SAFE WORK INSTRUCTION

Oil Spill Contingency Plan (OSCP)

OPS-SWI-13

General Manager, Operations

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Teamwork | Respect | Integrity | Honesty | Safety

Version Control

The version and revision history of this document is depicted below and should be reviewed continuously to ensure the most current version is being referenced.

Operational Context

This Darwin Port *Oil Spill Contingency Plan* (OSCP) outlines the actions required for the management of Marine Oil Pollution (MOP) emergencies that are the responsibility of Darwin Port (DP).

This includes oil spills from vessels or land-based activities that enter or have the potential to enter the Darwin Harbour waters (Port of Darwin). For incident responses outside Harbour waters, the Northern Territory (NT) OSCP should also be consulted.

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OSCP & Action Plan	**Name or Location**	**Organisation**	**Issue Date**
0A	(Master Copy / CD)	DP Port Operations	
1	CEO	Darwin Port	
2	GMO	Darwin Port	
3	SMMS	Darwin Port	
4	DP Harbour Control	Darwin Port	
5	Fort Hill Wharf Office	Darwin Port	
6	Nominated NT MPC	DENR Branch	
7	RHM	DIPL	
8	Emergency Services	Peter McAuley Centre	
9	Duty Officer/Manager	FRS, Ilife St	
10	Manager	AMOSC, Fremantle	
11	Manager	AMSA, EPG.	
12	DP Admin Building (DOM)	Darwin Port	
13	Fort Hill Wharf Gatehouse	Darwin Port	
14	East Arm Wharf Gatehouse	Darwin Port	
15	Workshop	Darwin Port	

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1.1 Aim

The aim of the Darwin Port (DP) *Oil Spill Contingency Plan* (OSCP) is to minimise the effect of any Marine Oil Pollution (MOP) emergency in the Port of Darwin through implementation of rapid, effective and appropriate response procedures.

The DP OSCP is a source of information for those responsible for developing and managing oil spill response capabilities within the Port of Darwin.

1.2 Objectives

The objectives of the DP OSCP are to:

- Utilize identified resources and equipment to minimize any adverse impact on the environment from oil spills from any source within the Port of Darwin.
- Ensure that Darwin Port resources are in a state of preparedness to mount the most environmentally sound and cost-effective response to two level 1 oil spill events simultaneously.
- Respond safely and effectively to two separate Level 1 pollution events simultaneously.

1.3 Scope

Area Covered

The DP OSCP applies to oil spills that occur within the Port of Darwin, which is located at latitude 12° 28'S, longitude 130° 50'E on the southern shore of the Beagle Gulf in the Timor Sea – a line between Charles Point and Lee Point defines the seaward boundary of the Port **(Figure 1)**.

Figure 1: Darwin Harbour and the Port of Darwin Limits

However, it is recognised that an oil spill that originates within waters under the authority of DP may spread beyond port limits.

Should this be the case, the roles and responsibilities designated within the scope of the DP OSCP shall remain in place throughout the response as will co-operation and consultation with relevant organisations in the affected area.

The Northern Territory (NT) Department of Environment and Natural Resources (DENR) is the Hazard Management Authority (HMA) for response to MOP incidents from vessels and coastal facilities into NT coastal waters. As such, DENR is responsible for maintaining spill preparedness, response and recovery in the NT.

The procedures and response methods outlined in this OSCP address all persistent and non-persistent oils. Spills of non-persistent oils are dealt with as hazardous materials and response actions must consider the safety of responders.

A HAZMAT response is required in these cases and accordingly the Darwin Port Emergency and Crisis Management Plan (ECMP) and (site) Emergency Response Plan/s (ERP) should be referenced.

Strategies in this DP OSCP relate to the oils likely to be spilt in Darwin Port including:

- Intermediate Fuel oil (IFO);
- Diesel;
- Condensate;
- Jet fuel A1;
- Heavy fuel oil (HFO);
- Petroleum spirit;
- Aviation gasoline (Avgas);
- Hydraulic oils; and
- Lubricating oils.

The character and behaviour of these oils and implications for response options are included in **Appendix 3**.

1.4 Spill Source and Risk

The National Plan "Assessment of the Risk of Pollution from Marine Oil Spills in Australian Ports and Waters" (DNV, 2011) identified the Northern Territory (NT) as having a relatively low risk of oil spills.

At DP, sites where oil spills could potentially occur, and oil types that could be released at each site, are shown in **Table 1**.

Table 1 also provides potential spill volumes that could arise from a variety of incidents.

Table 1: Spill source, scenario, oil type and potential volumes

Source	Incident	Location(s)	Oil Type	Potential Volume[(1)]	
Bulk Carrier	Grounding (Total loss)	Any location, but usually in or approaching ports	Heavy fuel oil (HFO)	Handymax (<60 dwt)	2,200t
				Panamax (60-90,000 dwt)	4,500t
				Cape (90-160,000 dwt)	4,500t
			Diesel	Handymax (<60 dwt)	300t
				Panamax (60-90,000dwt)	380t
				Cape (90-160,000 dwt)	400t
	Grounding (1 bottom tank)		Heavy fuel oil (HFO)	Up to 400t	
	Collision with wharf or another vessel (1 wing tank)	Wharf or channel	HFO or Diesel	150t	
Tug	Grounding (Total loss)	Ports	Diesel	100t (Est. total fuel)	
	Collision	Within Port channels or berths	Diesel	25t (1 tank)	
Line Boat	Grounding/ Collision	Any	Diesel	0.4t (Total fuel = 1 tank)	
Pilot Vessel	Grounding	Ports	Diesel	2.4t (Total fuel)	
	Collision	Pilot pick-up point	Diesel	1.6t (Largest tank)	
Fuel Tanker *Note: Tanker size usually 70,000 dwt*	Grounding	Any	Cargo: Diesel or Petroleum spirit	Up to 3,000t (1 centre tank + 2 wing tanks)	
			Heavy fuel oil	1,000t *(Total fuel loss)*	
	Collision	Any	Cargo: Diesel or Petroleum spirit	700t (1 wing tank)	
			Heavy fuel oil	500t (1 tank)	
	Unloading accident	Within Ports	Cargo: Diesel or Petroleum spirit	250t Based on 15min discharge & pumping rate of 1000tph	
	Loading pipeline break	Within Ports			
Bulk Liquid Condensate	Grounding	Any	Heavy Fuel Oil (HFO)	AFRAMAX (>80,000mt) AFRAMAX (<120,000mt)	4,500mt 5,000mt

Note: *Tanker Size usually AFRAMAX 80,000-120,000mt*			Diesel	AFRAMAX (>80,000mt) AFRAMAX (<120,000mt)	350mt 400mt

1.5 Responsibility for DP OSCP

The DP OSCP is administered by Darwin Port in accordance with its responsibilities as a Port Operator, under:

- The National Plan for Maritime Environmental Emergencies (National Plan) - established to meet Australia's obligations as a party to the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990, and to the Protocol of 2000 relating to Hazardous and Noxious Substances and is administered by the Australian Maritime Safety Authority (AMSA).

Darwin Port as the 'Appropriate Authority' is the Control Agency (Port Operator) for a MOP emergency within the port of Darwin and responsibilities include:

- Maintaining and updating this OSCP.
- Maintaining an adequate level of response preparedness within the Port of Darwin.
- Acting as Control Agency for oil spills within the Port.
- Supporting other Control Agencies for spills outside the Port of Darwin.
- Facilitating cost recovery processes.

1.6 Other Agency Support

Other Agencies have roles in a pollution response and may assist by providing equipment, personnel or expertise. The potential roles and responsibilities of other Government and Port agencies are summarised in **Table 2**. A contact list is in **Appendix 4**.

Table 2: Agency Key Responsibilities

Agency	Key Responsibilities
Port Operator and other facilities	Maintain and document a satisfactory Level 1 response preparedness.
	Provide and maintain suitable spill response equipment.
	Train and equip a suitable team of personnel to manage two Level 1 responses simulataneously and to assist NT agencies in Level 2/3 responses, as may be required
	Undertake regular testing and assessment of capability by way of exercises and participation in NT and National Plan exercises.
	Maintain National Plan or other equipment on loan to the Port/facility
Department of Environment and Natural resources (DENR)	Hazard Management Authority
	Provide the NT Marine Pollution Coordinator (NT MPC)
	Supply personnel to the IMT as required and able.
	Provide environmental expertise. Provide a person to undertake the role of Environment Coordinator if required.
	Facilitate the maintenance of the Oil Spill Response Atlas (OSRA).
	Through the Environmental and Scientific Coordinator (ESC), provide whole of government advice to the IC and NT SC on priorities for environmental protection and on the appropriateness of proposed response strategies.
	Advise on marine watch responsibilities and expertise in water modelling.
	Assist in waste management. Fill the role of Waste Management Coordinator
	Act as Controlling Authority where warranted.

Department of Infrastructure, Planning and Logistics (DIPL)	Provide personnel to the IMT as required and able.
Parks and Wildlife Commission (PWC)	Coordination and supply of personnel and other resources for the capture, clean-up, and management of oiled wildlife. Execute the NT Wildlife Plan. Provide a Wildlife Coordinator.
	Provide information and expertise on shorelines and wildlife.
Department of primary Industry and Resources (DPIR)	DPIR, through its Petroleum Operations Section, is the Statutory Authority for non-vessel spills resulting from offshore exploration and production activities in NT waters and contiguous Commonwealth waters. Advice on the control of managed fisheries and potential impact on human health from harvested products.
NTES – Fire and Emergency	Act as Control Agency for hazardous spills on shore and provide advice to the Incident Controller (IC) on offshore hazardous spills.
	Provide communications for remote marine pollution incident responses.
	Supply suitable personnel to the IMT as required and able.
	Provide NTES equipment as appropriate.
NTES – Police	Provide short term security and traffic control.
	Provide communications for remote marine pollution incident responses.
Local Government	Clean-up oil on shorelines if impact is minor.
	Provide local advice on areas threatened by pollution.
	Assistance with liaison between the Incident Controller and local communities.
	Provision of personnel and equipment for shoreline clean-up operations.
NT Work Safe	Assist the Incident Controller (IC) in maintaining safe working conditions during the response. Provide Incident Safety Officer, Health and Safety Coordinator, and personnel for Health and Safety Unit.
Australian Maritime Safety Authority (AMSA)	• Provide skilled individuals from the National Response Team. • Provide advice to the Incident Controller, NT MPC and/or NT SC. • Run oil spill trajectory analyses. • Mobilise fixed-wing aerial dispersant spraying aircraft. • Mobilise equipment from interstate or overseas. • Assist in the tracking of suspect vessels. • Assist in the sampling of oils from suspect vessels. • Assist in salvage operation. • Undertake search and rescue (via AusSAR, a division of AMSA).
Australian Marine Oil Spill Centre (AMOSC)	• Supply equipment and operators upon request from a member company or AMSA.

