



**[Add Tuvalu Coat of Arms if desired]**

**Controlled Copy No: XXX**

# THE GOVERNMENT OF TUVALU NATIONAL SPILL CONTINGENCY PLAN

**This Plan has been developed to reflect the essential steps to initiate, conduct and terminate spill response in Tuvalu**

**The Plan 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, the core Plan text and annexes designed to provide key supporting information to assist with spill response operations and planning.**

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	Marine and Port Services Department		
	Environment Department		
	Attorney General		
	Fisheries Department		
	Disaster Management Office		
	Police Department		
	Foreign Affairs		
	Pacific Energy Energy		
	Tuvalu Electricity Corporation		
	Public Works Department		
	TCS Shipping Agency		
	Tuvalu Maritime Training Institute		

**PLAN AMENDMENT CERTIFICATION**

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

Director  
 Marine and Port Services Department  
 Private Mail Bag, Vaiaku, Funafuti, Tuvalu  
 Tel: (688) 20055 Fax: (688) 20722/20062  
 E-mail: marine@tuvalu.tv

<b>Amendment</b>		<b>Section</b>	<b>Page</b>	<b>Entered</b>	<b>Date</b>	<b>Signature</b>
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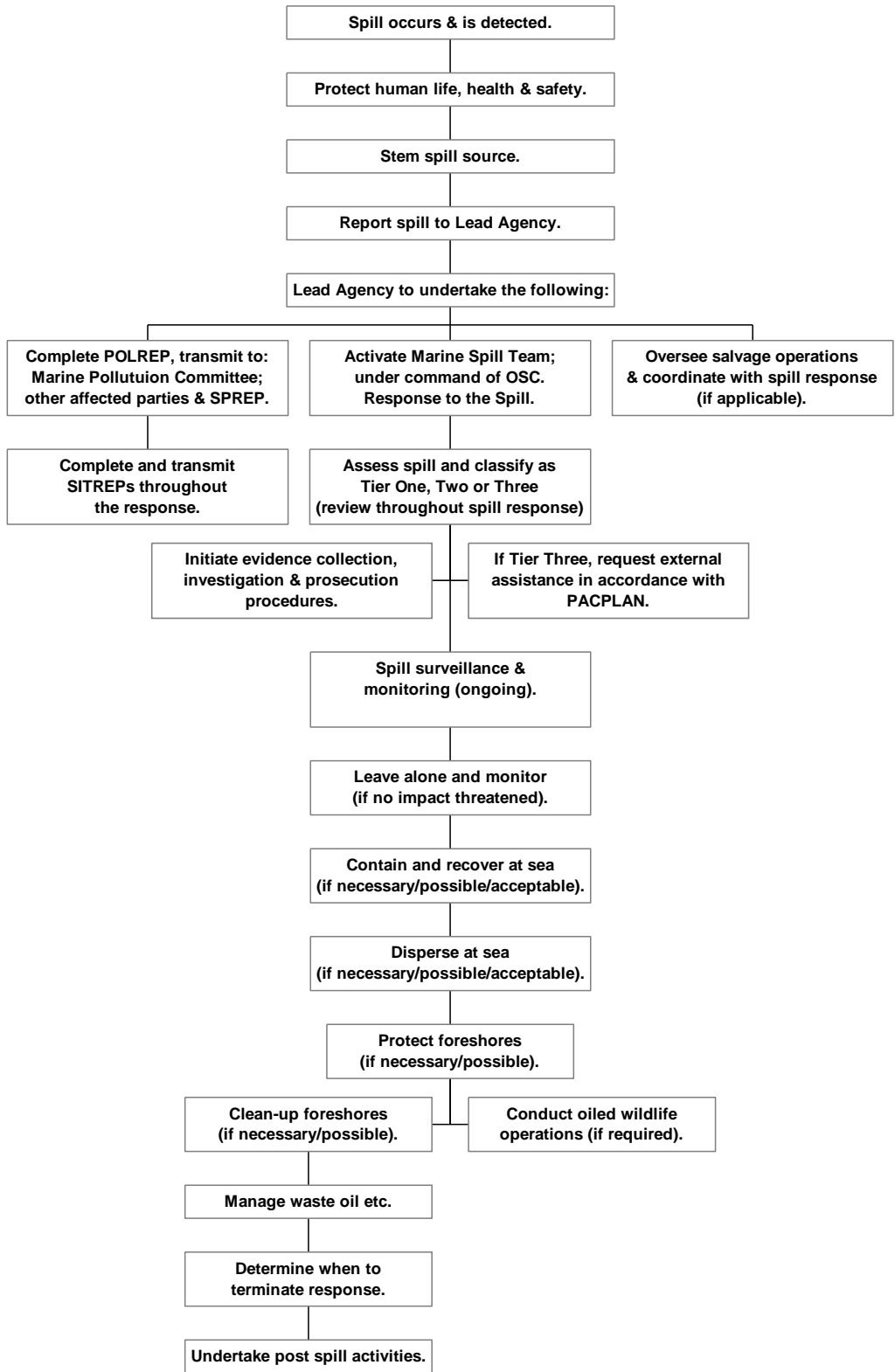
### EMERGENCY CONTACTS

