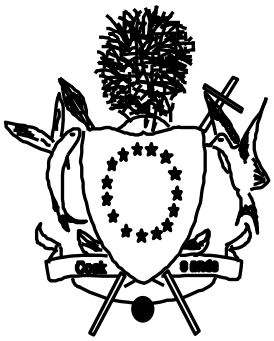
NATIONAL SPILL CONTINGENCY PLAN

" NATPLAN "

For

THE Cook Islands



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This plan has been developed to reflect the essential steps to initiate, conduct and terminate an emergency spill response in the Cook Islands.

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

PLEASE NOTE

This plan is a draft which has been prepared in order to allow all interested and involved parties to review and recommend additions or modifications to either its core provisions or provide additional annex material. As the recipient of a controlled copy The Ministry Of Transport urge you and/or your organisation to examine the plan and make recommendations or additions /deletions especially in areas where your expertise or knowledge may be more extensive than the draftees.

In the event you do not have any input to offer we would appreciate a response advising us that you have received and reviewed the plan and find it acceptable.

Please forward your recommendations and ideas to:

Marine Pollution Control Division
Ministry of Transport
P.O. Box 61
Avarua
Tel. 28810 Fax. 28816
Email: transport@oyster.net.ck

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001	Min Of Transport	1/11/04	

PLAN AMENDMENT CERTIFICATION

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

The Secretary
Ministry of Transport
Rarotonga
Phone 28810 Fax 28816

Amendment		Section	Page	Entered	Date	Signature
No	Date					

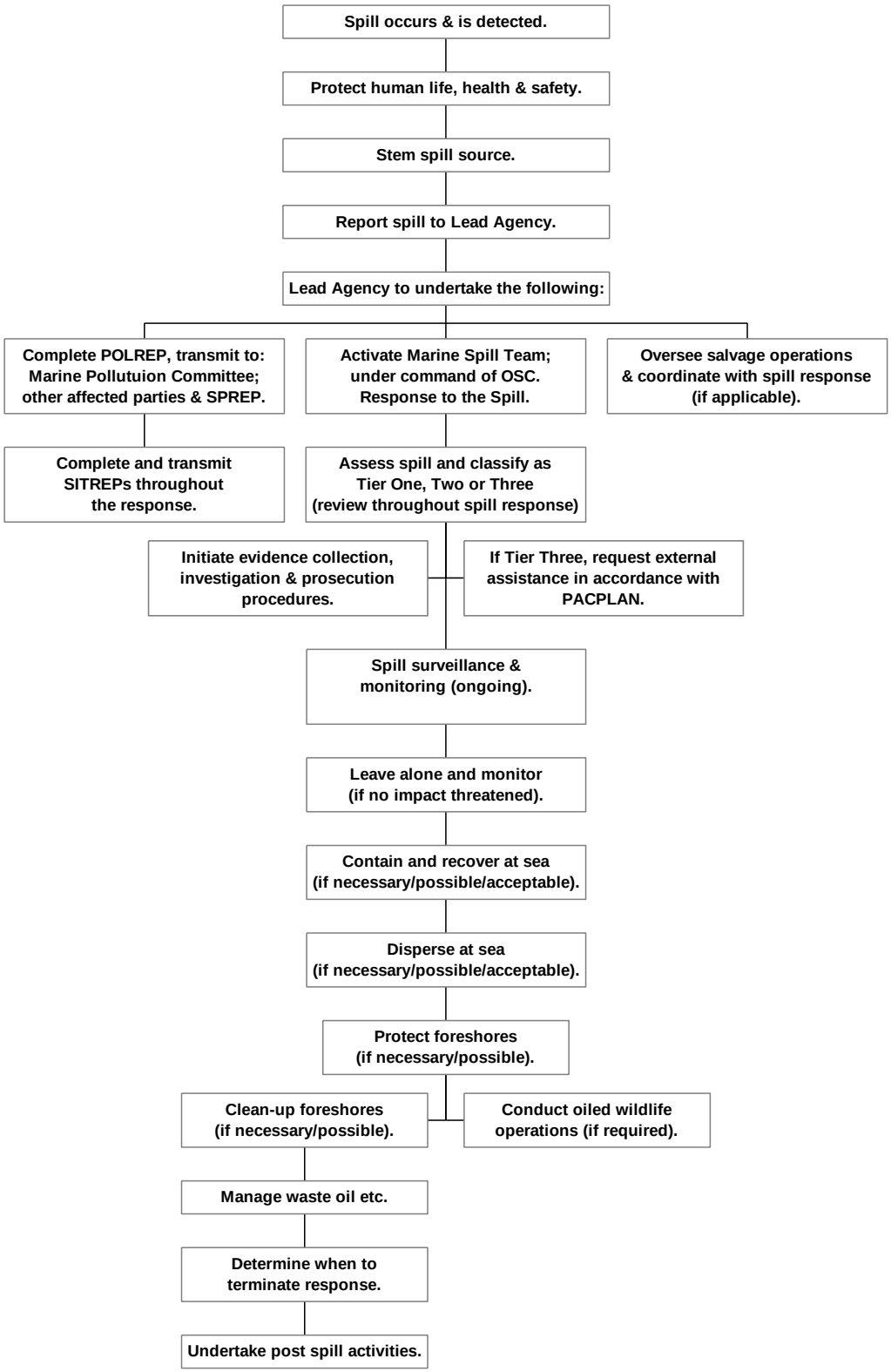
EMERGENCY CONTACTS

MARINE POLLUTION EMERGENCY CONTACT DETAILS					Updated 5-Oct-04	
Cook Islands Country Code= 682						
		PHONE	**Mob/Emerg.**	**FAX**	**EMAIL**	
POLICE		**22499**	999	21449		
AMBULANCE/HOSPITAL		20065	998			
FIRE=*crashfire at Airport*		25890	996			
TE APONGA- *Electricity*		20054	25257			
DISASTER Management Office/ Ref.POLICE		29609	999	22507		
NATIONAL MARINE POLLUTION COMMITTEE.						
Yet to be formed but will consist of many of these organisations/ individuals						
MINISTRY OF TRANSPORT - LEAD AGENCY		28810		28816	transport@oyster.net.ck	
24 hour Contact No. = POLICE		24999	999			
Aukino Tairea	Sec. Of Transport	20908			atairea@oyster.net.ck	
Bill Carruthers	Marine Pollution Control	26969	50369		porto@oyster.net.ck	
Ned Howard	Director. Of Marine	22902			maritime@oyster.net.ck	
SPREP Samoa: Help with Large Spills		685 21929		685 20231	sprep@sprep.org.ws	
OIL COMPANIES						
MOBIL Depot		27001	54474	28001	mobiloil@oyster.net.ck	
Oki			55052			
TRIADTerminal		20437		20435	pipa@oyster.net.ck	
Terminal Mgr- Pipa (George Nicholas)		27050 AH	55083			
Terminal Supervisor Tutai Tuakana		24998 AH				
BP Island Manager- ??		25952	55322			
JUHI OFFICE		22377		21550	juhiraro@oyster.net.ck	
Mii Nicholas Mgr.		26250	55149			
PORTS AUTHORITY		21921		21191	andrew.mcbirney@ports.co.ck	
HARBOURMASTER - John Fallon		28814	55618		john.fallon@ports.co.ck	
METEOROLOGICAL Service		20603	25907Emerg	21603		
MARINE RESOURCES		28721 or2		29721		
ENVIRONMENT SERVICE		21256		22256	resources@environment.org.ck	
Ministry of Works		20034		21134	info@mow.gov.ck	
	Waste management	20034	ext 236			
SHIPPING COMPANIES						
XCIL & REEF		25193	55303	25194	shipping@xcil.co.ck	
FORUM SHIPPING AGENCIES (PFL)		20735	54735	20734	pflraro@oyster.net.ck	
TAIO SHIPPING		24905		24906	taio@taio.co.ck	
MATAROA SHIPPING		29018				
TELECOM CI *Communications*		29680		26174	sales@telecom.co.ck	
Directory		010 Local	017 Internat.			
CI GENERAL TRANSPORT *Trucks /Trans.*		24441	55242/4	24446	movers@cigt.co.ck	
T&M HEATHER *Heavy Eguip.Trucks*		24249	55075		contract@heather.co.ck	
AIR RAROTONGA *Local Air Trans.*		22890/22888	55229	20979		
MARITIME COOK ISLANDS (Ship Registry)		23848		23846	info@maritimecookislands.com	
MARITIME SURVEILLANCE CENTRE		26018				
PATROL BOAT -Te Kukupa		26017	26019			
CROWN LAW		29337		20839	janet@crownlaw.gov.ck	
TAKITUMU CONSERVATION		24494				
RADIO CONTACTS		VHF Channel	16			
	ZKR Rarotonga Radio	UHF FREQ	2182			

ADDITIONS	Suggestions					

SPILL RESPONSE ACTION CHECKLIST

24 – Hour Contact for Pollution Reports – 999 or 24999



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[Other appendices may be added as we 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; the SPREP Dispersant Use Guidelines etc].

1. INTRODUCTION

1.1 Background

The Government of the Cook Islands has developed this National Spill Contingency Plan (NATPLAN) as part of its commitment to protecting our valuable natural resources and environment from the threat of 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 the Cook Islands, on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

This plan meets the obligations of the Cook Islands under the *Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region (SPREP Pollution Protocol)* of the *Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP Convention)*. It also meets obligations under the *International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90)*.

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

1.2 Aim & Objectives

The Aim of the NATPLAN for the Cook Islands is:

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

The Objectives of NATPLAN are:

- Provide the basis of planning for pollution and other 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 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 SPREP Pollution Protocol and OPRC 90 in the Cook Islands.

1.3 Technical Scope & Tier One, Two and Three Spills

This NATPLAN covers the response to spills into the 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 the Cook Islands waters.