1.7 All Hazards Management Arrangements - Related Documents

- National Plan for Maritime Environmental Emergencies (the *"National Plan"* or *"NATPLAN"*);
- AMOS Plan – AMOSC;
- NT Police, Fire and Emergency Service Standard Operational Procedures;
- NT Oil Spill Contingency Plan including Appendices and Sub-Plans; and
- Territory Emergency Management Plan.

The Territory Emergency Management Plan reflects an all-hazards approach to emergencies and disasters, natural or otherwise, and provides authority for the four phases of emergency management (prevention, preparedness, response and recovery). It provides the framework for responding to emergencies in the Northern Territory.

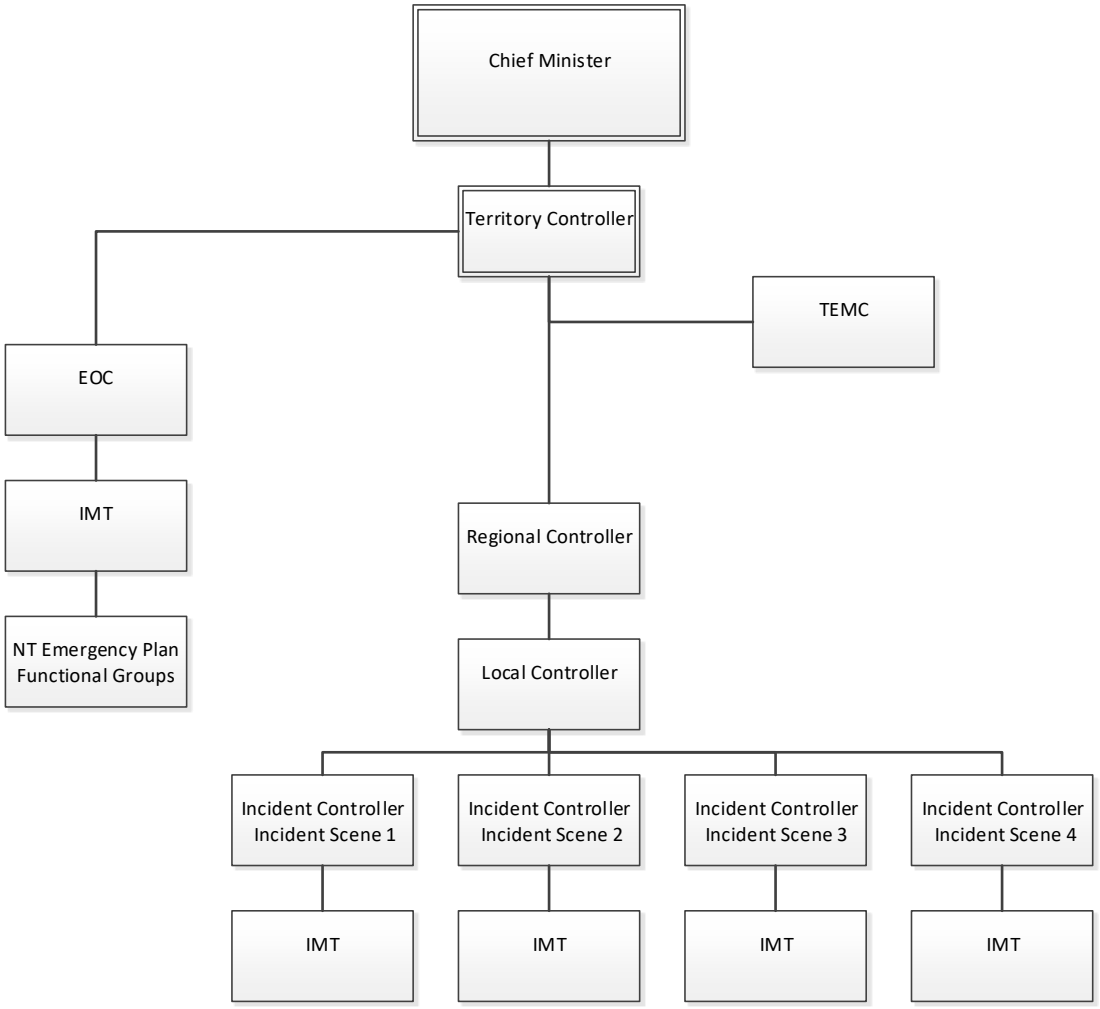
Whole-of-Government emergency response arrangements are initiated by the declaration of an Emergency Situation, State of Emergency or State of Disaster.

An Emergency Situation is declared when a lower-scale event has occurred, or is likely to occur, and the Minister is satisfied that special power under the Emergency Management Act is required to effectively manage response and recovery operations.

A State of Emergency is declared for an event that requires significant coordinated response using the combined resources of the NT and non-government entities within the NT.

A State of Disaster is declared for an event that requires significant coordinated response using the combined resources of the NT, non-government entities within the NT and resources from outside the NT.

The NT Emergency Response Management Structure is;



1.8 Territory Controller

The Territory Controller controls and directs all emergency operations in the Northern Territory and oversees the preparation of emergency plans for regions and localities. The Territory Controller is the NT Commissioner of Police and is supported by the Territory Emergency Management Council (TEMC).

The Territory Controller will establish an Emergency Operations Centre (EOC) in which an NT Incident Management Team (NT IMT) will reside. The EOC will

- Collect, collate, analyse and disseminate information;
- Prepare and issue official warnings and advice to the public;
- Coordinate the provision of resources and services required by the Regional, Local and Incident Controllers;

- Request Australian Government resources;
- Brief TEMC; and
- Plan for and control operations performed by Functional Groups.

1.9 Functional Groups

The Functional Groups are the whole-of-government resources and expertise are brought to bear during an emergency.

The Functional Groups act under the direction of the Territory Controller.

Table 7: Functional groups

Functional Group	Identified lead agency
Biosecurity and Animal Welfare Group	Department of Primary Industry and Resources
Communications Technology Group	NT Police, Fire and Emergency Services
Critical Goods and Services Group	Department of Business
Emergency Shelter Group	Department of Education
Engineering Group	Department of Infrastructure, Planning and Logistics
Medical Group	Department of Health
Public Health Group	Department of Health
Public Information Group	Department of the Chief Minister
Public Utilities Group	Power and Water Corporation
Survey and Rescue Group	NT Police, PFES
Transport Group	Department of Infrastructure, Planning and Logistics
Welfare Group	Department of Children and Families

DP is part of the Transport Group.

1.10 Emergency Control

Regional Controller

The Regional Controller is a police officer appointed by the Territory Controller to supervise operations in the region and ensure compliance. The Regional Controller is supported by a Regional Emergency Committee.

Local Controller

The Local Controller is appointed by the Territory Emergency Controller and is either a police officer from a local police station and/or resident of the location. The Local Controller is supported by a Local Emergency Committee.

Incident Controller

The Incident Controller (IC) is responsible for the management of the incident response and control of the Incident Management Team.

DP would provide Incident Control for its site(s) under the overall control of the Territory Controller. Liaison / reporting will be through a designated point of contact, most likely to be the Regional Harbour Master.

1.11 Sourcing of Additional IMT Sub-Plans

Checklists for DP IMT personnel are **in Appendix 5**. Additional Sub-Plans to assist the DP Incident Management Team (IMT) in an expanded response (where supporting organisations provide IMT personnel) for a Level 2 and 3 responses, are contained within the NT OSCP.

REPORTING AND ACTIVATION

1.12 Staff and Contractor Reporting

All Staff and Contractors must report:

- Spills;
- Incidents that may result in a spill; or
- Observations of oil on the sea or on land where the oil is likely to enter the sea.

Reports are to the nearest Supervisor or Person in Charge (PIC) who will then report to DP Harbour Control (Ph: 08 8919 0821)

On receiving a report of a spill, DP Harbour Control will:

- Obtain and record all information available from the observer (**Appendix 5, D.1**);
- Inform the GMO (by telephone); and
- Complete an Environmental Incident Report in the HSES Incident App.

If the spilt substance is hazardous, DP Harbour Control is to contact the Police (if required: Ph 131 444) and the NT Emergency Services (NTES Duty Officer: Ph 040 889 6245)

If the spilt substance is hazardous, the Darwin Port emergency management procedures will be used for the response, as defined within the DP Emergency and Crisis Management Plan (ECMP).

This will ensure that personnel and equipment are on standby should the incident escalate and that emergency management procedures have been activated.

1.13 Notification by Harbour Control

A marine pollution notification (POLREP) may be received directly from the polluter, Water Police, a port tenant or stakeholder, Regional Harbour Master, or the Australian Maritime Safety Authority (AMSA).

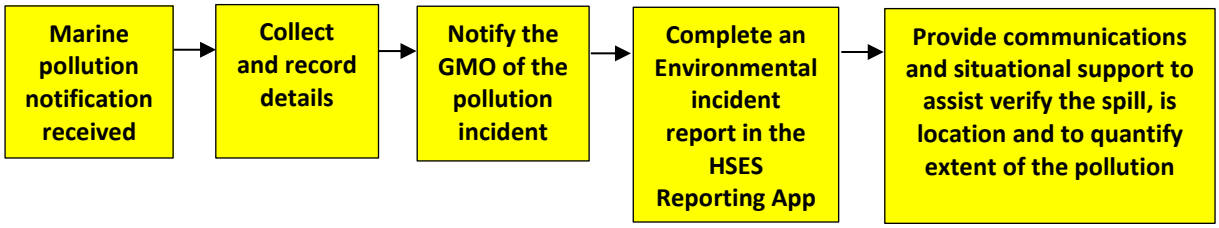
A summary of this process is presented in **Figure 2**. The priority when a report is received is human safety, and minimising environmental impact and implementing an appropriate response.

Upon receipt of a marine pollution notification, the details must be verified by visual surveillance ASAP. The location and extent of the pollution must be confirmed to assist with decision making on the appropriate response.

By completing an Environmental Incident Report in the HSES Incident App and selecting Reportable Incident, the NT EPA and the Regional Harbour Master will automatically be notified of the incident.

DP Harbour Control may also assist the assessment phase of a response by providing communications and situational support to assist verify the spill, its location, and the extent of the spill.