#### Police - 911

<b>Organisation/ Department</b>	<b>Phone</b>	<b>Mobile</b>
Marine Department	20055	90982
Environment Department	20179	
Attorney General	20123/20823	
Fisheries Department	20836	
Disaster Management Office	20815/20342	
Police Department	20726	
Foreign Affairs	20	
Pacific Energy	20710	
Tuvalu Electricity Corporation	20352	
Public Works Department	20300/20303	
Tuvalu Maritime Training Institute	20039/20849	
TCS Shipping Agency	20299/20631	
Registra of Ships	20092	
PACPLAN activation SPREP – Marine Pollution Adviser	+ 685 21929	+685 20231

### MARINE SPILL RESPONSE – ACTION CHECKLIST

<b>24 – Hour Contact for Marine Pollution Reports – 911 (VHF – Ch16/HF 8247khz)</b>
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- Figure Two: Coastal Resource Map of Tuvalu  
[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 Pollution Incidents  
[Add sub-maps for specific areas if needed - e.g. Figure 4A, 4B etc]
- Figure Five: Oil Spill Response Team
- Figure Six: Organisation Structure – Response to Oil Spills
- Figure Seven: Five Phases – Response to Marine Spills

## ANNEXES [To update.....]

- Annex One: Emergency Contact Details
- Annex Two: Standard Pollution Report (POLREP)
- Annex Three: Standard Situation Report (SITREP)
- Annex Four: Equipment Inventory

[Other appendices may be added as a country see fit. Examples are; technical details on oil types carried in the country, including spreading and evaporation rates; Material Safety Data Sheets for dispersants stockpiled in the country etc].



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## ***1. INTRODUCTION***

### **1.1 Background**

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

The Plan has been developed to reflect the essential steps necessary to initiate, conduct and terminate a spill response in Tuvalu, on land and into the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

This Plan meets the obligations of the Government of Tuvalu 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)*. 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 Tuvalu all government departments and agencies and all oil companies, shipping companies and other relevant parties, which operate within the Government of Tuvalu, are required to follow the procedures laid down in this Plan.

### **1.2 Aim & Objectives**

The Aim of the Plan is:

- To Plan and provide for an appropriate response capability to prevent/minimise damage to the environment from spills at sea and on land.

The Objectives of the Plan 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 spills of oil and other noxious and hazardous substances.
- To provide systems for the detection and reporting of 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 the Government of Tuvalu.

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### 1.3 Technical Scope & Tier One, Two and Three Spills

This Plan covers the response to all spills 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 in Tuvalu.

For the purposes of the Plan, 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 Tuvalu. These spills would normally have low potential for environmental or economic harm and are usually covered by oil terminal or port specific response arrangements.
- Typically a Tier 1 spill is approximately 1000Litres. Only the Pacific Energy have oil spill response equipment for Tier 1 & 2.

#### Tier Two

- Medium spills that are within the national capability and resources available within Tuvalu. These spills would have a moderate potential for environmental and/or economic harm and are covered by this Plan.
- Typically a Tier 2 spill is approximately 1000litres to 5000litres. Only the Pacific Energy have oil spill response equipment for Tier 1 & 2.

