six: Organisational Structure – Response to Marine Pollution



4.3.2 Planning Section

The Planning Section has clearly defined specific responsibilities that provide the basis for all operational activities. The Planning Section may be split into a number of sub units in a major incident to enable it to more effectively meet its responsibilities. The sub units identified in OSRICS and their roles are as follows: -

Situation Unit -	responsible for the collection, processing and organization of information
Resource Unit -	responsible for information on the deployment of resources
Environment Unit –	responsible for the collection and collation of environment data and advice
Consultation Unit –	responsible for the coordination and development of community and commercial consultation
Response Planning Unit –	responsible for the coordination, development and review of incident action planning

4.3.3 Operations Section

The operational aspects of the response will take place in the field, remote from the Incident Control Centre where the planning process has taken place.

It is, therefore, essential that significant links are developed and maintained between the response personnel in the field, the Operations and Planning Section staff in the Incident Control Centre.

OSRICS provides for these links to be established by the development of reporting lines on a similar basis to those implemented within the other functional sections. Operations in the field have been subdivided into units with responsibility for specific aspects of the response activities.

These units have been developed with quite clear operational parameters. The six units, each under the direction and control of a Coordinator who is responsible to the Operations Officer, cover the following operations: -

Marine Unit -	all activities undertaken by waterborne craft and equipment
Aviation Unit -	all activities undertaken utilising fixed wing aircraft or helicopters
Shoreline Unit -	all clean up activities undertaken on the shoreline
Wildlife Unit -	all activities involved in the collection and treatment of oiled wildlife
OH&S Unit -	all activities related to the implementation of the Occupational Health & Safety Plan provisions

Waste Management Unit - all activities related to the containment and disposal of recovered oil and oil debris

4.3.4 Logistics Section

In any emergency situation there is a vital need to ensure that response personnel are provided with adequate resources to enable an effective response to be mounted and that these personnel are provided with the essential amenities. To carry out these functions, OSRICS identifies a Logistics Section that is given responsibilities for ensuring that these resources are made available as required.

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

Procurement Unit – responsible for acquisition of personnel and equipment

Services Unit – responsible for the acquisition of services and facilities

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

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

Medical Unit – responsible for the provision of medical services

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

4.3.5 Administration and Finance

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

Administration Unit – responsible for administrative services

Finance Unit – responsible for the provision of financial services

Records Unit – responsible for the collation of incident records

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

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

5. RESPONSE ACTIONS & 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.

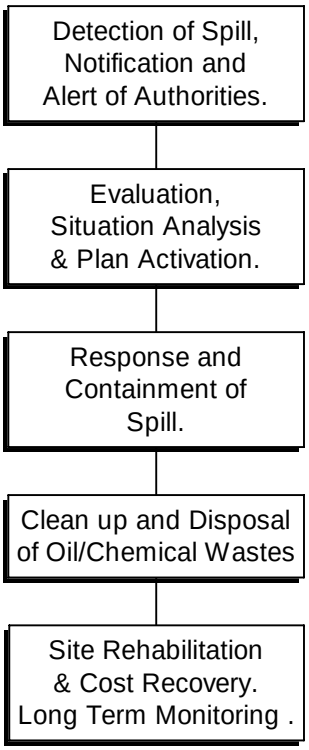
To ensure that these actions are taken, the IC should delegate relevant tasks to the Marine Spill Response Team. To assist in this process a Spill Response Action Checklist at the front of the NATPLAN summarises this sequence.

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 7;

Figure 7. Five Phases - 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.

Each 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. Stabilising the situation includes securing the source of the spill and/or removing the remaining oil from the vessel, tank or pipeline to prevent additional pollutant entering the sea.

With accession to the *United Nations Convention on the Law of the Sea (UNCLOS)*, [Pasifika]'s jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits [Pasifika] 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 be undertaken as soon as possible

In accordance with [Pasikifa] legislation {insert agency/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 liasing 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, [insert agency/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 urgently to all members of the National Marine Pollution Committee, other affected/interested parties and SPREP.

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 though activating PACPLAN (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,
⇒ Computer modelling.

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 be transmitted to other parties likely to be affected by the spill (e.g. neighbouring islands).

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

5.7 Response Option Assessment Criteria

Alternative control and protection options shall be assessed to determine whether they can adequately protect human health and the environment in both the short term and long term from the unacceptable risks posed by the oil or hazardous substance spill.

When assessing the appropriate response options the criteria the Planning Unit and IC should use are;

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

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

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

5.8 Leave Alone and Monitor

Should surveillance and forecasting indicate that the spill is unlikely to impact on coastlines and is likely to remain in open water, then the best option maybe to leave the spill alone, allowing natural physical and biological degradation to occur at sea.

The response to marine spills under NATPLAN should always seek to complement and make use of **natural forces** to the fullest extent possible.

However, it is vital that the movement of the spill is closely monitored, through continuing surveillance and forecasting. The next stage of response operations should be activated if even the slightest possibility of coastal impact arises.

5.9 Containment & Recovery at Sea

Should surveillance and forecasting indicate that the spill might impact on coastlines, the possibility of containing and recovering the oil at sea to prevent such impact should be pursued.

[The techniques and equipment available for containment and recovery at sea should be outlined in the NATPLAN, and will need to be inserted into accompanying Annex].

The ability to conduct effective containment and recovery operations at sea will be limited by the nature of the spill, available equipment, physical conditions and logistical considerations. In many instances, especially in open water, containment and recovery at sea may not be possible.

5.10 Use of Oil Spill Dispersants

In the event that containment and recovery is not possible, or is only partially effective, another possible option to prevent or minimise the spill from impacting on the coast is to disperse it at sea, using chemical dispersants. Dispersants can be applied to the spill from vessels or aircraft.

[The techniques and equipment available for the application of dispersants should be outlined in the NATPLAN, and will need to be inserted into accompanying Annex].

As with containment and recovery at sea, the effective use of dispersants will be limited by the nature of the spill (including the type of oil and its dispersability), the availability of

dispersant stocks and application equipment, physical conditions and logistical considerations. In many instances, effective dispersal of oil at sea may not be possible.

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

The use of dispersants should therefore only occur under strict supervision by competent environmental and scientific authorities and in accordance the SPREP Environmental Guidelines On the Use of Oil Spill Dispersants (Refer to the Guidelines or contact SPREP).

If dispersants are used in accordance with the SPREP Guidelines, they represent a very useful oil spill response tool and it is advised that the nominated environmental unit of the response team be involved in the planning and use of dispersants.

To ensure only approved dispersants are used in [Pasifika] waters the National Marine Pollution Committee shall maintain a schedule of dispersants and other response chemicals that may be authorised for use on oil spills at sea or on shorelines.

5.11 Foreshore Protection

In most circumstances, despite best efforts to contain and recover and/or disperse a spill at sea, a weather-driven spill is highly likely to impact on coastal environments and resources.

Efforts will therefore have to be made to protect foreshores. Options include the use of oil spill booms to physically prevent oil from impacting on the foreshore, or to direct it to preferred collection points (such as a sandy beach), where it can be recovered.

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

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

The designation of environmental sensitivity ratings is shown in Figure Three [Figure Three will have to be added to section.5].

5.12 Foreshore Clean-up

In the likely event that a spill does impact on coastal resources and environments, it may be necessary to conduct foreshore clean-up operations. However, before proceeding with clean-up, the option of leaving the oil (or other pollutant) alone and allowing natural physical and biological degradation to occur, should be considered However, this option is only likely to be acceptable in very remote, unpopulated areas or with high-energy wave environments.

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

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

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

- 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 mobilisation of equipment.

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

- 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.

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

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

Equipment such as the following can be used on foreshore cleanup operations if available.

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

5.12.1. River Mouths

In tidal areas should where possible be boomed to prevent oil entering the river system provided that:

- River flow rates are less than 1.2 m/sec;
- Accessible sites are available;
- Oil storage facilities exist or can be constructed;
- Collection can be achieved using diversion booms and retrieval systems (skimmer, suction devices or sorbent) or using sorbent booms
- It can be done safely.

DO NOT

- Apply dispersant without seeking expert environmental advice;
- Attempt to collect or control in fast flowing streams where booms maybe destroyed or personnel put at risk.

5.12.2 Coastal Swamps and Mangroves

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

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

5.13 Bioremediation

Bioremediation is the artificial enhancement of hydrocarbon degrading organisms designed to consume and break down oil. By accelerating the natural biological processes of biodegradation, bioremediation aims to increase the rate of degradation, by either stimulating microorganisms existing naturally in the area, or by seeding more microorganisms. However, the immediate environment is quickly depleted of available nutrients, especially nitrogen, which is necessary to support this increased population. Thus, most uses of bioremediation will require the application of fertiliser to the affected area. In some cases it may be beneficial to start fertiliser application before an area is affected.

Whilst bioremediation has not been a primary response strategy to an oil spill historically, it is now receiving renewed attention and can be used successfully to assist an area to recover oil foreshores from the effects of an oil spill.

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

- 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 In-situ Burning

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

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

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

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

5.15 Oiled Wildlife Operations

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

[The techniques and equipment available for rescuing, cleaning and rehabilitating affected wildlife should be outlined in the NATPLAN and will need to be added. Because of the

complexity of such operations, it may be necessary to have a separate oiled wildlife plan as a sub-set of NATPLAN or detailed annex].