Figure 2: Steps for Notification of a Marine Pollution Incident



1.14 Control Agency Assessment of Level

DP is the Control Agency for spills from vessels within the Port of Darwin. For spills outside Harbour limits the Controlling Authority and Control Agency can be assessed by reference to **Table 3**.

Table 3: Controlling Authority and Control Agency for levels of response

Location	Spill Source	Hazard Management Authority (Jurisdictional Authority)	Control Agency[1]	
			Level 1	**Level 2/3**
Commonwealth Waters	Offshore Petroleum Activity	NOPSEMA	Petroleum Titleholder	Petroleum Titleholder
	Vessel	AMSA	AMSA	AMSA
Territory Waters	Offshore Petroleum Activity	DLPE[2]	Petroleum Titleholder	Petroleum Titleholder
	Vessel	DLPE	DLPE	DLPE

Darwin Port Waters	Oil Terminal[3]	NT Police	NT Police	NT Police
	Maritime Facility[4]	DLPE	Maritime Facility Owner	DLPE[6]
	Vessel[5]	DLPE	Darwin Port	DLPE[6]
Controlled Naval Waters	Naval Facility / Vessels	Naval Authority	Naval Authority[7]	Naval Authority[7]

1 Controlling Authority designation remains true to the spill source. If a spill crosses over defined water boundaries, the Controlling Authority will remain with the nominated agency for the spill source, unless otherwise appointed through agreement with the Controlling Authorities/Hazard Management Authorities for both waters.

2 DLPE are the Hazard Management Authority for Offshore Petroleum Activities in Territory Waters and have the responsibility to approve OSCPs and to administer their relevant legislation.

3 Oil terminal means a petroleum refinery, LNG facility and/or petroleum storage/distribution facilities with access to a maritime facility, but not including the maritime facility. Oil spills from an oil terminal are considered to be a HAZMAT incident in the first instance, with NT Police as the relevant Hazard Management Authority and Controlling Authority.

4 Maritime facility means a wharf or mooring at which a vessel can be tied up during the process of loading or unloading a cargo.

5 A vessel at a maritime facility with a line ashore is subject to the relevant Controlling Authority arrangements for a Maritime Facility.

6 In the event of a Level 2/3 oil spill incident in Darwin Port Waters, the Hazard Management Authority will determine whether the role of Controlling Authority will be assigned to Darwin Port or DLPE.

7 Naval Authority to notify Darwin Port of the oil spill incident and provide regular updates on the response.

7.1 Consideration of Triggers for Escalation from Level 1 to 2

There is no definitive set of criteria in determining when a MOP changes from a Level 1 to a Level 2 or Level 3 response. In deciding whether to escalate the DP response from Level 1 to Level 2, consideration should be given to the following triggers:

- Spill trajectory modelling needs to be undertaken;
- Difficulty in deploying equipment or significant delay in mobilization of response equipment;
- Insufficient equipment or types of equipment to support the response;
- Insufficient personnel to respond to and clean up the spill, or significant delay in mobilization of personnel;
- Insufficient personnel to support an expanded DP IMT;
- Spill response is expected to last more than 24 hours.

7.2 Activation of the Darwin Port Incident Management Team (DP IMT)

DP Personnel in DP IMT Roles

DP IMT personnel nominated against key DP IMT roles for an escalated response are listed in **Appendix 4**, Contact List. For incidents that threaten the operation of the Port the DP Incident Controller, in consultation with the DP CEO, may mobilise a DP Crisis Management Team as referenced within the DP ECMP (Section 2).

Responsibility

The DP General Manager Operations (GMO) as nominated DP Incident Controller (DP IC) is responsible for mobilising the DP IMT and resources for any DP spill response. Key checklists and status boards for the ICC are contained in **Appendix 5.**

Location of the Darwin Port Incident Control Centre (ICC)

For small scale or short duration responses, the DP IC may control the response from the Main Office at EAW without standing up the ICC. For any extended, complex, or protracted spill response, the DP IC may stand up the ICC in EAW Meeting Room 3 and surrounding offices.

First Person on Site

For consistency, the first person to arrive at the DP ICC will commence preparing the room in accordance with the checklist in **Appendix 5**. Other rooms may need to be set up for use in support of the DP ICC.

Scale of Call-out

For a Level 1 on-site response, the DP IC will mobilise sufficient DP IMT equipment and personnel resources to effectively manage the response. The composition of the DP IMT will differ according to the Level of response, the nature and scale of the spill and the threat to the environment.

During a response to a Level 1 spill, the composition of the DP IMT is at the complete discretion of the DP IC and/or DP CEO commensurate with the demands of the spill scenario. For an escalating Level 1 spill, or a Level 2 spill requiring assistance where resources are requisitioned by DP, The NT OSCP shall take precedence. The NT OSCP has been prepared under the NT Emergency Management Act 2016. The NT OSCP is a designated Sub-Plan under the Territory Emergency Plan. The Department of Environment and Natural Resources (DENR) is the Hazard Management Authority (HMA) for response to MOP incidents from vessels and coastal facilities into NT coastal waters.

7.3 Incident Control System (ICS)

Control of the Incident

Under the Territory Emergency Plan 2016 the Australasian Inter-Service Incident Management System (AIIMS) is the preferred ICS for MOP emergencies.

AIIMS is the structure adopted by AMSA, which is applied to the relevant level of response required for a MOP emergency.

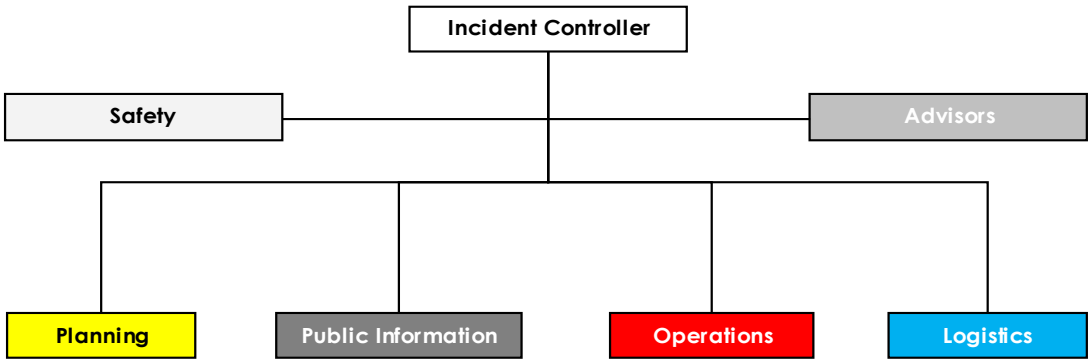
Command and control is achieved using an ICS compatible with AIIMS which is depicted in **Figure 3**. Supporting the DP Incident Controller (IC) are:

- The DP IMT, as part of Corporate Crisis and Emergency Management through an advisory group coordinator.

In addition, the DP IC may have the following positions filled within the IMT to seek advice/support from – this would occur on a requisition basis:

- Environment Coordinator;
- Emergency Coordinator;
- Media Liaison Officer; and
- Other advisors as required.

Figure 3: Level 1 DP Response Structure



AIIMS Structure – Level 1 Oil Pollution Emergency

For Level 1 MOP emergencies, a minimal AIIMS structure may be all that is required to respond to and control the emergency on site. Components of the AIIMS structure may be combined for small, non-complex incidents.

Likewise, for all other DP emergencies (landside and/or Port orientated), DP utilises an Emergency Management Team (EMT), as defined within Section 2 of the DP ECMP.

DP RESPONSE MOBILISATION

7.4 Establishing the Darwin Port Incident Management Team (DP IMT)

The complexity of response depends on the scale of the spill, its complexity, and its location. The DP Incident Controller (IC) is responsible for activating the initial DP IMT and for allocating functions to each IMT member.

Main tasks in the initial stages of a DP IMT response include (but are not limited to):

- Confirm details of the incident;
- Mobilise the initial DP IMT;
- Conduct an initial assessment of the spill;
- Determine the structure and content of the DP IMT and determine skills required of IMT members;
- Ensure that all reporting requirements have been fulfilled;
- Implement an immediate response if this has not been previously undertaken;
- Establish the DP Incident Control Centre (ICC); and
- Wildlife assessment and pre-treatment. *[In the event of oiling of wildlife, the DP IC shall consider scaling the response to a Level 2 Oil Pollution Emergency].*

7.5 Deployment to Site and Staging

It is essential that effective communications between the DP ICC and any Advanced Operations Centres (AOC)/ Staging Areas are established and maintained.

Additional facilities may need to be established in the field. These may be required for:

- On-site response management (AOC). These may be under the direct control of the DP IC (e.g. Division Control Centres), or under a Section Officer or Unit Coordinator (e.g., Shoreline Segment Work sites and a Site Manager);
- Deployment of equipment listed in **Appendix 2** or personnel listed in **Appendix 4** to Staging Areas and to Site. A Staging Area Manager (working under the Logistics Unit) may manage this; and
- Provision of services (e.g. decontamination centres, canteens etc.). In this case a Facility Manager or Services Manager will manage these services.

The need for Advanced Operations Centres (AOCs) must be identified as soon as possible if:

- Field deployment from the DP ICC is logistically difficult;
- Space or facilities are limited at the DP ICC; and
- The DP ICC cannot adequately provide required security or facilities.

Staging Areas may be established for:

- Equipment, fuel, supply, and waste depots;
- Field crew muster or deployment points; and
- Field induction centres.

Before deployment to any work site, DP staff, contractors and stakeholders must be given a thorough briefing based on a Worksite Safety Assessment. This applies particularly to field deployments. Before commencing a particular task, staff must assist in the preparation of a Job Safety Analysis (JSA). Additional Site Safety Briefings or Job Safety Briefings (“Toolbox Meetings”) may be necessary.

All personnel involved with a MOP emergency response (ER) will need to complete a registration process and undertake appropriate inductions. Returning personnel on rotation must declare that all information contained on their initial registration form is current.

7.6 Control Zones

MOP emergency field response utilises a **three-zone control system** to manage response activities.

Hot Zone

The **Hot Zone** is the area/s of active operations and/or hazardous/contaminated environment. Hot Zones include:

- Vessel operations and exclusion zones;
- Contaminated shorelines and shoreline clean up areas; and
- Waste storage and disposal sites.

Hot Zones have the access restricted to the highest level of the response. Entry to Hot Zones may be limited to:

- Personnel involved in Operations activities;
- Personnel equipped with appropriate protective equipment;
- Personnel who have undergone appropriate training and site induction; and

Hot Zones should be clearly signposted and may require security to manage access.

