NATIONAL SPILL CONTINGENCY PLAN

" NATPLAN "

For

THE REPUBLIC OF PALAU

Controlled Copy No: XXX

This plan has been developed to support the 2010 Palau National Disaster Risk Management Framework. This plan reflects the steps to initiate, conduct and terminate an emergency spill response in the Republic of Palau under the Environmental Quality Protection Act.

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

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

DISTRIBUTION OF CONTROLLED COPIES

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PLAN AMENDMENT CERTIFICATION

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

Executive Officer
Environmental Quality Protection Board
PO Box 8086, Koror, Palau, 96940
Tel: (680) 488 1639/3600 Fax: (680) 488 2963
E-mail: eqpb@palaunet.com

Amendment		Section	Page	Entered	Date	Signature
No	Date					

EMERGENCY CONTACTS

24 Hours Number

Portia Franz – Executive Officer EQPB.
Phone: 488-3600/1639
Fax: 488-2963
Cell: 779-0935

Police – 911

In the event of a marine pollution incident 911 shall be notified. EQPB shall be notified by 911 and shall assess the situation and determine the appropriate level of response. In the event the response is identified as a TIER 2 response or higher NEMO shall be notified.

Palau Hazmat Response Team

Telephone Tree

This telephone tree will be activated by an outside call via 911 presumably as primary channel for any Hazmat incident. The Palau EQPB can be assume as additional primary channel of possible Hazmat incident, thus can activate the telephone tree by calling the Fire Department as the primary Hazmat response deployment to the scene and then activate the telephone tree on Team Leader tier.

911 activate telephone tree:

1. Bureau of Public Safety (BPS) Dispatch receives call and **log in pertinent information** using Hazmat log in sheet.
2. BPS Dispatch **calls Fire Department** and dispatch to incident site.
3. BPS Dispatch **calls EQPB on call personnel** using call down roster.
4. **EQPB receives call** and log in pertinent information using Hazmat Incident log in sheet.
5. EQPB on call personnel **activate Hazmat Team** by calling Team Leaders using Hazmat Team roster:

    1. DEH Team Leader
    2. EQPB Team Leader
    3. Fire Hazmat Team Leader

6. EQPB informs all Team Leaders of the pre-determined location for briefing.
7. Team Leaders activate individual agency call down roster to assemble response.

ACRONYMS

ARFF	Aircraft Rescue and Fire Fighting
AMOSC	Australia Marine Oil Spill Centre
BPS	Bureau of Public Safety
CLC	*Liability Convention1992*
DEH	Division of Environmental Health
EEZ	Exclusive Economic Zone
EQPB	Environmental Quality Protection Board
ESC	Environmental Scientific Coordinator
FUND	*Fund Convention 1992*
HAZMAT	Hazardous Materials
IC	Incident Commander
IMO	International Maritime Organization
MARPOL	International Convention for the Prevention of Pollution from Ships
MPA	Marine Pollution Adviser
MOH	Ministry of Health
NATPLAN	National Spill Contingency Plan
Noumea Convention	Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and related protocols
NEMO	National Emergency Management Office
NEC	National Emergency Committee
OSC	On Scene Commander
OPRC	*International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90)*
OSRICS	Oil Spill Response Incident Control System
OSRL	Oil Spill Response Limited
PACPLAN	Pacific Islands Regional Marine Spill Contingency Plan
PACPOL	Pacific Ocean Pollution Prevention Programme

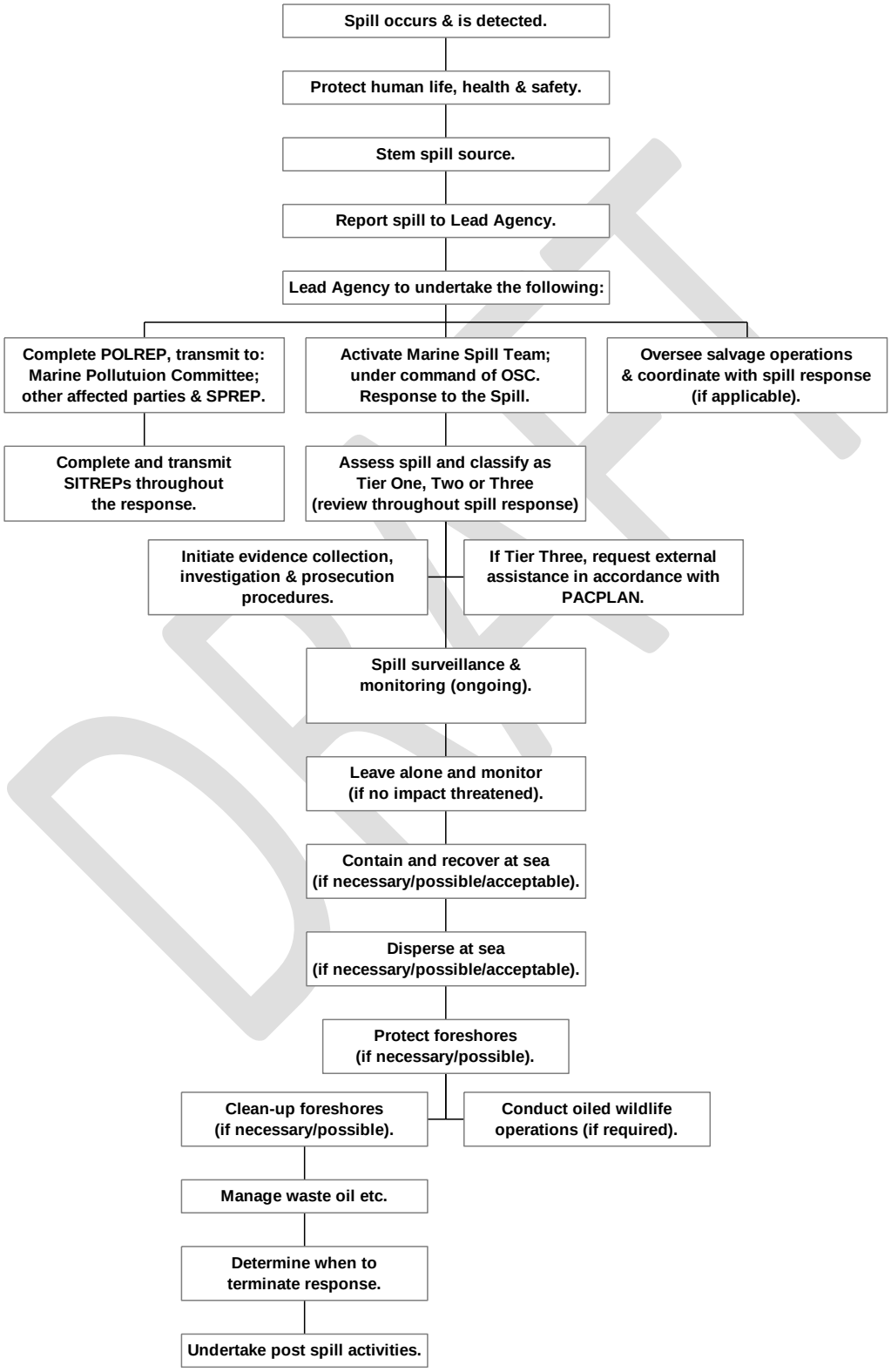
PACREP	Pacific Islands Regional Marine Spill Reporting Centre
PICTs	Pacific Island Countries and Territories
P&I	Protection and Indemnity Club
POLREP	Pollution Report
POSTREP	Post-incident Report
PPUC	Palau Power Utility Company
PALARIS	Palau Automated Land and Resources Information System
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SRIMP-PAC	(Regional Strategy on) Shipping-Related Introduced Marine Pests in the Pacific Islands
SITREP	Situation Report
UNCLOS	United Nations Convention on the Law of the Sea
US	United States (of America)
USA	United States of America

DEFINITIONS

Spills	Any discharge of oil or release of chemicals into the environment

MARINE SPILL RESPONSE – ACTION CHECKLIST

24 – Hour Contact for Marine Pollution Reports - 911



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LIST OF FIGURES

ANNEXES [To update……]

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

1. INTRODUCTION

1.1 Background

The Government of the Republic of Palau has developed this National Spill Contingency Plan (NATPLAN) as part of its commitment to protecting our valuable coastal and marine resources from an eminent or substantial threat to the marine environment or public.

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 Republic of Palau, on the adjoining shorelines, the waters of the contiguous zone or into waters of the exclusive economic zone.

Although Palau is not a party to the following conventions: *Protocol Concerning Cooperation in Combating Pollution Emergencies in the South Pacific Region (Noumea Pollution Protocol)* of the *Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Noumea Convention, International Convention on Oil Pollution Response, Preparedness and Cooperation 1990 (OPRC 90)*, this plan reflects the best practices outlined by the conventions.

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

1.2 Aim & Objectives

The Aim of the NATPLAN for the Republic of Palau is:

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

The Objectives of the NATPLAN for the Republic of Palau are:

- Provide the basis of planning for marine pollution and other maritime emergencies at a National level.
- To provide the organizational structure and procedures for the coordinated, timely and effective response to maritime spills of oil and other noxious and hazardous substances.
- To provide systems for the detection and reporting of marine spills within the area covered by the plan, including communications networks.
- To outline the counter-measures available to restrict the spread of a spill and minimize the environmental, economic and social impacts of a spill.
- To facilitate the implementation of the SPREP Pollution Protocol and OPRC 90 in the

Republic of Palau.

1.3 Technical Scope & Tier One, Two and Three Spills

This NATPLAN covers the response to all spills of all forms of pollutants, including oil, chemicals and other hazardous materials. However, it retains a primary focus on oil spills, as oil is the main pollutant likely to be spilled in Republic of Palau.

NATPLAN covers spills into the marine environment from all sources, including both shipping, sub-seabed drilling, 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

- Spills that are within the response capability and resources of an individual port or oil terminal within the Republic of Palau. These spills are covered by oil terminal or port specific response plans as per EQP Act requirements.

Tier Two

- Tier Two Spills are spills that are coordinated and supported by national capabilities and resources. These spills are covered by the NATPLAN.

Tier Three

- Spills that are beyond the response capability and resources of the Republic of Palau and covered under the National Disaster Risk Management Framework 2010, and/or
- require activation of the PACPLAN - the Pacific Islands Regional Marine Spill Contingency Plan or other international mutual assistance agreements.
- That impacts or threatens to impact the jurisdiction of both the Republic of Palau and neighbouring country(ies) and,
- The spill has the potential to cause extensive local or regional environmental damage and loss of resources.

EQPB
Where EQPB is the EQPB and responsible authority it shall have the authority to determine the type of response and coopt necessary in-country support.

The National Emergency Committee may declare an Emergency under the emergency framework for Tier 2 and 3 type response and coopt necessary support.

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.

Because in reality spills do not fall into convenient categories, the boundaries between Tiers will inevitably be blurred. The EQPB 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.

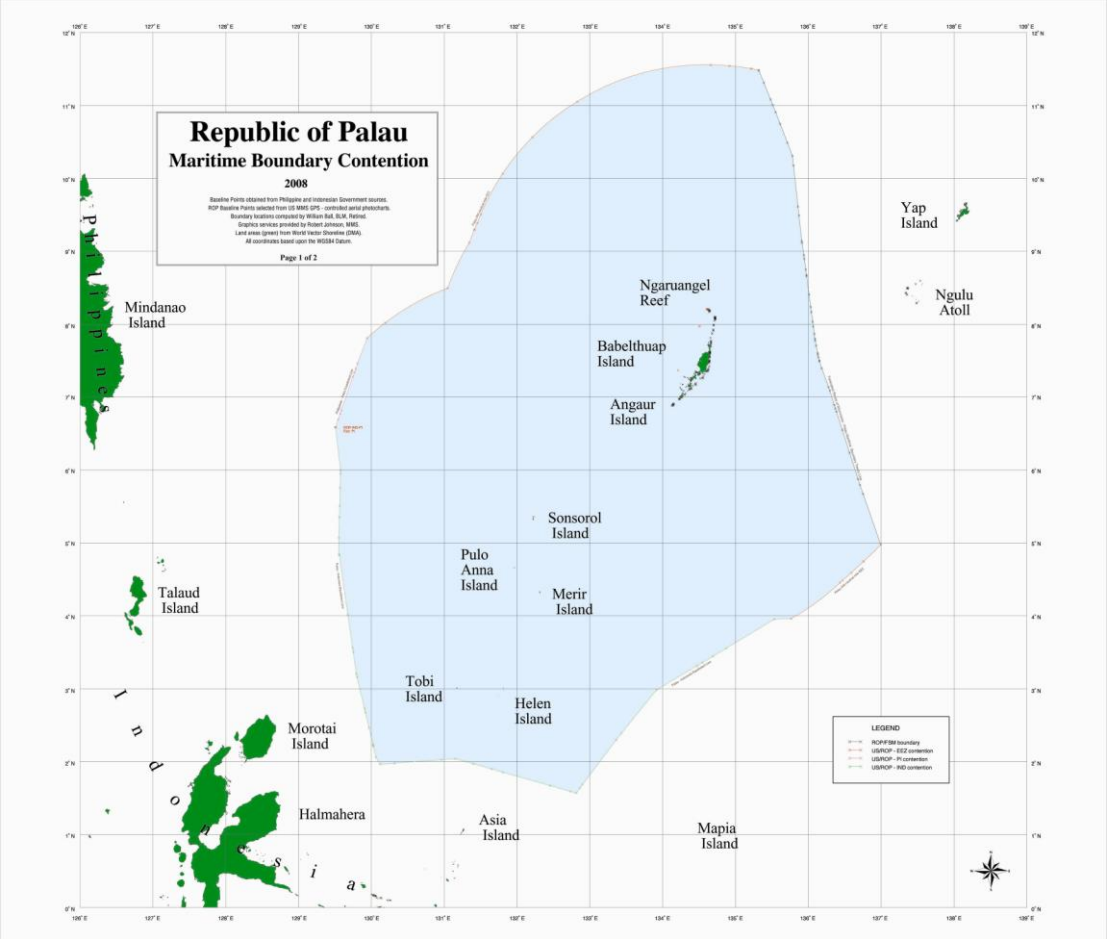
1.4 Integration with Other Contingency Plans

The Republic of Palau's National Oil Spill Plan is complimented with National Disaster Risk Management Framework 2010, local, oil industry, site and port emergency plans as well as international support plans like PACPLAN.