#### Tier Three

- Major spills that are of a magnitude and/or severity that is beyond the response capability and resources of the Government of Tuvalu, and/or
- That impacts or threatens to impact within the jurisdiction of both the Government of Tuvalu and neighbouring country(ies) and,
- The spill has the potential to cause extensive local or regional environmental damage and loss of resources.
- **Typically a spill of over 5000Litres is considered a Tier 3 spill response.**

Tier Three spills are covered by this Plan 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

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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 be done at the time of the spill, according to an assessment by the Responsible Authority.

Because in reality spills do not fall into convenient categories, the boundaries between Tiers will inevitably be blurred. The Responsible Authority 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 National Spill Plan is a sub-plan of Tuvalu's National Disaster Plan. This Plan is complimented by oil industry and port spill plans as well as international support plans like PACPLAN.

#### **1.5 Geographical Scope**

The geographical scope of the Plan, referred to hereafter as the Plan Area, is all of the land, coastlines and waters within the Exclusive Economic Zone (EEZ) of the Government of Tuvalu

Figure One: The Plan Area for the Government of Tuvalu.

[Add map showing Tuvalu + EEZ]-Fisheries Dept

#### **1.6 Underlying Principles, Protection Priorities & Environmental Sensitivities**

The main underlying principles of the 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 incident to minimise effects.
- Recovery: arrangements to restore the affected environment to normal.

The Plan 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. The Plan constitutes the national contingency plan for the Government of Tuvalu.
- The primary purpose of the Plan is to provide a national mechanism for the **prevention/minimisation of damage** to marine and coastal **environments and resources** from marine spills, and to hasten the **recovery** of any environments and resources damaged by marine spills.
- The response to spills under the Plan 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 spill requiring a response to be mounted under the Plan, the following protection priorities should be adhered to (in order of priority accepted internationally):

- Human life, health and safety.
- Protection of the Environment (Biological habitat/Rare& endangered species)
- Cultural resources and public amenities.
- 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 (1 is least susceptible) 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.

<p>Clean up Response</p> <p>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.</p> <p>Sandy Beaches: Preferred method is physical removal and disposal of oiled material.</p>
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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]-Fisheries.

Figure Two: Coastal Resource Map.

[Add Figure Two. More than one map may be required as Tuvalu more than island]

Figure Three: Environmental Sensitivity Ratings & Protection Priorities

[Add Figure Three. More than one figure may be required as Tuvalu consists of more than 1 island – Environment Dept.]

[Detail areas that warrant specific attention.]

[Identify in particular;

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

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### 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.

[Designate any areas that fall under following: - Marine Dept.

- Risk of collision - low
- Risk of groundings – high risk, no landmarks and bouys or visual aids – navigational equipment. (Marine department to supply info of high risk places of groundings)
- Hazard to navigation – high risk, Marine Department to supply infor on navigational aids in Tuvalu main port.
- Records of seaworthiness of vessels (Port/State Control inspections) – vessels well surveyed, competent surveyors. Vessel age ??.
- Negligence and competence of crews - foreign going vessels crew competency is high, local vessels competency is low, fishing vessels competency is low.
- Size/type of vessels – Ports to supply information on the size and type of vessels.
- Type/amount of oil/chemicals carried – customs to supply type and amount of oil and chemicals.
- Traffic density – ports to supply information.
- Environmental factors (weather, tides, severe weather events e.g. cyclone frequency) – Met office to supply through the Marine department.
- Environmental resources under threat – DOE to provide information also with Kaupule info.
- Petroleum facilities – Pacific Energy
- Tank farms – Pacific Energy incl TEC info.
- Offloading mechanisms e.g. wharf/fixed pipeline/floating pipeline – Pac Energy, stevedoring activity info from Ports.

[Type of spills expected, realistic scenarios]

### 1.8 Types of Oils and Chemicals Transported to Tuvalu

The petroleum products that are transported into Tuvalu are unleaded, diesel, jet fuel (kerosene). Lubricating oil is transported in drums. In addition there are heavy fuel oil bunkered vessels that come into Tuvalu.

No chemicals are transported in bulk but there are a number of chemicals transported in small packs. (Customsto provide list)

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## 2. ROLES & RESPONSIBILITIES

### 2.1 National Spill Committee

For all Tier Two spills the National Spill Committee will provide oversight and coordination. When it becomes a Tier Three spill this responsibility reverts to the National Disaster Committee as defined under the National Disaster Plan.