NATPLAN covers spills into the 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 the Cook Islands. These spills would normally have low potential for environmental or economic harm and are usually covered by oil terminal or port specific response arrangements.
- (Guidance only – up to 1 tonne)

Tier Two

- Medium spills that are within the national capability and resources of the Cook Islands. These spills would have a moderate potential for environmental and/or economic harm and are covered by this NATPLAN.
- (Guidance only – More than 1 tonne but less than 20 tonnes)

Tier Three

- Major spills that are of a magnitude and/or severity that is beyond the response capability and resources of the Cook Islands, and/or
- That impacts or threatens to impact within the jurisdiction of both the Cook Islands and neighbouring country(ies) and,
- The spill has the potential to cause extensive local or regional environmental damage and loss of resources.
- (Guidance only – More than 20 tonnes)

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.

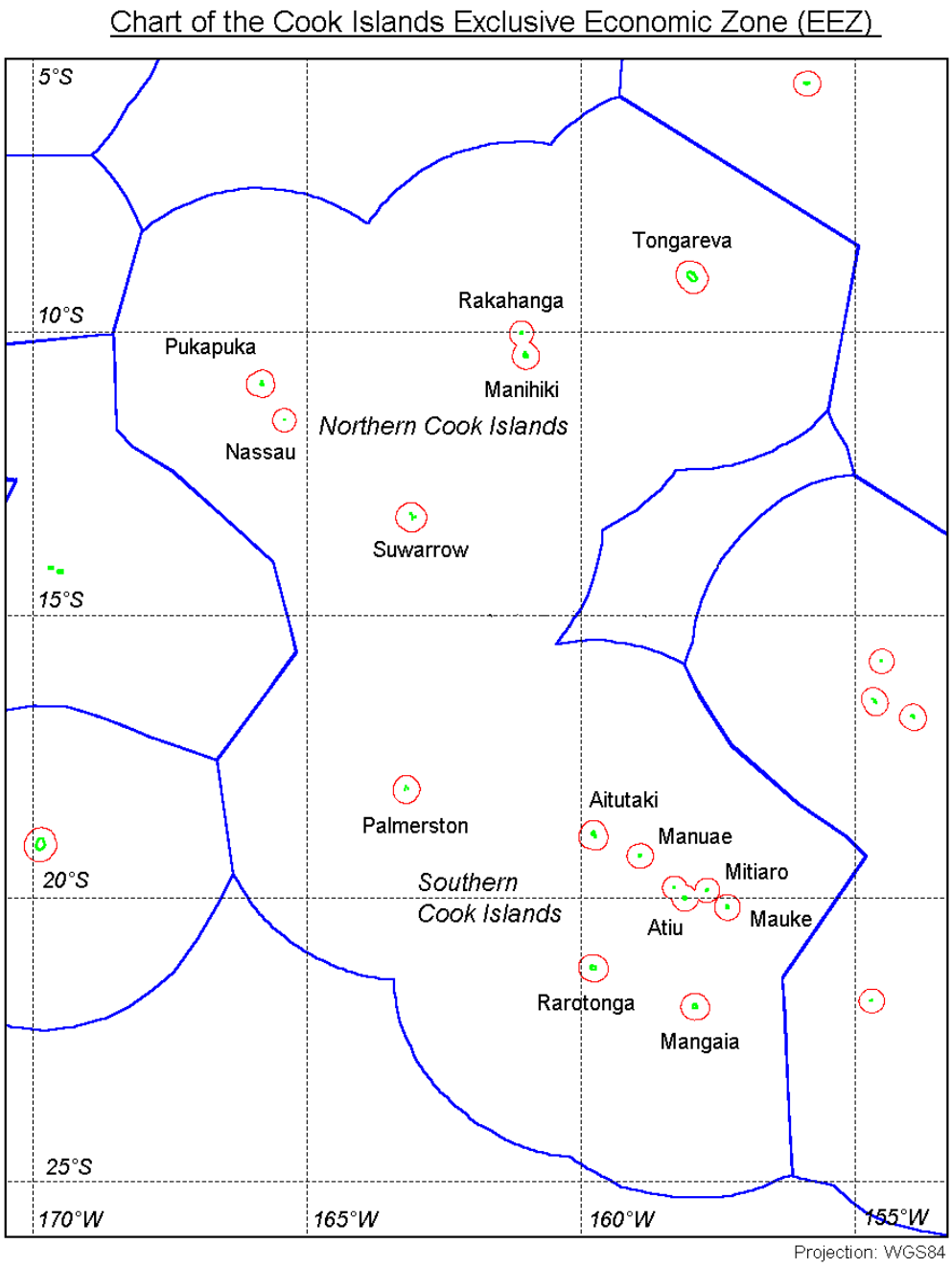
1.4 Integration with Other Contingency Plans

The Cook Islands is formulating a National r Eemergency Management Plan that will provide the overall framework for all emergency plans. This National Spill Contingency Plan can be considered as a sub-plan of the National Disaster Management Plan. All oil terminals must have their own Tier 1 contingency plan arrangements, which should compliment and comply with the National plan.

1.5 Geographical Scope

The geographical scope of NATPLAN, referred to hereafter as the NATPLAN Area, is all of the land, coastlines and all marine waters within the Exclusive Economic Zone (EEZ) of the Cook Islands.

Figure One: The NATPLAN Area for the Cook Islands



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 the Cook Islands.

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

- The response to 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 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.
- ☐ Property
- ☐ Environment
- ☐ Cultural resources

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 coral reefs, 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, not common in the Cook Islands	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 coral or gravel beaches. Correlate with reef flats at low tide	Oil may penetrate and be buried. Depending on energy conditions. Oil may persist for sometime.
4	Sheltered rock coasts and high amenity Areas: ie Muri Lagoon	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. Limited Areas ie Muri, Aitutaki See note re: Coastal Resources below	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, Coral Reefs

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, Mangrove Areas:

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.

1.6.1 COASTAL RESOURCE NOTES

The Cook Islands do not generally have the range of coastal resource areas of sensitivity found in some other locales. All of the Islands can for Marine Spill purposes said to consist of a fringing coral reef with sandy or coral rock beaches inside the reef.

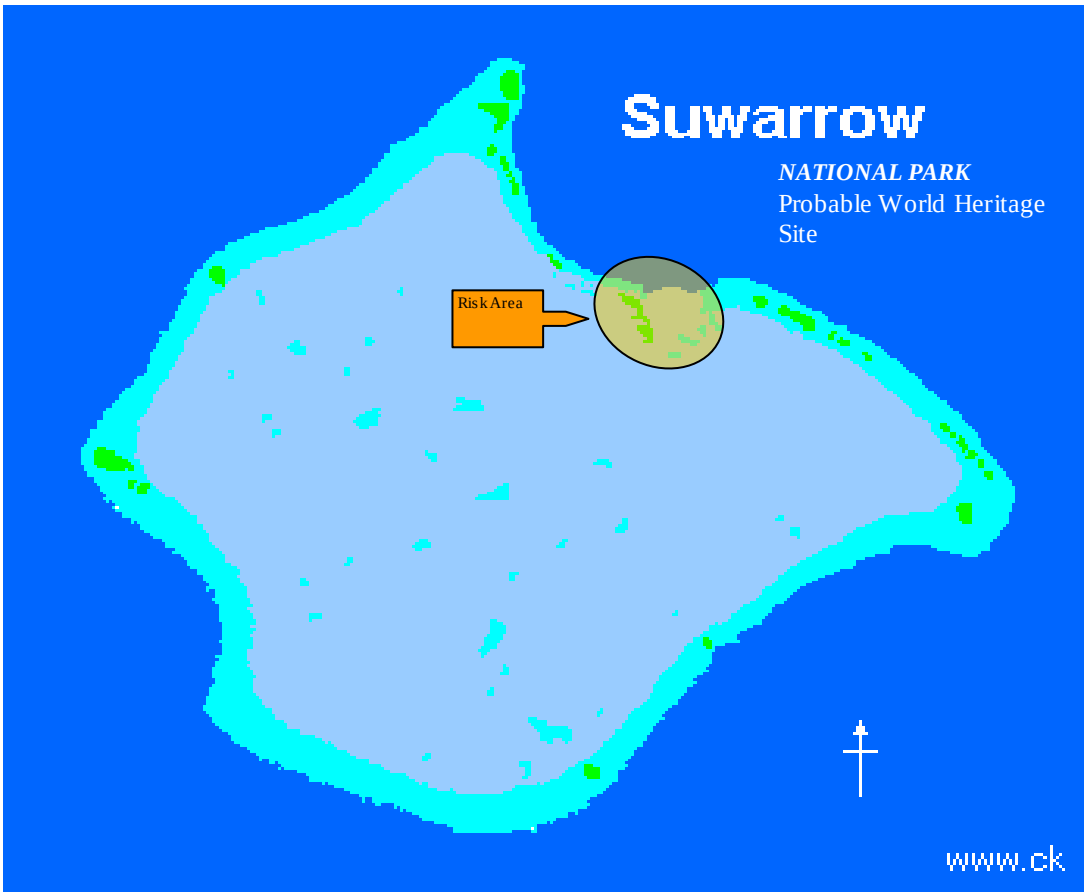
There are small areas of mangrove and wetlands in Muri Lagoon on Rarotonga and on Aitutaki. Major Areas of risk on the different islands are noted in the maps of the Risk Assessment section (which follows).

The greatest risk of these areas becoming the victims of a polluting spill is probably land based, or from a vessel grounding incident on outlying reefs.

1.6.2 Suwarrow:

Suwarrow rates attention as a particularly sensitive area as it has been designated as a NATIONAL PARK and is on the list to become a World Heritage Site. Suwarrow is also a major breeding ground and home for many types of seabirds.

FIGURE TWO: Suwarrow Map



The actual risk of a polluting Marine spill is minor as on
ly itinerant yachts; rare local supply vessels and the occasional fishing boat usually visit the island.

While not completely safe, the small number of vessels and the fact that few of them would have any thing more than diesel or petrol on board make the risks of a seriously polluting spill minimal.

Suwarrow's isolation and lack of an airport mean that any cleanup activity would be very delayed and probably impractical to implement within a reasonable time frame.

It could be of some practical use to supply the island caretaker with some absorbent material for small spills, but even this would present difficulties in its long-term storage due to the need to keep it dry. Coconut fibres could be useful in an emergency.