The NATPLAN is a sub-plan of Palau National Disaster Risk Management Framework 2010 mandated in Section IV(check): Disaster Risk Reduction has direct linkages to the NATPLAN. It is implemented during and after disasters which include reports/statements on disaster risk assessments and plans on mitigation, preparedness, response and recovery.

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 Republic of Palau
Figure One: The NATPLAN Area for the Republic of Palau.



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 mobilize and deploy all necessary resources and services.
Response:	actions taken during and immediately after a pollution emergency to minimize 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 Republic of Palau.

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

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

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

- Human life, health and safety.
- Protection of the Environment (Biological habitat/Rare & endangered species)
- Cultural resources.
- Commercial resources.
- Non-commercial property and amenity.

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

Tropical coastal shorelines can be classified into a number of broad scaling of sensitivity (1 is least susceptible) to oil pollution as follows.

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

		should receive first priority.

The clean up options used must be tailored to suit the needs and sensitivities of the shoreline 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 summarized as follows.
Add #4/5 coastal type clean up options.

Clean up Response

Rocky Shoreline:
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 but should only be used in the absence of significant biological activity. Physical cleaning techniques are also widely used.

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

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

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

Figure Two: Coastal Resource Map.

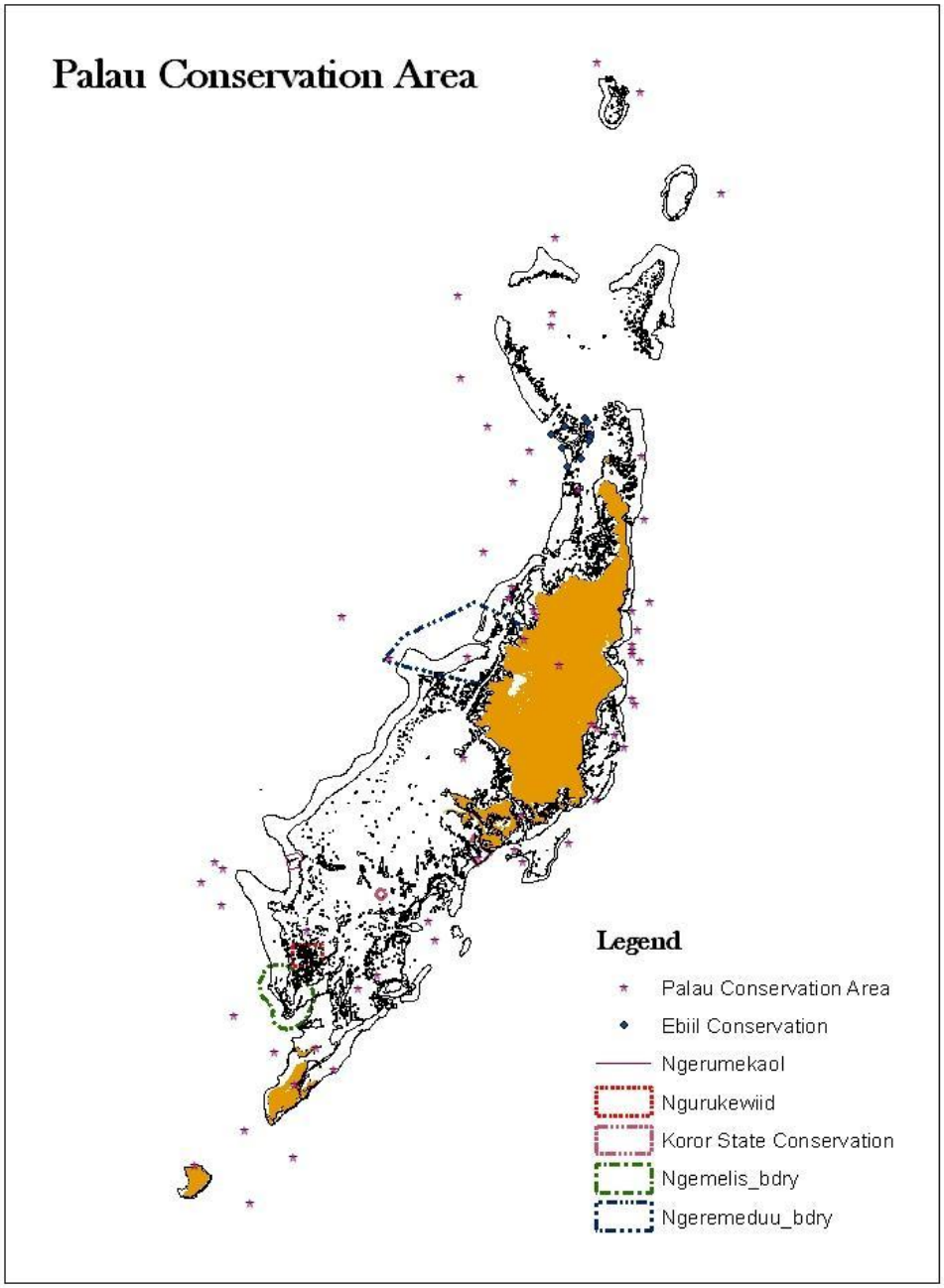


Figure 3A: Environmental Sensitivity Ratings & Protection Priorities
Babeldaob Island Main Docks-Class B

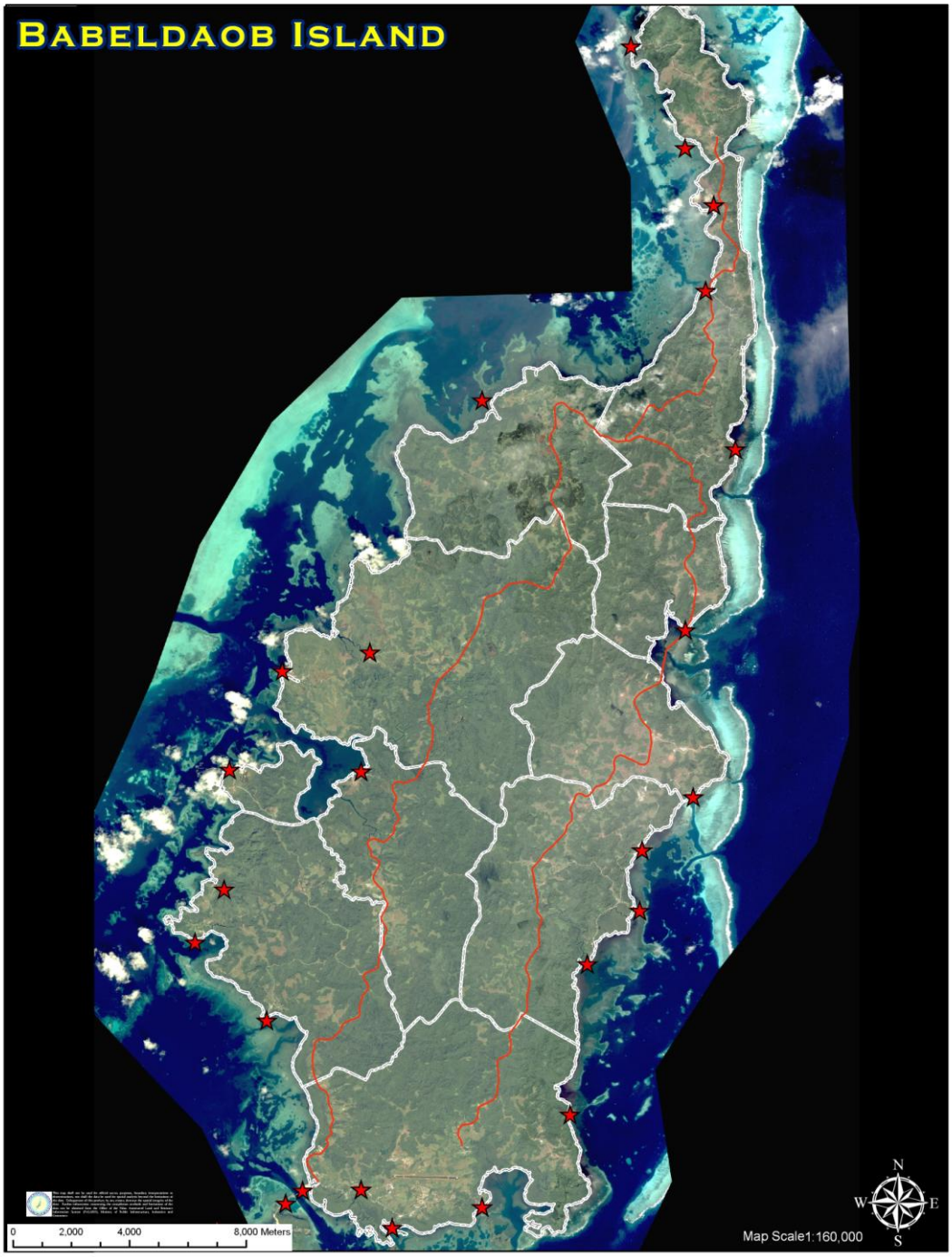


Figure 3B: Environmental Sensitivity Ratings & Protection Priorities
Babeldaob Island Wetlands

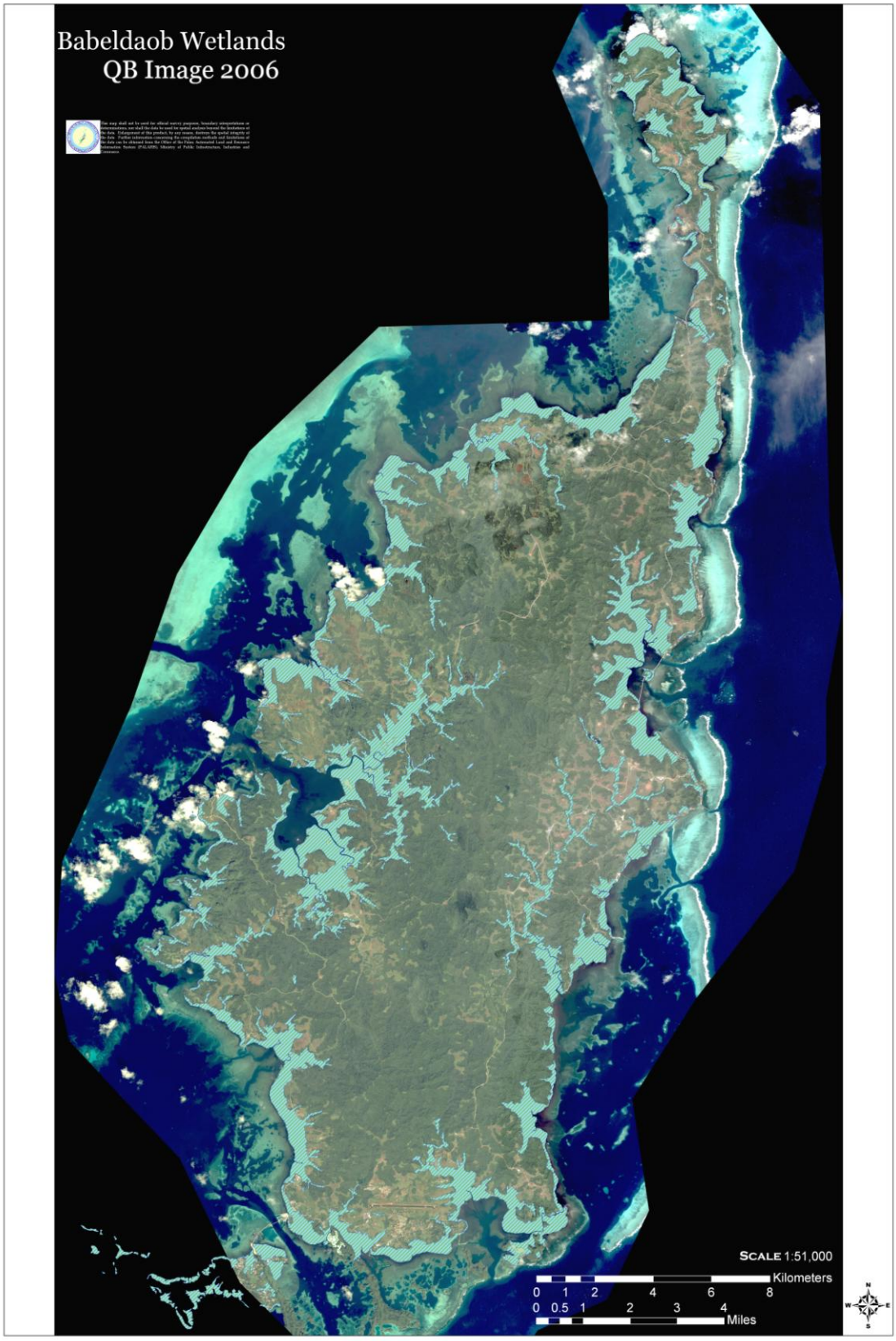

Babeldaob Wetlands
QB Image 2006
SCALE 1:51,000
Kilometers
0 1 2 4 6 8
0 0.5 1 2 3 4
Miles