5.16 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 e.g. vegetation, sand, sorbents
- Volume of oil/contaminants
- Potential for groundwater pollution
- Potential for flooding from tidal movement
- Compatibility with on-site and adjacent land use
- Proximity to environmentally sensitive areas
- Wildlife access to site e.g. birds.

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

5.17 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 via SPREP under PACPLAN and MOUs.

6. EXTERNAL ASSISTANCE

Should the Lead Agency assess a spill to be a Tier Three spill (refer sections 1.3 and 5.3), it should activate a Request for Assistance through SPREP, in accordance with the procedures laid down in PACPLAN - the Pacific Islands Regional Marine Spill Contingency Plan.

Copies of PACPLAN are held by the Lead Agency and [to be added].

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

6.1 Pacific Islands Regional Marine Spill Contingency Plan (PACPLAN)

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.

6.2 Other Mutual Aid Arrangements

[Industry association with AMOSC & MOUs, OSRL & EARL etc]

7. RESPONSE TERMINATION & 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/her support personnel under the Marine Spill Response Team and the members of the National Marine Pollution Committee, should determine the point when further effort and expenditure become unreasonable and can no longer be supported on grounds of environmental effectiveness and cost.

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

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 outlined in NATPLAN.

Once cleaning is completed, all equipment that has been provided through external assistance should be inspected and checked-off, and arrangements made in consultation with the assistance provider for returning/replacing the equipment.

7.3 Response Evaluation & 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 responses.

It is preferred a concise report of lessons learnt and any operational deficiencies be compiled for submission to the National Marine Pollution Committee for action.

7.4 Damage Assessment & 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, aquaculture 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 environments and resources.

Responsibility for initiating and coordinating post-spill damage assessment and monitoring should generally rest with the [add name of national environment administration], which provides the Environmental Scientific Coordinator (ESC) on the spill response team. The following general principles should apply to post-spill damage assessment and monitoring.

- The [add name of national environment administration], should organise joint government/industry monitoring teams, to undertake coordinated, integrated studies. This will avoid duplication of effort and the possibility of conflicting results that may be used for compensation claims.
- Assessment and monitoring should aim to be as quantitative as possible, and the basis of any qualitative assessments stated.
- Monitoring must be designed so as to be statistically valid and rigorous, with the levels of confidence clearly stated.

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

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

- 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 & 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 & rehabilitation should generally rest with the [add name of national environment administration], which provides the ESC on the spill response team. The following general principles should apply to post-spill restoration & rehabilitation.

- Areas requiring restoration and rehabilitation should be identified during post spill damage assessment (refer 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 & Reimbursement

It is the responsibility of the Responsible Authority to initiate cost recovery actions direct with the polluter's representative, e.g. P&I Club correspondent. If required to negotiate or to take legal action to achieve full settlement of amounts incurred in the response. 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 Civil *Liability Convention1992 and the Fund Convention 1992*, 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 [Pasifika], storage locations and contact details is contained in Appendix Five.

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

10. TRAINING & EXERCISES

10.1 Training of spill responders

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

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

- Basic safety, fire and health precautions to be taken in the vicinity of a spill;
- Overview of incident Command System (ICS) organization structure and position responsibilities
- Incident Action Plans and the planning process cycle;
- Tactical operations planning
- 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 Oil 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;
- Equipment, materials, supplies, contractors, services etc available from outside sources
- Safe & effective use of oil spill dispersants;
- 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 of information and discussion with media.

10.2 Exercises and Response Drills

Exercises and response drills serve to evaluate the thoroughness and effectiveness of the response component of the Contingency plan under simulated conditions. Important elements of response capability to be tested are;

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

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

Types of exercises to be considered include:

- 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, port and harbour personnel, oil industry company personnel, etc.); and
- Full scale exercises.

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

11. APPLICABLE LEGISLATION, ENFORCEMENT & PROSECUTION

In [Pasifika], marine pollution is regulated under the [add name of relevant Act, if applicable].

This Act is administered by the [add name of Responsible Authority, ideally the national maritime administration].

Under this Act, it is an offence to [add details as relevant].

In the event of a marine spill, the Responsible Authority, assisted by the 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.

[Annex ??? contains Investigation and Sampling Guidelines.]

12. APPROVAL, CONTROL & REVISION OF THE PLAN

12.1 Approval of the Plan

Government will approve NATPLAN, with such approval requiring written endorsement of the plan by all members of the National Marine Pollution Committee.

12.2 Control of the Plan

NATPLAN will be a controlled document under the direction of the Lead Agency. Full contact details for all holders of controlled copies of NATPLAN are maintained on a register at the office of the Lead Agency, in order to facilitate revisions and updating.

12.3 Revision of the Plan

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

Any member of the Committee may submit proposed revisions to the main body of NATPLAN. The Committee will consider these proposals.

Technical information contained in informational annexes, such as contact details and equipment inventory, will be revised and updated regularly, and new informational appendices added as required, by the 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 annexes, which relates to individual Committee members, is the responsibility of each Committee member. Committee members and other parties to the plan should report to the Lead Agency, any changes in circumstances, including levels of risk of marine spills, capability to manage marine spills, internal administrative arrangements and contact details, that may require revision and updating of the plan. The Lead Agency will then be responsible for circulating such updates to all registered holders of controlled copies of the plan.

Appendix 1: Maps/Charts

The distribution of coastal resources and the designation of environmental sensitivity ratings and protection priorities.

APPENDIX 2: Risk Assessment

Use as a guide the following:

Description of Port and Associated Shipping/Boating Activities in country

Potential Spill Locations

oil companies

Fuel Imports

Oil Characteristics

Movement of spilled oil:

Local water movement:

Figure 4: High Risk Areas for Marine Pollution Incidents
[Add Figure Four showing location of shipping lanes, vessel refuelling and tanker discharge/loading facilities, pipelines and oil terminals in your country. More than one figure may be required (e.g. if country is made up of more than one island, a separate map may be required for each island). Refer section 9 of Explanatory Notes for further information].

APPENDIX 3: Standard Reporting Formats

Republic of Vanuatu

Pollution Report (POLREP)

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

1. ***Complete this POLREP in as much detail as possible;***
2. ***Fax it immediately to the National Lead Agency for marine pollution on Fax No: 22949***
3. ***. Lead Agency to fax to National Marine Pollution Committee members/other affected parties;***
4. ***Please remember also to fax it to SPREP at + (685) 20231.***

Name/contacts of person completing this report: _

Date/time of report: _ *Date/time of incident:* _ _ _ _ _ _ _ _ _ _ _

Location of incident: Latitude: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ *Longitude:* _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

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

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

- *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): _ _ _ _ _ _ _ _ _ _ _
_ _
_ _
_
_ _
_ _
_ _
_ _

Direction and rate of drift of pollution: _______________________________________
____

Wind speed & direction: ____________________ *Sea state:* _____________________
Tide: ____

Identity & position of vessels in the vicinity: __________________________________
____
____
____
____

Photographs taken?: ______ *Samples taken?:* _______ *Other action taken?:* ____________
____
____
____
_
____
____
____

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

Republic of Vanuatu

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 remember also to fax them to SPREP at + (685) 20231.

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

Date/time of SITREP: _ *Date/time of incident:* _ _ _ _ _ _

Location of incident: Latitude: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ *Longitude:* _ _ _ _ _ _ _ _ _ _ _ _ _

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

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

- *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): _ _ _

_ _

_ _

_ _ _ _ _ _ _

_ _

_ _

_ _ _ _

_ _

_ _

Direction and rate of drift of pollution: _

_ _

Wind speed & direction: _ _ _ _ _ _ _ _ _ _ _ _ _ _ *Sea state:* _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

_ _

Tide: _

_ _

Events since POLREP/last SITREP: _

_ _

_ _

_ _

_ _ _ _ _ _ _ _

_ _

_ _

_ _ _ _

_ _

_ _

_ _

_ _

_ _

_ _ _ _ _ _ _ _ _ _

_ _

_ _

_ _

_ _

_ _

_ _

_ _
_ _
_ _

(Attach additional information if required)

Appendix4 : Equipment Inventories (last updated dd/mm/yy)

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

Equipment Item	*Owner*	*Storage Location*	*Contact Details*
Absorbent materials			
Anti-Pollution Inventory			
Anti-Pollution Inventory			
Boat 'Tanveral' 30'			
Boat 'El Nino' 24'			
Caterpillar D.C.D. Bulldozer 1			
Caterpillar loaders 2 & Buckets			
Caterpillar loaders & backhoes			
Compressors			
Aluminium Dinghy 4m 25HP Outboard			
Dinghy 3.7m Outboard 15HP			
Direct satellite access			
Dispersants			
Dispersants			
Generators (portable)			
Haul Out Trailer 25 ton			
High Power Fire Hoses			
ICOM VHF 2 way Marine Radio			
Kenworth Trucks			
Plastic Bags			
Protective Clothing			
Satellite Imagery			
Scuba Equipment			
Scuba Tanks			
ScubaGear			
Trucks & Shovels			
VHF Ship to Shore Hand Held			
VHF Base Radio			
Water Jet Cleaners			
Water Pumps			

APPENDIX 4 B

AVAILABLE RESOURCES LISTED BY COMPANY / DEPARTMENT

(Listing arranged by alphabetical order)

Available Resources For Help in Case of an Oil Spill

Name of Company:

Date of Compilation:

Data Compiled by:

MANPOWER	
Number	*Type/Availability inc. specific Qualification and Name*
example	
4	***Instructor / Divemasters (Diving)*** ***Names change regularly***

EQUIPMENT

Description	***Size***	***Manufacturer***	***Quantity***	***Location***	***Condition***	***Costs***	***Contact Details***
Example							
Scuba Gear		***Various***	***7***		***Good***	***Short term - NIL***	
Scuba Tanks		***Various***	***60***		***Good***		
Compressors (one portable)		***Various***	***3***		***Good***		

Available Resources For Help in Case of an Oil Spill

Name of Company:

Date of Compilation:

Data Compiled by:

MANPOWER	
Number	*Type/Availability inc. specific Qualification and Name*

Description	***Location***	***Condition***	***Costs***	***Contact Details***

Oil company internal equipment in [location]

Equipment Item	***Type***	***Description***	***Location***
Containment Equipment			
Example			
Booms	*Light with skirt*	*8 x 25 m - H= 0.60 m*	*Antipollution Boom House*
Booms	*Absorbents*	*68 x 3 m diam= 0.16m*	*Anti-pollution Boom House*
Booms	*Handcrafts*	*1*	*Anti-pollution Boom House*
Buoys	*Light for booms*	*10 – diam=25mm*	*Security Equipment Container*
Chains	*6.5 mm*	*8m*	*Security Equipment Container*
Ropes	*14mm*	*2 x 200 m*	*Security Equipment Container*

Appendix 5: 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

2.1 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.

2.2 Preparation for an Interview

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

- *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.*

2.3 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.

2.4 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 asked during the interview by …… into the …… language and have truly and faithfully, to the best of my ability, interpreted the answers given by …… in the …… language into the English language.
Signed ……
Name ……..Date……"

2.5 Conduct of an Interview

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

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

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

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

- *They are not sitting in judgment but trying to ascertain the facts relating to the incident;*
- *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, or 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) What quantity was discharged?
(h) Is the oil record book completed for all prescribed operations and is it up to date?
(i) Is the anti-pollution equipment on board the vessel functional?

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 given a copy of any transcript that is made as soon as practicable.

The copy is then used to type the transcript of the interview, which must include every "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 it may be very difficult to prove an analysis beyond reasonable doubt. Correct sampling, storage, preparation and analysis of the polluting oil and its potential sources is therefore essential.

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

Photographs of sample collection should be taken who ever 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 aluminum 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 that 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 recognized, 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:

(a) 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 an authorised person can keep it under surveillance; or it is under lock and key where it cannot be tampered with.*

6. STORAGE AND DELIVERY OF SAMPLES

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

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

Part Three – Checklist

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

---

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

2. *Have priorities for protection been agreed, taking into account the sensitivity and value of the resources and the viability of the various protection an clean-up options?*

3. *Has a strategy for protecting and cleaning the various areas at risk been agreed and clearly explained in the plan?*

4. *Has the necessary organizational structure, roles and responsibilities of those been involved been clearly stated, with no "grey" areas?*

5. *Has a marine spill response equipment strategy been established and are the levels and type of equipment sufficient and appropriate to deal with the anticipated size of spills? If not, have back-up resources been identified and, where necessary, have mechanisms for obtaining their release and entry to the country been established?*

6. *Have temporary storage sites and final management options for waste oil and oily waste been identified?*

7. *Are the spill assessment and reporting procedures fully explained as well as the need for continual review of the progress and effectiveness of the response operation?*

8. *Are arrangements for ensuring effective communication between shore, sea and air in place?*

9. *Have all aspects of the plan been exercised and tested and nothing significant found lacking?*

10. *Is the plan compatible with plans for adjacent areas (e.g. neighboring countries), the region (i.e. PACPLAN) and other emergency plans (e.g. national disaster management plan).*

(adapted from ITOPF).

Appendix 6: Oil Product Specifications in [ipasifika]

Appendix 7: SPREP Dispersant Use Guidelines

SPREP ENVIRONMENTAL GUIDELINES FOR THE USE OF OIL SPILL DISPERSANTS

Developed by SPREP under the auspices of:
PACPOL - the Pacific Ocean Pollution Prevention Programme

1. Introduction

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

In the event of an oil spill at sea, the best option is often to leave the spill alone and monitor its movement, allowing natural processes to degrade the oil slick over time.

Should surveillance and forecasting indicate that the spill may impact on coastlines, the possibility of physically containing and recovering the oil at sea to prevent such impact should be pursued.

The ability to conduct effective containment and recovery operations at sea will be limited by the nature of the spill, available equipment, physical conditions and logistical considerations. In many instances, especially in open water, containment and recovery at sea may not be possible.

In the event that containment and recovery is not possible, or is only partially effective, another possible option to prevent or minimize the spill from impacting on the coast is to disperse it at sea, using chemical dispersants.

Dispersants can be applied to the spill from vessels or aircraft. The techniques and equipment available for the application of dispersants should be outlined in the relevant national marine spill response plan (NATPLAN) for the county/territory where the spill has occurred.

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

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

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

The use of dispersants in the Pacific islands region should therefore only occur under strict supervision by competent environmental and scientific authorities, and in accordance with the SPREP Environmental Guidelines for the Use of Oil Spill Dispersants (this document).

If dispersants are used in accordance with these guidelines, they represent a very useful oil spill response tool.

2. General Guidelines

- When sensitive environments, including reefs and coastal resources, are under threat from an oil spill at sea, the use of chemical dispersants to prevent the oil from reaching the sensitive environment should be considered.

- The decision to use or not to use dispersants should be made by the designated On Scene Commander (OSC), as identified in the relevant national marine spill response plan (NATPLAN), in accordance with advice from the designated Scientific and Environmental Support Coordinator (SESC) and in accordance with these guidelines.

- The decision to use or not to use dispersants should be based on an evaluation of the impacts that may occur if dispersants are used versus the impacts that may occur if dispersants are not used.

- It may be necessary to accept impacts on one resource in order to minimize impacts on a more valuable resource.

- Dispersants should NOT be used if:

    - Physical/mechanical containment and recovery techniques are possible and effective.

    - The oil is not amenable to dispersant. Highly viscous oil and oil that has weathered for two days or more may not be amenable to dispersant. A simple field test to check the dispersability of oil is outlined in Appendix One of these guidelines.

    - The area is shallower than five metres at lowest tide during the time of the spill.

    - The area is enclosed, such as a lagoon, bay and/or harbour, and does not have an active water exchange rate.

    - The area contains eggs or larvae of ecologically important species (e.g. corals) or commercial fisheries species.

- To assist and speed-up dispersant use decision making, each Pacific island country/territory should pre-designate dispersant use/non-use zones, and present these as a map(s) in their NATPLAN.

- The determination and mapping of dispersant use/non-use zones should be based on the criteria presented in these guidelines.

3. Habitat-Specific Guidelines

3.1 Coral Reefs

- Generally, dispersed oil is MORE DAMAGING to coral reefs than un-dispersed oil.

- Dispersant should NOT be used on oil that is over a coral reef, unless:

    - The oil is likely to impact on mangroves downstream of the reef (i.e. the impact of dispersed oil on coral reefs is preferable to the impact of un-dispersed oil on mangroves).

- Dispersant SHOULD be used to prevent oil in OPEN WATER from reaching a coral reef (providing the general guidelines above are followed).

3.2 Seagrass Beds

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

- Dispersant should NOT be used on oil that is over a seagrass bed, unless:

    - The oil is likely to impact on mangroves downstream of the seagrass bed (i.e. the impact of dispersed oil on seagrasses is preferable to the impact of undispersed oil on mangroves).

    - The area containing the seagrasses is well flushed.

- Dispersant SHOULD be used to prevent oil in OPEN WATER from reaching seagrass beds (providing the general guidelines above are followed).

.

3.3 Mangroves

- Generally, dispersed oil is LESS DAMAGING to mangroves than un-dispersed oil.

- Dispersant MAY be used on oil that has already impacted on mangroves, providing:

    - The general guidelines above are followed.

    - The dispersant can be applied manually in a controlled manner to prevent defoliation of the mangrove trees and penetration of oil into mangrove sediments.

- Dispersant SHOULD be used to prevent oil in open water or even oil over other sensitive resources, such as coral reefs and seagrass beds, from reaching mangroves (providing the general guidelines above are followed).

.

3.4 Sandy Beaches

- Oil threatening to impact on a sandy beach should be allowed to.

- Beaches provide the best oil containment and collection barrier, and physical/mechanical recovery of beached oil is relatively straightforward.

- Dispersants SHOULD NOT be used to prevent oil from beaching. This will cause unnecessary pollution of the marine environment when the oil can be readily recovered after it has beached.

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

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

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

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

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

3.5 Rocky Shores

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

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

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

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

3.6 Bird & Turtle Rookeries

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

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

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

3.7 Physical Structures

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

- However, a number of non-toxic, biodegradable de-oilers are now available that are more effective and less harmful than dispersants for this purpose.

- If dispersants must be used for this purpose, any resulting run-off should be contained and physically/mechanically collected for proper disposal.

Further information:

Secretariat of the Pacific Regional Environment Programme (SPREP)
PO Box 240, Apia, SAMOA
Ph (685) 219 29, Fax (685) 20231
Email: sprep@sprep.org
Web: http://www.sprep.org/

Appendix One: Field Test to Establish the Dispersability of Oil

Background

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

The simple field test outlined below will allow response authorities to gain a rapid indication of the dispersability of the oil.