If a vessel such as the Te Kukupa or a cargo or fishing boat is available it could be used to transport Spill Response team (including oiled wildlife experts) and equipment to the island.

In the event of a major incident the first line of action might be to contact French Polynesia for aerial assistance / surveillance and dispersant spraying (if necessary and approved).

1.7 RISK ASSESSMENT

In assessing the risk factors in the Cook Islands we look at several different criteria. In common with many other risk assessment plans we must define a level of risk from the various factors that might lead to a polluting spill.

In practical terms for the Cook Islands Maritime Zone we may divide that risk factor into two levels: one being a the equivalent of a "Tier One Spill" graduating to a minor Tier Two which we could define as Minor, and the other being a more major Tier Two or Tier Three Spill defined as Major (see page 2). We can then apply a percentage risk factor over a period of 100 years. A 1% risk factor will equate to a possibility of such an accident happening once in a hundred year period.

Into the equation must also go the risk of actual pollution affecting the islands, as even a major collision of 2 super tankers at sea far from land might well have little or no environmental impact on the Cook Islands The type of material spilled as well as the size of the spill is a large factor in assessing its long-term danger or damage potential. The Cooks are relatively fortunate in this regard as there is little ship traffic carrying heavier bunker and crude oil traffic or large quantities of hazardous materials through the Maritime Zone.

As this document deals primarily with Marine Spills which could have a polluting effect on the environment in the Cook Islands, the primary criteria that is likely to affect the Cooks is shipping and vessel activities, such as unloading and transferring oil products. 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.

In analysing the risk from such activities we have to take into account risks from ships, petroleum operations, land spills, environmental factors, and unique Cook Islands circumstances:

a. Risk of Collision –
This is not a high risk factor in the Cook Islands waters due to a combination of a lack of heavy ship traffic lanes (see Figure 4 (ABCD)), and the fact that lanes that are more heavily trafficked are not congested or constrained by land or off lying hazards. There is also very little risk of fog in Cook Island waters The almost universal use of radar and advanced navigation and communication equipment is another mitigating factor as is the increasing competence of crews.

Minor Spill Risk Factor **.8** %. Major Spill Risk Factor **.08** %

b. **Risk from the Size/Type of Vessel and Traffic Density** -
This risk is low as there are no refineries in the Cooks necessitating transits/arrivals of large crude or bunker oil tankers. The vessels most at risk are relatively small tankers of about 3000 GRT, which are mostly carting Aviation fuel, unleaded gasoline, kerosene, diesel fuel and lubricating oils. Some ships that visit the Cook Islands carry heavy fuel oil which is which has potentially more environmental impacts if spilled.

There are no refining facilities in French Polynesia, so the slightly elevated level of vessels transiting the central Cook Islands waters between Pago-Pago and Papeete as shown in Figure Four (C&D), are only carrying refined products, which are less hazardous than unrefined products.

Minor Spill Risk Factor **.3** %. Major Spill Risk Factor **.03** %

c. **Risks from Hazards to Navigation** –
The Cook Islands are blessedly free of any off lying or unmarked shoals, rocks or shallows and again more modern navigation and radar plotting make this factor absolutely minimal. The difficulties lie in the narrow entrances and crosswinds at Cook Islands' harbours and landing places.

.Minor Spill Risk Factor .3 %. Major Spill Risk Factor .03 %

d. **Risks From Seaworthiness of Vessels and Crew Competence**
For the most likely spill candidates, the oil tankers arriving at Avarua from Fiji etc. there is no problem with seaworthiness or crew competence and they are all covered by P&I Club insurance. Some of these vessels may use heavy fuel oil, which could marginally increase spill risk

Longline fishing boats are generally seaworthy and crew competence is variable but generally acceptable. The fishing vessels tend to act quickly to help each other out in the event of a problem and carry relatively low levels of potentially polluting spill materials.

The situation changes when looking at the local cargo vessels, as there are some real issues with these not meeting survey standards and the varying competence of their captains and crews. The low standards imposed on these vessels by various authorities make them potentially quite hazardous, not only for spills but also for general navigation. The spill risk could be reduced if these inter island trading vessels were to maintain a quantity of Sorbent materials on board, and store them in an approved manner to prevent deterioration. Pressure should also be applied to the operators to try and raise their standards of survey and crew compliance. There is a mitigating factor in that these vessels are only likely to create minor Tier One spills.

Minor Spill Risk Factor **5** %. Major Spill Risk Factor **.03** %

e. **Risk From Environmental Factors** (weather, tides, severe weather events)
Tides are less than 1 metre so presents little or no hazard. Cyclones average 4? per year in the Southern Cook Islands area but good warnings are usually available, therefore spill risk is minimal as long as vessels follow prudent and accepted practices (i.e. leaving harbour and lying in the lee of islands). Storm surges do threaten petroleum industries and tank farms along the Panama area coast, however biodiversity in the area is limited, and existing response plans attempt to address the threat as much as possible. Outside of cyclone season the weather is reasonably benign and even fog is extremely rare so there is no increased risk.

Minor Spill Risk Factor **.2** %. Major Spill Risk Factor **.02** %

f. Risk from Groundings –

This is the most likely area of risk in the Cook Islands. There have been several incidents with both large and small vessels over the years, which testify to the reality of this risk. The mitigating factors mentioned above such as better navigation, communications, and trained personnel, mean that this risk is somewhat reduced in the present day.

The area most likely to suffer a grounding incident would be near the entrance to Avatiu harbour. This risk is increased by the narrowness of the harbour mouth, and the fact that the prevailing wind and currents often blow across the harbour mouth, which means that a vessel attempting to enter or leave the harbour that loses power or manoeuvrability will find itself blown onto the reef, with possibly severe consequences. The methods of dealing with spills from grounding in the Avatiu harbour area are discussed under Section (?) Figure Five High Risk Areas

If we have a marine spill due to grounding on a distant part of the reef on Rarotonga or anywhere in the Outer islands there would be limited options to respond in a timely manner. This is due to a lack of equipment that could be effectively deployed to protect the potentially impacted reef or area. It would be necessary to rely on natural dispersant such as wave action, tidal movements, currents, winds and evaporation to lessen the effects of the spill.

Minor Spill Risk Factor **20** %. Major Spill Risk Factor **2.0** %

g. Risk from Petroleum Facilities and Tank Farms

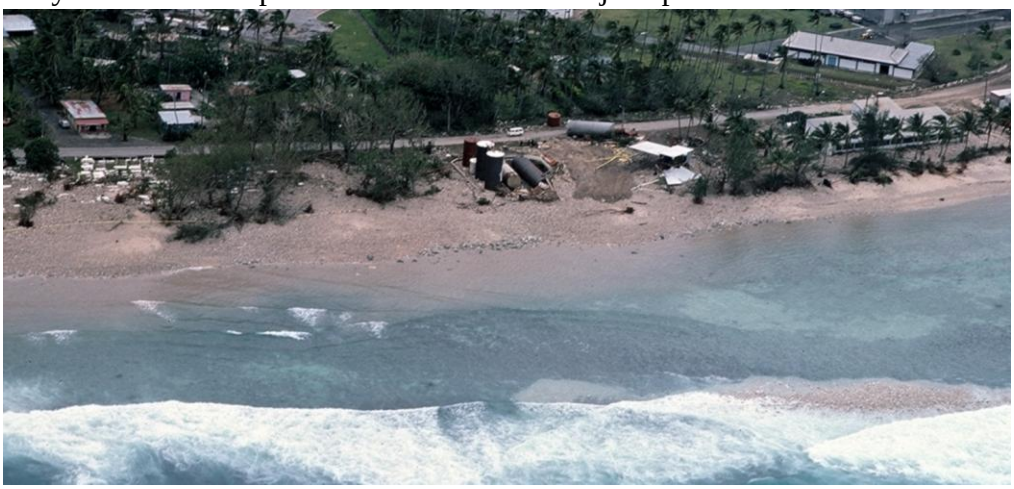
This risk is reasonably well contained by the oil facilities themselves, although evidence suggests that both JUHI and TRIAD tank farms are at considerable risk in the event of a cyclone impacting from the north. During Cyclone Sally in January 1987, the tanks at TRIAD were nearly destroyed by storm surges. A more major cyclone would almost certainly cause more devastation. However, in such an event other disaster response issues would be prioritised over any oil spill. Unless terminals are relocated inland, there are few steps available to be taken to appreciably reduce risks.

Under normal conditions, JUHI, have an effective sump/filter facility for their waste or spilled oil. Mobil have a structural containment system that seems to be reasonably effective. There is some room for improvement in the TRIAD containment and response systems.

Another potential source of marine spills is from the airport itself, where the Crash – fire response would be to wash any spilled substance from the runway which would seep down and in to the lagoon. This particular risk is not highly significant, as the likely substance would be aviation fuel that rapidly evaporates and is easily dispersed.

Under normal conditions: Minor Spill Risk Factor **2**%. Major Spill Risk Factor **0.2**%

In the event of a cyclone striking the northern part of Rarotonga these risk factors increase considerably. Future scenarios of climate change imply the intensity and frequency of cyclones may be impacted, increasing risks.
In cyclone: Minor Spill Risk Factor **25** %. Major Spill Risk Factor **2.5** %



TRIAD depot after cyclone Sally 1987 – photo courtesy Don Dorrell

TRIAD after Cyclone Sally – photo courtesy Don Dorrell

h. Risk From Wharf Pipelines

There are no floating pipelines for offloading fuel. Historically there have been issues with the fixed wharf pipelines; with some Tier I spills caused by degradation and damage of the underground pipelines from Avatiu Harbour to the tank farms.

Minor Spill Risk Factor **1** %. Major Spill Risk Factor **0.1** %

i. Specific Risk Factors for Outer Islands

The Outer Islands of the Cook Islands are largely free of high-risk activities, as on most of the islands potentially polluting substances are transferred to shore in sealed

200 litre drums, which present a minimal risk of spill incidence and volume. The harbours and landing areas of each island are mapped in figure Three (A) Southern Cook Islands, and Three (B) Northern Cook Islands. Environmental resources in the outer islands are at greater risk because their harbours, lagoons, and landing places, are less developed with greater biodiversity and more pristine natural marine ecosystems. Suwarrow as a particularly sensitive area has been described in 1.6.2.