Figure 3C: Koror State Docks

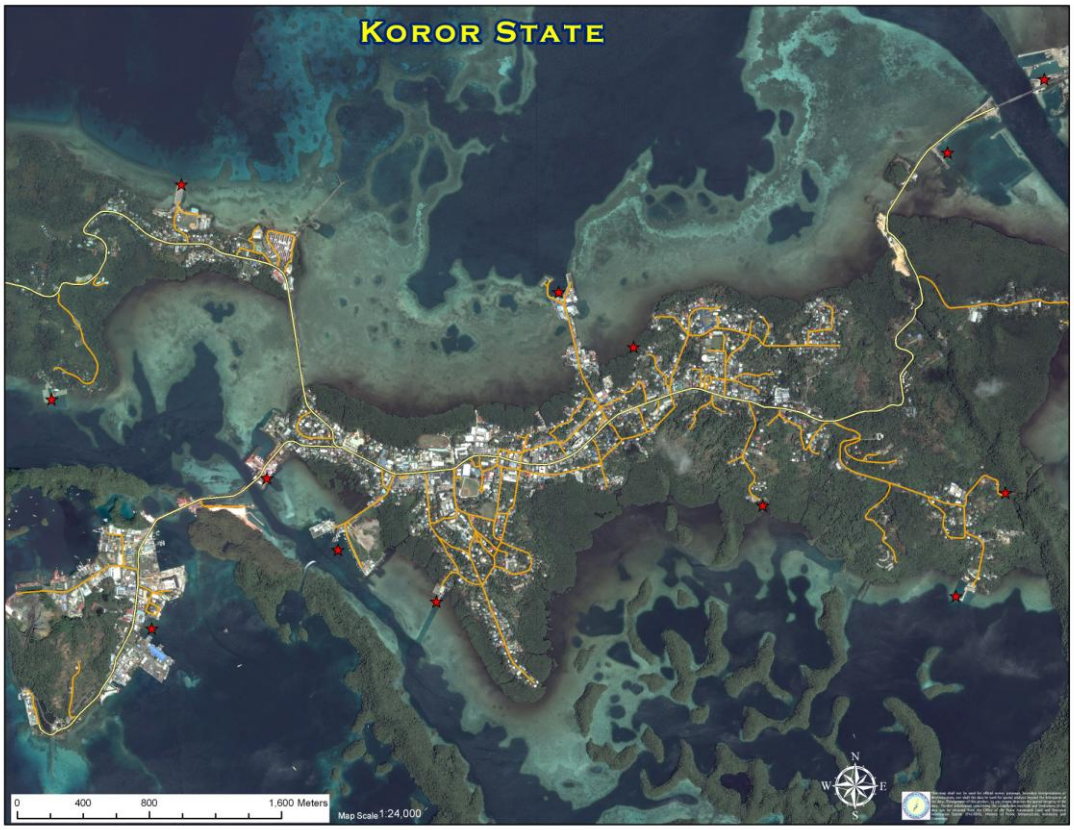
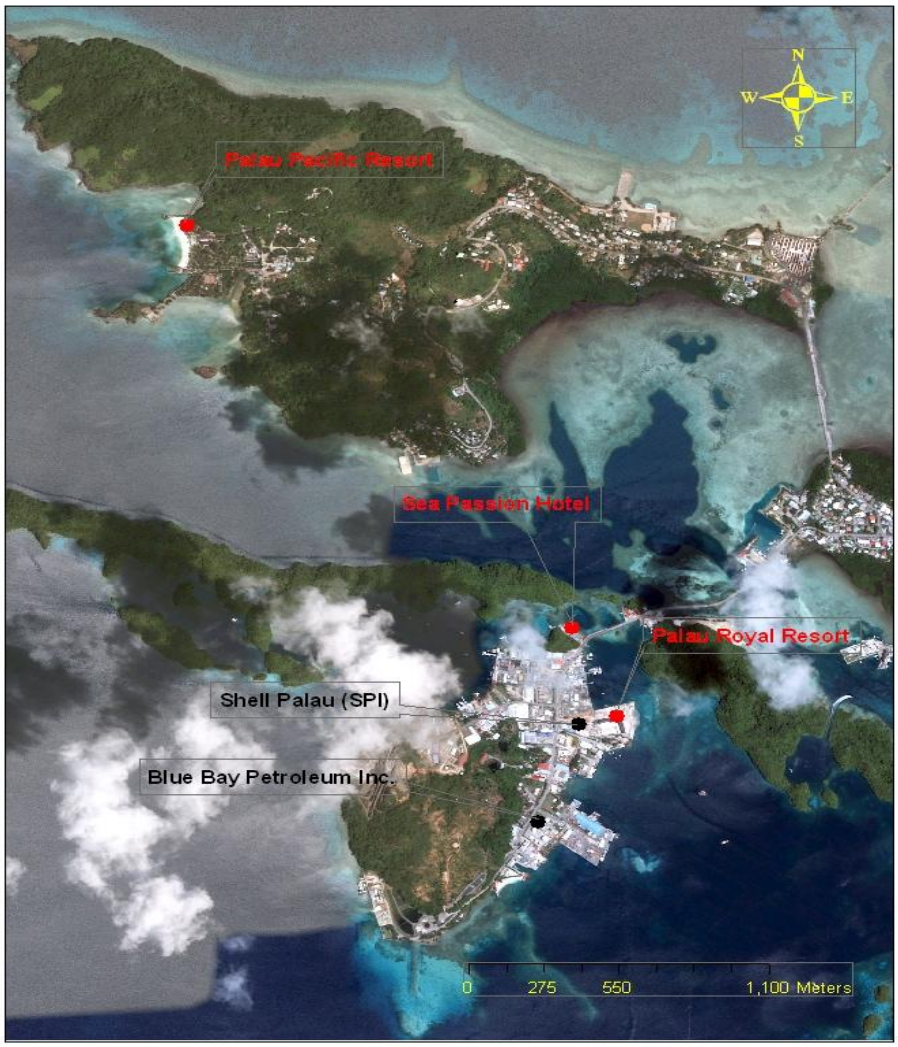


Figure 3D: Koror State Wetlands

Figure 3E: Malakal Harbor & Hotels



1. Malakal Harbor is the only commercial port for the Republic of Palau. Virtually all of the food supplies and fuel for the Republic enter through this port. A large spill in this area could have a devastating impact on the economy.
2. The Palau Pacific Resort and Palau Royal Resort are the two largest resorts hotel located on the north coast of Ngerkebesang Island and Malakal Island, respectively. These resorts are the centrepiece of the tourism industry in Palau. Most of the guest activities are oriented around water sports. A large spill in this area could cause a significant loss of tourism revenue.

1.7 Risk Assessment

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

Under the Regional Marine Spill Risk Assessment Malakal Port is one of the ports designated as a high-risk port.

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

1.8 Types of Oils and Chemicals Transported in the Republic of Palau

A. Types of Oils
    1. Diesels
    2. Gasoline
    3. Jet Fuels
    4. Lube Oils
    5. Marine or Industrial Fuel Oil (MFO/IFO)

B. Types of Chemicals
    1. LP Gas
    2. Pesticides
    3. Freon gas
    4. Chlorine
    5. Ammonia

Product Data Sheets with Detail the major categories of oils, fuels & chemicals, imported into Palau are included as Annex 8
(EQPB to review and incorporate IP&E Site Sensitivity Mapping and Risk assessment Study)