The National Spill Committee consists of representatives from the following organisations:

- Permanent Secretary of Marine Department (Chair)
- Director of Environment (Alternate Chair 1)
- Disaster Coordinator (Alternate Chair 2)

#### Members

- Director of Fisheries
- General Manager – TEC
- Director PWD
- Terminal Manager – Pacific Energy
- Director Civil Aviation
- Police Representative – fire and patrol boat
- General Manager – TCS
- Director of Marine Department

**(add as required – Environment/Marine Dept)**

The role of the committee and its members are to:

- Develop, implement and maintain the Plan.
- 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.



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## **2.2 Responsible Authority**

The National Disaster Management Office is the Responsible Authority for all spills that are **declared a National Disaster**. The Disaster Management Office has legal or statutory responsibility for managing any national disaster.

For all other spills that are not declared a National Disaster the Marine Department is the Responsible Authority for all marine spills.

The Environment Department is the Responsible Authority for all land based spills.

## **2.3 Lead Agency.**

The Marine Department is the Lead Agency for all spills within Tuvalu.

The Lead Agency has operational responsibility to response to spills, through the designated Incident Commander (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.

## **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.
- 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 Commander (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 Bulk Oil Storage Facilities**

All entities operating bulk oil storage facilities in Tuvalu including oil companies, port operators and power companies have the following roles and responsibilities under this Plan:

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- Giving highest priority to preventing spills from tankers, pipelines, terminals, depots and other facilities owned and/or operated by them.
- Immediately reporting all spills from their facilities to the Responsible Authority.
- 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 the Plan.
- Establishing, maintaining and informing the responsible authority of 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 Spill 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 as stevedores on a ship
- ◆ Damage to fixed and floating objects and to other property
- ◆ Wreck removal
- ◆ And other such parts of the liability for collision damage as is not covered under a vessel's hull policy.

When an incident occurs a P&I Club usually appoints a correspondent to assist the P&I Club in relation to claims that arise where the correspondent operates.

The role of the correspondent in marine pollution incidents involving vessels includes but not limited to;

- ◆ Notifying the P&I Club of incidents that occur in his area of responsibility
- ◆ To attend an incident scene if appropriate
- ◆ To appoint surveyors/experts to attend at the scene of a maritime casualty
- ◆ To liaise with the Tuvalu Government through the marine department and the Incident Controller at the scene of a maritime casualty

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- ◆ 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 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.

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 Tuvalu:  
911**

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 Spill Committee, any other affected/interested parties and to SPREP via facsimile.

#### **3.3 Situation Reports (SITREPS)**

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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 compiled from field information and transmitted to all members of the National Spill 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 the Plan.

When the Lead Agency has compiled this report, the Incident Commander and other personnel should meet with the National Spill Committee to review their collective experiences and compile an overall Post-incident Report (POSTREP), including if necessary, any recommendations for amending or revising the Plan.

### **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.

For National Disasters the responsible person is the Secretary to Government. The Director of Marine is responsible for all marine spill spills and the Director of Environment for all land based spills.

## 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 Commander,
- 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).