If the oil is not found to be amenable to dispersion, then dispersants SHOULD NOT be used.

If the oil is found to be amenable to dispersion, then dispersants might be used, but ONLY if all other requirements, including environmental approvals and considerations, are met.

Equipment Required

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

Test Procedure

- Collect a small amount of oil from the scene of the spill.
- Collect a small amount of dispersant from the dispersant stockpile
- Collect a small amount of clean seawater.
- Fill test tube to 2/3 with the seawater (must be at same temperature as sea-surface at the scene of the spill).
- Add 1ml of the oil to the surface of the water in the test tube with pasteur pippette or eye dropper. DO NOT let the oil touch the sides of the test tube. Note the curved under-surface of the oil as it floats on top of the water.
- With test-tube slightly above eye level, add one or two drops of the dispersant directly onto the surface of the oil, using a CLEAN pipette or eye dropper.
- Keep the test tube very still and observe the under-surface of the oil for any change.
    - If the curved under-surface of the oil has flattened out and taken on a dull appearance, the dispersant has penetrated and combined with the oil.
    - If there is evidence of clear-liquid emanating from the underside of the oil, the dispersant has passed through the oil and not combined with it.
- Carefully screw the cap onto the test tube.

- In a smooth and steady manner, invert the test tube 180^{o} and back to the upright position six times.

- Note the appearance of the oil.

    - If the water has gone cloudy and opaque (light does not penetrate through), the dispersant has been effective.

    - If the oil is still on the surface of the water or taken the form of large particles on or near the surface, or if many small particles of oil are visible and light penetrates through, the dispersant has not been effective.

- The test tube may be placed in an upright position and left to settle for five minutes. If the water is still cloudy after five minutes, it indicates that the oil is very amenable to dispersant.

- If the test indicates that the dispersant is not effective, it is unlikely to be effective at the scene of the spill and should not be used. If another brand of dispersant is available, the test may be repeated for that brand to determine if it is effective.

.

Appendix Two: The Use of and Types of Chemical Dispersants

What are chemical dispersants?

- Purpose-made chemicals that are applied to oil slicks to break them up into small droplets.

- Cause oil droplets to sink below the surface and remain suspended in the water column.

- Assist physical degradation of the oil through water movement (waves, currents, turbulence).

- Prevent formation of persistent water-in-oil emulsions and residues.

- Assist bio-degradation through increasing the surface area of the oil that can be 'attacked' by bacteria.

- A key component of dispersants is 'surface-active-agent' (surfactant).

- Surfactant has molecular structure where:
    - one part is attracted to oil (oleophilic)
    - one part is attracted to water (hydrophilic)

- Reduces interfacial tension between oil and water.

- Promotes droplet formation and prevents re-coalescing.

- To work, dispersant must be effectively distributed through the oil.

- Dispersant therefore contains a 'solvent', which carries the surfactant and penetrates the oil.

- If oil is very viscous (thick), or aged and weathered, solvent cannot penetrate the oil and dispersant will be ineffective.

- Therefore must ensure oil is dispersible before using dispersant.

Figure One: Dispersants in Action

Types of Dispersants

First Generation (late 1660's).

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

Second Generation (after Torry Canyon)

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

Example: BP-AB.

Third Generation (mid 1970's)

- Known as 'concentrate' dispersants.
- Contain solvent based on glycol or alcohol.
- Contain less solvent and more surfactant.
- Even less toxic than second generation (but still toxic).

- Can be applied neat (straight) or mixed with sea-water, at neat dispersant:oil ratio of between 1:5 and 1:30.

- Better for application from aircraft, also good for application from vessels.

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

Approved dispersants for Australia is at:
http://www.amsa.gov.au/me/NATPLAN/toolbox/dispersa/dispers.htm
(look at question/answer 14 on the FAQ for Oil Spill Dispersants, other links on OSDs at this site)

Approved dispersants for USA is at:
http://www.epa.gov/oilspill/ncp/dsprsnts.htm

When should dispersants be used?

- Main use of dispersant is to break oil up when it is still at sea.

- Prevent oil from impacting on the shoreline.

- Physical containment & mechanical recovery of the oil is preferable.

- Use dispersants at sea only when physical containment & mechanical recovery is not possible/feasible.

- Do not use dispersants in inshore, shallow and/or enclosed waters (see SPREP Guidelines for details).

- Dispersants can be used on shorelines and structures (e.g. oiled seawalls), but can cause serious impacts and must be highly controlled (see SPREP Guidelines for details).

- Dispersant can be used for cleaning oiled pollution equipment (e.g. booms). Runoff must be contained, collected and disposed of properly to prevent further pollution of the environment.

- The decision to use or not use dispersants must balance the environmental impacts that may occur if dispersant is used, against the environmental impacts that may occur if the oil slick is left untreated.

- The On Scene Commander should obtain scientific and environmental advice when making on decision on dispersant use (refer SPREP Dispersant Guidelines).

- Each country/territory should pre-designate dispersant use/non-use areas (based on the SPREP Dispersant Guidelines) in its national plan and the On Scene Commander should comply with these.

- DO NOT use dispersants on oil that is not dispersable. This is a total waste of dispersant and causes unnecessary additional pollution.

- Oil that is highly viscous (thick) or has been at sea more than several days (aged and weathered), is generally not dispersable.

- Conduct a small scale field test first (refer Appendix One of SPREP Dispersant Guidelines).

Figure Two: Dispersant Use Decision Tree

Methods of Application

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

Apply from a vessel:

- Can use Conventional or Concentrate dispersant.

- Spill must be within range of available vessels.

- Vessels must be equipped with, or be capable of being fitted with, dispersant storage system, pumps and spray system.

- Can use fire monitors fitted to tugs boats etc, but:
  - Difficult to control.
  - High dilution rates.
  - Excessive consumption/application of dispersant.
  - Poor coverage of water jet.
  - Should not use hydrocarbon-based dispersants in fire pump system.

- Purpose-built spray booms are best.

- When spray boom fitted at bow of vessel, vessel assists mixing of the dispersant with the oil, although dispersant can be pushed out to sides of the vessel and therefore not mix thoroughly.

- When spray boom fitted towards stern, may be necessary to tow 'breaker boards' behind the vessel to assist mixing.

- Advantages include:
  - Relatively inexpensive.
  - Do not need dedicated vessels, can fit storage tank, pump and spray booms to 'vessels of opportunity' (e.g. fishing vessels).
  - Relatively low tech and flexible.

- Limitations include:
  - Low treatment rates.
  - Difficulty with locating slicks (unless assisted by an aircraft).

    - Limited range.

- In the Pacific islands region, use of vessels in likely to be the best method for dispersant application. Each country/territory should ensure that their national plan includes arrangements for dispersant application by vessels.

Figure Three: Application of Dispersant from Vessels

Application from Aircraft

- Use Concentrate dispersant (can be diluted to achieve greater efficiency).

- Spill must be within range of available aircraft.

- Aircraft must be equipped with, or be capable of being fitted with, dispersant storage system, pumps and spray system.

    - Can use helicopters with purpose-built dispersant 'bucket' and spray booms.
    - Can use crop-dusting aircraft.
    - Can use purpose-fitted aircraft.

- Advantages include:
    - Allows rapid response.
    - Allows good surveillance, identification of the oil slick and evaluation of dispersant success rates.
    - Allows much higher treatment rates than vessels, can cover larger areas of an oil slick in a shorter period.
    - Allows much more efficient use of dispersant.

- Limitations include:
    - Expensive.
    - Availability of suitable aircraft.
    - Range of the aircraft.
    - Carrying capacity of the aircraft.

- In the Pacific islands region, use of aircraft to apply dispersants is unlikely due to:
    - Unavailability of suitable aircraft.
    - Low stocks of dispersants.
    - Time taken to bring aircraft and additional dispersant stocks in from outside the region likely to mean oil will have already impacted the shoreline, or weathered to the extent that it is not dispersable.

Figure Four: Application of Dispersant from Aircraft.

Land-based Application

- Dispersant can be used to clean-up shorelines and structures such as seawalls that have become oiled.

- However, potential to cause further environmental damage is high and alternative methods should be explored first.

- Physical/mechanical clean-up of shorelines and structures may be harder work, but may be the best option.

- If dispersants are used on shorelines/structures; remove bulk oil by physical/mechanical means first.

- Be extremely careful to ensure oil does not penetrate into the sediment (spray just ahead of the advancing tide)

- Can use Conventional or Concentrate dispersant (Concentrate better, as less toxic).

- For greatest control apply manually using personal 'back-pack' sprays.

- Do not spray dispersants around with Fire trucks or similar pumping equipment:
    - Difficult to control.
    - High dilution rates.
    - Excessive consumption/application of dispersant.
    - Poor coverage of water jet.
    - May corrode/damage fire pump system.

Figure Five: Land-based Application of Dispersant

Health & Safety Considerations

- Dispersants are chemicals which must be handled correctly.

- They should be stored away from heat and direct sun-light, in a dry storage area, and containers should be checked regularly for deterioration/leaks.

- Containers should be clearly marked with their contents and any necessary safety data.