Figure Four: High Risk Areas for Marine Pollution Incidents

Figure 4A: West Passage Toachel Mlengui

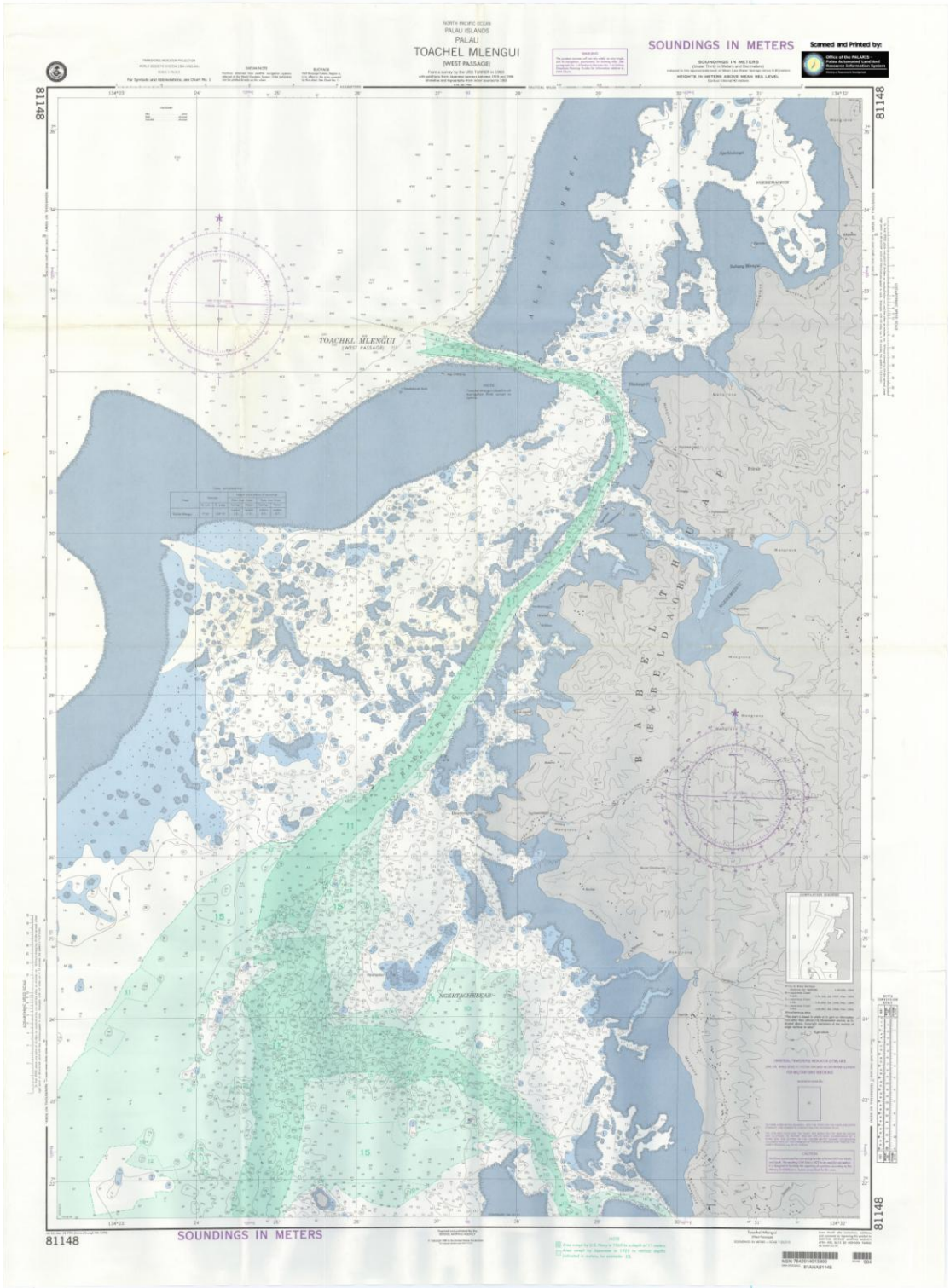


Figure 4B: West Passage Malakal Harbor

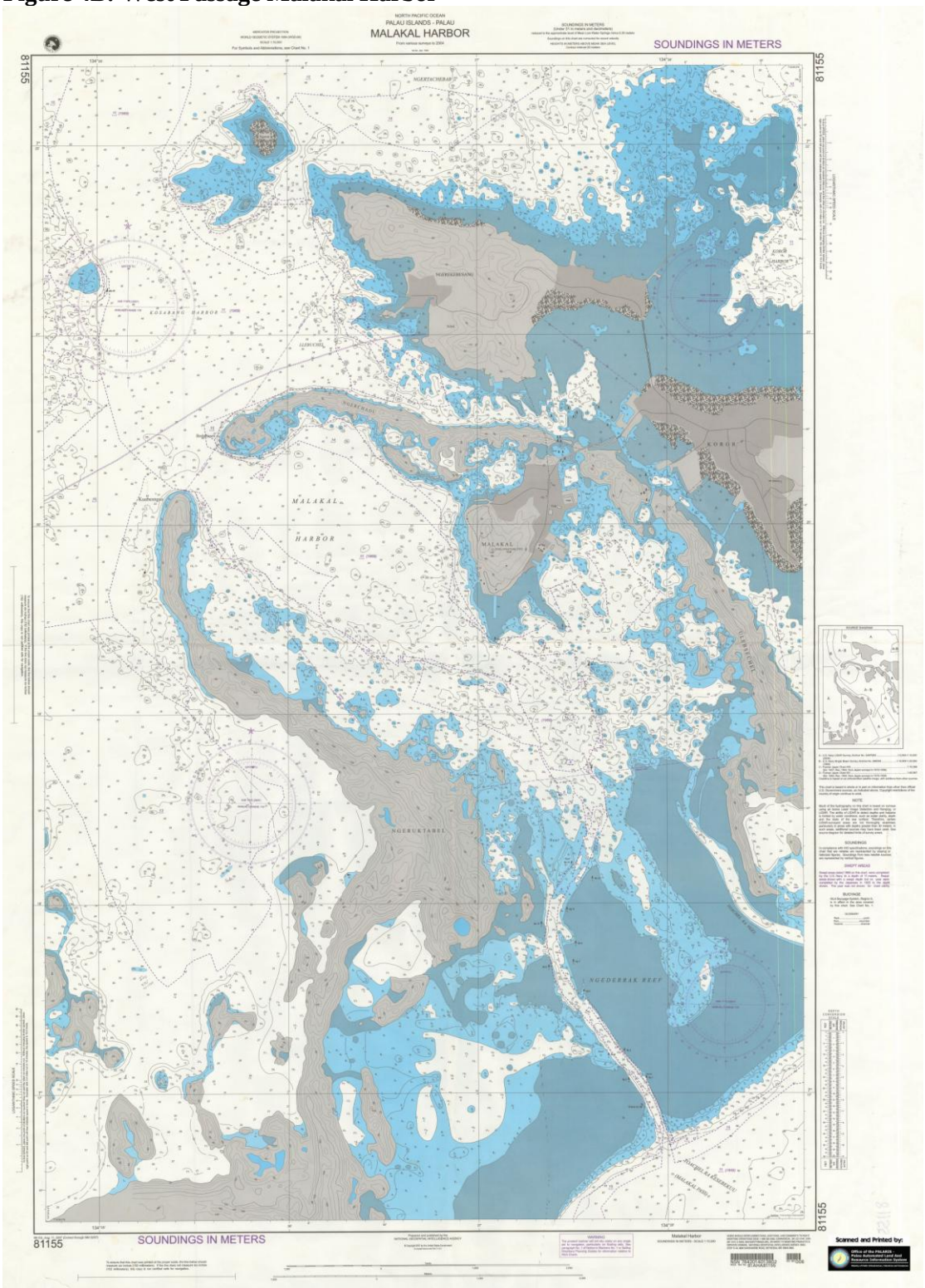


Figure 4C: Shipping Lanes

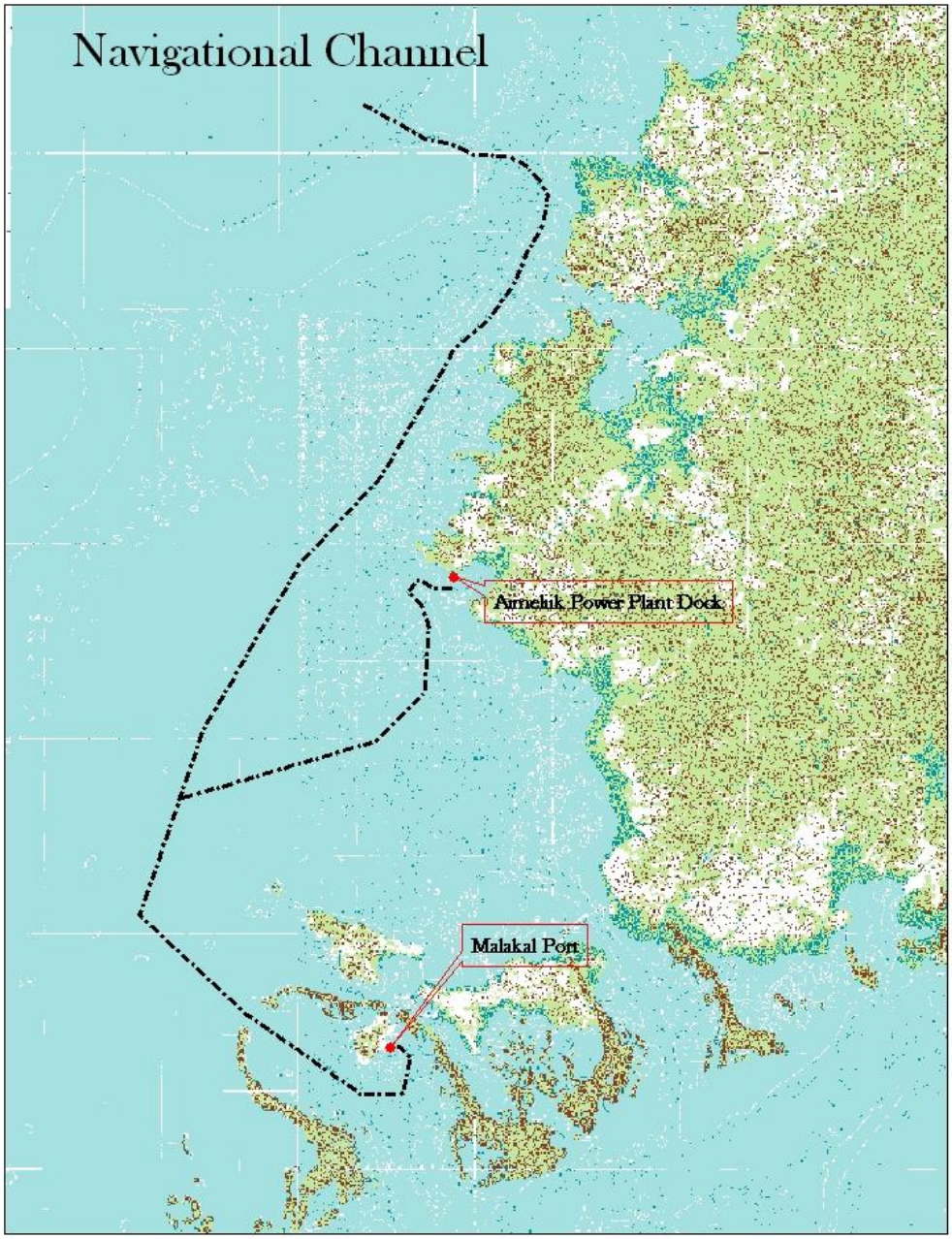


Figure 4D: Aimeliik Power Plant Site Map

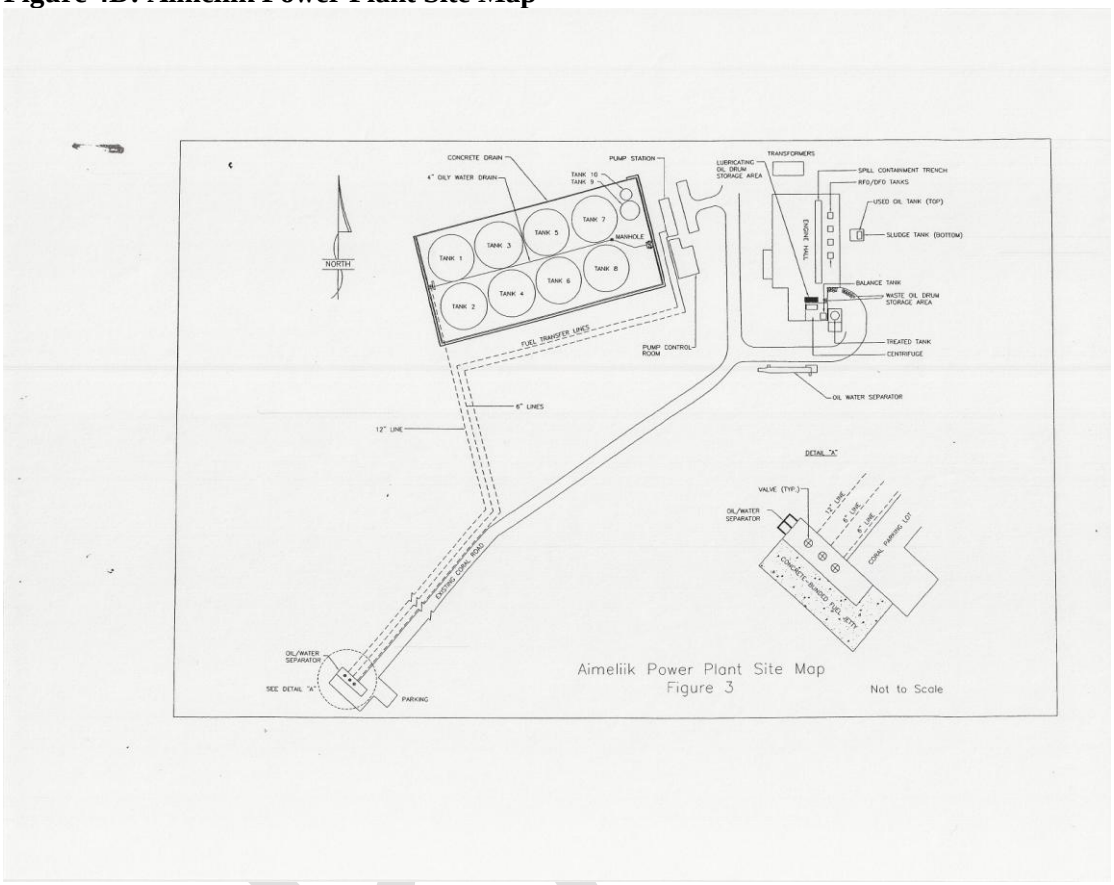


Figure 4E: BPPI/Shell Site Map

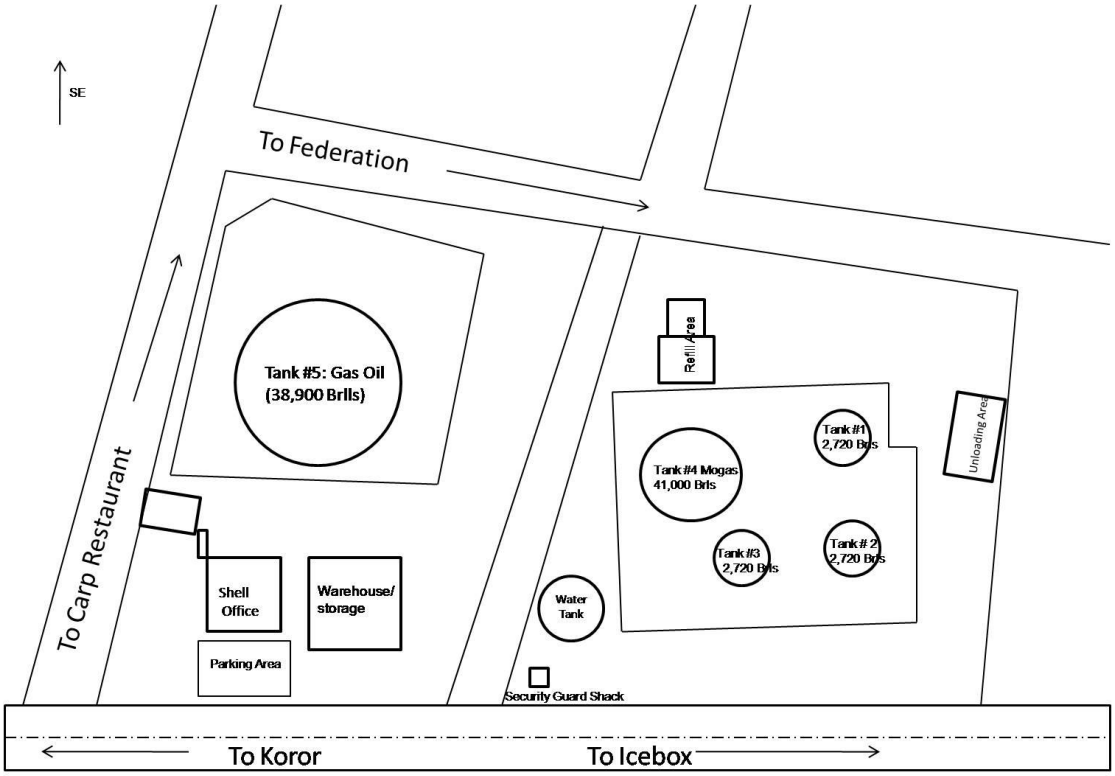
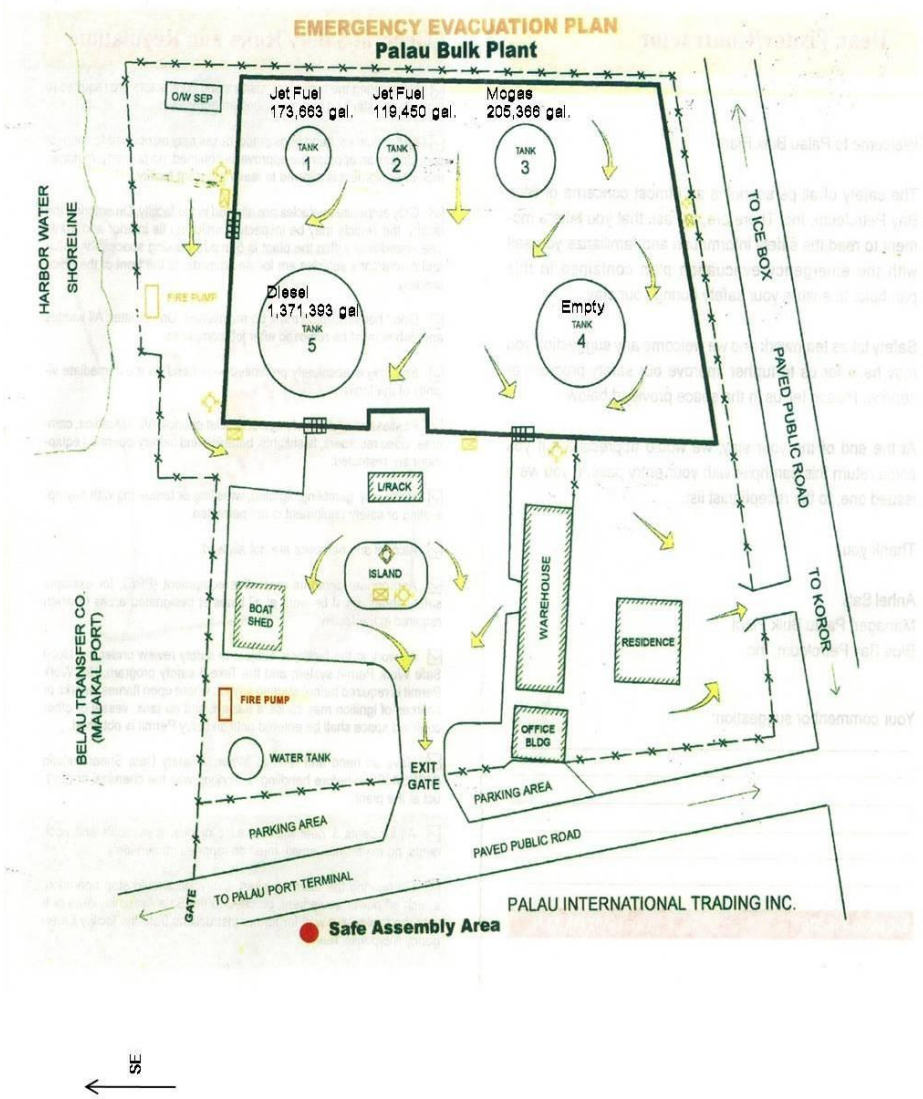


Figure 4F: Blue Bay Petroleum Inc. Site Map



Port Facilites [insert map]

Malakal Harbor is located on Malakal Island, south of Koror. The harbour is 3 miles long and 1.5 miles wide. Larger vessels dock at the southeast side of the terminal. There is a manifold and pipeline on this side of the terminal leading to the two tankfarms on Malakal Island.