The products transferred are almost exclusively diesel and petrol, which have limited environmental impact potential. Risks could be mitigated if any vessels delivering petroleum products to outer islands have on board sufficient absorbent materials to handle minor spills from leaking drums.
Aitutaki is the exception because tanker containers of products is transferred from the vessel via landing barge.

Distance and lack of equipment and personnel, means that if a spill does occur the risk of impacts is higher, as response is likely to be limited, and dependent on external assistance which would be difficult to effect in a timely manner.

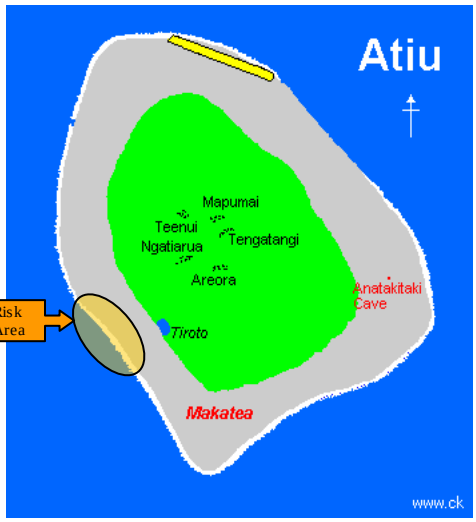
Minor Spill Risk Factor **0.5** %. Major Spill Risk Factor **0.01** %

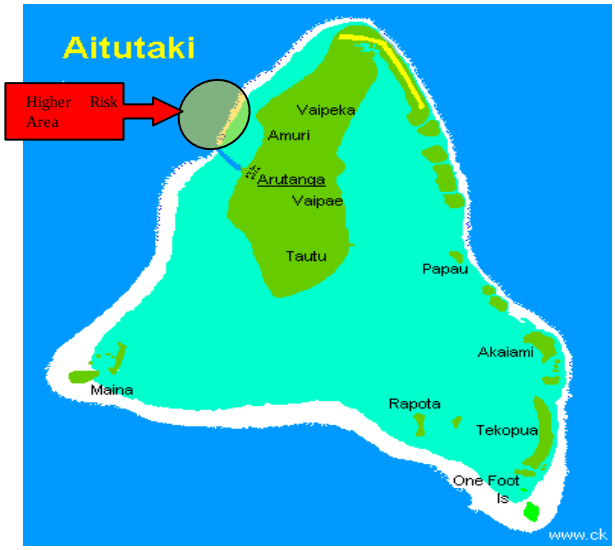
In ***s***ummary ***t***he overall risk factor for a seriously polluting spill in the Cook Islands as a whole is very low for a major spill, and moderately low for even a minor spill. The area most at risk, Avatiu Harbour, is examined in more detail under Section 1.9. Cyclones obviously increase spill risks. Notwithstanding the low overall risk factor, response options in many cases are severely limited by distance, topography, and available resources.

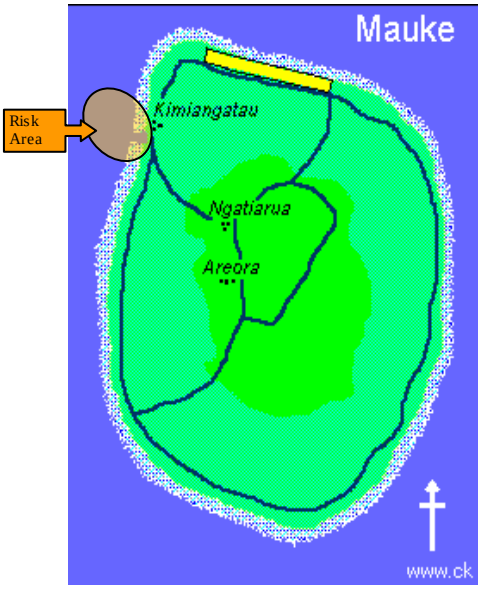
1.8 Types of Oils and Chemicals Transported in the Cook Islands

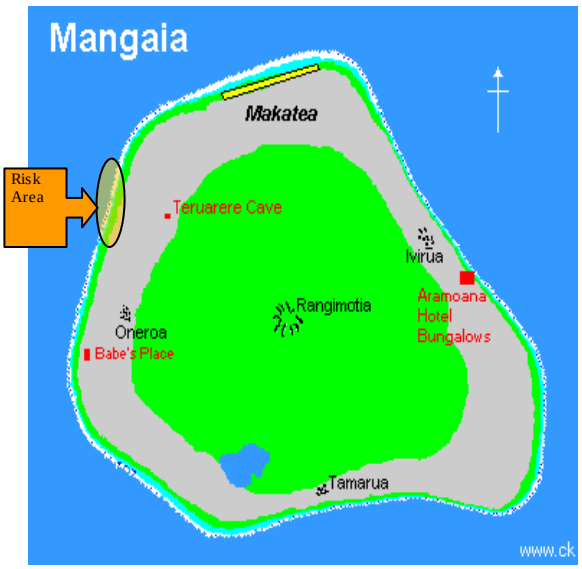
The following products are landed and used in the Cook Islands -Unleaded, Diesel, Kerosene, Lubricating oils, Aviation gasoline. Some ships that call at Cook Island ports or pass through Cook Island waters may carry fuel oil as cargo or fuel bunkers.

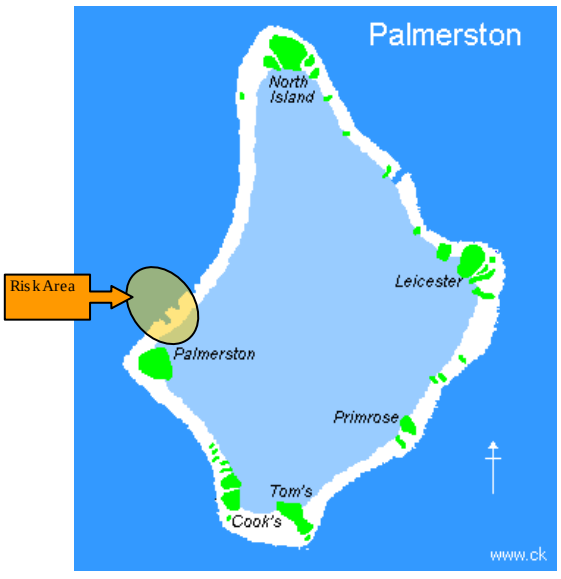
FIGURE THREE (A) Maps of Southern Group Islands











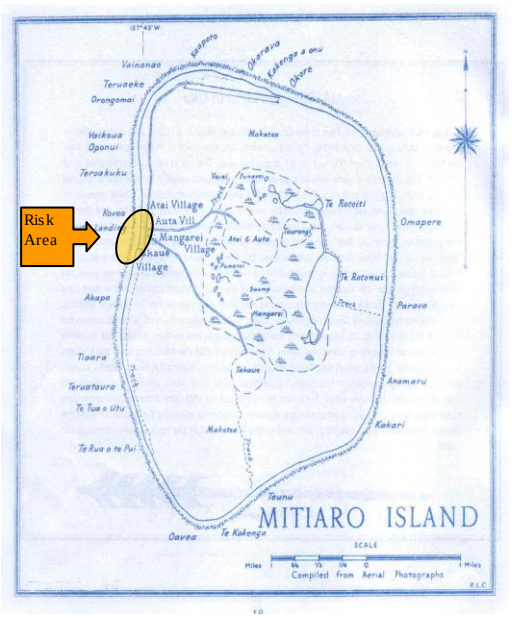
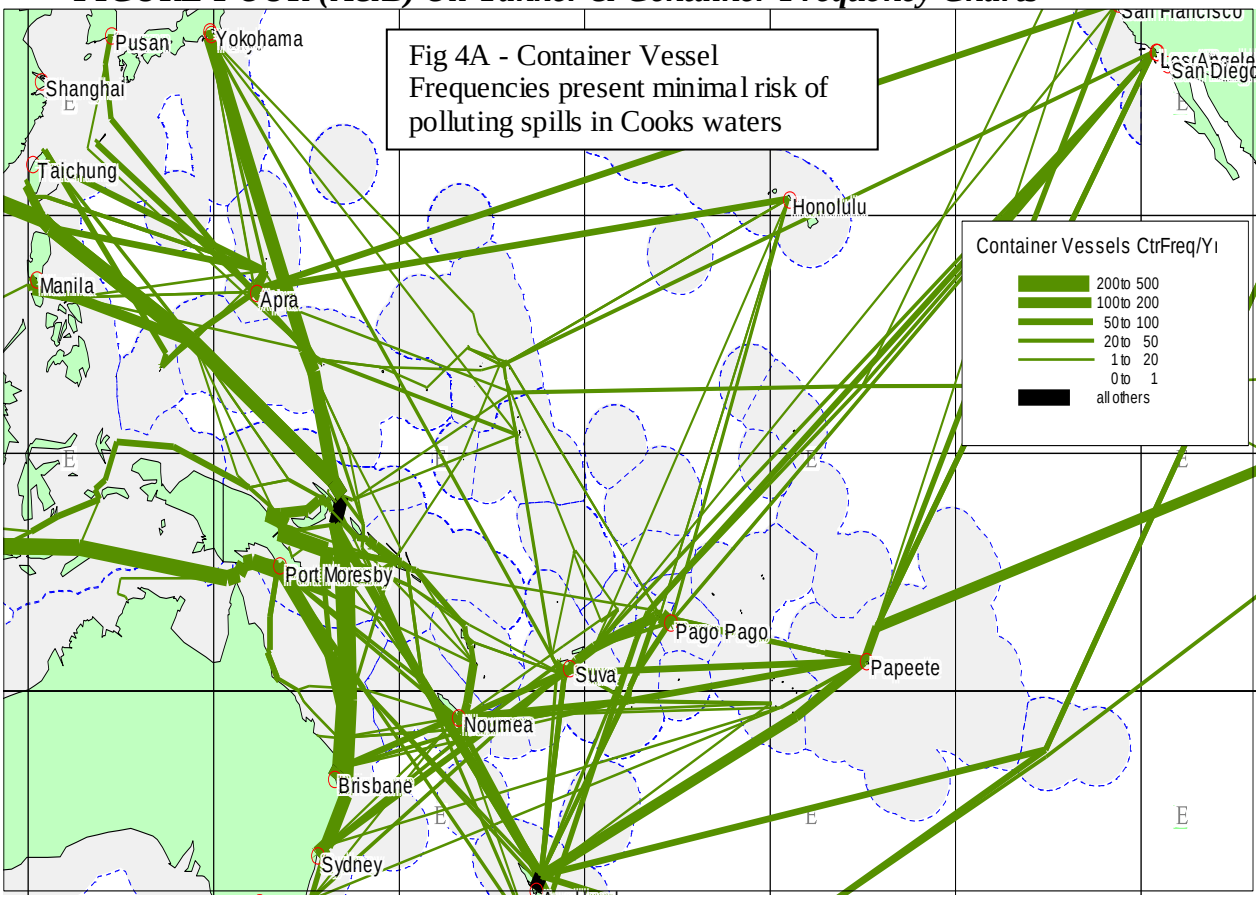


FIGURE THREE (B) Maps of Northern Group Islands

Other Islands
Takutea, Manuae,Nassau not shown as maps not available and spill likelihood is minimal.