Warm Zone

The **Warm Zone** is adjacent to the Hot Zone and is the area/s of supporting operations and a buffer to entry and exit from hazardous/contaminated environment. Warm Zones include:

- Staging Areas;
- Decontamination Areas; and
- Restricted zones buffering Hot Zone locations.

Warm Zones will have restricted access and entry may be limited to:

- Personnel involved in Operations activities;
- Personnel providing support to Operations activities; and
- Professional services to support the response.

Cold Zone

Cold Zones are all areas external to the Warm and Hot Zones. Cold Zones may include some restricted access areas to assist in operations such as traffic management; deliveries and mobilisation of personnel. Cold Zones have the lowest level of security.

7.7 Access to and Use of Equipment

The location, access and use of equipment is detailed in the following sections:

- Sourcing of equipment – **Appendix 2**;
- Oil fate constraints – **Appendix 3**;
- Operational constraints – **Section 6**.

DP INCIDENT ACTION PLANNING (IAP)

7.8 The DP Incident Planning Cycle

The planning process is ongoing and involves several procedures for which DP IMT checklists are provided in **Appendix 5**:

- Initial Planning (Briefing) Meeting;
- Development of the Incident Action Plan;
- Execution of the Plan;
- Feedback to Planning Section (collection and analysis of information); and
- Ongoing Planning Meetings to revise and update the IAP.

7.9 The Incident Action Plan

An Incident Action Plan (IAP) should outline the following:

- **Response Aim**: This is a broad statement of the over-riding aim of the response, i.e. what the response is aiming to achieve. The response Aim may be set by the DP IC or by higher management;
- **Objectives**: These are "goal statements" and indicate desired individual outcomes of the response (e.g. protection of the shoreline between points A and B). Objectives should be: Specific, Measurable, Achievable, Realistic and Task-related (SMART);
- **Strategies**: These describe how the DP IMT plans to reach the stated objectives (e.g. deployment of booms to protect points A and B); and
- **Methods (Tactics)**: These describe how the strategies will be undertaken and may be written as a series of tasks detailing the deployment of personnel and equipment. The relevant Section Officer and Unit Coordinators undertake the development of Tactics.

7.10 The Planning Process

Initial Briefing

Planning Meetings should be preceded by a briefing following the SMEACS format, during which the DP IC, or other person(s) should detail:

- **Situation**: Spill location and size, response Level and resources mobilized, current resources impacted and predicted situation;
- **Mission:** Aims of the response;
- **Execution**: Preliminary organization of the response, schedules etc.;
- **Administration**: Logistics and organisation;
- **Command and Communications**: Management structure and information and reporting requirements; and
- **Safety**: Known hazards and concerns.

Planning Meetings

During planning meetings, the DP IC will, in consultation with key DP IMT personnel:

- Develop and rank response objectives, based on protection priorities;
- Develop broad strategies for each objective; and
- Identify any permits required for strategies

Once strategies have been determined, methods (tactics) must be developed. These are usually developed through the preparation of a series of Sub-Plans developed by each of the Section Officers (Planning Sub-Plan, Operations Sub-Plan etc.). The Sub-Plans may themselves comprise Unit Sub-Plans; e.g. the Operations Sub-Plan will include a, Marine Sub-Plan, Shoreline Sub-Plan, Waste Sub-Plan and Health and Safety Sub-Plan.

Once Sub-Plans have been developed, they are compiled as component of the Incident Action Plan (IAP). Resource and logistical needs are then finalised and the IAP is implemented. Issues that should be considered in this final phase include:

- The need for Advanced Operations Centre(s);
- The need for, and location of, Staging Areas; and
- Compilation of a list of resource needs, i.e. communications, equipment, and personnel.

Ongoing Revision of the Incident Action Plan

The response should be monitored to determine the effectiveness of the strategies and the IAP revised when objectives are met or when changed circumstances require new objectives, strategies or methods to be revised. The frequency of revisions to the IAP will be determined by the IC and will vary according to the nature of the incident and the scale of the response.

Other Actions and Situation Reports (SITREP)

Following each Planning Meeting a designated DP IMT member will:

- Prepare Resource Requisition Forms; and
- Prepare a Situation Report (SITREP).

7.11 Resources

Tracking Resources

A Resources Coordinator must be appointed to track the deployment and location of all equipment, personnel and services. The Resources Unit of the DP IMT will keep track of all resources (equipment, personnel, and services) deployed. This will generally be undertaken via:

- **Status Boards on display in the DP ICC**. These will usually show the current distribution of resources; and
- **Database**. Which would keep a record of resource distribution throughout the response.

The Resources Coordinator will liaise closely with the Logistics Officer who will be keeping a record of all resources acquired for the response. This is essential to assist with response cost recovery.

Communications

A Communications Coordinator (CC) may be appointed to:

- Develop and manage a briefings/debriefings schedule; and
- Establish verbal communications networks (landlines, mobile phones. radio networks etc.) in consultation with other IMT Units but particularly Operations.

Briefings are initiated and conducted by the DP IC.

Management

The Management Support Unit (under a Management Support Coordinator) is responsible for:

- Providing administrative services to the DP IMT, which includes operation of telephones, facsimiles, computers, radios (if qualified) and messenger services;
- Collation and filing of all records, forms, and management of the actual data; and
- Management of the DP Incident Control Centre (ICC), i.e. ensuring the effective operation of the ICC.

Finance

Administrative arrangements must be in place to enable support agencies to be reimbursed for the costs incurred in responding to an incident.

These costs are met by those responsible for the spill through various international and domestic arrangements.

Information Transfer

Note: Information released to the public and media is managed by the Public Information Section of the DP IMT, or otherwise is under the control and authorisation (before release) of the DP CEO. Documentation and transmission of information relies on the use of:

- Effective briefings and debriefings;
- Databases;
- Forms;
- Status Boards; and
- Wall Maps and marine charts.

Briefings

Briefings should precede planning meetings and work periods.

Forms

Key forms include:

- Pollution Report Form or “POLREP” used to report an incident and provide initial information for response planning;
- Situation Reports or “SITREPs”: These should be compiled and issued. The frequency of these will depend on incident needs but should be issued after each Planning Meeting; and
- Personal Log Form used to record activities and times etc.

Forms provided are a resource and their use is not compulsory. However, like all other available resources, they should be considered and effectively used wherever possible with the necessary adaptions and modifications.

Status Boards

The upkeep of Status Boards is the responsibility of the DP IMT Management Support Unit in the Planning Section.

This can be done using digital cameras to capture the data or by copying information onto a database. The information on these Boards must also be recorded before being updated.

Marine charts, like Status Boards can display much information. A laminated marine chart of the affected area should be displayed in the DP ICC during all spill responses. Information can then be written on these. The information on these charts must also be recorded before being updated. This can be done using digital cameras to capture the data

If shorelines are impacted, topographic maps or Oil Spill Response Atlas (OSRA) maps should be used. Marine charts do not have accurate onshore information.

7.12 The ESC, Environment and Net Environmental Benefit

An NT EPA Environment and Scientific Coordinator (ESC) can be requested to manage the DP IMT Environment Unit. The main tasks of the Environment Unit are to:

- Locate and access scientific expertise as required by the DP IMT;
- Assist in the assessment of the environmental implications of command decisions; strategies and methods used. This will require the preparation of Net Environmental Benefit Assessments (NEBA); *[In the event that a NEBA is required, the DP IC shall consider escalating the response to a Level 2 Oil Pollution Emergency].*
- Obtain and interpret OSRA data;
- Assist in the identification of environmental resources at risk;
- Provide environmental input into the determination of protection and other response priorities; and
- Provide general environmental advice to the DP Planning Officer and other DP Section Officers as required.

DP RESPONSE STRATEGIES AND THE ENVIRONMENT

After consideration of all known factors affecting the marine oil pollution (MOP) incident, an Incident Action Plan (IAP) should be developed to manage the MOP incident and to communicate the incident objectives. The IAP may be in the form of a simple verbal briefing for a short duration incident, through to a comprehensive document for larger incidents.

Limitations in use of Response Strategies and Operational Constraints are summarised in **Figure 4** and **Tables 4** and **5** for consideration by DP.

Response strategies will consider the response protection priorities. General protection priorities for responding to MOP emergencies are:

- Human health and Safety;
- Habitat and cultural resources;
- Rare / endangered flora and fauna;
- Commercial resources; and
- Recreational and amenity areas.

While human health and safety is always the number one priority, the order of other priorities may be reconsidered when producing the IAP for a MOP incident.

The temporary storage, transport, treatment and disposal of waste material must be managed, so as not to inhibit clean-up activities or pose any further threat to the environment.

To undertake the task of managing waste the DP IC may consider appointing a Waste Management Coordinator (WMC) to develop a local Waste Management Sub-Plan and to direct the DP Waste Management Unit.