Transfer and Transportation Facilities [insert map]

Pipelines run from the Port area to the Shell and Mobil tanks farms on Malakal Island. There is also a pipeline system servicing Aimeliik Power Plant. The following is more specific information about each system:

Aimeliik Power Plant

The Power Plant reciees low sulphur diesel fuel from tank vessels. These vessels berth about 450 feet south of the jetty at the western-most part of Ngchemiangel Bay. The vessels discharge cargo through a floating hose to a manifold then to a tank farm via piplelines. One 12 inch pipeline connects the wharf to the tank farm. In addition, two 6 inch pipelines connect the wharf to the tank farm. These two pipelines transfer diesel fuel from the tank farm to vessels moored near the wharf. These three pipelines are each 1872 feet long.

Insert contact information(incident command chain)

BPPI/Shell

Two 6 inch pipelines connect the Shell tankfarm with the main wharf in Malakal Harbor. They run about 500 yards from the dock along the main road to the fuel storage terminal.

Blue Bay Petroleum Inc.

One 6 inch pipeline connects the Mobil Oil Palau Bulk Plant facility on Malakal Island with the main wharf. This pipleline is 529 feet long and runs parallel to the pier face.

Storage Facilities

Government agencies and private companies operate three petroleum storage facilities. The BPPI/Shell and Mobil facilities are located in the Malakal area. The tank farm service the power plant is located on Aimeliik State. The following is a summary of details about petroleum storage facilities in Palau:

1. Belau Petroleum Products Inc. (Agent for Shell Guam Inc.)
   a. Tank 1 — 100,000 gal — gasoline
   b. Tank 2 — 100,000 gal — gasoline
   c. Tank 3 — 100,000 gal — gasoline
   d. Tank 4 — 50,000 gal — gasoline
2. Blue Bay Petroleum Inc.
   a. Tank 1 — 190,257 gal — gasoline
   b. Tank 2 — 131,526 gal — gasoline
   c. Tank 4 — 224,840 gal — gasoline
   d. Tank 14 — 854,537 gal — Jet A-1
   e. Tank 15 — 1,505,507gal — diesel fuel
3. Aimeliik Power Plant
   a. 8 Tanks — 750,000 gal each — diesel fuel

Servicing Facilities-Storages containing more than 500 gallons

1. Ngiwal
   a.
2. Ngeremlengui
   a.
3. Ngaraard
   a.
4. Airai
   a.

b.

5. Koror
   a.
   b.
   c.

2. ROLES & RESPONSIBILITIES

2.1 National Emergency Committee

The National Emergency Committee consists of high-level representatives from the following organizations:

- Vice President [Alternate- Minister (Chair of the committee)].

EQPB, PPUC, NEMO, MOH, Division of Marine Transportation, Bureau of Public Safety, Division of Fire & Rescue, Division of Fish & Wildlife, Division of Marine Law Enforcement, State Rangers

For Oil Spills the Committee will co-opt the following organizations/agencies to be part of the National Emergency Committee:

- The oil distributors/industry.
- The shipping industry.

The role of the committee and its members are as follows but not limited to:

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

2.2 Responsible Authority

The National Emergency Committee is the Responsible Authority for all spills that are **declared a National Emergency** within the Republic of Palau.

For all other spills that are not declared an Emergency the Environmental Quality Protection Board (EQPB) is the Responsible Authority.

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

2.3 EQPB

The Environmental Quality Protection Board (EQPB) is the EQPB for all spills within the Republic of Palau.

The EQPB has operational responsibility to respond to spills, through the designated Incident CommanderCommander (IC). The EQPB has the responsibility for taking physical and regulatory actions 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 EQPB 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 EQPBEQPB.
- Taking immediate action to control or stop the spill.
- Taking immediate action to contain the spill and prevent it from spreading.
- Co-operating fully with the EQPB in the response to the spill under the direction of the Incident CommanderCommander (IC).
- Any legal obligations and responsibilities not covered above as required by relevant legislation, including those relating to funding the costs of the spill response and clean up and mitigation of any environmental and economic damage.

2.6 Bulk Oil Storage Facilities

All entities operating bulk oil storage facilities in the Republic of Palau including oil companies, port operators and power companies have the following roles and responsibilities under NATPLAN:

- Giving highest priority to preventing spills from tankers, pipelines, terminals, depots and other facilities owned and/or operated by them.
- Immediately reporting all marine spills from their facilities to EQPBEQPB.

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

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

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

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

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

-

(add sub-section for other storage facilities and operating sites e.g. service stations?? Are there laws??)

2.7 Role of P&I Clubs

Approximately 90% of the world's shipping fleet is entered with a Protection and Indemnity insurer, called a P&I Club. The risks covered by the P&I Clubs include;

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

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

The role of the correspondent in marine pollution incidents involving vessels includes but is 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*) there is an obligation on the master of a vessel to report any marine pollution incidents without delay, and to the fullest extent possible, to the coastal State in order to facilitate necessary counter-pollution actions. Mandatory reporting requirements for incidents involving harmful substances are contained in article 8 and Protocol 1 to MARPOL.

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

3.2 Initial Pollution Reports (POLREPS)

Recognizing 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 marine spill should immediately report the spill to the EQPBEQPB.

24-Hour Emergency Hotline for the Republic of Palau
Marine Pollution EQPB:
911

EQPB 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 EQPB 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 EQPB should immediately complete a POLREP, using the standard format contained in Appendix Two, and urgently transmit this to all members of the National Emergency 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 EQPB should complete SITREPs, using the standard format contained in Appendix Three. These SITREPs should be frequently compile from field information and transmitted to all members of the National

Emergency Committee, any other affected/interested parties and to SPREP via facsimile or email, at regular intervals throughout the spill.

3.4 Post-Incident Reports (POSTREPS)

After a pollution incident, the EQPB 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 EQPB has compiled this report, the Incident Commander and other personnel should meet with the National Emergency 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 contact, which provides the focal point for receiving and relaying information concerning any marine pollution incident in the region. PACREP is a facility where:

- POLREPS of all marine spills in the region should be sent by EQPB.

- The progress of a spill can be monitored, through the receipt of SITREPs from EQPB.

POLREPS received by SPREP through PACREP are entered into a database and Geographic Information System, to provide a long-term picture of trends in marine spills throughout the region. This will assist updating of risk assessments and targeting of prevention, education, surveillance and enforcement efforts, and provides a performance indicator for spill prevention efforts and state of the environment reporting. SPREP is responsible for reporting annual spill statistics from PACREP to interested parties.

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

It should be noted that PACREP is NOT an emergency response facility, and is only functional during normal business hours. Its main purpose is for the collection, analysis and dissemination of spill data. All spills within the Republic of Palau must be reported to the Responsible Authority or EQPB.

4. INCIDENT COMMAND & CONTROL

4.1 Elements of Effective Control of Spill Response

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

- Appointment of an Incident Commander,
- Mobilizing the Marine Spill Response Team,
- Establishing a suitable incident control center,
- Establishment of effective communications,
- Effective collation, transfer, display and storage of information,
- Effective management of public and community relations (media and consultative processes).

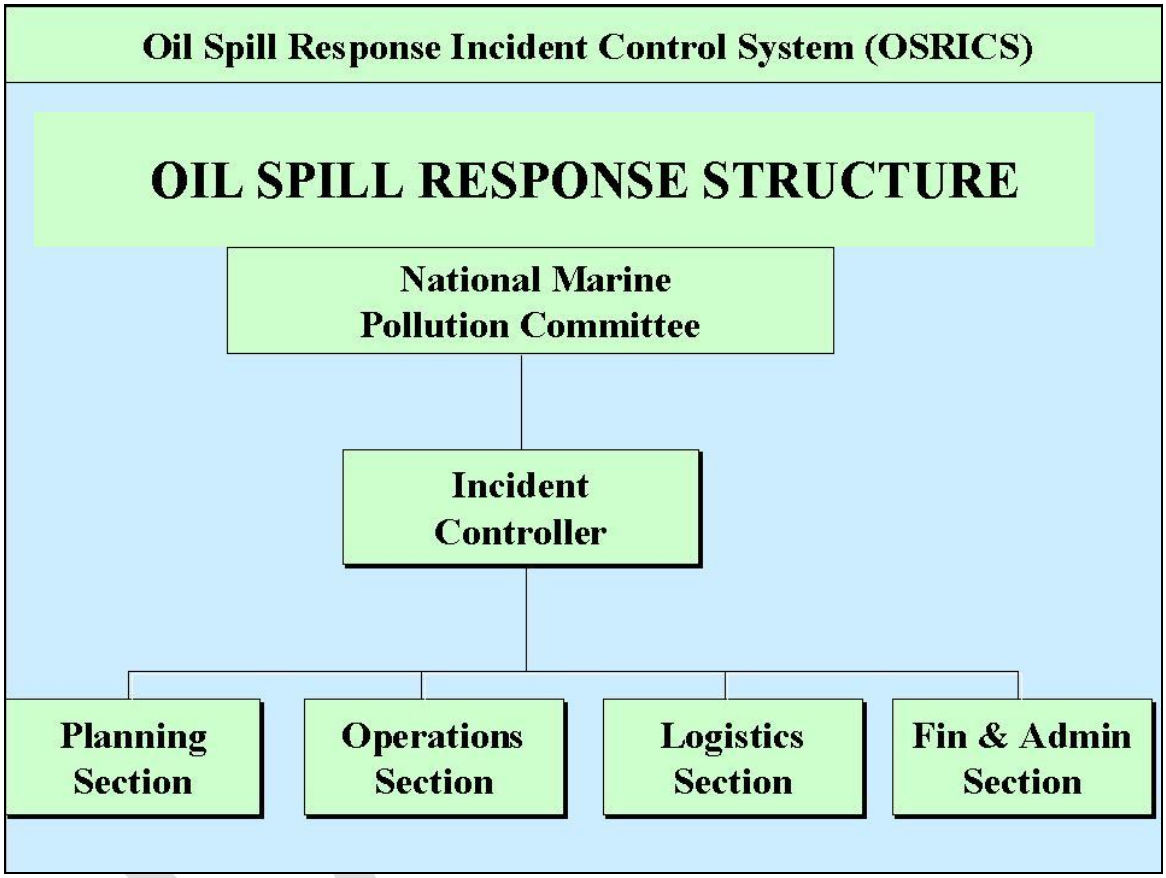
4.2 Incident Command System and Marine Spill Response Team

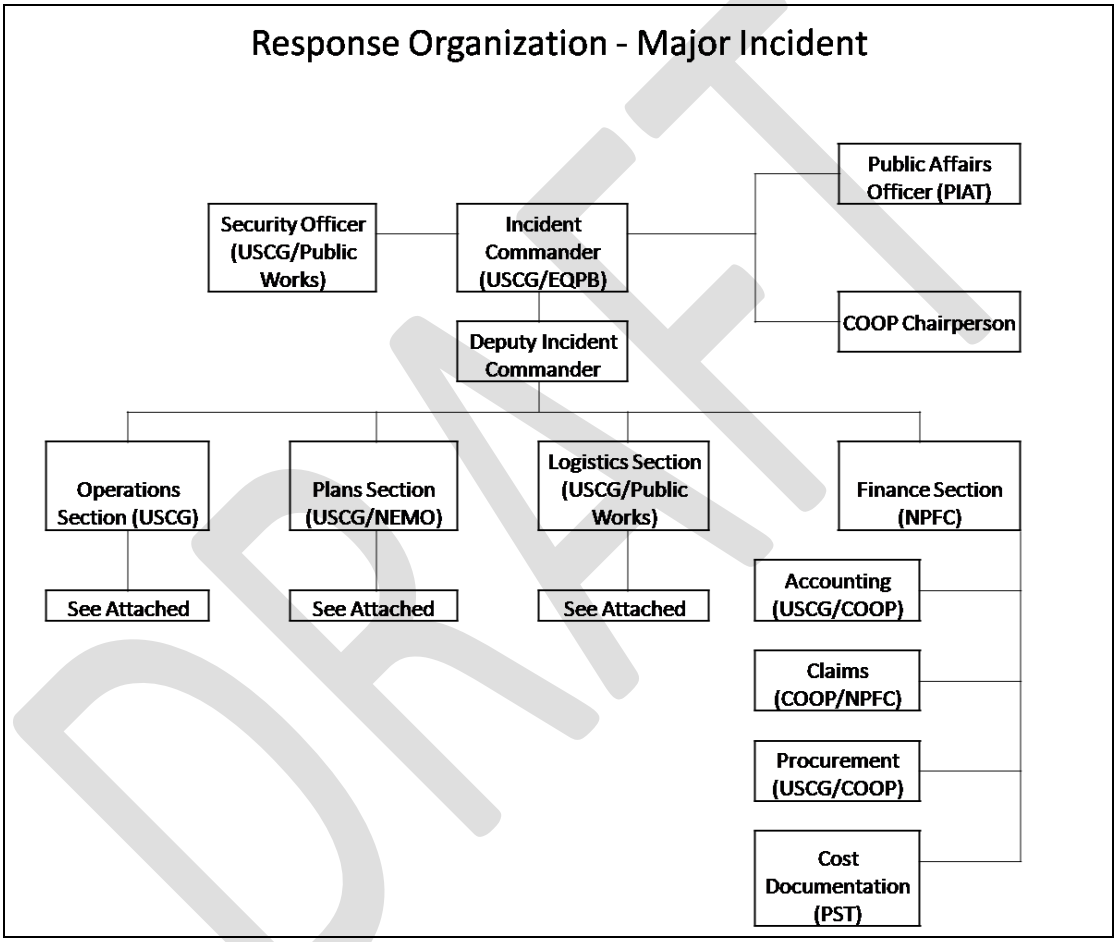
Response operations cannot be effectively carried out unless there is a clear organizational structure to command and control the response and trained individuals to carry out the response plans.