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

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

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

- In the event of leak/spillage:
    - Stop leak immediately.
    - Contain with sand or absorbent material.
    - Soak-up with absorbent material and dispose of properly.
    - NB. spilled dispersant will make decks very slippery.

- In the event of skin contact:
    - Remove polluted clothing.
    - Wash with large quantities of water.
    - Call a doctor if problems develop.

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

- In the event of inhalation:
    - Transfer injured person to well ventilated area.
    - Call a doctor immediately.

    - If breathing stops, administer artificial respiration.

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

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

pasifija Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
Management Emergency Response

(Obtain ER Procedures)

External Authorities	Maritime Authority	Incident Controller	Vessel		

1 Incident notification is either by RT, phone or fax.

Shore incident controller usually the terminal manager, loading
2 master or port authority takes the call and follow up action.

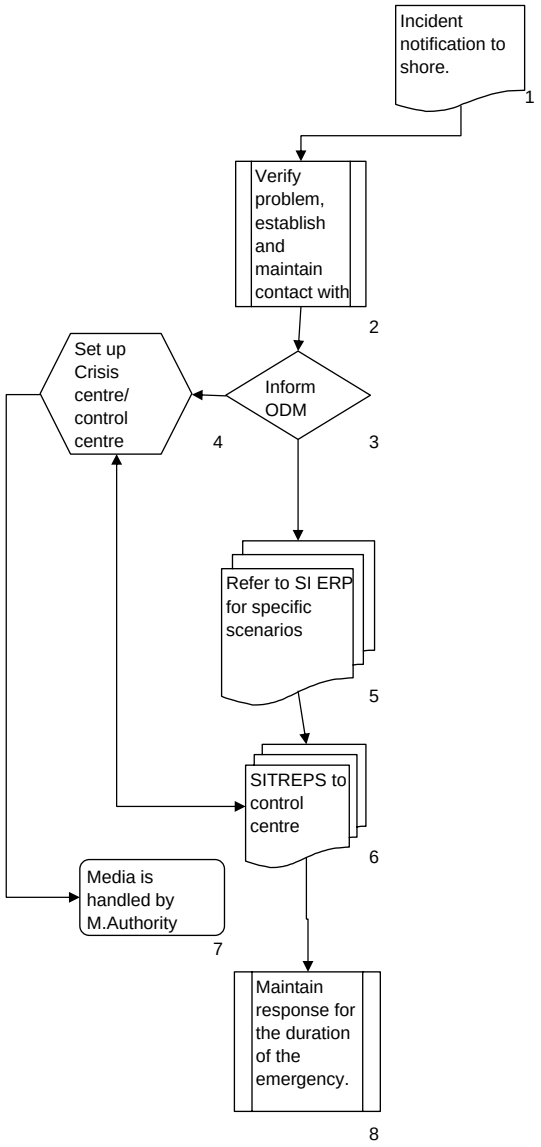
As per reporting procedures inform all incidents to M.Authority
3 immediately.
M.Authority will set up a control centre or crisis centre depending on
4 the scenario and crisis

5 Refer to ERP for specific scenarios for Marine.

6 Maintain communication with the control centre by situation reports (SITREPS)

7 All media correspondense to be with MLO.

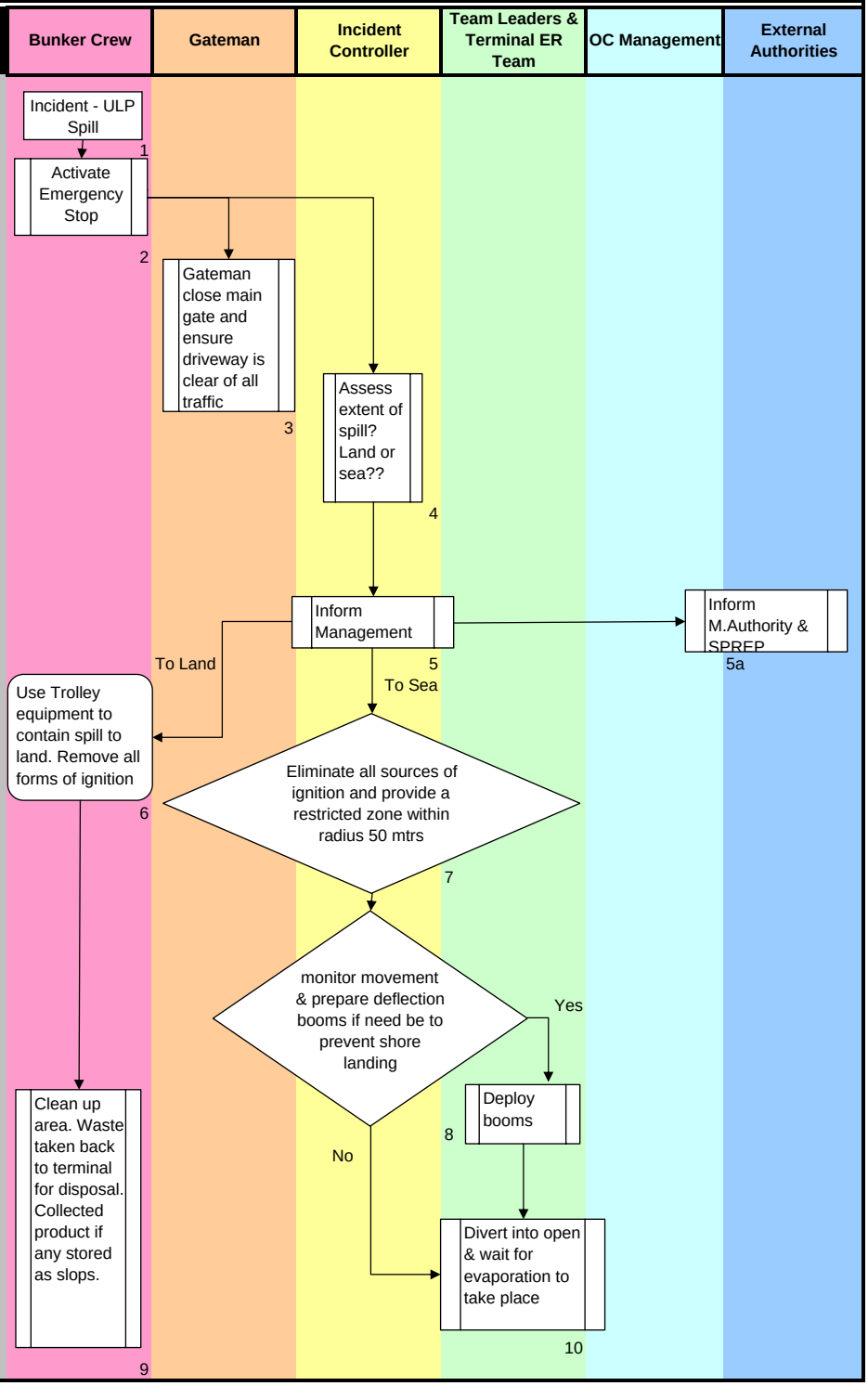
8 Maintain response and follow up until completion.



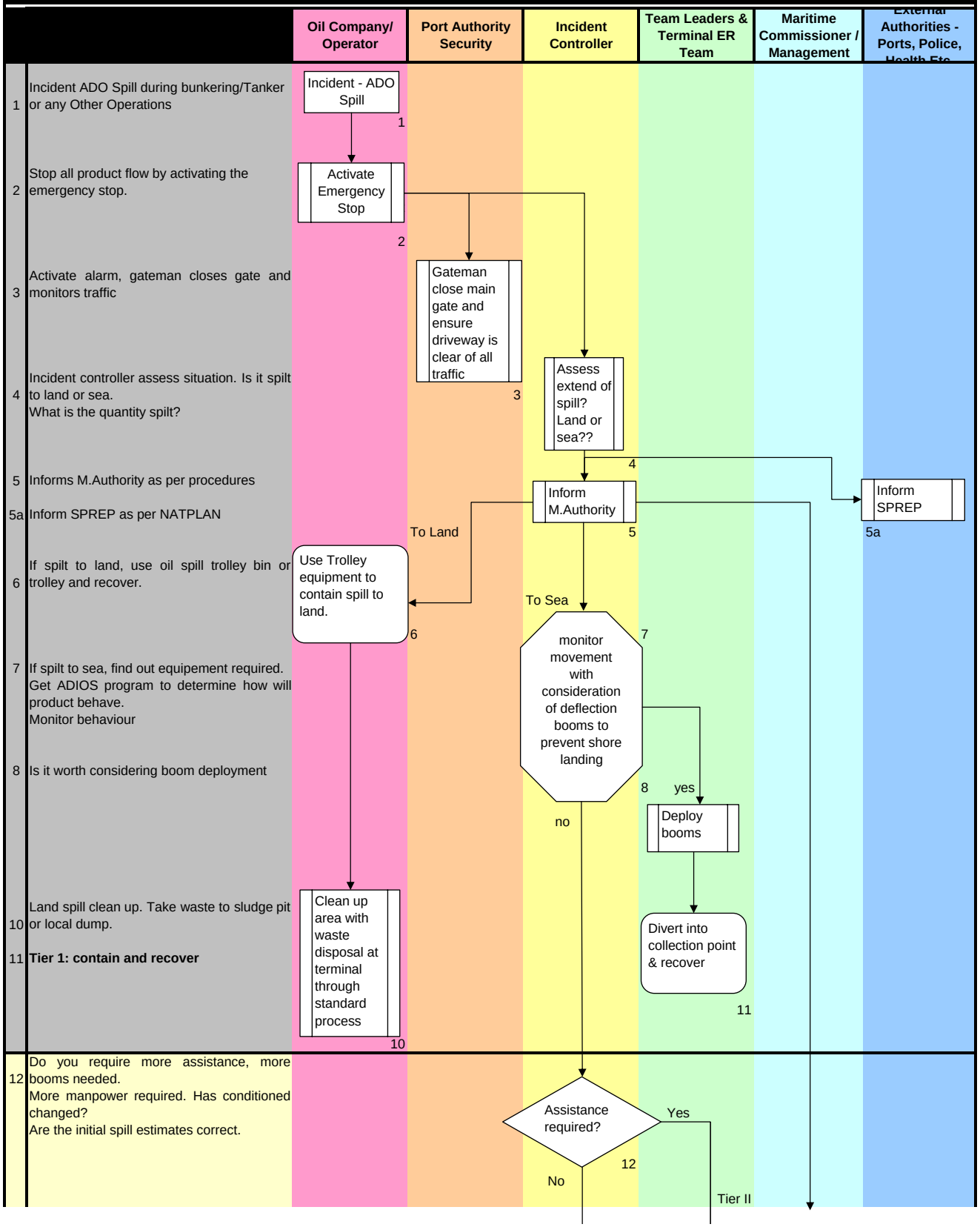
pasifika Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
OIL SPILL TIER 1