Figure 4: DP Limitations on use of Response Strategies

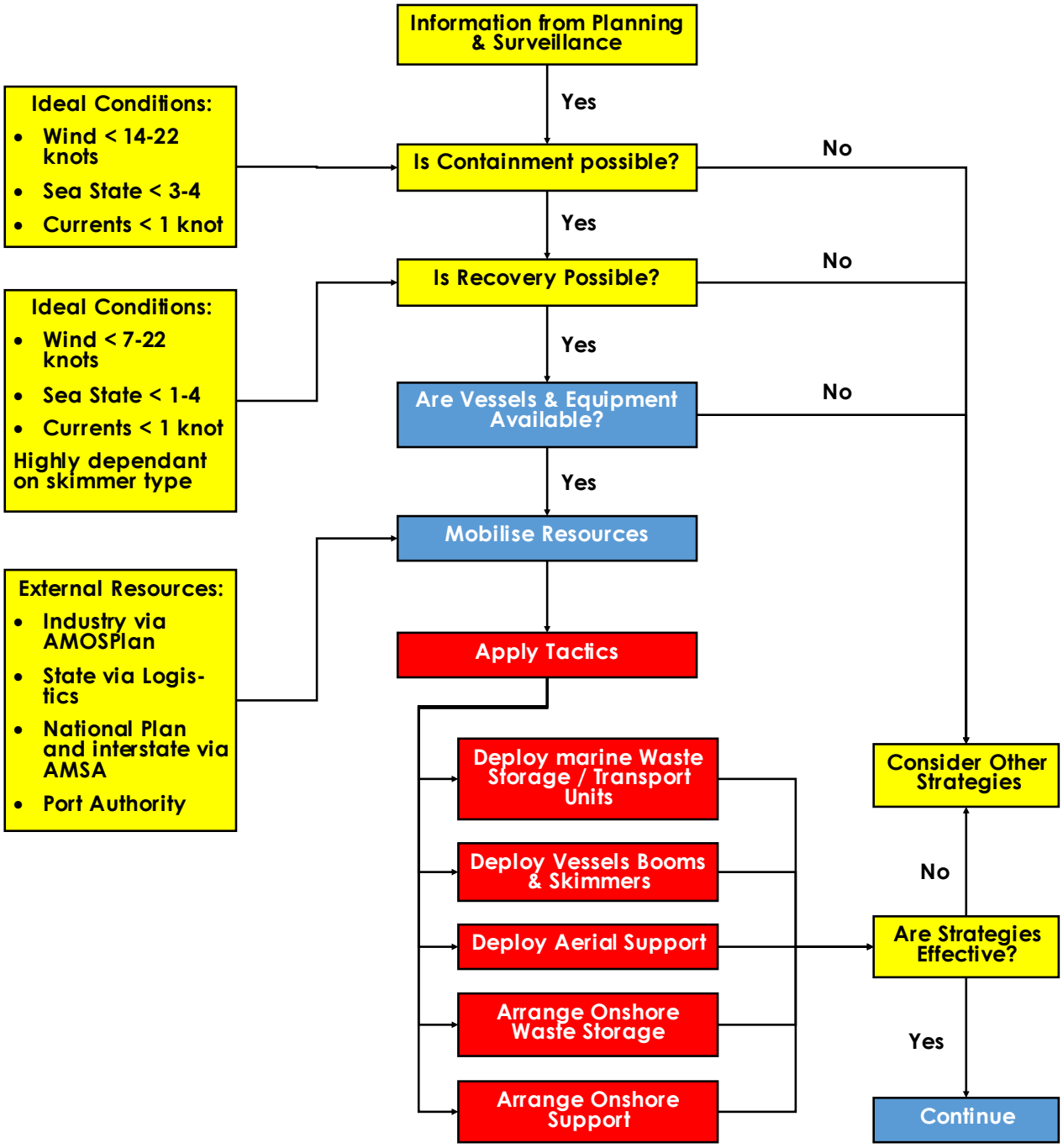


Table 4: Operational constraints

Response Option		Constraint				
		Sea State[1]	Current (Knots)[2]	Wind (Knots)	Viscosity of Oil[3]	Other
Boom	Containment	3-4	1.0	16-22	-	Vessel Availability.
	Deflection	3-4	2.0	16-22	-	
Recovery (Skimmers)	Weir	1	1.0	7	<1000	Availability of storage for oil
	Disc	2-3	1.0	11-16	<1000	
	Mop/Belt	3-4	1.0	16-22	>1000	
	Vacuum	1	1.0	7	-	
Temporary Storage[4]	Refer to Waste Management Plan	-	-	-	-	Capacity & transport time

Table 5: Guidelines for the description of oil colour and thickness

Note: Should not be used for spills of diesel, Avgas, Petroleum spirit or other "white oils"

Description	Thickness (mm)	Vol (m^3/sq km)
Barely visible sheen under optimum conditions	0.00005	0.05
Silvery sheen on calm water	0.0001	0.1
Bright bands of rainbow colour	0.0003	0.3
Dull colours seen on calm water	0.001	1.0
Yellowish brown slick barely discernible from aircraft	0.01	10
Light brown or black slick easily seen from aircraft	0.1	100
Thick dark brown or black slick as seen from aircraft	1.0	1,000
Near the source of a large spill	10	10,000

7.13 Health and Safety Issues

Spills of volatile (Group I) oils, such as Petroleum spirit (petrol), must be handled with care. Personnel should not attempt to contain or recover such oils unless the site has been declared safe by the PIC.

Generally, the strategy to be adopted is to protect sensitive shorelines and other resources well in advance of the advancing oil, and to allow the oil to evaporate at sea.

Before deploying personnel or equipment close to these spills, the atmosphere should be tested by qualified person using a "combustible gas-oxygen analyser." These are available from the NT Fire and Rescue Service (FRS).

7.14 Integration with NT OSCP Sub-Plans / Responder Toolkits

The DP OSCP is designed to integrate with several Sub-Plans and Responder Toolkits in the NT OSCP, which contain more descriptive and operational support for MOP emergencies. Relevant plans and toolkits include (but are not limited to):

- Public Information Unit and Media Sub-Plan;
- Oiled Wildlife Response Plan (DLPE and the Parks and Wildlife Commission of the NT);
- Health and Safety Sub-Plan;
- Waste Management Sub-Plan;

- Chain of Custody Sampling Checklist;
- OSCAs Dispersant Guidelines; and
- Various IMT checklists.

7.15 Surveillance and Situational Monitoring

Surveillance and situational monitoring will be required for every MOP emergency. However, the methods and resources requisitioned and deployed by DP will vary commensurate to the size and extent of the emergency itself.

Surveillance can be undertaken via aerial, vessel or ground support. Early use of surveillance will be required to establish a situational awareness to assist in the preparation of the IAP.

Initially surveillance will be undertaken by the most convenient and efficient methods utilising immediately available resources following DP requisition.

An ongoing surveillance plan will be established as part of the IAP. Situational monitoring, similar to surveillance, is required to assist in preparing IAPs and in identifying any requirements to modify response objectives and strategies. Monitoring may include:

- Oil spill tracking/trajectory (modeling and real time);
- Air quality;
- Shoreline assessment; and
- Weather assessment.

7.16 Natural Recovery

Oiled shorelines may be left to naturally recover if:

- They cannot be cleaned due to lack of access or other factors;
- Cleaning will not result in any net environmental benefit;
- Weathering or natural removal of the oil is expected to be rapid; and
- Recovery of natural resources is likely to be rapid.

Considerations for use of natural recovery are outlined in **Table 6**.

Table 6: Considerations for use of natural recovery

Requirement	Description
Shoreline Type	• Can be used on any shoreline subject to the following constraints.
Constraints	• Not suitable for public beaches or shorelines used by sensitive fauna (e.g. birds). • Consent of landowners is required.
Application	• Monitoring may be required for persistent (non-Group I) oils. • Safety warnings/signposts should be used.
Resource Requirements	• Personnel and transport for erection of signposts.

7.17 Containment and Recovery (Marine)

In assigning equipment to a spill response, it is essential that a balance is achieved between:

- Targeting of the oil (aerial support);

- Containment (boom deployment);
- Recovery (skimmers);
- Temporary waste storage (dracones, barges etc.); and
- Waste transport and onshore waste receiving capacity and disposal.

The suitability of methods is presented in **Table 7** for consideration by DP.

Table 7: DP Response Priorities for various oil types

Product	Priority	Method	Rationale
Group I and Group II Very Light-Light Oils	**1**	Monitor/natural weathering.	Oils dissipate rapidly.
	2	Protection of sensitive shorelines/resources at risk.	Oils can cause environmental damage.
	*	Use of dispersants.	Potential environmental effects.
		Containment and recovery.	Not safe.
		Physical break up of slick.	Not safe.
Group III Medium Oils	**1**	Containment and recovery.	Has little potential to cause harm.
	2	Use of dispersants.	Rapid response and higher encounter rate than other methods. Can prevent emulsification.
	3	Monitor/natural weathering.	Suitable for small or remote spills.
	4	Protection of sensitive shorelines/resources at risk.	Oils can cause environmental damage.
	5	Physical break up of slick: Diesel	For small spills close to shore only. Monitor closely (see below).
	*	Physical break up of slick.: Other oils	Oils tend to emulsify if mixing energy is applied
Group IV Heavy Oil	**1**	Containment and recovery.	Limit spread and protect threatened resources
	2	Use of dispersants.	May be applicable. Monitor closely.
	3	Protection of sensitive shorelines/resources at risk.	Oils can cause environmental damage.
	4	Monitor/natural weathering.	Small isolated spills only.
	*	Physical break up of slick.	Heavy oils may emulsify with high energy agitation.

* **For consideration on a case-by-case basis.**

7.18 Shoreline Response

Assessment

Shoreline Assessment is a simple and comprehensive survey of a shoreline, providing data to enable decision making for shoreline protection, clean-up and monitoring and utilises a systematic approach with standard terminologies.

Shoreline Assessment, as a tool for monitoring, can occur at any time during an emergency including prior to shoreline impact to establish a baseline for future assessments.

Where Shoreline Assessment is selected as a response strategy, the following needs to be considered:

- Shoreline Accessibility;
- Safety of Shoreline Assessment teams;
- Methods of shoreline assessment (on foot, using vehicles, by vessel, aerial); and
- Adequately trained shoreline assessment personnel.

Ideally Shoreline Assessment should be conducted by trained personnel who have attained Oiled Shoreline Response Course competencies using the Shoreline Clean-up and Assessment Technique (SCAT).

Protection

Inshore or onshore protection methods should be initiated if:

- Persistent oil is moving towards the shore;
- Marine strategies cannot prevent this;
- The shoreline, or associated fauna, flora or heritage resources, will be harmed by oil;
- Cleanup is not possible; or
- Cleanup will not prevent or reduce damage to an acceptable level.

Methods include:

- Diversion booming either to deflect oil from a protected shoreline or to collect oil onto a low sensitivity shore;
- Exclusion booming to prevent oil entering areas; and
- Shoreline barriers such as:
  - Sandbag, sand or earth dams,
  - Sand or earth barriers along the shore, and
  - Use of sorbents to protect beach surface or associated fauna.

Other methods such as chemical treatment or pre-application of dispersants are not recommended. General guidelines for shoreline protection methods are provided in **Table 8** for consideration by the DP IC.

Table 8: Shoreline response protection methods

Shoreline/Resource	Energy	Method	Constraint/Comment
Cliffs	Medium-High	No inshore protection methods likely to be effective.	High energies make protective methods unlikely to succeed. Wave action will overcome any barriers/ booms.
Boulder beaches/reefs	Medium-High		
Cobble beaches	Medium-High		
Pebble beaches	Medium-High		
Sand beaches	High		
	Medium	Deflection booming	If oil movement is along the shoreline. Oil can be deflected from sensitive parts of the beach
	Low		
		Exclusion booming	Either inshore (light boom or sorbent boom) or onshore (e.g. beach/shore guardian boom).
		Sand barriers	Push sand down beach to form a barrier to incoming oil (very low energy beaches only)
		Loose Sorbents	May be used to stabilise oil coming ashore (or on shore) and prevent oiling of wildlife.
Mud or sandflats (inc. intertidal seagrass flats)	Low	Deflection booming	Deflect oil from flats. Often limited application due to expanse of area.
		Exclusion booming of small areas	Using either beach/shore guardian boom or sorbent boom or snares.
Inlets and tidal creeks	Medium	Deflection boom	Deflect oil to shore.