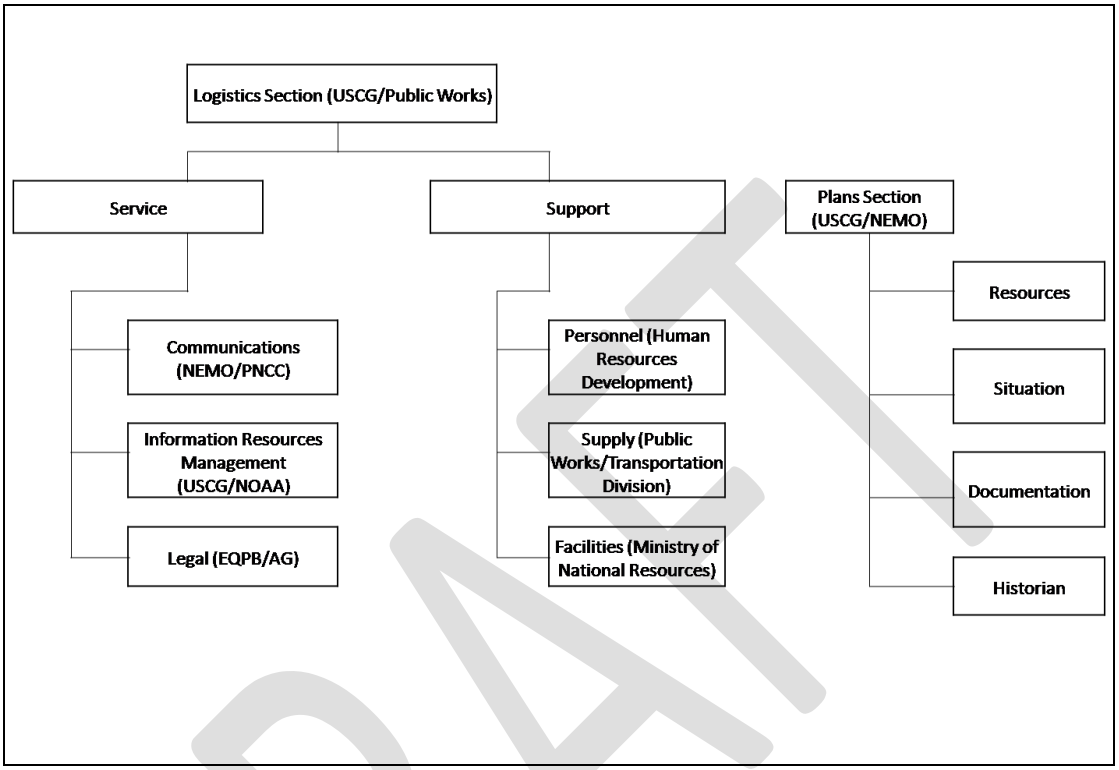
The overall structure of incident command and control system is depicted in Figure Five. In the event of a marine spill within the Republic of Palau waters, a Marine Spill Response Team based on this structure should be immediately established by the designated EQPB. The number and nature of the individual sections and units should be flexible and tailored to suit the size and nature of the spill. Several functions may be combined under a single coordinator for small spills.

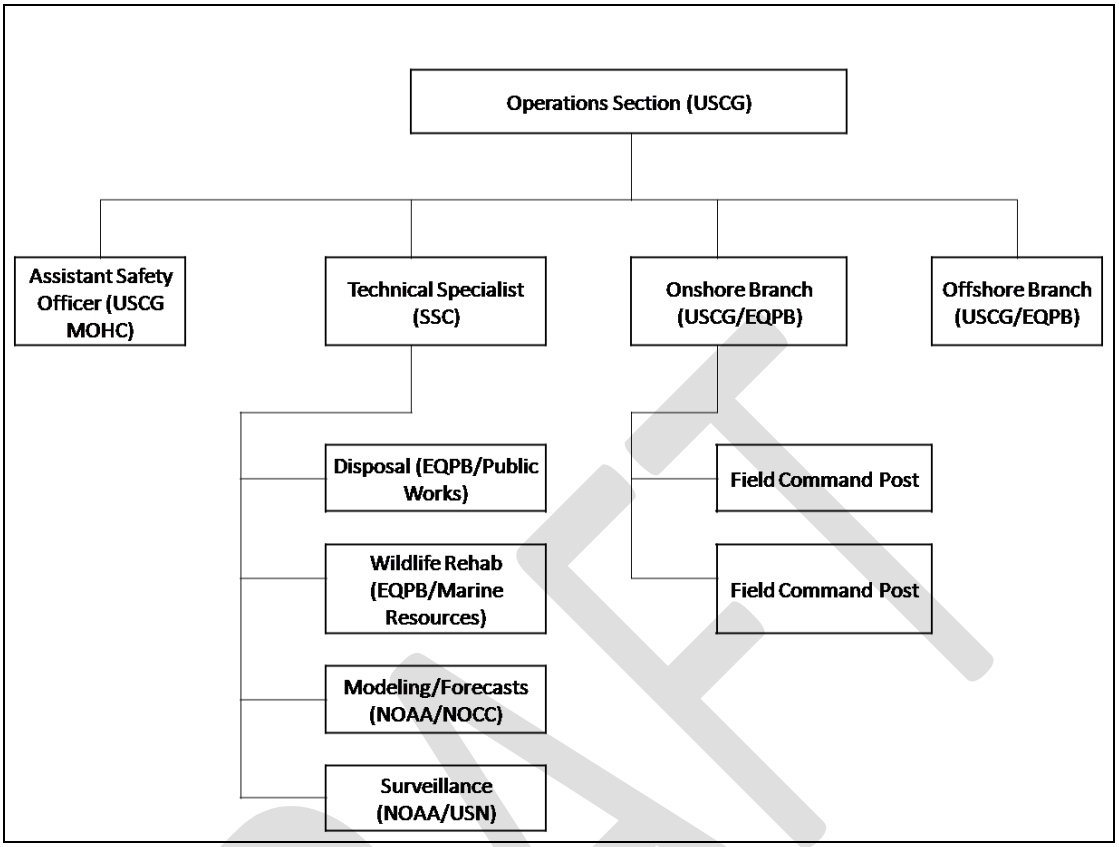
The IC directs response efforts and co-ordinates all efforts at the scene and is the primary decision-making authority in relation to spill response activities in line with the National Disaster Risk Management Framework 2010.
The National Disaster Risk Management Framework 2010 requires the use of NIMS. The Incident Command System (ICS) is the tool used for spill response management.

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


Oil Spill Response Incident Control System (OSRICS)
OIL SPILL RESPONSE STRUCTURE
National Marine Pollution Committee
Incident Controller
Planning Section
Operations Section
Logistics Section
Fin & Admin Section


Response Organization - Major Incident
Public Affairs Officer (PIAT)
Security Officer (USCG/Public Works)
Incident Commander (USCG/EQPB)
COOP Chairperson
Deputy Incident Commander
Operations Section (USCG)
Plans Section (USCG/NEMO)
Logistics Section (USCG/Public Works)
Finance Section (NPFC)
See Attached
See Attached
See Attached
Accounting (USCG/COOP)
Claims (COOP/NPFC)
Procurement (USCG/COOP)
Cost Documentation (PST)


Logistics Section (USCG/Public Works)
Service
Support
Plans Section (USCG/NEMO)
Communications (NEMO/PNCC)
Information Resources Management (USCG/NOAA)
Legal (EQPB/AG)
Personnel (Human Resources Development)
Supply (Public Works/Transportation Division)
Facilities (Ministry of National Resources)
Resources
Situation
Documentation
Historian



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

- **Planning Section** - responsible for the provision of scientific and environmental information, the maintenance of incident information services, and the development of the Incident Action Plan.
- **Operations Section** - responsible for undertaking all response operations in the field.
- **Logistics Section** - responsible for the provision of resources to sustain the response.
- **Finance & Administration Section** - responsible for maintaining financial and administrative records of the response activities.

4.3 Roles and Responsibilities of Marine Spill Response Team

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

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

4.3.1 Incident Commander

Incident Commander (IC): The Lead Agency is EQPB. The Executive Officer is designated as the IC for all Tier 2 spills within the Republic of Palau. The Alternate IC is the HAZMAT Division Co-ordinator. The 2nd Alternate IC is the Environment Engineer.

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

In carrying out his/her role, the IC shall be supported by an incident response team comprising the personnel and organizational 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 Center 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 Center.

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 utilizing 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

Health & Safety Unit - all activities related to the implementation of the 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 Center.

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 an oil, fuel, chemical or hazardous substance spill can be minimized by good management and planning as well as the timely and appropriate response actions put into effect by the Responsible Authority and EQPB. Such actions will largely depend on several factors;

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

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

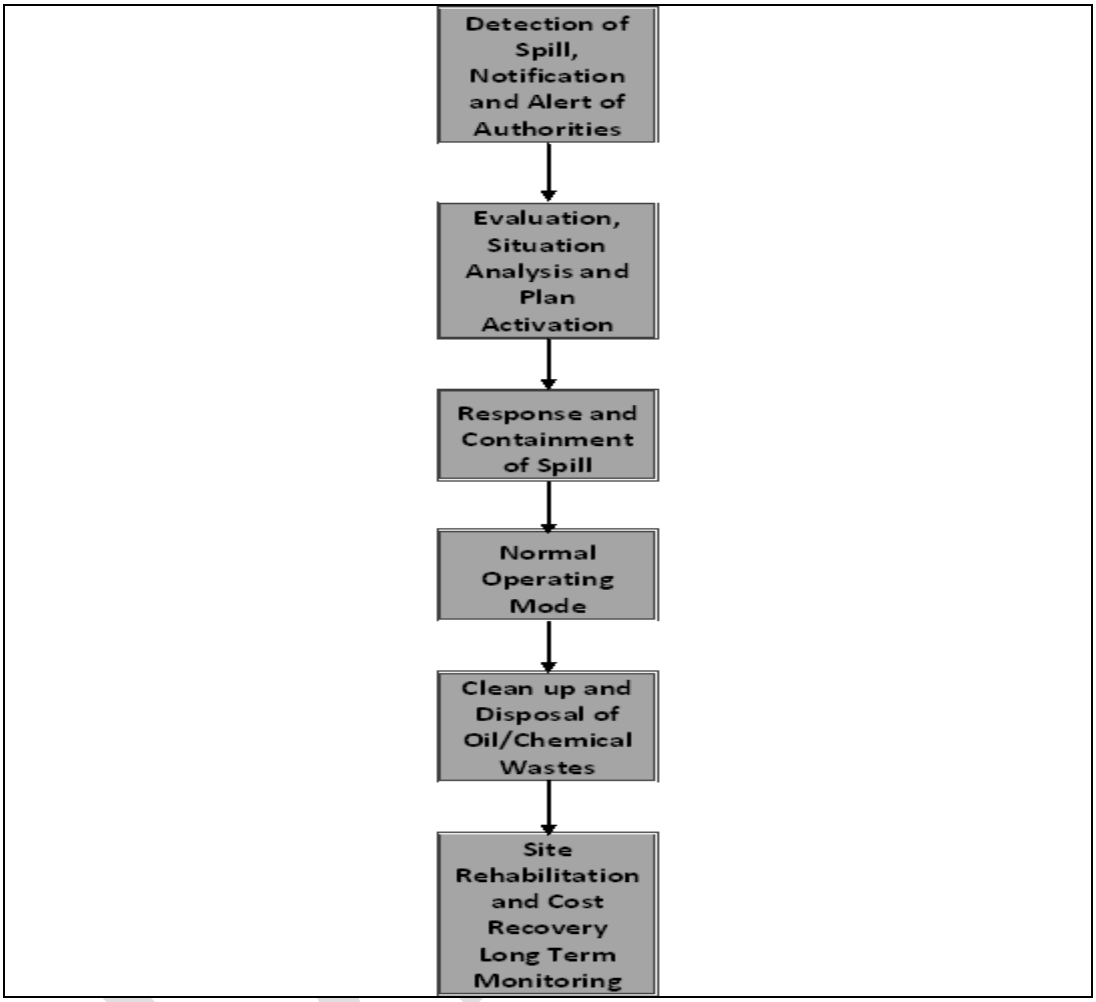
To ensure that these actions are taken, the IC should delegate relevant tasks to the Marine Spill Response Team. To assist in this process a Spill Response Action Checklist at the front of the NATPLAN summarises this sequence.

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

5.1 Phases of a Response

There are six 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: Six 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 minimize environmental damage.

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

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

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

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

5.3 Stabilizing 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 minimize 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. Stabilizing 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 Republic of Palau's jurisdiction extends to the Exclusive Economic Zone and the Territorial Sea extends to 12 miles from the coastline. This permits the Republic of Palau 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 the Republic of Palau the Division of Marine Transportation 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 minimize pollution release or outflow and other salvage activity.

The vessel's owner or master will normally appoint a salvor by signing a Lloyds Open Form Agreement. However, in cases where this does not occur the Division of Marine Transportation, 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 stop 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 Emergency Committee, other affected/interested parties and SPREP.

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

5.6 Spill Surveillance and Forecasting

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

- ⇒ Direct observation (surveillance),
- ⇒ Manual calculation using currents & winds,
- ⇒ Computer modelling.

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

Meteorological and hydrographic data should be obtained by the IC, through his/her support personnel, and analyzed 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 IC should use are;

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

It is the responsibility of the Planning Section to develop a Incident Action Plan (IAP) 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 coastlines and is likely to remain in open water, then the best option may be to leave the spill alone, allowing natural physical and biological degradation to occur at sea.

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

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

5.9 Containment & Recovery at Sea

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

The techniques and equipment available for containment and recovery at sea should be outlined in the NATPLAN and can be found in Annex 4. (needs to be defined)

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 minimize the spill from impacting on the coast is to disperse it at sea, using chemical dispersants. Dispersants can be applied to the spill from vessels or aircraft.

Currently there are no dispersants in Palau and no capability for dispersant application.

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

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

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

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

To ensure only approved dispersants are used in the Republic of Palau waters the National Emergency 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. The NEC shall be the coordinating and final approving body for use of dispersants.

5.11 Shoreline 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 shorelines. Options include the use of oil spill booms to physically prevent oil from impacting on the shoreline, or to direct it to preferred collection points (such as a sandy beach), where it can be recovered.

The techniques and equipment available for shoreline protection should be outlined in the NATPLAN, and will need to be inserted in the Annex 4.