(Obtain ER Procedures)
(Obtain MER preocedures)

		Bunker Crew	Gateman	Incident Controller	Team Leaders & Terminal ER Team	OC Management	External Authorities
1	Incident ULP Spill during bunkering/Tanker or any Other Operations						
2	Stop all product flow by activating the emergency stop.						
3	Activate alarm, gateman closes gate and monitors traffic						
4	Incident controller assess situation. Is it spilt to land or sea. What is the quantity spilt?						
5	Informs OC Management as per procedures						
5a	Inform M. Authority & SPREP as per NATPLAN						
6	If spilt to land, use oil spill trolley bin or trolley and recover.						
7	If spilt to sea, find out equipement required. Get ADIOS program to determine how will product behave. restrict entry into 'Spill Zone" - radius 50m						
8	From ADIOS is it worth deploying booms to contain??						
9	Land spill clean up. Take waste to sludge pit or local dump.						
10	Wait for evaporation to occure - continious monitoring						



pasifika Islands Maritime Authority (Obtain ER Procedures)
EMERGENCY PROCESS DOCUMENTATIC (Obtain MER preocedures)
OIL SPILL TIER 1 /TIER II



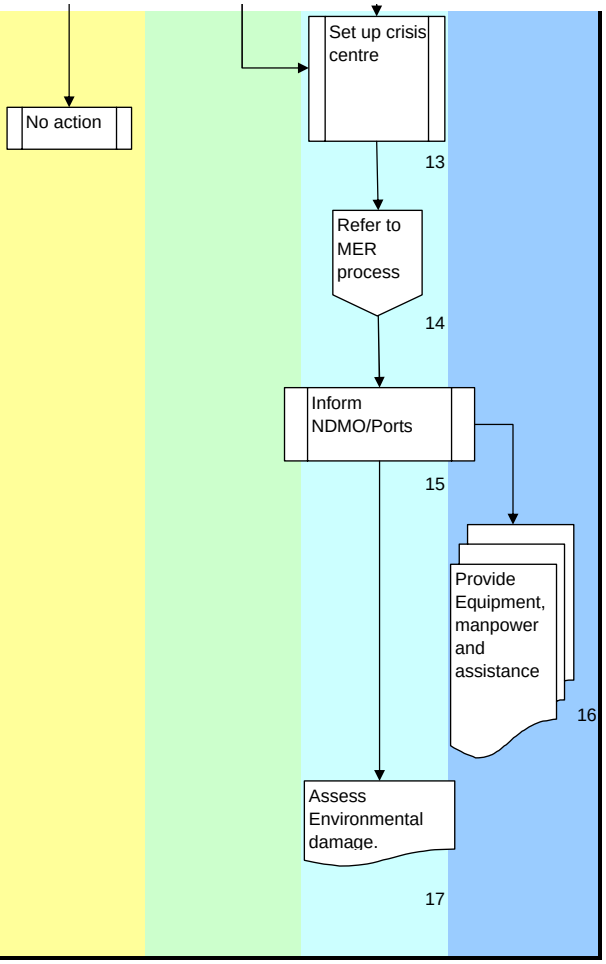
13 M.Authority sets up control centre for a Tier II