	Low		Deploy barrier boom within creek at point where flow<0.75knots.
		Earth barrier/dam or sandbag dams	Push earth over inlet mouth. Cover in plastic and hold in place with sandbags to avoid dam being washed away
Mangroves	Low	Deflection booming	If oil movement is along mangrove fringe.
		Exclusion booming	Light/sorbent boom or snare booms across inlets or in front of small sheltered areas.
Saltmarsh	Low	Exclusion booming	Block inlets
		Earth/sandbag dams	Across inlets only if booms are not available. Be careful of potential damage to saltmarsh.

Assessment and Clean-up

Shoreline Assessment requires trained teams to survey impacted, or at threatened shorelines and obtain data relating to shoreline character and the distribution and character of any oil present.

Establishing a shoreline response is a large task requiring the processing of shoreline assessment data.

Ongoing management of the response requires more of this and the processing of shoreline clean up data etc.

An overview of methods that can be used for shoreline clean-up is presented in **Table 9** for consideration by the DP IC.

Table 9: Outline of shoreline clean-up methods

Key:

***A** = Approval may be required*
***R** = Recommended/Preferred option*
***C** = Conditional. May be applicable*
=Not recommended

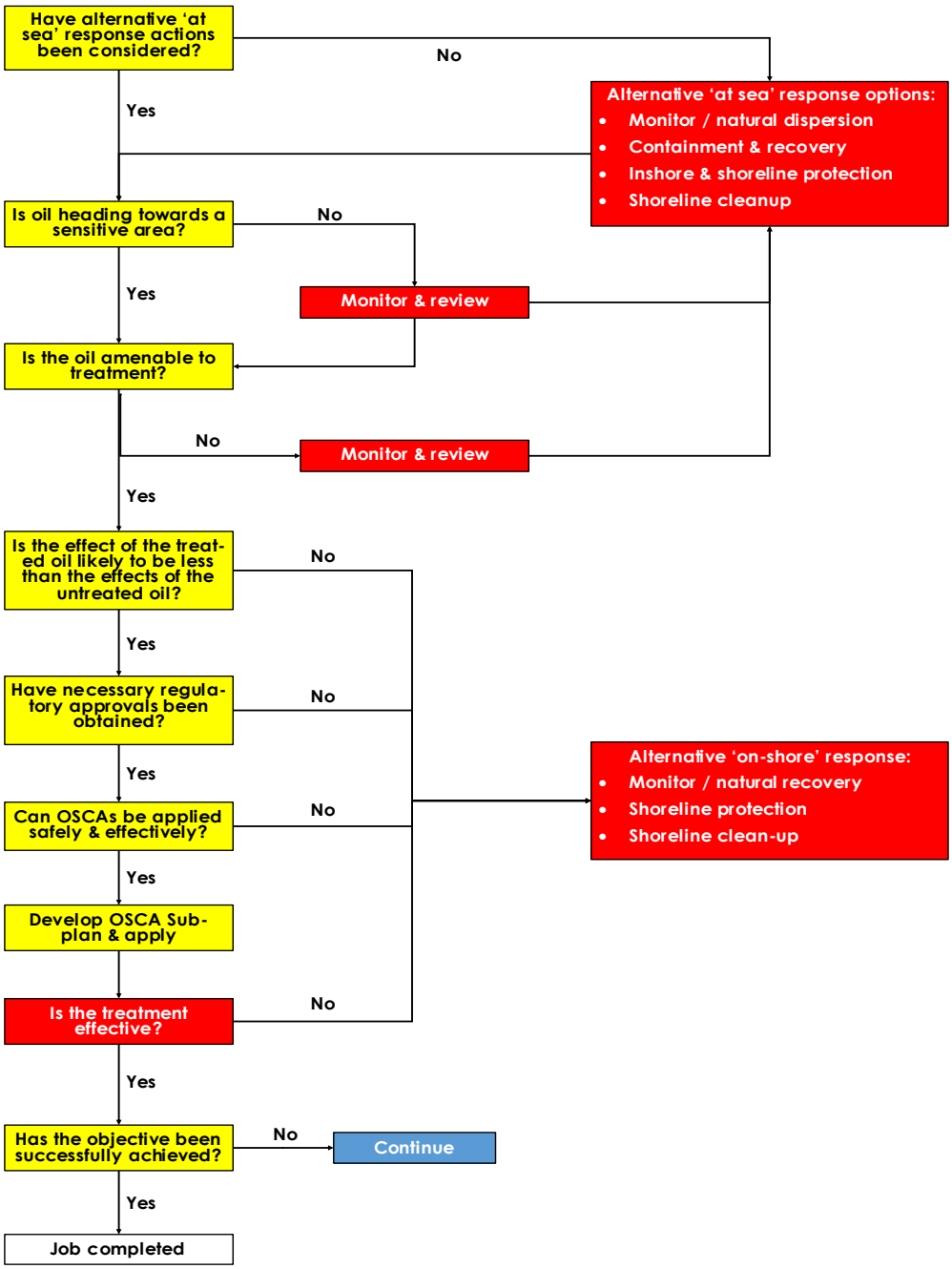
SHORELINE TYPE		CLEAN UP METHOD										
Substrate	**Form/ Exposure**	**Natural Recovery**	**Manual Removal of Oil and Debris**	**Use of Sorbents**	**Mechanical Removal**	**Vacuum Recovery**	**Sediment Reworking**	**Low Pressure Washing/Flushing**	**High Pressure Washing**	**Use of Chemical Agents**	**Sand Blasting/ Steam Cleaning**	**Bioremediation**
Bedrock	Cliff (exposed)	R		C								
	Cliff (sheltered)	R	C	C		C		R	R	C, A	C	
	Platform (exposed)	R	C	C		C		C	C	C, A	C	
	Platform (sheltered/broken)	R	R	C		R		R	R	C, A	C	
Artificial	Seawalls/ Jetties	C	C	C		C			C	C, A	C	
	Riprap (boulder sea wall)	C	C	C		C		C	C	C, A		
Boulder	Beach (exposed)	R	R	C		C		C	R	C, A		C
	Beach (sheltered)	C	R	C		C		C	R	C, A		C
Cobble	Beach	R	R	C	C	C	R	C	C	C, A		C
Pebble	Beach	R	R	R	C	C	R	C	C	C, A		C
Gravel/grit	Beach	R	R	R	C	C	C	C		C, A		C
Coarse sand	Beach	C	R	R	R	R		C				C
Fine sand	Beach	C	R	R	R	R		C				C
Mud/ Silt	Intertidal Flats	C	C	C		C		C				C
	Mangroves/ Saltmarsh	R	C	C		C		C				C
Coral	Reef	R	C			C						

7.19 Remediation and Dispersion

Use of Oil Spill Control Agents (OSCA)

Dispersants may only be applied after approval has been given by the DP Incident Controller. Permission will be based on the advice of the NT EPA ESC after a NEBA assessment. The process of deciding to use OSCA's is summarised in **Figure 5** for DP's consideration**.** *[In the event that OSCA is required, the DP IC shall escalate the response to a Level 2 Oil Pollution Emergency].*

Figure 5: Decision process for determining use of OSCA



Agitation

Natural Recovery can be assisted by increasing the surface area of the slick. As an example, agitation can be applied by vessels using propeller wash or fire hoses.

Applying agitation should only be used if the human health and safety will not be compromised and if NEBA has indicated agitation will provide additional benefit than Natural recovery alone.

Any use of Remediation and Dispersion techniques should be undertaken in consultation with environmental experts to ensure NEBA is achieved.

Thin films of oil can be physically dispersed by agitating the sea surface using vessels' propeller wash. The use of this method is constrained by:

- **The size of the slick.** It is not feasible to treat large spills;
- **Oil volatility (flash point).** Light, volatile (Group I) oils may pose a fire or explosion; hazard. These oils will dissipate quickly and should not need to be treated in this way; and
- **The potential for some oils to emulsify.** Heavy fuel oils and lubricating oils may emulsify if subject to prop-wash.

This method is relevant for spills during clam weather when the oil can form a ‘skin’ and agitation can be used to break the skin.

DP RESPONSE TERMINATION

7.20 Responsibility

The decision to terminate a response is that of the DP IMT IC in consultation with the DP IMT.

7.21 Conditions

Generally, the decision to stop active clean-up is taken when efforts are not returning any tangible benefit.

This rarely occurs at the same time for all components of the response and some IMT Units (including DP IMT) will be reduced in size, or demobilised, earlier than others.

7.22 Planning and Operations

The size of the DP Planning Section and the Operations Section are interdependent, and Planning requirements will tend to decline as the Operations Section Units cease activity.

7.23 Marine Response

Marine response teams may be deactivated by the DP IC when:

- All oil has been recovered; or
- The oil slick has dissipated (broken up); or
- All oil has impacted shorelines and is unlikely to be refloated (some resources may remain on standby until shoreline response has been terminated);
- The oil slick has gone out to sea and is beyond the range of response options; and
- The oil slick is unlikely to return.

7.24 Shoreline Response

Shoreline response teams may be deactivated by the DP IC when:

- All accessible shorelines are clean (i.e. free of oil);
- Cleanup is having no further net beneficial effect;
- Cleanup is having a deleterious effect on the shoreline or associated plants or animals; and
- The extent and degree of remaining oil is judged to be acceptable or as having little or no actual effect or potential adverse effects.

The Shoreline Clean-up and Assessment Technique (SCAT) AMSA guidelines are to be referred to in this regard.

7.25 Wildlife

DP IMT IC should consult with the NT Parks and Wildlife Commission (PWC) OWR Coordinator through the Department of Lands, Planning and Environment (DLPE) on all wildlife aspects, who will then provide appropriate advice and coordinate key actions.

Wildlife response may continue for some time and will cease only when all affected animals are cleaned and, those that can be rehabilitated.

7.26 Health and Safety

The DP Health and Safety Unit would be demobilised as the DP IMT winds down although the Health and Safety function will continue under the wildlife and waste management responses if the activities of these Units continue.

7.27 Waste Management

The management of wastes may continue for a considerable time beyond the demobilisation of field operations. The responsibility for this would rest with the party responsible for the spill (if known), as coordinated by DP.