The ability to conduct effective shoreline 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 shoreline. It is therefore absolutely necessary to clearly establish protection priorities, in accordance with the relative environmental sensitivities and resource values of the threatened coastal environments and resources.

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

5.12 Shoreline Clean-up

In the event that a spill impacts the coastal resources and environments, it may be necessary to conduct shoreline 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 minimizing 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 shoreline clean up is to ensure that clean-up operations do not cause greater environmental damage than the spill itself. Also that wastes collected are kept to a minimum to avoid costly waste disposal and loss of shoreline materials and biota.

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

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

5.12.1. River Mouths

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

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

DO NOT

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

5.12.2 Coastal Swamps and Mangroves

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

- Oil should be prevented from entering coastal swamps by using dispersant on marine spills well off-shore;
- Booms should be deployed so as to restrict flow of oil into the mangrove area;
- Oiled swamps should not be cleaned unless:

- Access is readily available and sediment is firm;
- The mangroves do not have aerial roots (pneumatmophores)

- Seek expert environmental advice before using dispersant on or near mangroves;
- Manual clean up of mangrove areas must be strictly supervised.

5.13 Bioremediation

Bioremediation is the artificial introduction 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 fertilizer to the affected area. In some cases it may be beneficial to start fertilizer application before an area is affected.

While 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 shorelines 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 (fertilization);
- Culture and inoculation of in-situ or exotic organisms;
- Culture and inoculation of genetically enhanced organisms.

The most effective bioremediation strategies for oiled shorelines have utilized the fertilization technique.

5.14 In-situ Burning

Burning of the spilt oil or fuels at sea has the potential of removing large quantities of spilt oil or fuels but has not been used extensively in oil spill response in the region

.

The application of in-situ burning could prevent oil coming ashore into populated areas or preventing oil contamination of environmentally sensitive habitats and wildlife. The technique offers the advantage of a quick removal process minimizing 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 volatilized 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 behavior 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 centers 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.

The NEC shall be the coordinating and final approving body for use of In-situ burning.

5.15 Oiled Wildlife Operations

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

The Ministry of Natural Resources, Environment and Tourism will assist the IC in oiled wildlife operations.

5.16 Waste Management

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

Oil and waste recovered in cleanup operations shall be disposed of in accordance with local legislation.

Temporary 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 Ministry of Public Infrastructure, Industries and Commerce will assist the IC in waste management from spill cleanup operations.

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).

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.

HAZMAT Standing Operating Procedures (SOP) can be found in Annex 10.

6. EXTERNAL ASSISTANCE

Should the EQPB assess a spill to be a Tier Three spill (refer sections 1.3 and 5.3), a request for external assistance should follow the Palau National Disaster Risk Management Framework 2010. A request can also be activated for external Assistance through SPREP, in accordance with the procedures laid down in PACPLAN - the Pacific Islands Regional Marine Spill Contingency Plan.

The EQPB and the Office of the Minister of State hold copies of PACPLAN.

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

6.1 Pacific Islands Regional Marine Spill Contingency Plan (PACPLAN)

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

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

The Noumea Pollution Protocol requires Parties to:

- Take initial action at the national level to respond to pollution incidents (marine spills).
- Cooperate 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 organizations, regional and international linkages and mechanisms for accessing regional and international assistance.

6.2 Other Mutual Aid Arrangements

association with AMOSC & MOUs, OSRL & EARL

[Appropriate entities should have mutual aid arrangements in place e.g. IP&E and Blue Bay with EQPB]

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 IC, in consultation with his/her support personnel under the Marine Spill Response Team and the members of the National Emergency 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 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.

The IC shall determine the prioritisation of equipment demobilisation.

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 Emergency Committee for action.

7.4 Damage Assessment & Monitoring

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

- Ecological damage.
- Impacts on commercial resources and activities such as fisheries, aquaculture and tourism.

It will also provide a baseline against which to measure recovery from the spill.

The information gathered will assist with:

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

Responsibility for initiating and coordinating post-spill damage assessment and monitoring should generally rest with the EQPB. The following general principles should apply to post-spill damage assessment and monitoring.

- The EQPB, should organize 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 Palau Automated Land and Resources Information System (PALARIS) and Ministry of Natural Resources, Environment and Tourism should rapidly identify all such data, including that held by government environment and fisheries agencies, universities and research institutions.
- The monitoring design should include the identification and monitoring of control sites.

- The monitoring design should include areas impacted by the spill, areas disturbed by clean-up activities and areas used for the storage of oily waste.

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

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

7.5 Environmental Restoration & Rehabilitation

Following a spill, it may be necessary to undertake activities to restore and rehabilitate damaged ecosystems and resources, for example replanting mangroves killed by a spill, rehabilitating beaches damaged by clean-up activities or transplanting coral to a high-use tourist area impacted by a spill.

Responsibility for Post-spill restoration & rehabilitation should generally rest with the EQPB under advice from the Ministry of Natural Resources, Environment and Tourism. 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 organizations involved in restoration and rehabilitation should keep detailed records of all costs and expenses associated with these activities.

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

8. COST RECOVERY & REIMBURSEMENT

It is the responsibility of the Responsible Authority to initiate cost recovery actions direct with the polluter's representative, e.g. P&I Club correspondent. If required to negotiate or to take legal action to achieve full settlement of amounts incurred in the response. In most cases the identity of the spiller is known and a representative of the P&I Club or Fund will be aware of the Authorities intervention.

The reimbursement of the costs of a marine spill response should be attempted from the polluter, under existing legal regimes (such as relevant national legislation, the Civil *Liability Convention1992 and the Fund Convention 1992*, if applicable).

To assist in the recovery of costs, detailed records of action taken and equipment and other resources used to respond to the incident, including detailed and complete records of all costs incurred must be kept by all parties. These records can be utilized help replenish the Environmental Mitigation Trust Fund to support the NATPLAN.

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

9. EQUIPMENT

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

A list of equipment available in the Republic of Palau, storage locations and contact details is contained in Appendix Five.

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

10. TRAINING & EXERCISES

10.1 Training of spill responders

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

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

- Basic safety, fire and health precautions to be taken in the vicinity of a spill;
- Overview of Incident Command System (ICS) organization structure and position responsibilities
- Incident Action Plans and the planning process cycle;
- Tactical operations planning
- Actions to be taken to minimize 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
- Table Top, Functional 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 organizing these in-country exercises and training rests with the National Emergency Committee as per Section 2.1. SPREP can provide technical advice and assistance in the development, conduct and monitoring of these exercises.

11. APPLICABLE LEGISLATION, ENFORCEMENT & PROSECUTION

In the Republic of Palau, pollution is regulated under the Environment Quality Protection Act. The Environmental Quality Protection Board (EQPB) administers this Act. The EQPB is the Responsible Authority for all spills that are not declared an Emergency. EQPB is the Lead Agency for all spills.

Emergency Management is administered through the Palau National Disaster Risk Management Framework 2010 through Executive Order 287. The Responsible Authority for all Emergencies is the National Emergency Committee (NEC).

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

Maritime issues are regulated through the Maritime and Admiralty Act and Port regulations. The Division of Marine Transportation is the Responsible Authority for Maritime issues.

12. APPROVAL, CONTROL & REVISION OF THE PLAN

12.1 Approval of the Plan

The National Emergency Committee will approve the NATPLAN

12.2 Control of the Plan

NATPLAN will be a controlled document under the direction of the EQPB. Full contact details for all holders of controlled copies of NATPLAN are maintained on a register at the office of the EQPB, 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 Emergency Committee.

Any member of the Committee may submit proposed revisions to the main body of NATPLAN. The Committee will consider these proposals. The NATPLAN shall be formally reviewed every 5years.

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 EQPB, without the need for agreement by the Committee. Such revisions and updates will be circulated by the EQPB 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 EQPB, any changes in circumstances, including levels of risk of marine spills, capability to manage marine spills, internal administrative arrangements and contact details, that may require revision and updating of the plan. The EQPB will then be responsible for circulating such updates to all registered holders of controlled copies of the plan.

13. ANNEXES

13.1 Annex One: Emergency Contact Details

EMERGENCY CONTACTS DETAILS

24 Hours Number

Organization / Department	Phone	Fax/Mobile
Portia K. Franz, Executive Officer Palau EQPB	488-3600/1639	Fax: 488-2963 C: 779-0935
Eden Ridep-Uchel, Chief Division Of Environmental Health	488-6073/6345	Fax: H: 488-4110
Alonzo Kyota, Director Nat'l Emergency Management Office	488-2249/2422	Fax: 488-3312
Donald Dengokl Assistant Executive Officer	488-3600/1639	H: 587-3420 C: 775-3772
John Kintaro, Jr. EQPB Hazmat Team Leader	488-3600/1639	H: 488-3630 C: 778-0305
Francesca Sungino EQPB Hazmat Team Member	488-3600/1639	H: C:
Emil Edesomel EQPB Hazmat Team Member	488-3600/1639	H: 488-5051 C:
Jerome Sakurai EQPB Hazmat Team Member	488-3600/1639	H: 587-2241
Denicio Mariur EQPB Hazmat Team Member	488-3600/1639	H: 587-1218
Maurice Takeo Fire Division Hazmat Team Leader	488-1411/911	H: 488-3549
Godwin Philip ARFF Hazmat Team Member	488-1411/911	H:587-1012/1013 Fax: 587-2112/2115
Alton Samsel Fire Division Hazmat Team Member	488-1411/911	H: 488-1328 C: 779-1411
Jeffrey Rechetuker Petrol Division BPS Hazmat Team Member	488-4363	H: 488-5536 (update)
Tmekei Ellis DEH Hazmat Team Leader	488-6073/6345	H: 488-3567
Alexander Sumor DEH Hazmat Team Leader	488-6073/6345	H: 488-4629
Bernard Sikyang DEH Hazmat Team Member	488-6073/6345	H: 488-8849
Godwin Siliang DEH Hazmat Team Member	488-6073/6345	H: 488- 5796
Basiano Kitalong DEH Hazmat Team Member	488-6073/6345	H: 488-3206
Richard Tellames DEH Hazmat Team Member	488-6073/6345	H: 488-3317

PACPLAN activation SPREP – Marine Pollution Adviser registry@sprep.org	+ 685 21929	+685 20231

Palau Hazmat Response Team

Telephone Tree

This telephone tree will be activated by an outside call via 911 presumably as primary channel for any Hazmat incident. The Palau EQPB can be assume as additional primary channel of possible Hazmat incident, thus can activate the telephone tree by calling the Fire Department as the primary Hazmat response deployment to the scene and then activate the telephone tree on Team Leader tier.

911 activate telephone tree:

8. Bureau of Public Safety (BPS) Dispatch receives call and **log in pertinent information** using Hazmat log in sheet.
9. BPS Dispatch **calls Fire Department** and dispatch to incident site.
10. BPS Dispatch **calls EQPB on call personnel** using call down roster.
11. **EQPB receives call** and log in pertinent information using Hazmat Incident log in sheet.
12. EQPB on call personnel **activate Hazmat Team** by calling Team Leaders using Hazmat Team roster:

    1. DEH Team Leader
    2. EQPB Team Leader
    3. Fire Hazmat Team Leader

13. EQPB informs all Team Leaders of the pre-determined location for briefing.
14. Team Leaders activate individual agency call down roster to assemble response.

13.2 Annex Two: Standard Pollution Report (POLREP)

Republic of Palau

Environmental Quality Protection Board

P.O.Box 8086, Koror, Republic of Palau 96940
Tel (680) 488-1639/3600 Fax (680) 488-2963 email: eqpb@palaunet.com
registry@sprep.org

Spill Inspection Report EQPB Doc#:_____

Author: _____ Signature/Date: _____

Inpection Information

Initial Inpection ☐ Follow-Up Inspection to EQPB Doc#: _____

Time & Date of complaint/notification: _____ Informant: _____

Location: _____ Time arrived at location: _____ End Time: _____

Weather/Tide: _____

EQPB Personnel present: _____

Also present: _____

Source Information

Source of spill/leakage located: ☐ Yes ☐ No ☐ Unclear

Description: _____

NOTE: Sheen will move in the direction of the current and the wind,.: look for the source in the opposition direction.

If vessel/boat: Name: _____ Owner/Captain: _____

Crew & Nationality: _____ Vessel/boat operating under/for: _____

Agent & Contact Info: _____

Vessel/Boat length: _____

Sheen extends from the source or origin in length & wind: _____

Additional observations: _____

Substance Information

Sample taken: ☐ Yes ☐ No (NOTE: Record date, time, location, and your initials on the side of the container in permanent marker)

Type of Substance: ☐ Gasoline ☐ Diesel ☐ Other Fuel ☐ Other Substance

Description: Public Safety Officer at the site indicated that spillage is potential diesel fuel

Follow-Up Inspection Information

Instructions for proper clean-up/disposal: ☐ Followed ☐ Complete ☐ Not followed ☐ Not Complete

Description: _____

Additional Information

Written report of events attached ☐ Photos attached ☐ Sketch attached

Instructions given if any: _____

Additional Information/Observation:

The facts established by this inspection will be reviewed by the EQPB. A final determination of your facility's compliance with the EQPB regulations will be made as a result of this review. The review may reveal additional violations.