14 Follows MER procedures/

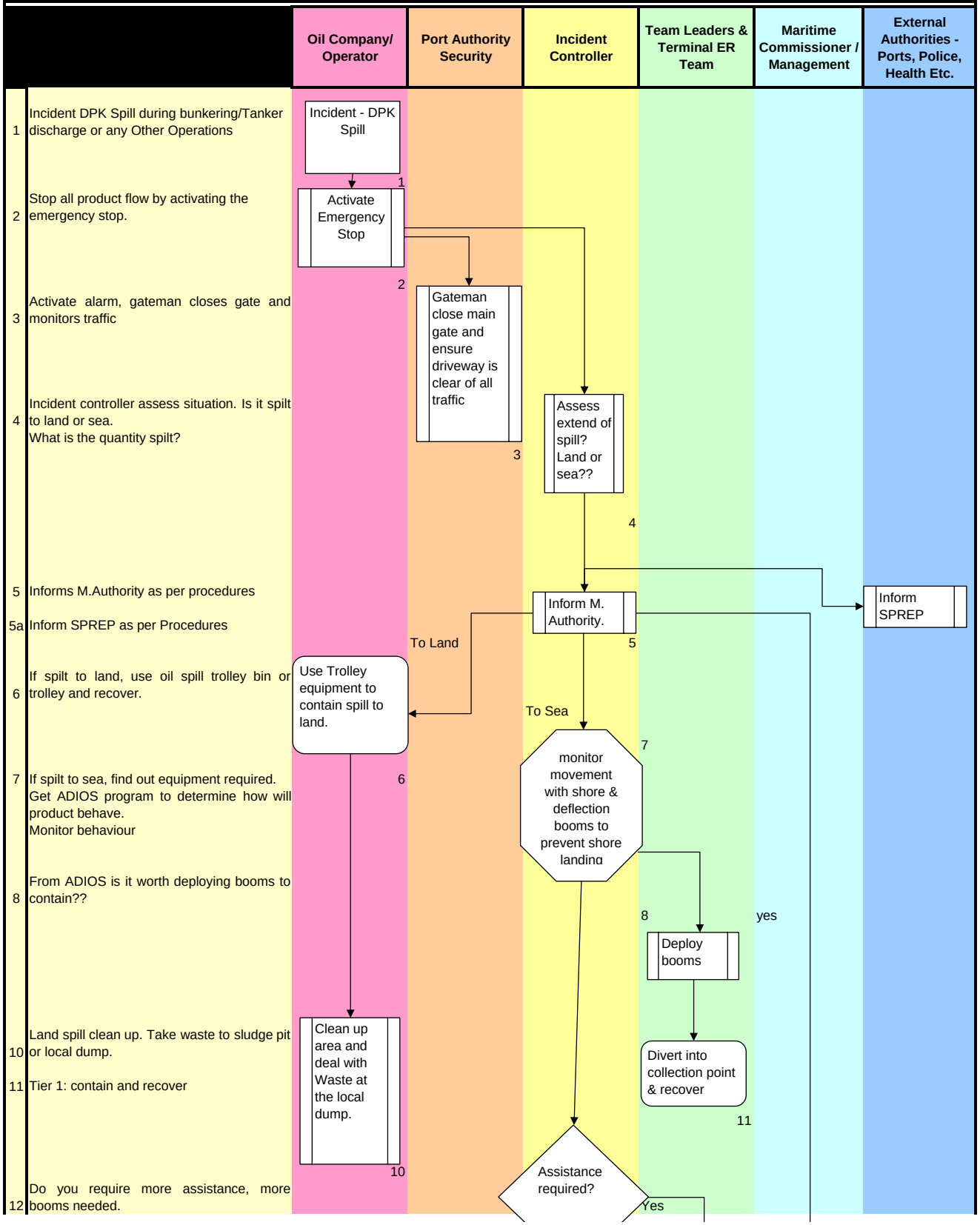
15 Informs NDMO and Ports

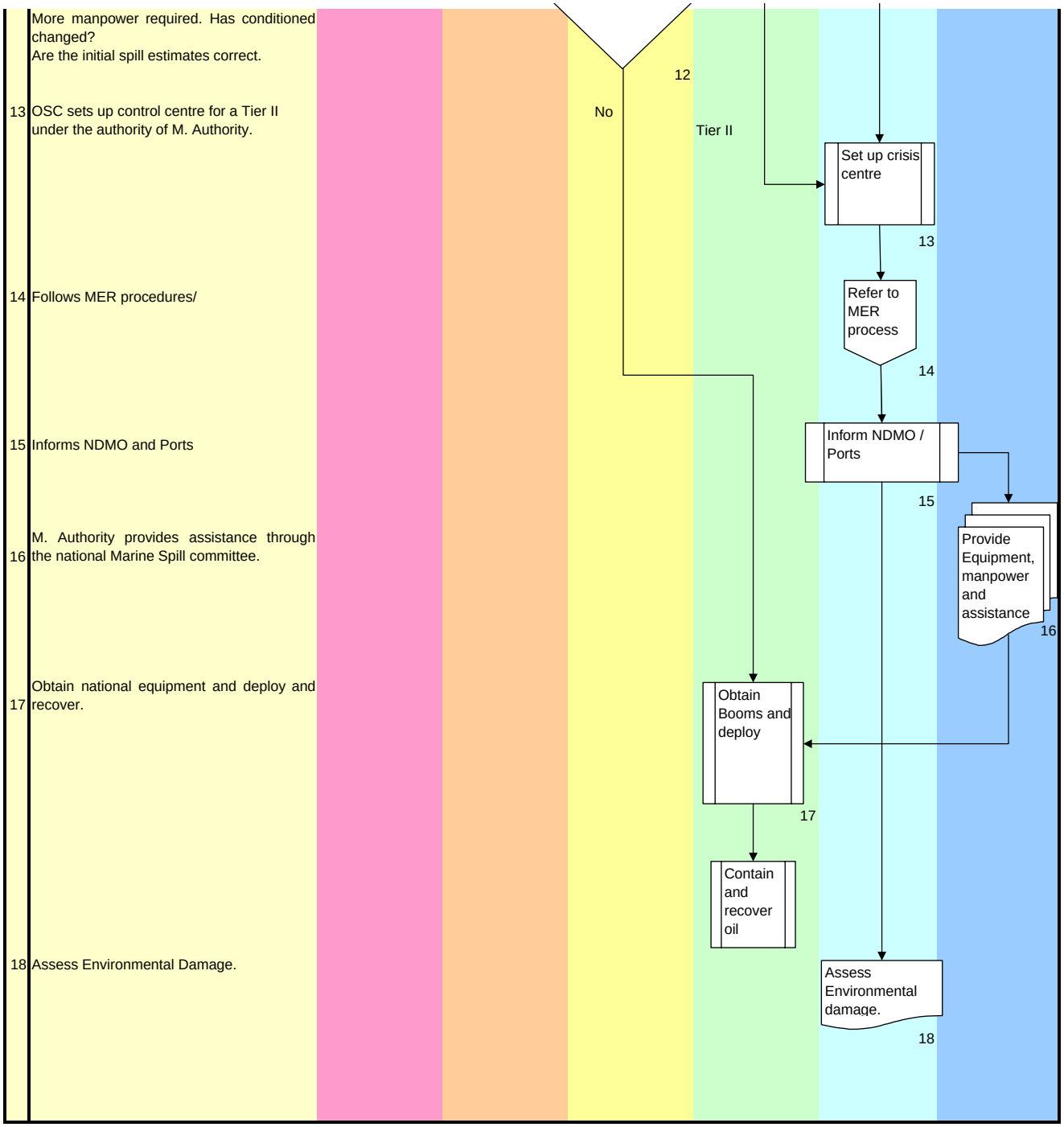
16 M.Authority provides assistance through the National Marine Spill Committee.
Obtain national equipment and deploy and recover.

17 Assess Environmental Damage.



pasifika Islands Maritime Authority (Obtain ER Procedures)
EMERGENCY PROCESS DOCUMENTATIC (Obtain MER preocedures)
OIL SPILL TIER 1/ TIER II

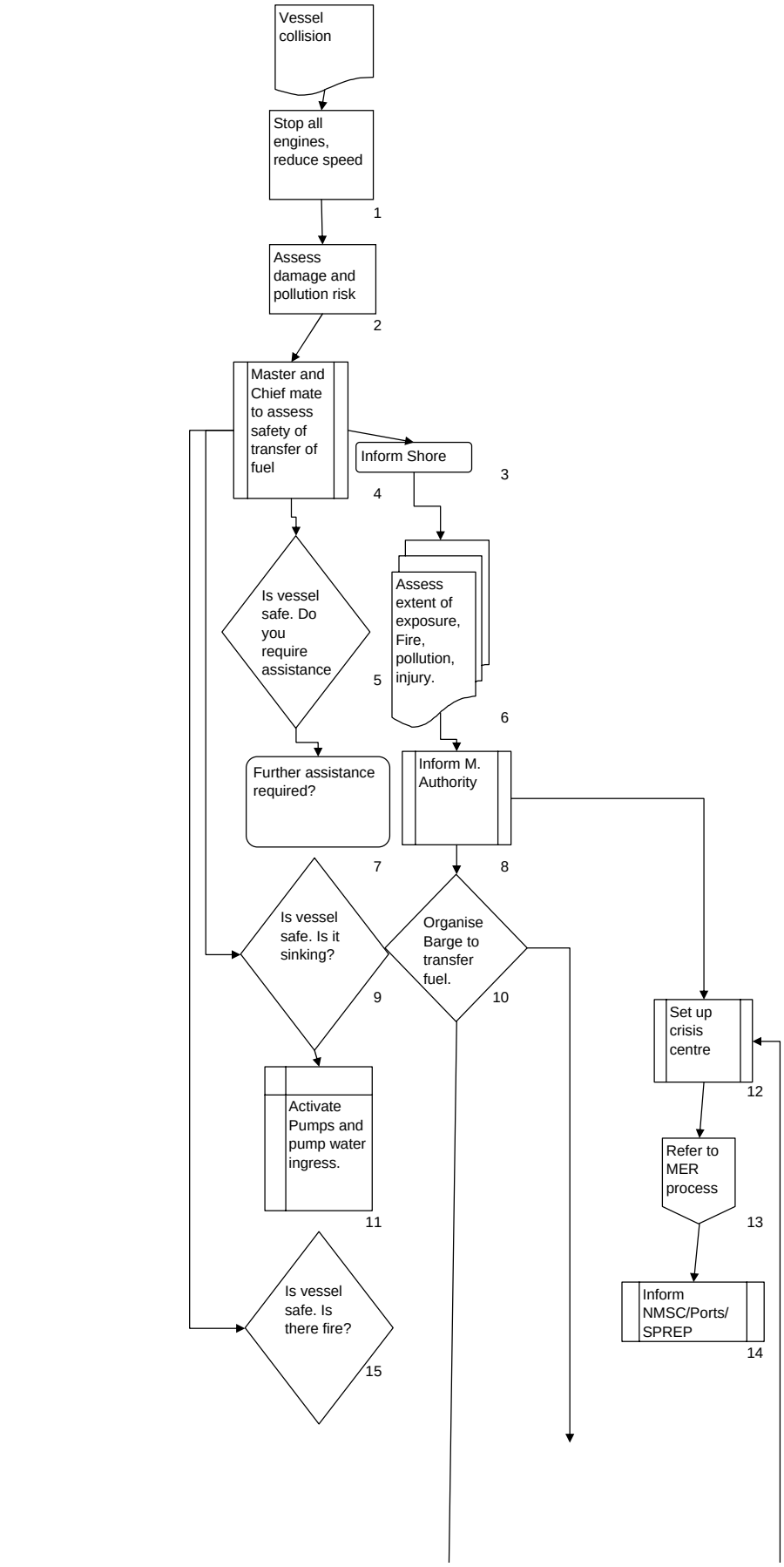



More manpower required. Has conditioned changed?
Are the initial spill estimates correct.
12
No
Tier II
13 OSC sets up control centre for a Tier II under the authority of M. Authority.
Set up crisis centre
13
14 Follows MER procedures/
Refer to MER process
14
15 Informs NDMO and Ports
Inform NDMO / Ports
15
16 M. Authority provides assistance through the national Marine Spill committee.
Provide Equipment, manpower and assistance
16
17 Obtain national equipment and deploy and recover.
Obtain Booms and deploy
17
Contain and recover oil
18 Assess Environmental Damage.
Assess Environmental damage.
18

pasifika Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
Collision

(Obtain ER Procedures)
(Obtain MER preocedures)

External Authorities	Maritime Authority	Vessel	Incident Controller	Salvage Company	Maritime Authority



1 Ship activates response plan stopping all engines and reduce speed.

2 Assist Damage and any risk of pollution
Inform crew and conduct headcount

3 Incident Happens and Shore is informed of collision of vessels
4 Master and and Chief Officer assess safety of vessel for transfer of fuel, Fire risk, taking in of water.

5 Is vessel safe, does ship require any assistance for stabilisation, additional crew etc.
6 Shore is informed and does own risk assessment of what is required based on the ERP.