FIGURE FOUR (A&B) Oil Tanker & Container Frequency Charts



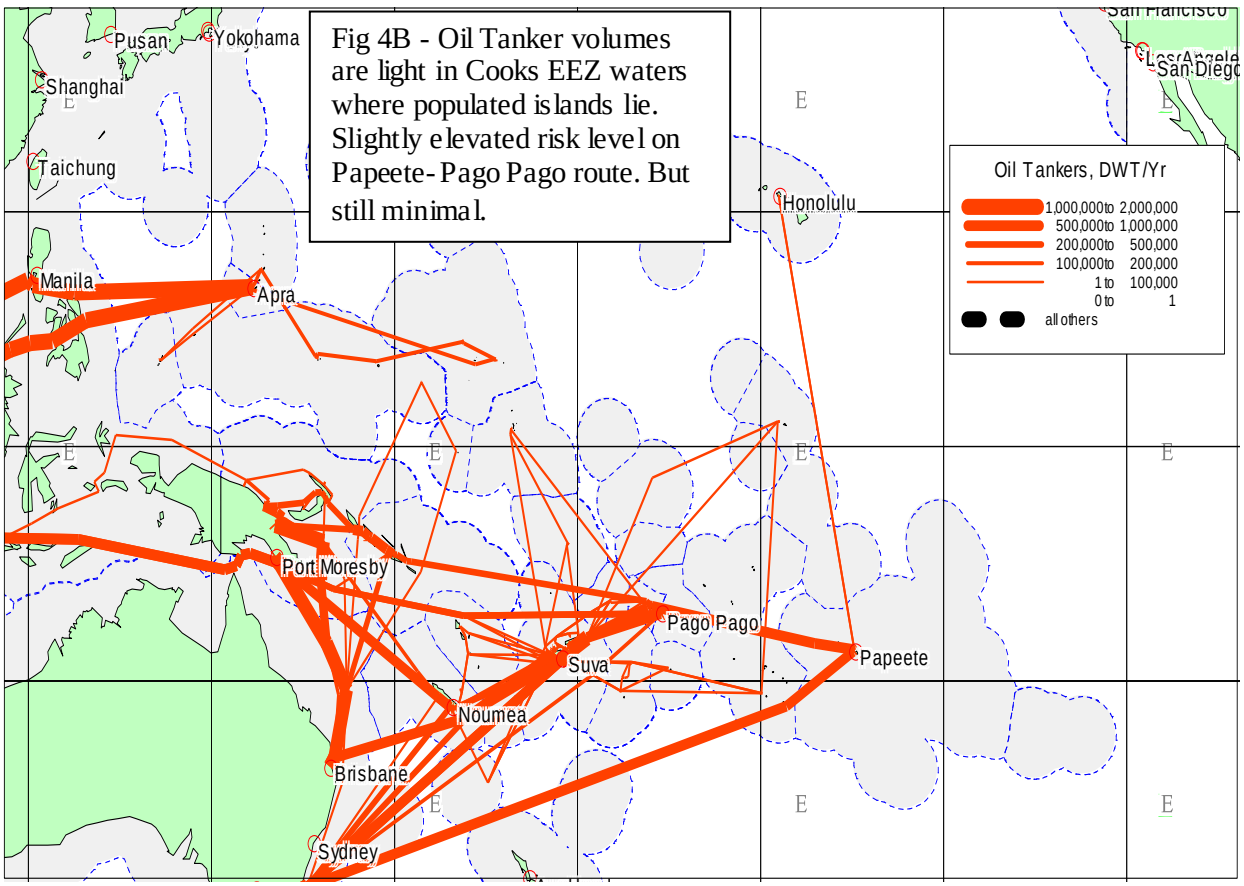
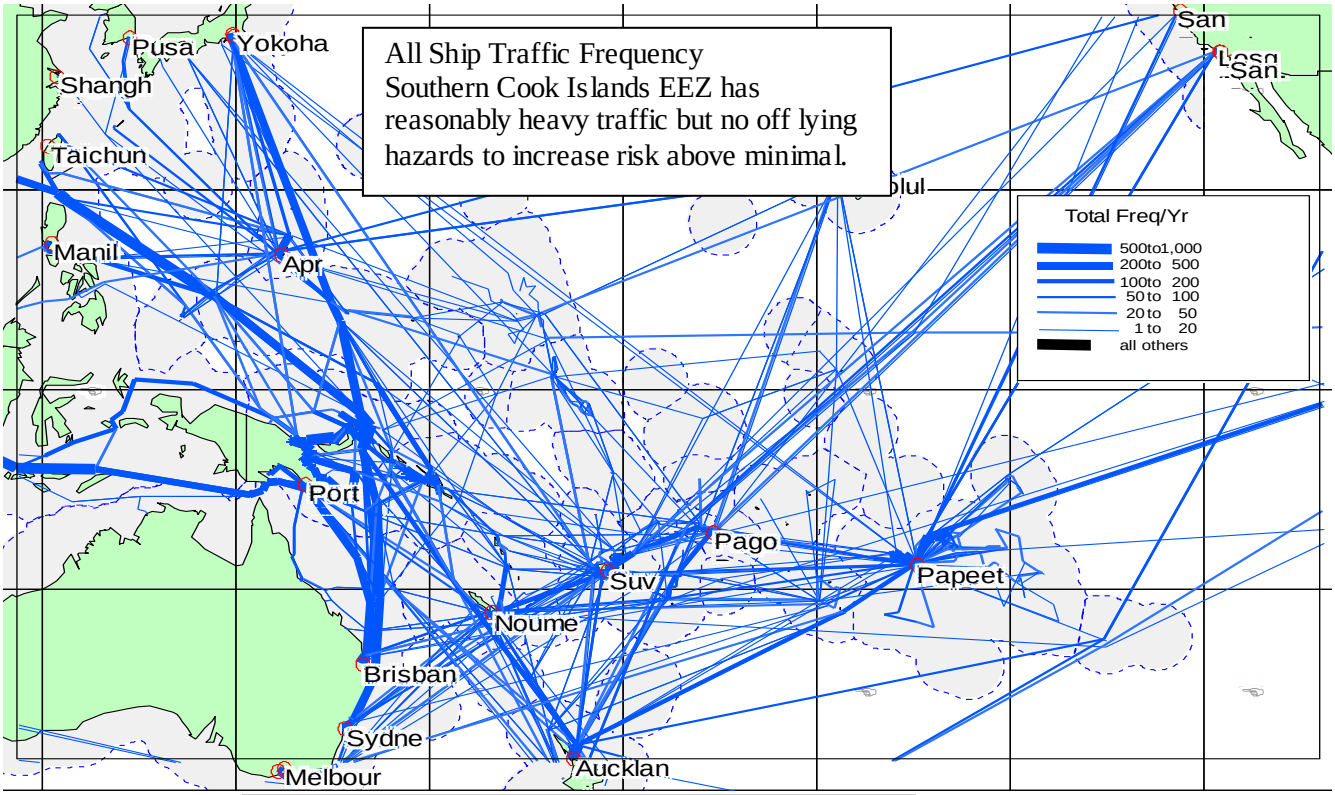
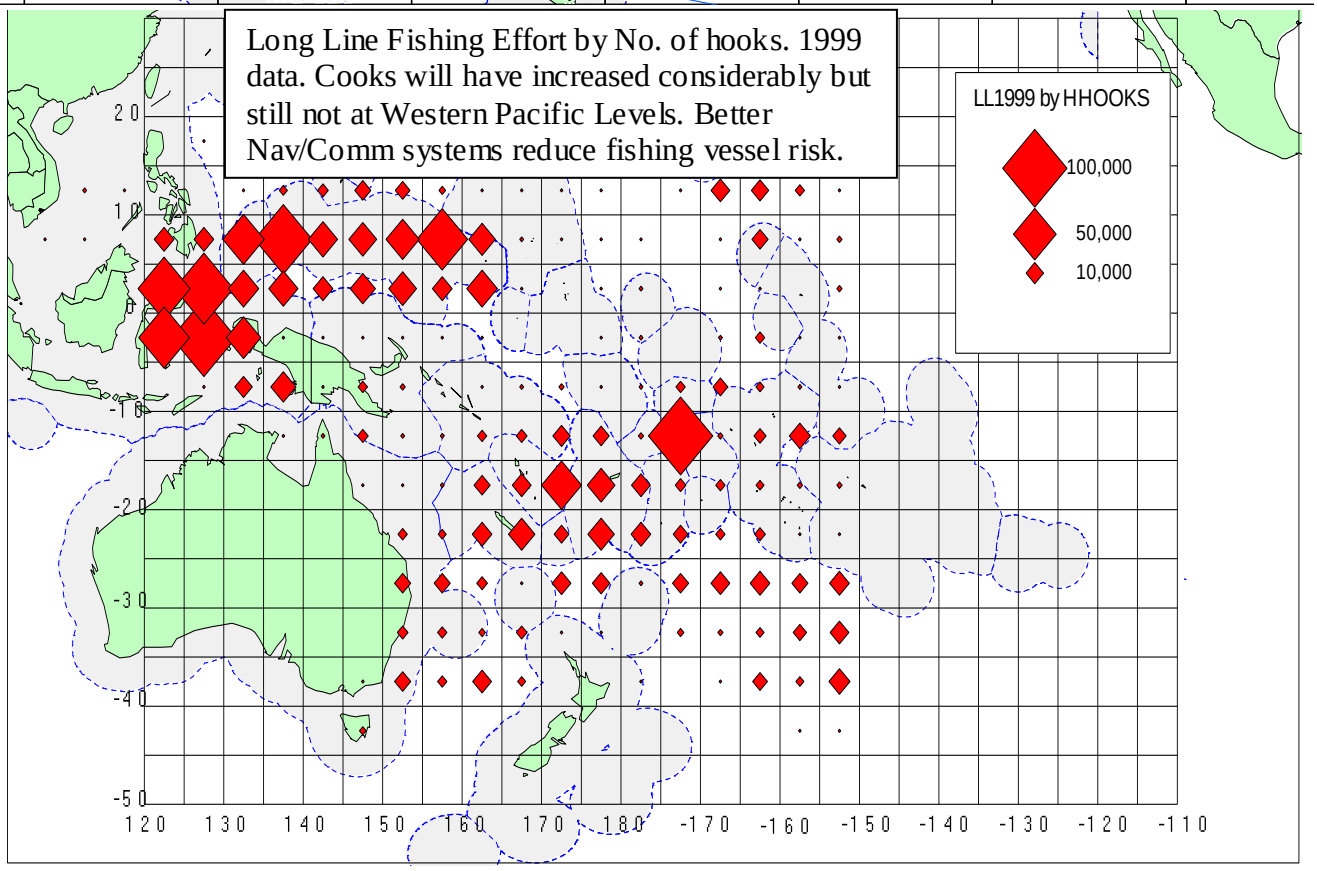