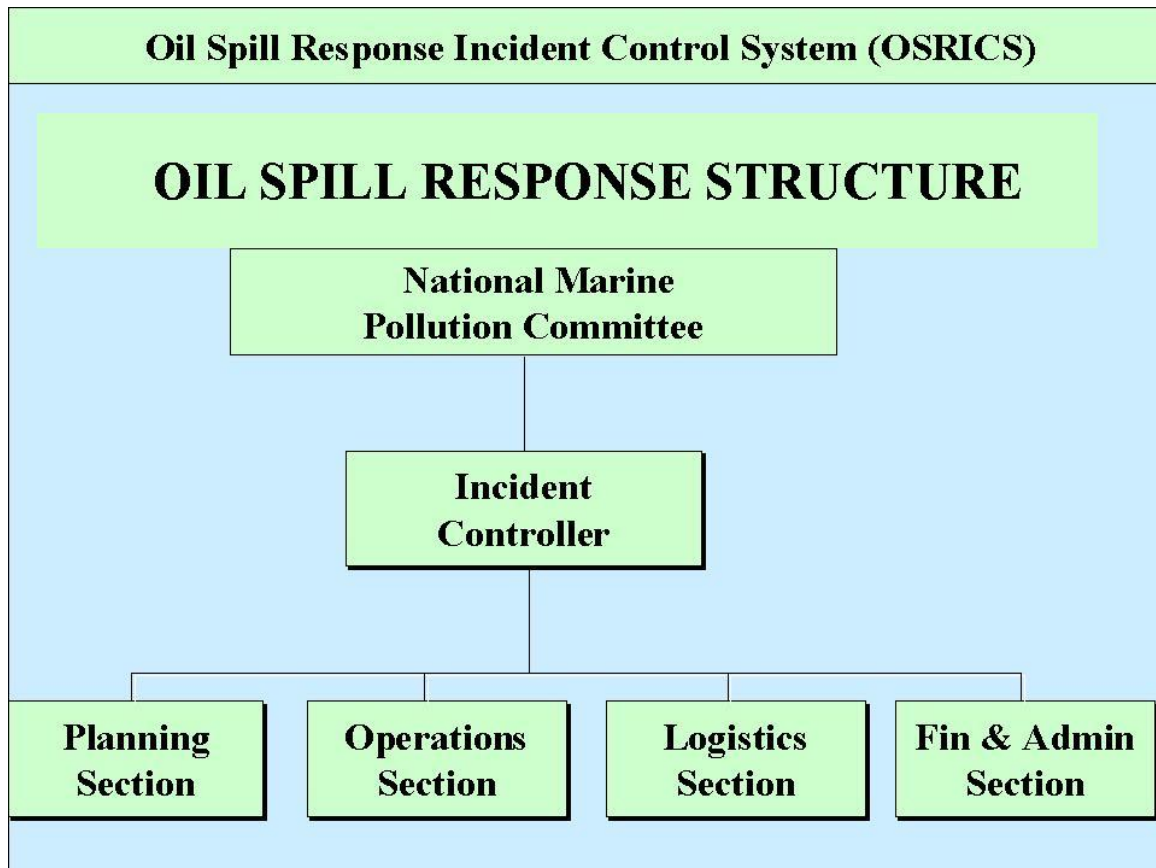
### 4.2 Incident Control System and Marine Spill Response Team

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 spill within Tuvalu or its waters, a 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: Oil Spill Response Team (Oil Spill Response Incident Control System)



The responsibilities of the various roles within the 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 Commander.

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

#### 4.3.1 Incident Commander

**Incident Commander (IC):** The Lead Agency is the Environment Department. The Director of Environment is designated as the IC for all Tier 2 spills within Tuvalu. The Alternate IC is the Director of Marine.

In the event of a 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 their role, the IC shall be supported by an incident response team comprising the personnel and organisational structure outlined in Figure Five.

#### 4.3.2 Planning Section

The Planning Section has clearly defined specific responsibilities that provide the basis for all planning 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, likely to be 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.



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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

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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.

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## **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.

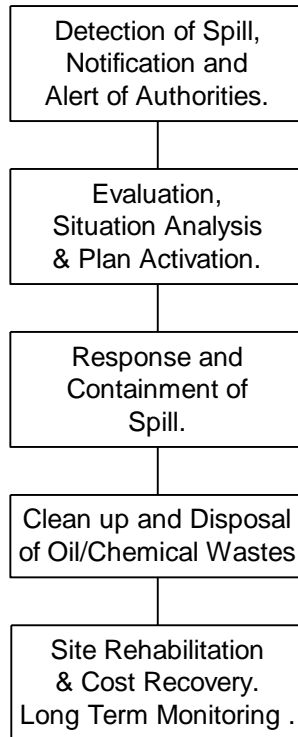
To ensure that these actions are taken, the IC should delegate relevant tasks to the Marine Spill Response Team. To assist in this process a Spill Response Action Checklist at the front of the Plan summarises this sequence.

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.

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

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

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

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

## 5.3 Stabilising Spill Source & Intervention at Sea

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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)*, Tuvalu's jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits the Government of Tuvalu 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, re-floating 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 Tuvalu the Department of Marine has responsibility for safety issues relating to vessels on coastal or foreign voyages and will be responsible for ship operational matters. These functions include alerting and liaising with salvors, taking measures to minimise pollution release or outflow and other salvage activity.

The vessel's owner or master will normally appoint a salvor by signing a Lloyds Open Form Agreement. However, in cases where this does not occur the Division of Transportation and Communication, 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.