7.28 Logistics

The DP Logistics function will continue until all equipment is recovered, cleaned, and returned to its source.

7.29 Finance and Administration

Generally, in a typical IMT structure, most units of this section will terminate at the same time as Logistics, Operations and Planning. However, the Finance Unit will continue, at a reduced level, until all claims are processed, and costs are determined. This unit may be assisted by part of the Records Unit.

7.30 Stand-down Procedures

Return of Equipment

Upon completion of the response, the DP IC (or delegate) will:

- Arrange recovery of all equipment and unused materials;
- Ensure that all equipment is cleaned, to the extent that available facilities allow; and
- Ensure that all equipment is returned to the owner by the quickest possible means (considering costs).

Upon its return to the owner the equipment shall be thoroughly serviced in accordance with equipment maintenance schedules prior to being stored.

Debrief

The DP IC will hold a post-spill debriefing for any spill for which a response was activated. The debrief should address (but not be limited to) the following aspects:

- Spill causes (if known);
- Speed of response activation;
- Effectiveness of tactics and strategies;
- Equipment suitability;
- Health and Safety issues (if any);
- Communications;
- Integration of OSCP and procedures with other agencies; and
- The post incident investigative process.

Incident Report

A recognised NT or Federal Statutory Agency may request the preparation of a formal Incident Report from DP Management.

It is recommended the contents of any Incident Report should follow the outline of the debrief or other format as specified and controlled by DP.

Cost Recovery

Costs are met by those responsible for the spill through various international and domestic arrangements.

Generally, for Commonwealth/State/Northern Territory agencies, reimbursement is normally through international liability and compensation funds, or shipowner's liability insurers known as Protection & Indemnity Clubs (P&I Clubs).

Where none of the conventions or domestic statutes provides for cost recovery, legal actions may need to be pursued.

DP considerations in cost recovery include (but are not limited to):

- Response and recovery are funded on the basis of the polluter pays. For shipping, this is achieved through the implementation of relevant international conventions under the IMO's auspices.
- All agencies requisitioned by DP and responding to and incurring costs in relation to ship sourced pollution incidents where the polluter is not identified, or costs are not recoverable, may be able to recover their costs from AMSA under the Protection of the Sea Levy.
- The Control Agency is responsible for ensuring that there are administrative arrangements in place to enable support agencies to be reimbursed for the costs incurred in responding to an incident.

All records of costs must be collated by DP for submission to the relevant insurer.

For responses to spills of unknown origin, costs may be submitted to AMSA.

All costs incurred in returning equipment to the owner, cleaning and servicing must be included in the overall schedule of costs submitted for reimbursement by the Responsible Party.

MAINTENANCE OF THE DP OSCP

7.31 OSCP Revision and Updates

The DP nominated Incident Controller is responsible for:

- Holding the Master Copy of the OSCP;
- Ensuring that copies of the OSCP are distributed;
- Distributing revised Pages, Sections or Appendices to all holders of controlled OSCP copies; and
- Maintaining the OSCP distribution record.

Responsibility for maintaining the currency of the various DP OSCP Sections and Appendices is shown in **Table 10**.

Table 10: A revision schedule for the DP OSCP

Section	Frequency of Review
All sections	Annually or after any significant change to DP, NT or National organisation; or after each exercise or spill response.
Appendices	Annual

7.32 Recognised Training Courses

Darwin Port has conducted numerous trainings in 2024 to ensure capability to respond to oil spills. During 2024, 40 Darwin Port employees have been trained (re-trained) for the Basic Equipment Operator (BEO) course (PUAOIL202) conducted by an approved training organisation.

Darwin Port will continue to provide training including advanced operator training to ensure adequate capability.

Table 11 shows training planned for FY 202**4 to 2026**.

7.33 Annual Site Audits

To maintain currency, facilities used for maintenance and storage of spill response equipment will be audited annually.

7.34 Annual Desktop Exercise

To maintain currency, an annual DP IMT ‘desktop exercise’ will be undertaken and documented.

7.35 Annual Equipment Deployment Exercise

To maintain currency, an annual ‘equipment deployment exercise’ will be undertaken and documented.

Table 311: Proposed Oil Spill Training 2024 to2026

Incident Controller	Incident Management Team	Operational Level Training	Shoreline Respondents	AEO	BEO	Basic First Responder
Additional 2 DP Staff	Additional 4 DP Staff	Additional 4 DP Staff	Additional 4 DP Staff	Additional 4 DP Staff	As required	As required

ANNUAL OIL SPILL EXERCISES

7.36 Exercises to involve IMT, DP, Staff, NT Emergency Services, Contractors and Service Providers as appropriate.

Exercises completed over 2024 include

- **Activation of oil spill response for the oil leak from the fishing vessel Zaandam in Darwin Harbor in May 2024 including the deployment of oil spill equipment and recovery/disposal. This event also utulised in-house and external assets being Darwin Port employees, Pilot vessels and crew and Darwin Tug and line.**
- **Two basic operator courses completed in August and September training some 40 Darwin Port employees. The course includes practical exposure on equipment use.**

ACRONYMS AND ABBREVIATIONS

AIIMS	Australasian Inter-service Incident Management System
AMOSC	Australian Marine Oil Spill Centre
AMSA	Australian Maritime Safety Authority
CEO	Darwin Port Chief Executive Officer
DLPE	Department of Land Planning and the Environment
DME	Department of Minerals and Energy
DIPL	NT Department of Infrastructure Planning and Logistics
DP	Darwin Port
ECMP	Darwin Port *Emergency and Crisis Management Plan* (2016)
ESC	Environment and Scientific Coordinator
EPA	Environmental Protection Authority
FPSO	Floating Production and Storage Offloading
FRS	NT Fire and Rescue Services
HFO	Heavy Fuel Oil
IAPC	Incident Action Plan Coordinator
IC	DP Incident Controller
ICC	DP Incident Control Centre
ICS	Incident Command System
IMT	DP Incident Management Team
LO	Logistics Officer
MPC	Marine Pollution Controller
NATPLAN	National Plan
NEBA	Net Environmental Benefit Analysis
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NT	Northern Territory
NTPFES	Northern Territory Police, Fire and Emergency Services
OPEP	Oil Pollution Emergency Plan
OSCA	Oil Spill Control Agent(s)
OSCP	Oil Spill Contingency Plan
OSRA	Oil Spill Response Atlas
OWR	Oiled Wildlife Response
POLREP	Pollution Report
PWC	Parks and Wildlife Commission
SITREP	Situation Report
SMART	Specific, Measurable, Achievable, Realistic and Time bound
TEMC	Territory Emergency Management Council

AMOSPlan: Is managed by AMOSC and outlines the cooperative arrangements for response to oil spills by Australian oil and associated industries.

Coastal Waters: means, the coastal waters of the Territory, within the meaning of the Coastal Waters (Northern Territory Powers) Act 1980 of the Commonwealth and includes other waters within the limits of the Territory that are subject to the ebb and flow of the tide.

Cold zone: All areas external to the Warm and Hot zone, free from any oil contamination. May have some restricted access but generally at the lowest level of security.

Control Agency: The agency or company assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a MOP emergency. The Control Agency will have responsibility for appointing the Incident Controller.

Control: The overall direction of emergency management activities in a designated emergency. Authority for control is established in legislation or in an emergency management plan and carries with it the responsibility for tasking and coordinating other organisations in accordance with the needs of the situation. Control relates to situations and operates horizontally across organisations.

End Point Criteria: Criteria established as part of the Incident Action Plan to determine points for terminating response activities.

Environment: Means the complex of physical, chemical and biological agents and factors which may impact on a person or a community, and may also include social, physical and built elements, which surround and interact with a community.

Environmental and Scientific Co-ordinator: Nominated person who provides scientific and environmental advice to the IC or SMPC.

First Response Agency: Agencies assigned to a MOP emergency district to respond on behalf of the Jurisdictional Authority as per a Memorandum of Agreement.

Forward Operating Base: Centralised onsite control area, additional to the ICC, to assist in the control of operations.

Hot zone: The area/s of active operation and/ or hazardous/contaminated environment.

Incident Action Plan: The plan used to describe the incident objectives, strategies, resources, and other information relevant to the control of an incident.

Incident Controller: means the individual responsible for the management of all incident control activities across a MOP emergency.

Incident Control Centre: Primary control area and base of operations for the DP IMT. There is only one ICC for any DP MOP emergency.

Incident Management Response Register: The IMRR is comprised of personnel from the Jurisdictional Authority, Control Agencies and Support Agencies trained to perform IMT Unit Officer roles within an IMT.

DP Incident Management Team (IMT): The DP IMT is mobilised under the DP OSCP and is a group of trained and competent DP incident management personnel comprised of the IC and personnel appointed by the IC to be responsible for the control of the response to a MOP emergency.

DP Emergency Management Team (EMT): The DP EMT is mobilised under the DP *Emergency and Crisis Management Plan* (ECMP), and is led by the EMT Leader, and comprises trained and competent senior DP management personnel, who are responsible for supporting site operations/response teams and managing **DP**'s response and recovery efforts during emergency events in accordance with the provisions of the DP ECMP.

DP Crisis Management Team (CMT): The DP CMT is mobilised under the DP *Emergency and Crisis Management Plan* (ECMP), and is led by the CMT Leader, and comprises trained and competent senior DP executives who are responsible for strategically managing **DP**'s response and recovery efforts during crisis events in accordance with the provisions of the DP ECMP.

DP Business Continuity Team (BCT): The DP BCT is mobilised under the DP *Business Continuity Plan* (BCP), and is led by a DP Manager, and comprises trained and competent DP personnel that are responsible for ensuring that DP critical business processes are appropriately recovered according to specific DP Business Continuity Action Plans, as defined within the DP BCP.

Jurisdictional Authority: The Agency that has the jurisdictional or legislative responsibility to ensure there is adequate prevention of, preparedness for, response to and recovery from a specific emergency.

Marine Pollution Controller: Is the nominated individual who has overall responsibility for ensuring that a response to a major incident within their relevant authority is managed and coordinated appropriately.

Marine Oil Pollution Emergency: Actual or impending spillage, release or escape of oil or an oily mixture that can cause loss of life, injury to a person or damage to the health of a person, property or the environment.

National Plan for Maritime Environmental Emergencies: Sets out national arrangements, policies and principles for the management of maritime environmental emergencies. It provides for a comprehensive response to maritime environmental emergencies regardless of how costs might be attributed or recovered.