FIGURE FOUR (C&D) Ship Frequency & Longline Intensity Charts





1.9 AVATIU HARBOUR: HIGHEST RISK AREA

International data suggests that over 80% of the risk of Marine spills occur in harbours, more specifically in harbours where pollutants are being loaded or unloaded or transferred.

- Harbour Channel Risks

  Avatiu harbour thus presents itself as the highest at risk area in the Cook Islands. The PACPOL harbour risk assessment of 1999 (See table- Sec 1.7.3) ranks the harbour as the 2nd most at risk in the Pacific area.

  This is largely due to the narrowness of the harbour entrance channel –(110ft or 33.5 metres) where the minimum safe design width recommended for the size of ships using the harbour is 165 ft/ 50 metres. This gives the harbour a ratio of Channel width safety of **.7** (channel width divided by Minimum safe design width) where ideally the ratio should be at least **1.0**.

  The narrow channel width risk is heightened by the fact that the prevailing winds and currents flow across the harbour mouth thus making it likely that any vessel having power or steering problems entering or leaving the harbour is likely to be forced onto the reef in the vicinity of the channel. (see: Avatiu Harbour Chart Figure 5)

- Vessel Risks

  The vessels most at risk are of causing a serious spill are the various tankers and international cargo vessels as they enter/leave or discharge their cargos.

  Many of the vessels in this category are very cautious in their approaches to the harbour and often will wait for winds to moderate or slack tide in order to minimize risk. The Captains of these vessels often have negotiated the harbour frequently and know it and their vessels well enough to minimize any risk. When vessels have a new or inexperienced captain they can call upon the experience of the Harbourmaster (John Fallon 28814 / 55618) for assistance in piloting. This occurs on 6 to 10 occasions per year on average.

  Historically, the greatest risk of an incident is caused by a vessel entering the harbour and not being able to stop or anchor in time to avoid impact with other vessels or the harbour walls due to mechanical failure or human error. There have been several such incidents in the past in which other vessels and/or harbour facilities have been damaged and others which have resulted in "close calls".

  While this risk is comparatively high, the low speeds of such impacts generally mean that while vessels may sustain considerable damage, the actual risk of tank rupture and resulting spills is somewhat lessened.

- Transfer Risks

  The highest risk of a Spill in the harbour is in the transfer of polluting materials from ship to shore or in fuelling operations for smaller vessels.

The oil companies engaging in these operations have contingency plans in place for minor spills and maintain some stocks of sorbent materials and dispersants sufficient to deal with very minor spills.

There are also booms available to contain a spill within a given area such as around a tanker or against a wharf. The equipment available is minimal for the purposes intended and there is no skimmer/pump available to remove the contained spill materials (see Appendix 4). It is hoped that SPREP will soon be providing the Cook Islands with some additional booms and a skimmer to further reduce the risk factor.

The tankers have to meet MARPOL regulations for inspection of their hoses and transfer equipment and thus far these seem quite efficient in preventing transfer spills but a broke hose or fitting is always a possibility and the risk factor is thus high.

The smaller vessels in the harbour (yachts, fishing vessels and small cargo vessels, are generally filled by tanker trucks which by design have to be attended and have emergency shutoffs so the risk from these of more than a minor spill is negligible as long as the operators are attentive.

- Discharge Risks

  Another source of spills in the harbour and perhaps the most common is from vessels pumping their bilges and / or oily water overboard. While unsightly and annoying to other harbour users such spills usually dissipate fairly rapidly and would rarely present a longer-term hazard. The frequency factor is high in this area but the risk factor is low in terms of lasting pollution damage.

  Many of these spills occur at night and some are no doubt intentional. Finding the guilty party can be problematic but an investigation can be conducted in accordance with the Marine Spills Investigation and Sampling Guidelines issued by SPREP See Annex 5). Some of these spills are accidental in nature and are usually very minor and would rarely demand even an absorbent response. Some others, especially if heavier lube oils were the pollutant, could be efficiently absorbed.

- Environmental Risks

  In terms of harbour spills impact on the environment and wildlife the risk is generally very low as there is little or no marine life within the harbour itself due to frequent dredging and usage patterns.

- Cyclone Risk

  The Cyclone risk factor for the harbour is high in some ways but as most vessels are lifted or removed before cyclone arrival and others depart to seek shelter in the lee of the island the risk from vessels is negligible.
  A serious cyclone would cause much devastation on the wharves and any pollutants left there would likely end up in the harbour, but, in practical terms "that would be the least of our worries" and other concerns would take much higher priority.

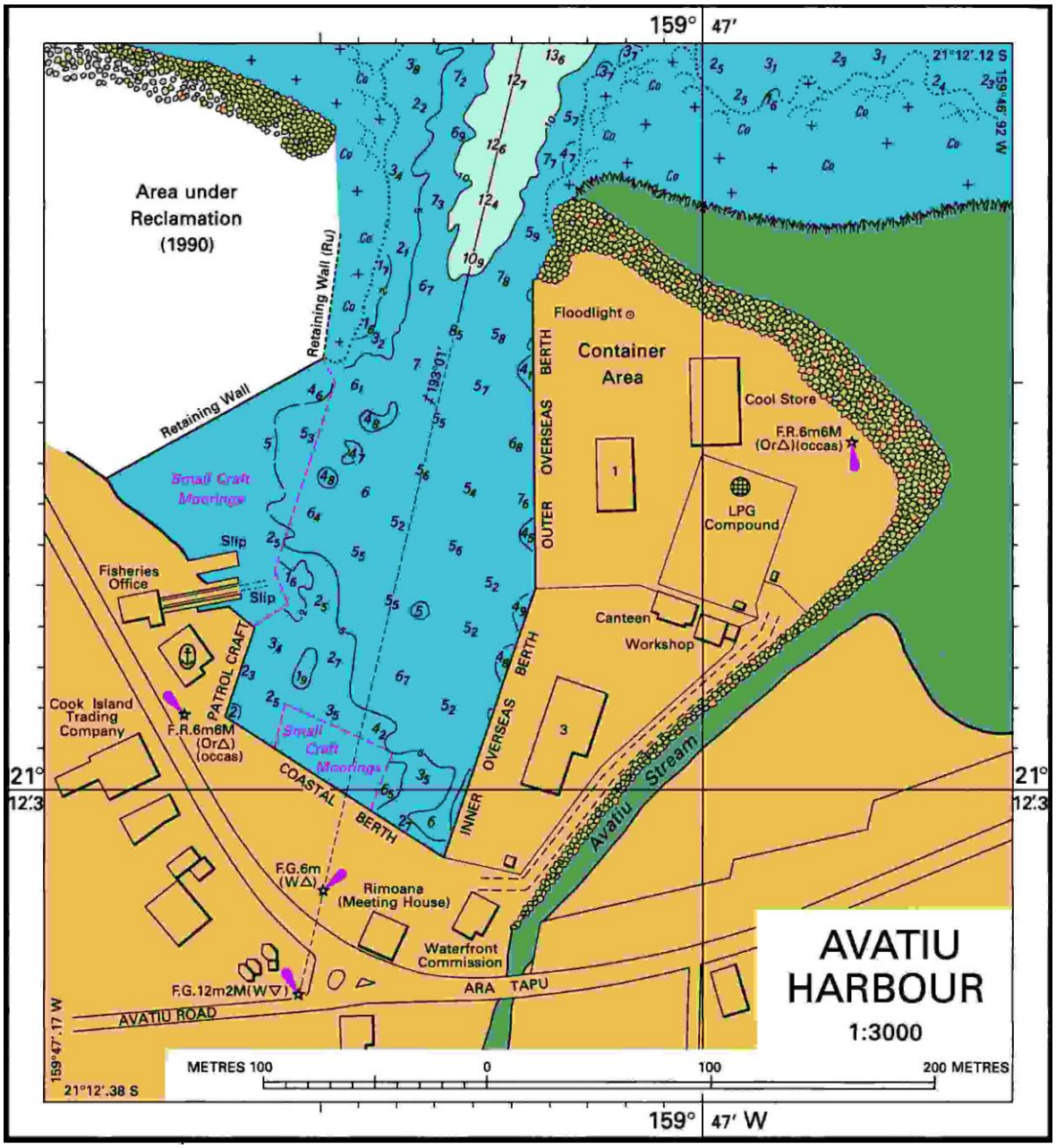
The risk of a spill in the harbour or its near environs is thus very real. In numerical terms the risk of a Minor Spill requiring very little or no response in a given year is almost 100%. The risk of a Tier One Spill requiring a response effort is about 20%. The risk of a Major Tier 2 or Tier 3 Spill is still low at less than 2%