Name Title Date

Attested to at (city and state)

This _____ day of _____

Signature of EQPB personnel Title Date

13.3 Annex Three: Standard Situation Report (SITREP)

13.4 Annex Four: Equipment Inventory

13.4.1 Recommended Equipment List for Palau

Malakal Port

Item	Quantity	Status
Fence boom	100 meters	Not Available
Curtain boom	200 meters	Not Available
Shore sealing boom	40 meters	Not Available
Air inflation and water blast pumps	1 set	Operational
Towing ends	6 sets	Not Available
Anchor connection	4 sets	Not Available
Temporary storage	3	Not Available
Sorbent pads	300 packages	Not Available
Sorbent booms	200 meters	Not Available
Sorbent sweep	200 meters	Not Available
Skimmer with diesel pump	1	Broken
Transfer pump	1	Not Available
3” recovery pump hose	40 meters	Operational
Anchor kits (anchor, chain, rope, buoys, fittings)	15 X 20 kg kits	Not Available

Aimeliik Port

Item	Quantity	Status
Fence boom	100 meters	Not Available
Curtain boom	200 meters	Operational
Shore sealing boom	40 meters	Not Available
Air inflation and water blast pumps	1 set	Not Available
Towing ends	6 sets	Not Available
Anchor connection	4 sets	Not Available
Temporary storage	3	Not Available
Sorbent pads	300 packages	Not Available
Sorbent booms	200 meters	Not Available
Sorbent sweeps	200 meters	Not Available
Skimmer with diesel pump	1	Broken
Transfer pump	1	Not Available
3” recovery pump hose	40 meters	Not Available
Anchor kits (anchor, chain, rope, buoys, fittings)	15 X 20 kg kits	Not Available

Peleliu Port

Item	Quantity	Status
Fence boom	100 meters	Not Available
Towing ends	2 sets	Not Available
Anchor connections	2 sets	Not Available
Temporary storage	1	Not Available
Sorbent pads	300 packages	Not Available
Sorbent booms	200 meters	Not Available
Sorbent sweeps	200 meters	Not Available
Anchor kits (anchor, chain, rope, buoys, fittings)	2 X 20 kg kits	Not Available

Angaur Port

Item	Quantity	Status
Fence boom	100 meters	Not Available
Towing ends	2 sets	Not Available
Anchor connections	2 sets	Not Available
Temporary storage	1	Not Available
Sorbent pads	300 packages	Not Available
Sorbent booms	200 meters	Not Available
Sorbent sweeps	200 meters	Not Available
Anchor kits (anchor, chain, rope, buoys, fittings)	2 X 20 kg kits	Not Available

13.4.2 Environmental Quality Protection Board Marine Spill Equipments Inventory

No.	Item Description	QTY	Location	Condition/Remarks
1	Anchor Kit	10	EQPB	Operational
2	Anchor Set	10	EQPB	Operational
3	Air Blower	2	EQPB	Operational
4	Water Blower	2	EQPB	Operational
5	Water Pump	2	EQPB	Operational
6	Suction Hose	4	EQPB	Operational
7	Sorbent Booms	20	EQPB	Operational
8	Sorbent Pads	19	EQPB	Operational
9	Fender	2	EQPB	Operational
10	60 Feet -- Oil Boom	1	EQPB	Operational
11	1400 Feet -- Oil Boom	1	EQPB	Operational
12	48 Inches in diameter -- Skimmer	1	EQPB	Operational
13	5 HP -- Diaphram Pump	1	EQPB	Operational
14	Twin Engine 115 HP & 29 FT – Boat	1	EQPB	Operational
15	Nissan Frontier Pick-Up Truck 2007	1	EQPB	Operational

16	Toyota Pick-Up Truck 1991	1	EQPB	Operational

13.4.3 Shell Oil Company

QTY	UNIT	EQUIPMENT DESCRIPTION	COUNT	LOCATION	CONDITION/REMARK
10		Absorbent Pads		Malakal Terminal	
4		Absorbent Booms		Malakal Terminal	
1		3 inch Skimmer		Malakal Terminal	
1		2 inch Pump		Malakal Terminal	
10		Various hoses for clean up		Malakal Terminal	
1		4500 Gal Tanker Truck		Malakal Terminal	
1		1,000 FT Sea Curtain		Aimeliik	Operational

13.4.3 Blue Bay Petroleum, Inc. Oil Spill Clean Up Equipments

A. Communication Equipments:

6 ea. Cellular Phone — Motorola MTX Handie Talkie,Tanker Frequency Applic (Channe1)

7 ea. Cellular Phone(6- Nokia, 1-Sonny Ericsson)

Remarks: communication equipment all in good condition

B. Floating Equipments:

1 ea. 23' **Bayliner Boat** with Twin 130 HP Engine,Yamaha,w/trailer

1 ea. 17' **Sea Arc Boat** with Twin 60 HP Engine,Yamaha,w/trailer

Remarks: * Bayliner (Boat) not in service, need to repair
*** SeaArc now is in service**

C. Motor Equipments: T/T Parking Lot

1 ea. 5000 usg Tank Truck (ME-16150)Diesel Engine

1 ea. 5000 usg Tank Truck (ME-16157)Diesel Engine

1 ea. 4000 usg Tank Truck (ME-16213)Diesel Engine

Warehouse

1 ea. Yale Forklift, 3 ton-Diesel

1 ea. Skimmer Pump-Diesel engine

1ea. Skimmer Pump -Gasoline engine

D. Oil Spill Containment Equipments:

Box 1. 10 Oil Spill Booms, 100 ft.each lenth-Model MK-E
M-Type(270) Sorbent Boom, 8 ea.-10 ft. ea. Lenth (80 ft.)

Box 2. 6 Oil Spill Booms, 100 ft.each lenth-Model-MK-E
M-Type(270) Sorbent Boom,12 ea.-10 ft. ea. Lenth (120 ft.) 4 in one bag
2 buoys,2-50'.x1/2" rope

Remarks: **Need to replace some booms in box 2 (leaks and also locks are missing)**
Need to replace (4)-100 FT. Oil spill booms

Box 3. 3 Slickbars, 100 ft.each lenth-Model-MK-E
5 ea.Oil Sorbent Pads
Skimmer hoses-(3)x10',+(1)x20', (7)pairs-2' hose floater, 1-A
(3)-50'x1/2" rope
New Wheelborrow and shovels in place

BOX 4. 6 Oil Spill Booms, 100 ft. each
4 Buoys
(1)-50'x1/2" rope

Remarks: Recommend new oil spill booms, non compliance

* **Remarks:** **22 packs of absorbent pads in storage (20ft container beside L/R)**

13.5 Annex Five: Investigation and Sampling Guidelines

13.6 Annex Six: Oily Waste Management

13.7 Annex Seven: Most likely Spill Scenarios

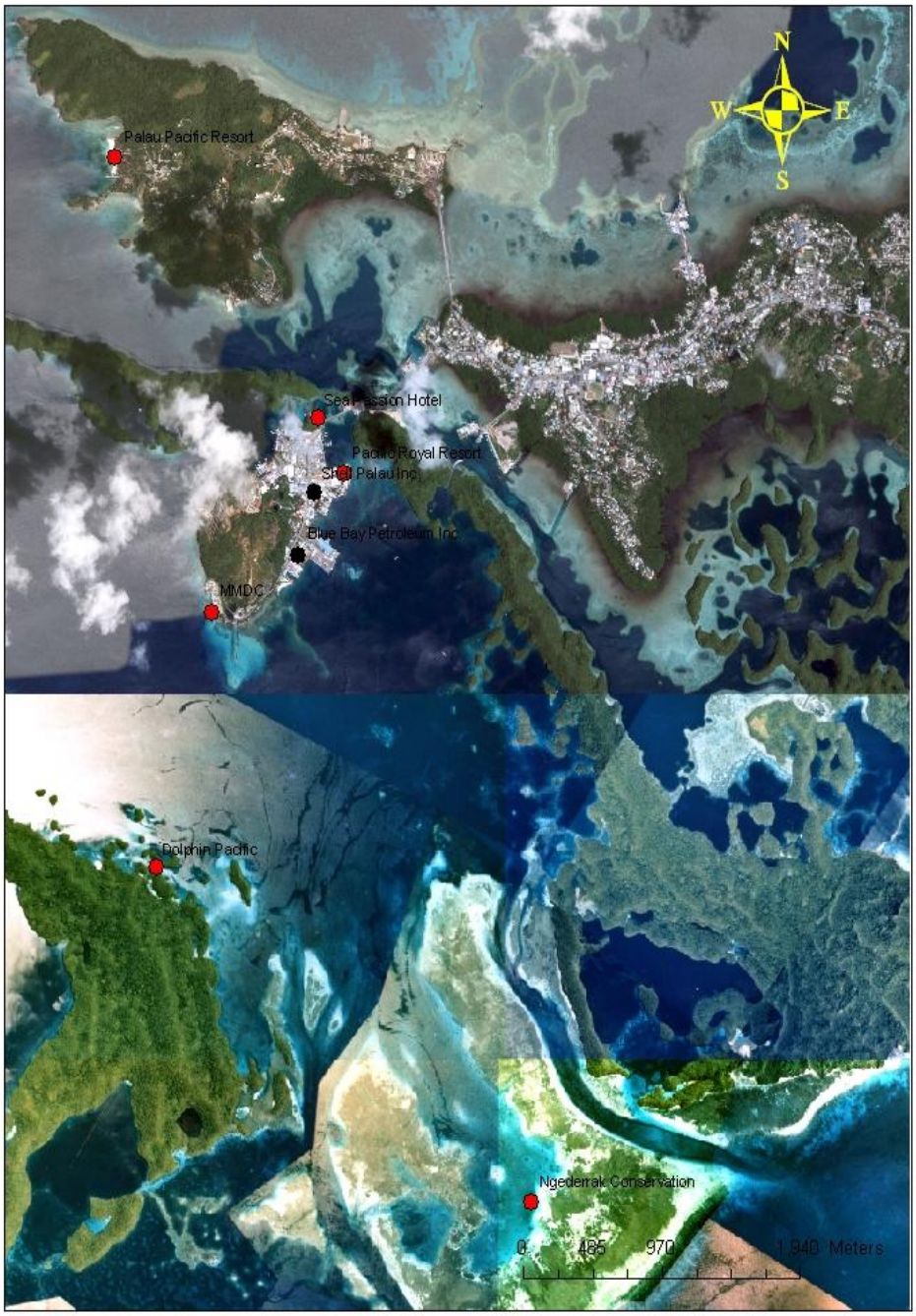
The Most Probable Discharge

The most probable discharge is a 100 gallons spill of diesel fuel from a longliner bunkering at the main wharf.

1. The size of the discharge: 50-500 gallons

   a. Hazard assessment: There is moderate risk to natural resources from such a spill and the product will generally evaporate before it's possible to begin adequate containment and cleanup.
   b. Vulnerability analysis: There are several sensitive areas at risk from such a spill. The Ngederrak Conservation Area, Dolphin Pacific, Palau Royal Resort, Sea Passion Hotel and Micronesian Mariculture Demonstration Center. See Figure 1.7A: Sensitive Areas in Malakal Harbor Vicinity below.

Figure 1.7A: Sensitive Areas in Malakal Harbor Vicinity



c. Risk assessment: Without vigorous and aggressive pollution prevention efforts we can expect these spills to occur 1-2 times per month.

d. Seasonal considerations: The records show no seasonal fluctuation to these spills. The slight variations in Palau's tropical climate wouldn't significantly affect a cleanup of this type of discharge.

2. The event:
   a. Situation: The person in charge of an oil transfer on a longliner overfills a tank. Diesel fuel flows out of the tank vent and over the fixed containment.
   b. Location: Main wharf
   c. Type and amount of spill: Marine Diesel Fuel. 100 gallons.
   d. Can pollution source be secured? Yes
   e. Sensitive areas at risk: See above
   f. Time of the year: Such fueling operations take place at all times of the year.
   g. On-scence weather: Wind 15 knots from the northwest. Air temperature is 85°F and Sea temperature 80°F. Partial overcast with intermittent rain showers.
3. Initial actions
   a. Notification: The employees of the oil company involved in the transfer will normally immediately notify *the Coast Guard and EQPB* by radio or telephone.
   b. Activation of response: The oil company involved will begin cleanup with the materials on hand-usually sorbent pads. The vessels involved may carry sorbent pads also.
   c. Initial on-scence investigation, evaluation and recommendations: *Due to the distance from Guam, the Coast Guard will not normally respond to such an incident.*EQPB can have personnel on scene within 30 minutes during normal working hours. After normal working hours, it may take them 1-2 hours to respond.
   d. Initial response actions, strategies: The product will evaporate quickly so the initial response will consist of soaking up heavy pools of product with sorbent pads. Much of the product will collect between the dock and the vessel. Cleanup efforts should concentrate on this area. The vessel may deny responsibility for the spill or not have resources to clean it up. The EQPB pollution investigation team will then hire a cleanup contractor to carry out the response.
4. Spill response organizations
   a. Situational: The senior person in the pollution investigation tem will be the incident commander. They will oversee the response and direct the actions of the responsible party. They will also ensure that the responsible party satisfactorily cleans up the discharge.
   b. Which organization to use: Incident Command System.
   c. Which jobs are most critical (need to be filled first)? This type of incident will normally require only an incident commander.
5. Containment, countermeasures and cleanup strategies:
   a. There is normally little need to deploy containment boom for the smaller spills. Larger spills that will take more than 1-2 hours to clean up may require containment boom to prevent the product from spreading to other locations. Spills of less than 50 gallons will usually require only sorbent materials for cleanup. Larger spills may require a vacuum truck and skimmer.
6. Resource requirements:
   a. Equipment: Smaller spills will require sorbent pads. Larger spills may require containment boom, sorbent pads, sorbent boom and skimmers.
   b. Personnel: Coast Guard-one pollution investigation team. Vessel-five people. Dock operator-one or two people to provide access to equipment.

7. Available resources and sources of procurement:
   a. Primary response resources: EQPB, vessel involved and the dock operator or mobile facility operator.
   b. Procedure for acquiring additional resource assistance
8. Shortfalls: There are no shortfalls for this type of spill.
9. Clean Up Duration: Spills of less than 50 gallons usually take 1-2 hours to cleanup. Larger spills of more than 300 but less than 500 gallons may take 8-12 hours.
10. Disposal Options for Debris. The local landfill can accept all non-hazardous derbis. Hazardous debris must be sent off-island for disposal.
11. Procedures and criteria for terminating the clean up. The EQPB pollution investigation team will terminate the cleanup when the responsible party restores the water in the surrounding area to tis normal condition. The water in Malakal Harbor is normally clear and free of oil but may contain small amounts of debris. The EQPB will require a responsible party to remove all oil from near the berth.

13.8 Annex 8: Fuel Data Sheets and Specification

13.9 Annex 9: Oily Waste Management Plan

13.10 Annex 10: HAZMAT SOP