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### **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 Spill 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 through 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;

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- Overall protection of human health and the environment,
- Short and long term effectiveness on reducing flow, mobility or toxicity of pollutant,
- Suitability 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 the Plan 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 Plan, 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

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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 Plan, 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 the Tuvalu waters the National Spill 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 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.

### **5.12 Foreshore Clean-up**



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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.

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

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- Direct suction equipment (vacuum trucks)
- Water flushing equipment
- Other mechanical equipment etc.

#### 5.12.1 Coastal Swamps and Mangroves

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

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

#### **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

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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 Plan 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 the Plan or detailed annex].

### **5.16 Oily Waste Management**

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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 Plan, and will need to be inserted in an associated Annex.].

### **5.17 Chemical Spills/HAZMAT Response**

As outlined under section 1.3, the Plan 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 the Plan relate primarily to **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 Plan Area, the general procedures and arrangements of the Plan should be followed.

External assistance may be requested via SPREP under PACPLAN and MOUs.

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## 6. EXTERNAL ASSISTANCE

Should the Responsible Authority 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.

The Secretary to Government, Secretary of Natural Resources and the Marine Department hold Tuvalu's controlled copies of PACPLAN.

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.

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- 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**

BP has its own industry-based agreements for assistance for Tier 3 spills through its parent company in Fiji and Australia and also through the Australian Marine Oil Spill Centre (AMOSOC) and East Asia Response Limited (EARL) in Singapore.

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## **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 Spill Committee, should determine the point when further effort and expenditure become unreasonable and can no longer be supported on grounds of environmental effectiveness and cost.

The advice of the 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 the Plan.

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 Plan, 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 Spill Committee for action.

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#### **7.4 Damage Assessment & Monitoring**

Following a marine spill it is desirable, 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 EQPB. The following general principles should apply to post-spill damage assessment and monitoring.

- The EQPB, 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.



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- 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 EQPB. 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.

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## **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 Convention 1992 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 the Plan.

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.

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## **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 Tuvalu, storage locations and contact details is contained in Appendix Five. (Marine/Environment to list inventory of equipment)

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

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## 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
- Confidentiality 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

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- 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 Spill Committee. SPREP can provide technical advice and assistance in the development, conduct and monitoring of these exercises.

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## **11. APPLICABLE LEGISLATION, ENFORCEMENT & PROSECUTION**

The National Disaster Management Office under the Secretary to Government is responsible for the declaration of a disaster and the activation of the Disaster Management Plan. The National Disaster Management Office is responsible for all spills that are declared a disaster.

Shipping related pollution of the marine environment is regulated under the Marine Pollution Act. The Marine Department administers this Act. The Marine Department is the Responsible Authority for all marine spills that are not declared a disaster.

The Department of Environment is responsible for all land-based spills.

In the event of a 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.

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## **12. APPROVAL, CONTROL & REVISION OF THE PLAN**

### **12.1 Approval of the Plan**

National Disaster Committee will approve the Plan, with such approval requiring written endorsement of the plan by all members.

### **12.2 Control of the Plan**

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

### **12.3 Revision of the Plan**

The main body of the Plan may only be revised by agreement of all members of the National Disaster Committee followed by approval by Cabinet.

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

Technical information contained in informational annexes, such as contact details and equipment inventory, will be revised and updated regularly, and new informational appendices added as required, by the 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 One: Standard Pollution Report (POLREP) Form**

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**Pollution Report (POLREP)**

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**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 Marine Department – 20722/20062.*
- 3. please also fax them 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): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



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Direction and rate of drift of pollution: -----  
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Wind speed & direction: ----- Sea state: -----  
Tide: -----

Identity & position of vessels in the vicinity: -----  
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Photographs taken?: ----- Samples taken?: ----- Other action taken?: -----  
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**Please submit this POLREP immediately!  
(Attach additional information if required)**

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**Appendix Two: Standard Situation Report (SITREP) Form**

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**Situation Report (SITREP)**

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

- 1. complete these SITREPs on a regular basis,*
- 2. fax them to the Marine Department – 20722/20062*
- 3. please also fax them to SPREP at + (685) 20231.*

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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): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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Direction and rate of drift of pollution: -----  
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Wind speed & direction: ----- Sea state: -----  
Tide: -----

Events since POLREP/last SITREP: -----  
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**(Attach additional information if required)**