Table 1.9 Harbour risk assessment from Pacpol Report

COUNTRY	PORT	RISK AREA	Min Safe Design	Chan Width	Ratio Ch W/ MSD	Cont Freq.	Cont Ton nage	Petrol Freq.	Petrol Ton nage	Total Freq.	Total GRT
Vanuatu	Port Vila, Mele Bay	Entrance to Paray Bay to fuel jetty	194ft	110ft	0.6	56	613384	54	47675	133	1523450
Cook Islands	**Rarotonga (Avatiu)**	**Entrance to Avatiu**	**165ft**	**110ft**	**0.7**	**20**	**29280**	**19**	**50380**	**78**	**83736**
Republic of Palau	Malakal Harbour, Koror	Malakal Pass	266ft	280ft	1	70	1010464	9	63792	79	1050145
French Polynesia	Papeete	Passe de Papeete	334ft	340ft	1	429	6961403	21	876000	6284	14490620
Northern Marianas	Saipan	Reef transit, entrance to Saipan	356ft	400ft	1.1	241	2453388	-	-	435	5150383
Kiribati	Betio Island, Tarawa Atoll	Betio Entrance	458ft	600ft	1.3	54	622944	14	39730	161	697943
Federated States of Micronesia	Pohnpei	Jokaj Passage	223ft	300ft	1.3	36	325728	18	127584	54	405090
Papua New Guinea	Madang Harbour	Dallman Passage-Turn to jetty approach	579ft	800ft	1.3	263	2096648	39	569715	690	2670479
Solomon Islands	Honiara	Approach to tanker moorings	313ft	450ft	1.4	191	2161561	19	698000	425	3455250
Samoa	Apia Harbour	Reef passage to mooring buoys	420ft	700ft	1.7	275	2822025	33	1293600	482	4262194
Papua New Guinea	Port Moresby	Basilisk Passage-Lark Patch Turn	709ft	1300ft	1.8	342	2703740	39	248475	762	3236947
Tonga	Nuku'alofa	Ava Lahi Passage-turn to 215°	1077ft	1980ft	1.8	223	1854552	28	58425	348	2430058
Wallis and Futuna	Ile Futuna	Ava Leava Anchorage	310ft	600ft	1.9	18	33891	0	0	18	33891
Marshall Island	Majuro	Calalin Channel	399ft	800ft	2	78	769077	18	127584	108	944795
Federated States of Micronesia	Tamil Harbour, Yap Island	Entrance to Tamil Harbour	197ft	400ft	2	18	162864	9	63792	27	202545
Wallis and Futuna	Mata Utu Harbour, Ile Uvea, Iles Walli	Passe Honikulu	244ft	500ft	2.1	29	65276	14	40580	51	127128
Guam	Apra Harbour	Outer Harbour entrance	389ft	900ft	2.3	253	3053578	69	1808376	510	8162854
Nauru	Phosphate Moorings	Approach to cantilever & moorings	421ft	1000ft	2.4	12	195600	12	19200	24	208356
Niue	Alofi Bay	Alofi Bay Anchorage	185ft	500ft	2.7	0	0	6	14400	8	56744
Papua New Guinea	Lae	Lae Approaches	353ft	1000ft	2.8	596	4191808	61	1438869	1162	5553772
Federated States of Micronesia	Moen Harbour, Truk Islands	Northeast Passage	306ft	900ft	2.9	42	428856	18	127584	60	508218
American Samoa	Pago Pago Harbour, Tutuila Island	Harbour entrance	283ft	900ft	3.2	264	2678234	23	1089232	380	3384681
Republic of Fiji	Lautoka	Navula Passage	1133ft	4100ft	3.6	85	668217	6	204000	128	1457667
Republic of Fiji	Suva	Levu Pass	332ft	1300ft	3.9	439	5604607	37	657600	892	7056251
New Caledonia	Noumea	Passe de Dumbea	543ft	2200ft	4	352	3828463	65	906550	542	7515329

FIGURE FIVE: High Risk Areas for Marine Pollution Incidents
AVATIU HARBOUR

Avatiu Harbour is the area most at risk in the Cook Islands.



2. ROLES & RESPONSIBILITIES

2.1 National Marine Pollution Committee

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

- Ministry of Transport (Chair of the committee).
- Ports Authority
- Environment Service
- Office of the Prime Minister – Emergency Management
- Oil Industry – , Toa, Juhi, Triad
- Ministry of Police –
- Ministry of Marine Resources
- Shipping Industry Representative(s)

The Committee may co-opt members including;

- Ministry of Finance
- Ministry of Foreign Affairs
- Crown Law
- Ministry of Civil Aviation
- Customs Department
- Ministry of Agriculture
- And other agencies as required, i.e. (Telecom)

The role of the committee and its members are to:

- Develop, implement and maintain the NATPLAN.
- Oversee the response to spills and monitor performance and effectiveness.
- Review local/facility contingency plans for consistency with National arrangements
- Oversee national 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 pollution issues and contribute to development of policy, legislation and other initiatives relating to the prevention and response to pollution
- Promote public awareness of, and appropriate community participation in pollution prevention, preparedness and response.

2.2 Responsible Authority

The Ministry of Transport is the Responsible Authority for all shiping related marine spills within Cook Islands waters. The Environment Service is the Responsible Authority for all other spills.The Responsible Authority has legal and statutory responsibility for administering and enforcing the national marine pollution legislation and for the overall management of the NATPLAN.

2.3 Lead Agency.

The Port Authority is the Lead Agency for all spills within designated port area. For all other shipping related marine spills the ministry ofTransport is the Lead Agency. The Environment Service is the Lead Agency for all other spills.

The Lead Agency has operational responsibility the response to spills, through the designated On-Scene Commander (OSC). 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 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 On Scene Commander (OSC).
- 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 the Cook Islands 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 spills from their facilities to the Responsible Authority or Lead Agency.
- Developing and maintaining local 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 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 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.

2.6 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. It is important that one of the first steps should be to determine the responsible P&I Club and to contact them to take responsibility for the spill response. 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 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 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 spill, any ship's master or crew, aircraft crew, oil company employee, port personnel or any other person observing a spill should immediately report the spill to the Responsible Authority or Lead Agency.

In the event of an incident reported by radio the receiving station (i.e. ZKR) must ensure that Responsible Authority or Lead Agency (MOT) or the Cook Islands Police is informed immediately, any shore or vessel based radio station receiving such a report should also try to ensure that the responsible authorities have been informed.

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 # for the
Cook Islands =POLICE 999
Ministry of Transport
Phone 682 28810 Mob. 682 50369

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 On-Scene Commander 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.

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 pollution incident in the region. PACREP is a facility where:

- POLREPS of all 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 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 the front of the NATPLAN 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 the Cook Islands 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 On-Scene Commander,
- Mobilising the 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).

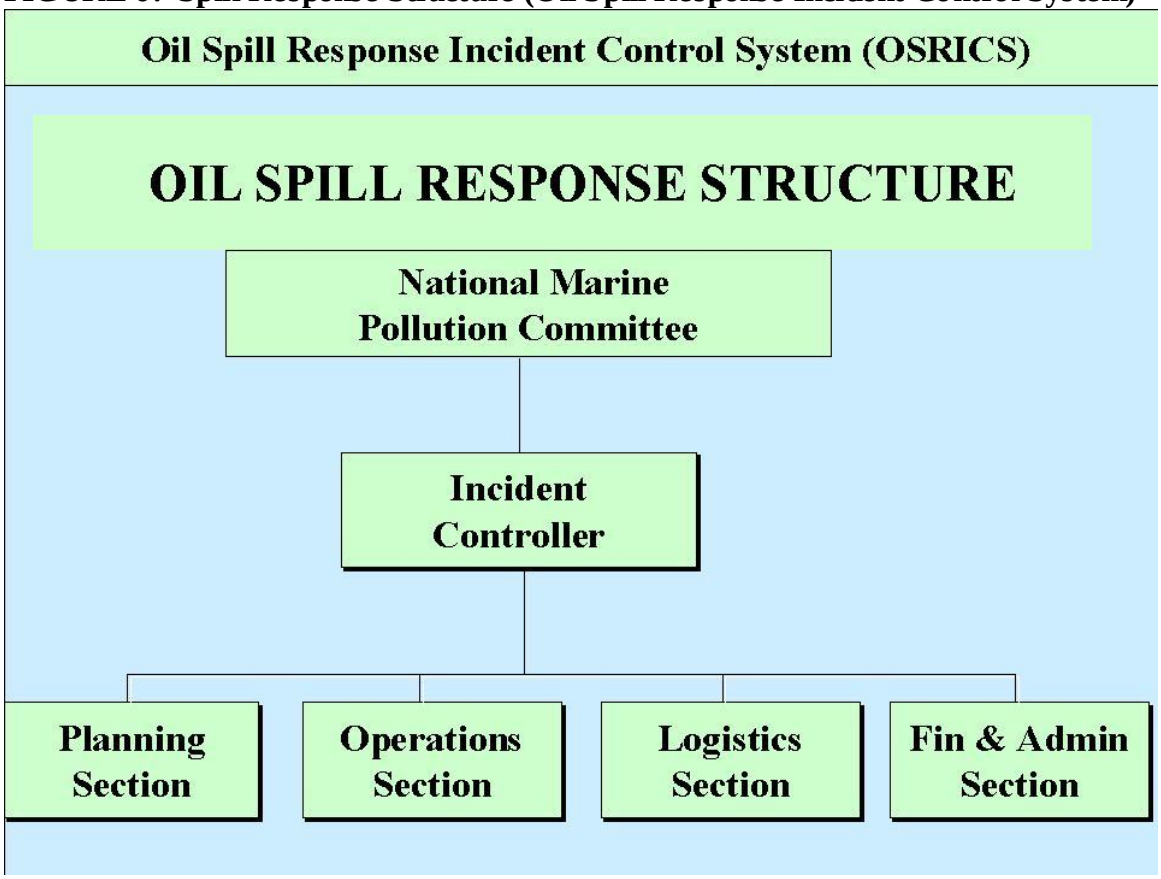
4.2 Incident Control System and Spill Response Team

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 the Cook Islands 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 OSC directs response efforts and co-ordinates all efforts at the scene and is the primary decision-making authority in relation to spill response activities. 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 6: Spill Response Structure (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 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 On-Scene Commander.