7 Is further assistance required?

8 Inform M. Authority as per procedures.

9 Assessment for sinking vessel

10 Incident controller organisers the barge etc. for assistance.

11 Activate water pumps to buy time for transfer of fuel etc.
Time to wait for assistance etc.

12 M.Authority sets up crisis centre

13 Refer to MER

14 M. Authority informs External authorities such as National Marine Spill Committee, Ports, SPREP.

15 As part of assessment, is there risk of fire.

pasifika Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
Collision

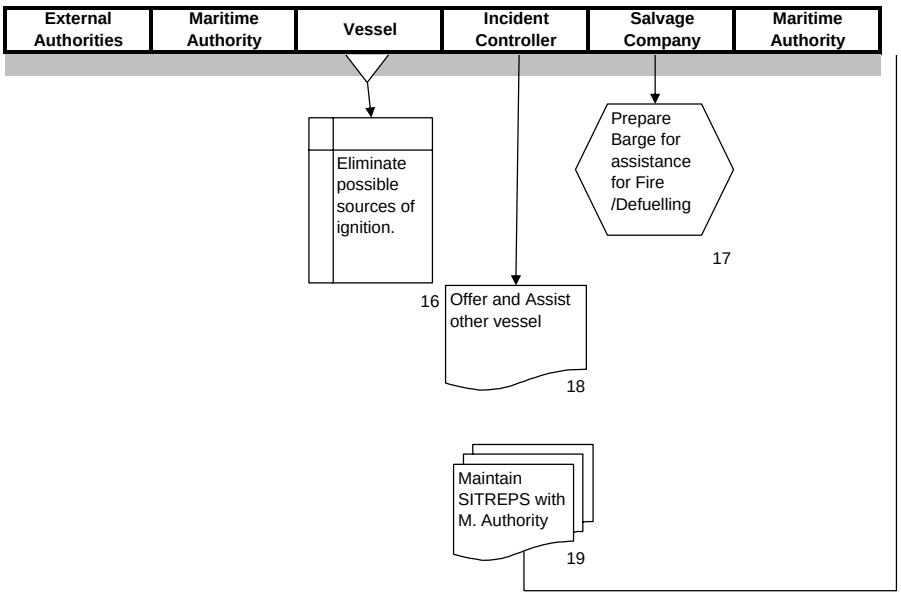
(Obtain ER Procedures)
(Obtain MER preocedures)

16 Eliminate possible sources of ignition

17 Salvage prepares barge for assistance.

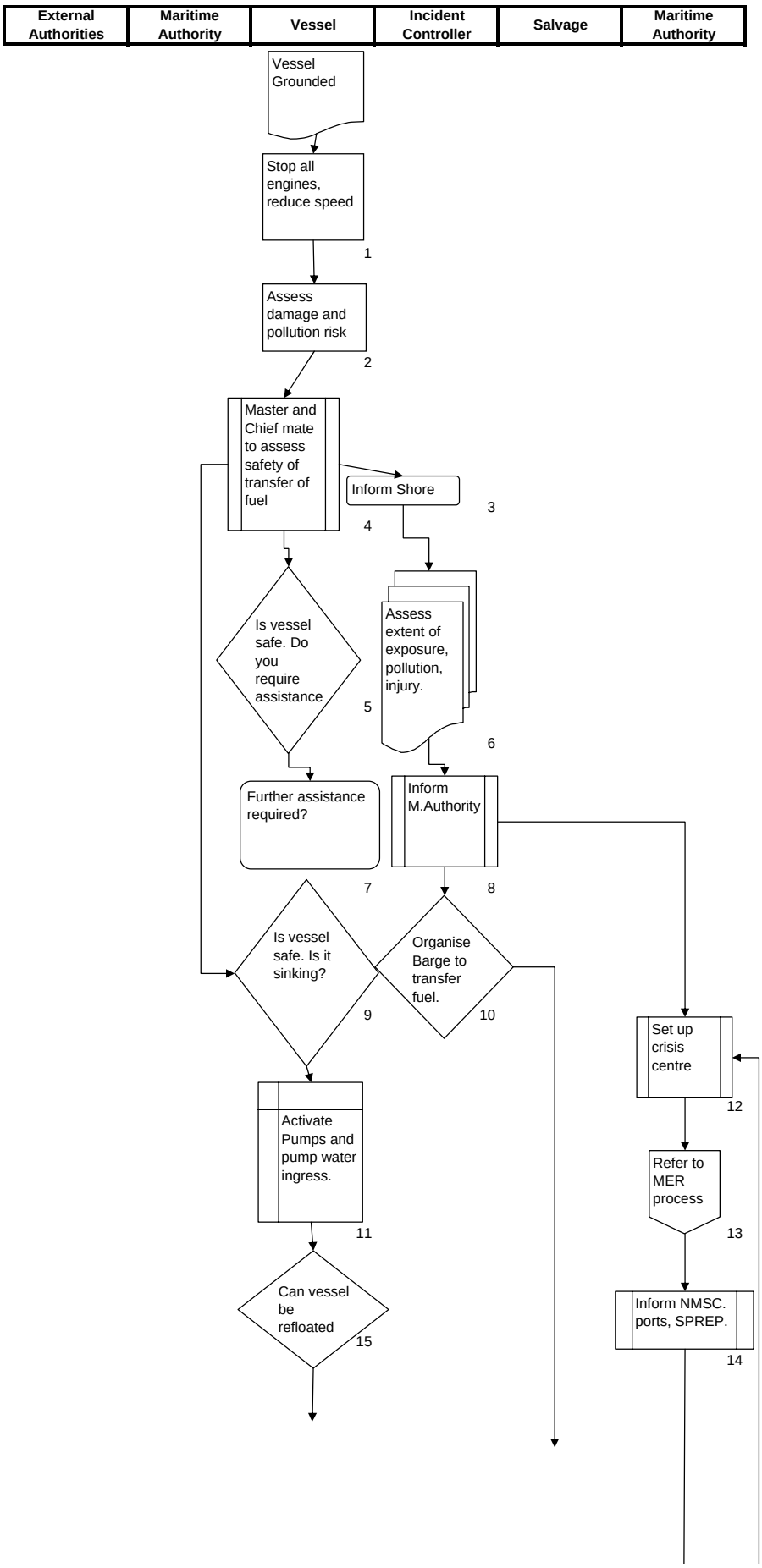
18 Assistance is offered to other vessel

19 Incident controller updates M.Authority via SITREPS.



pasifika Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
Grounding

(Obtain ER Procedures)
(Obtain MER preocedures)



1 Ship activates response plan stopping all engines and reduce speed.

2 Assess Damage and any risk of pollution
Inform crew and conduct headcount.

3 Incident Happens and Shore is informed of vessel grounding.
4 Master and and Chief Officer assess safety of vessel for transfer of fuel, Fire risk, taking in of water.

5 Is vessel safe, does ship requure any assistance for stabilisation, additional crew etc.
6 Shore is informed and does own risk assessment of what is required based on the ERP.

7 Is further assistance required?

8 Inform M. Authority as per procedures.

9 Assessment for sinking vessel

10 Incident controller organisers the barge etc. for assistance.

11 Activate water pumps to buy time for transfer of fuel etc.
Time to wait for assistance etc.
Can vessel stay afloat.
12 M.Authority sets up crisis centre

13 Refer to MER

14 M. Authority informs External authorities such as National Marine Spill Committee, Ports, SPREP.

15 If vessel is sinking or has sunk, can it be refloated.
If yes, then refloat and check for damage, if not then stop leakage.

pasifika Islands Maritime Authority
EMERGENCY PROCESS DOCUMENTATION
Grounding

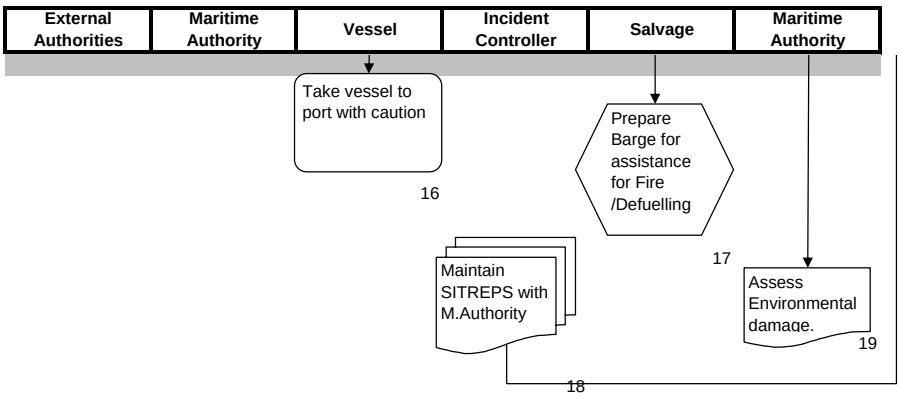
(Obtain ER Procedures)
(Obtain MER preocedures)

16 Take vessel to port with caution.

17 South Sea Towage prepares barge for assistance.

18 Incident controller updates M.Authority via SITREPS.

19 Carry out environmental assessment.



Appendix 9: Media Plan

An experienced and well-informed Media Liaison Officer (MLO) appointed by the Lead Agency shall be provided for the overall contingency plan. The MLO shall ensure adequate liaison between the IC's team and the media. All quires received from the media should be directed to this person.

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

Appendix 10: CONTACT NUMBERS

EMERGENCY 24-HOUR NUMBER

[pasifika]
Tel: (xxx) xxxxx Fax: (xxx) xxxxx
National Disaster and Emergency Services
Tel: (xxx) xxxxx or (xxx) xxxxx

Organization	***Phone***	***Fax***	***Mobile/Home***	***Email***
SPREP (Att: Marine Pollution Adviser)	*(685) 21929*	*(685) 20231*		*sprep@sprep.org*

Radio Contacts	*HF Channel/Freq*	*UHF Channel/Freq*	*VHF Channel/Freq*
Marine comms:			
Aviation comms:			
Land-based comms:			
[etc, add as appropriate]			

Appendix 9: Media Plan

An experienced and well-informed Media Liaison Officer (MLO) appointed by the Lead Agency shall be provided for the overall contingency plan. The MLO shall ensure adequate liaison between the IC's team and the media. All quires received from the media should be directed to this person.

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