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

4.3.1 On-Scene Commander

On-Scene Commander (OSC): The HARBOURMASTER is the OSC for all spills within the designated port area. . The Director of Marine is the OSC for all other shipping related marine spills. The Director of Environment Service is the OSC for all other spills..

In the event of a spill, the OSC 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 OSC 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 OSC 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.

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 OSC 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.

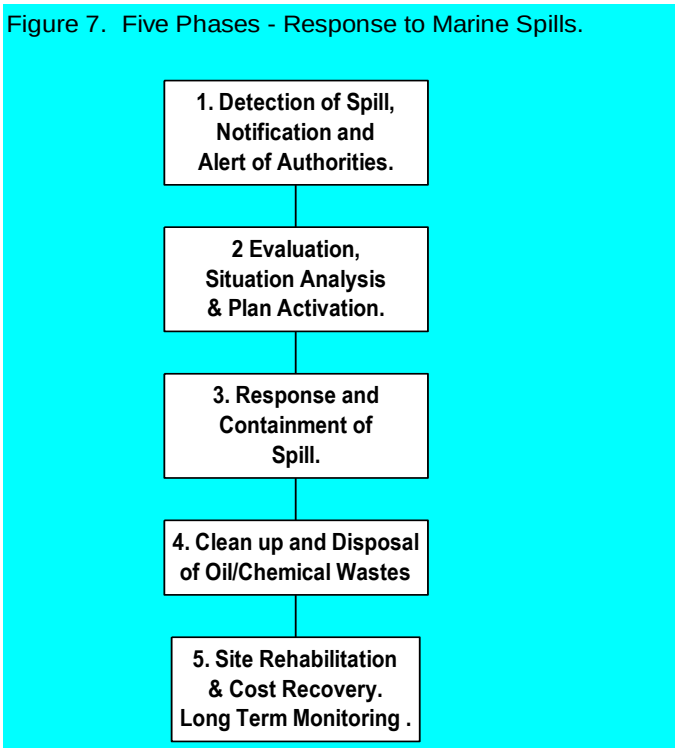
To ensure that these actions are taken, the OSC should delegate relevant tasks to the Spill Response Team. To assist in this process a Spill Response Action Checklist at the front of the NATPLAN summarises this sequence.

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 OSC.

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 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)*, The Cook Islands' jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits the Cook Islands 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 the Cook Islands' legislation the Ministry of Marine and Ports 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, the Secretary of Marine and Ports 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 OSC 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 OSC, through his support personnel, should arrange for charter, military or commercial aircraft to assess and monitor the movement of the spill.

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

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

In some areas, sophisticated spill trajectory prediction systems may be available, such as computer models. 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 OSC 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 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 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.

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 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 Cook Islands 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 Avarua Harbour), 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.

In the event of a spill outside Avarua Harbour it may be possible to direct much of the spill into the harbour through the use of booms and natural currents. This would be particularly viable in the event of a spill on the eastern side of the coast from the harbour. Once inside the harbour there would be minimal environmental impact and collection and disposal more easily effected. Towed booms could be effective along the coast if weather cooperated and there were available vessels and booms.

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

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 Coastal Swamps and Mangroves

Except, as previously mentioned, for small areas of Aitutaki and Muri Lagoon there are not any at risk areas of mangroves or swamps in the Cook Islands; the following points are largely for background information.

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 possible that wildlife will become contaminated in the event of a spill, including sea birds and shorebirds, reptiles (e.g. nesting turtles) and mammals. The likelihood of wildlife becoming contaminated in the Cook Islands is relatively low and would probably consist of fairly small numbers of affected species.

The organisation with the access to the expertise and equipment for handling oiled wildlife and in particular birds is the Takitumu Conservation Area (24494), Ian Karika

or Anna Tiraa who are the local representatives of Birdlife International. In the event of a worst case scenario of a tanker running aground on Suwarrow it would be possible to call on their expertise in mounting a post-spill response. Although it would be difficult to mount an effective wildlife saving program in the short period of time available. The police vessel Te Kukupa or possibly a fishing boat or freighter, if available could be used to transport suitably knowledgeable people and resources to the island.

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.

The collection and disposal of oily waste in smaller quantities would normally be in 200 litre drums, available at Mobil and Juhi and Triad. Larger quantities would be collected in skips (approx. 2000 litre capacity) available from CI General Transport. There are also Tanktainers of 25000 litre capacity available from Triad Depot for larger quantities. The Ministry Of Transport hopes to obtain some collapsible plastic 2 or 3000 litre disposal bins, in the not too distant future but until they are available the above arrangements will have to suffice.

The waste products would then be disposed of in accordance with the Waste Management plan of the Ministry of Works.

Controlled burning of the waste products is a viable option if all environmental and aesthetic considerations are considered. If not possible, then consolidation with other waste oils for eventual shipment to authorised disposal /recycling operations in New Zealand would be the best option.

5.17 Chemical Spills/HAZMAT Response

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

However, technical details within NATPLAN 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 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.

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

BP and Shell are both members of the Australian Marine Oil Spill Centre (AMOSC) and are covered through AMOSC's Tier 3 spill arrangements.

Most merchant vessels will carry P&I Club insurance. All shipping agents should be aware of what P&I Clubs cover their vessels and who their P&I Club Correspondent is. The P&I Club is one of the first contacts that need to be made when the spill is from a vessel. It is recommended that a register be kept with the name of all vessels frequently coming in to Cook Islands Ports or transiting Cook Islands Waters and details on their P&I Club and Correspondents.

National Marine Pollution Committee to facilitate the process in case of external assistance through these private arrangements.

7. RESPONSE TERMINATION & POST-SPILL ACTIVITIES

7.1 Response Termination

In any 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 OSC, in consultation with his/her support personnel under the 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 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 Department of Environment, 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 Department of Environment 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 Department of Environment should rapidly identify all such data, including that held by government environment and fisheries agencies, 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 Department of Environment, 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 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 all parties must keep, detailed records of action taken and equipment and other resources used to respond to the incident. 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 OSC through the 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 the Cook Islands, storage locations and contact details is contained in Appendix Four

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 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 the Cook Islands, marine pollution is regulated under the Marine Pollution Prevention Act, 1998. Ministry of Transport administers this Act.

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.

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 spills, capability to manage 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.

Cook Islands

Situation Report Form (SITREP)

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

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

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

Date/time of 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): _
_ _
_ _

☐

Direction and rate of drift of pollution: _

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

Events since POLREP/last SITREP: _
_ _
_ _
_ _
_ _
_ _
_ _
_ _
_ _

(Attach additional information if required)

Cook Islands

Pollution Report Form (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 MOT Fax #* 28816**
3. ***Lead Agency to fax to National Marine Pollution Committee members/other affected parties;***
4. ***please also fax it to SPREP at 00 (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

Appendix Four: Equipment Inventory LAST UPDATED 25/10/04

EQUIPMENT ITEM	QUANTITY	OWNER	STORAGE LOCATION	CONTACT DETAILS
SORBENT PADS	200	JUHI	JUHI DEPOT	22377
SORBENT PADS	??	MOBIL	MOBIL DEPOT	27001
SORBENT ROLLS	3X 10 M	MOBIL		
BOOMS	4X15 M	JUHI		
	3x10m	JUHI		
	3x 30m	MOBIL		
SKIMMER	Not available		PORT SHED	55618
DISPERSANT				

ANNEX Five: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: Comprehensive notes should be kept by the officer throughout the investigation. It is important to include simple diagrams in notes to explain, for example, the position of oil in relation to a ship or the location of a particular piece of equipment on board the 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 Inteview

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

It is essential that prior to commencing the questioning the Officer begins by stating his/her own name, position and the purpose of the interview and the provision of the relevant legislation, which enables the Officer to require a person to answer questions. Once this part of the interview has been conducted a short break should be taken. After this the Officer can conduct the second part of the interview by 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 understands that he/she is no longer under any compulsion to answer questions. If an Officer fails to give a caution, it is unlikely that any answers obtained will be admissible in evidence in the event that charges are laid.

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

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

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

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

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

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

(a) did you or anyone on your behalf report this pollution incident?
(b) Was the (name of vessel) in the area at the time of the alleged incident?
(c) If not, what was the location of the (name of vessel) at the time?
(d) What was the (name of vessel) doing in the area?
(e) Did you observe or are you aware the incident? If so describe in detail.
(f) What is the reason for the discharge?
(g) 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, the Officer must be accompanied by a ship's officer at all times.

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

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

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

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

The lid should be firmly secured and then sealed using two of the security labels provided with the sample bottles (before sealing, secure continuity tag, see below). It should be noted that each security label is individually numbered. The labels should be placed on opposite sides of the jar and be firmly secured over the security tag string and the join between the lid and the jar so that the lid cannot be removed without disturbing the labels. If glass containers are not available, metal sample containers will suffice, although there is a possibility 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 recognised, however, that is may not be possible to take more than one sample from each tank or bunker of a large vessel.

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

(j) unique sample identification number;

(ii) date sealed and who sealed it

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

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

5. CONTINUITY OF SAMPLES

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

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

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

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

6. STORAGE AND DELIVERY OF SAMPLES

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

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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).