Net Environmental Benefit Analysis: A methodology for comparing and ranking the net environmental benefit associated with multiple response alternatives. Net environmental benefits are the gains in environmental services or other ecological properties attained by remediation or ecological restoration, minus the environmental injuries caused by those actions.

Offshore Petroleum Facility: Means a facility operating in accordance with the provisions of the Offshore Petroleum and Greenhouse Gas Storage Act 2006 or the equivalent State legislation.

Oil: Hydrocarbons in any liquid form including crude oil, fuel oil, sludge, oil refuse, refined products and condensates. Also including dissolved or dispersed hydrocarbons, whether obtained from plants or animals, mineral deposits, or by synthesis.

Oil Spill Contingency Plan / Oil Pollution Emergency Plan: A documented scheme of assigned responsibilities, actions and procedures, required in the event of a Marine Oil Pollution (MOP) emergency.

Responsible Party: The entity that has been identified as owning or having the legal responsibility for the vessel or facility that caused the incident.

Staging Area: An area where resources are mustered and prepared for allocation to an incident. It may include the provision of welfare and equipment maintenance facilities.

Support Agency: An organisation or body providing support to a Control Agency. This may be in the form of equipment, personnel or logistics.

LIST OF APPENDICES

APPENDIX 1 – POLREP

MARINE POLLUTION INCIDENT REPORT (POLREP)					
This POLREP is to be completed with as much information as possible (regardless of the size of the spill) and sent to: NT EPA at pollution@nt.gov.au and *Duty Officer, AMSA, Fax: (02) 6230 6868*					
Date/Time of Report	____/____/____	___:____ (24 hr)		**Ref. No.**	
Date/Time of Incident					
Location of Incident					
	Latitude		**Longitude**		
Original Report Source	**Name**				
	Position				
	Contact	**Address**			
		Telephone			
		Fax			
		Mobile			
Nature of the Incident & Spill Source					
Point of Discharge					
Identity &Position of Adjacent Vessels (if source unknown)					
Cause of Discharge					
Oil Type or Description					
Nature & Extent of Pollution					
Movement & Speed of Movement					
Has Discharge Stopped?					
Weather/ Sea/ Tide Conditions					
Combat Agency					

Incident Controller	**Name**		
	Contact	**Telephone**	
		Fax	
		Mobile	
Statutory Agency			
Initial Response Actions			
Samples Taken?	**Yes No**	**If Yes, Detail**	
Images Taken?	**Yes No**	**Photographs Video Digital Photo**	
Additional Information			
POLREP Prepared By	**Name**		
	Agency		
	Position/ Role		
	Contact	**Telephone**	
		Fax	
		Mobile	
Attachments? Yes No **If Yes note No of pages attached: _____**			

APPENDIX 2 – EQUIPMENT LOCATIONS AND RESOURCES

DP EQUIPMENT STOCKPILES

DP has the following equipment on East Arm Wharf	
20 of	Boom Self-buoyant General Purpose (15m lengths)
3 of	Boom Structureflex land/sea (20m lengths)
1 of	Boom Self Buoyant Austpol D2 (fence boom) 60m
1 of	Zoom Boom
5 of	Anchor kits 15kg
1 of	Vikospray dispersant spray pump unit and spray arms.
1 of	Tandem Trailer T81145
2 of	Land sea boom kits. In stillages each containing: • 4 x 15kg anchor kits. • 1 x Stihl backpack blower. • 1 x water pump. • Hoses. • Tow connector. • Repair and tool kits.
2 of	Flexidam 10,000 litre
1 of	Foilex Skimmer, pump and associated hoses.
3 of	Bulk crates of oil snares
1 of	Half height bulk crate of oil absorbent granules
8 of	Bulk crates of 8 x 5m absorbent booms
2 of	3m aluminium dinghies (no equipment)
1 of	15HP Yamaha outboard

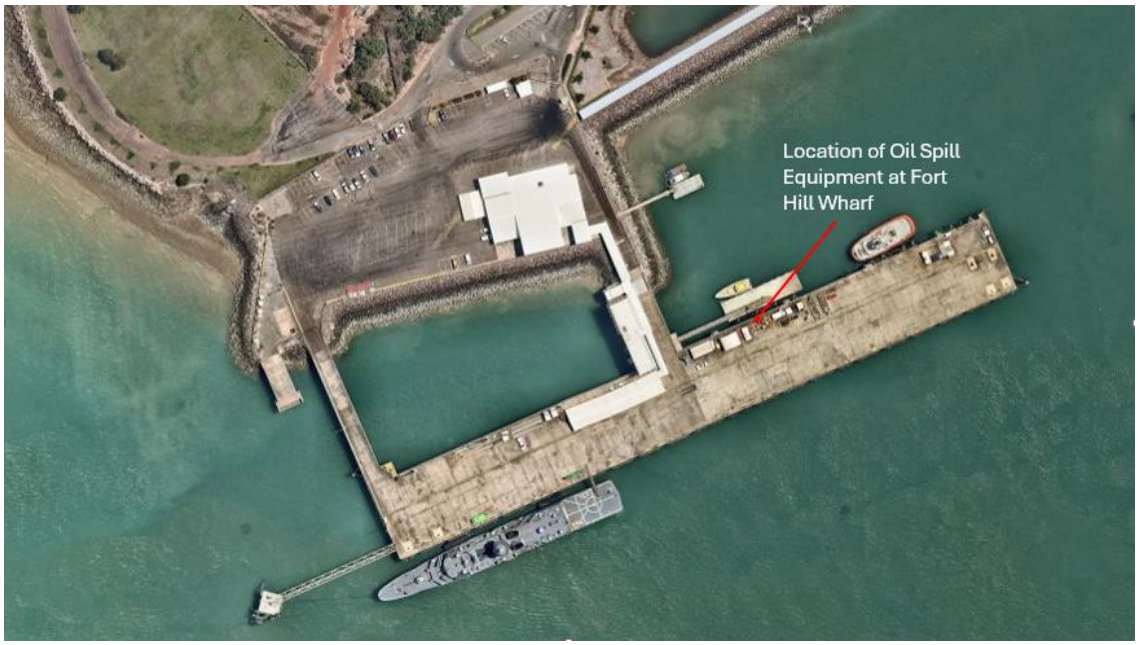
DP has the following equipment in Oil Spill response trailers at the following locations.	
East Arm Wharf Oil Spill Trailer Bulk Liquids Berth	
Safety Googles	3 x safety goggles
Brooms	2 x brooms
Rake	1 rake
Shovel	2 x shovel
Absorbent pads	150x 110 Pads (absorbent)
Safety sign	2 x safety sign
Drum pump	1 250 litre drum pump
Absorbent	4 x 20kg bucket of absorbent
Dust masks	40 dust masks
High vis vests	2 high visibility vests
Overalls	1 pair of orange overalls (97R)
coveralls	1 pair of orange coveralls (107R)
Overalls	4 pairs of disposable overalls
Absorbent	8 x absorbent
Boom	2 x floating boom
Rubber gloves	8 pairs of rubber gloves
Hard hats	2 x hard hats
Electric pump	1 x 12-volt electric pump
Hose and wand	1 x 10 metre hose and wand
Extension lead	1 x 20 metre extension lead
Battery charger	1 battery charger
Backpack spray unit	1 backpack spray unit
Boom	5 x AES 300 Boom
Waste bags	20 x BAT waste bags
Riggers gloves	2 pairs of riggers gloves
Jerry can	1 x BPAB jerry can
Battery	1 Battery

Fort Hill Wharf located next to the Stevedore Hut	
Safety googles	9 x safety goggles
Brooms	2 x brooms
Rake	2 x rake
Shovel	2 x shovel
Absorbent pads	121 x 110 Pads (absorbent)
Safety sign	1 x safety sign
Drum pump	1 205 litre drum pump
Dust masks	20 dusk masks
High vis vests	2 high visibility vests
Overalls	1 pair of orange overalls (97R)
Overalls	4 x disposable overalls
Boom	6 metres of floating boom
Absorbent	3 x Absorbent
Rubber gloves	5 x rubber gloves
BPAB	3 x BPAB 20lt
Hard hats	2 x hard hats
Engine pump	0 petrol engine pump
Hose and trigger	1 x 9m hose & trigger
Suction hose	0 5m suction hose
Rope	1 rope
Backpack spray unit	1 backpack spray unit
Boom	2 x AES300 Boom
Rigger gloves	2 x rigger gloves
Waste bags	20 x BAT waste bags.

AMSA Oil Spill Equipment Located in AMSA Shed at Brooker Rd, Winnellie	
Boom	600 meters of Slickbar MKE 32 solid flotation boom in 15 metre lengths
Boom	10 X General Purpose – Self inflating - VERSATECH
Boom	10 X Shoreline – STRUCTURFLEX Land Sea
Boom	10 X General Purpose – Inflatable - STRUCTURFLEX
Boom	4 X General Purpose – Inflatable – CANADYNE - Kit
Boom	2 X Offshore LAMOR Heavy Duty Open Water
Boom	1 Vikoma rapid deployment high sprint offshore boom kit in 10-foot container
Sweep system	1 Nofi current buster sweep system in 10-foot container
Anchor kit	2 x 5 of 30kg anchor kits in ally bins
Anchor kit	2 x 5 of 15kg anchor kits in ally bins
Skimmer/Weir	DESMI Termite
Skimmer/Weir	2 X Multi-head – Small – LAMOR 15 Ton
Skimmer/Weir	1 Ori Piranha rope mop skimmer in a trailer
Storage Tank	1 X Towable – COVERTEX 20 Ton
Storage Tank	2 X Towable – Transpac 2.6 Ton
Vessel dispersant system	2 x Alfedo vessel dispersant spray systems
Helicopter spray buckets	2 X Simplex helicopter spray buckets
Portable dispersant transfer pump	2 X Portable dispersant transfer pumps
Flammable Goods Cabinet	1 X Cabinet 850 L
Aluminium Ladder	1 X Ladder
Fan	1 X Fan 240V (blue)
Skimmer/Weir	2 X LAMOR 50 tonne 1/2 and 2/2
Oiled Wildlife response Container	Various
Forklift	Enforcer FC70T

Location of Spill Equipment at East Arm Wharf

Location of Spill Equipment at Fort Hill Wharf



Location of AMSA Spill Equipment at Brooker Rd, Winnellie

APPENDIX 3 – FATE OF OIL AND RESPONSE IMPLICATIONS

OILS IN NT AND DARWIN PORT WATERS

Table 14 lists the type and character of oils transported in NT coastal waters and the Port of Darwin. Of these, crude oils are unlikely to enter Darwin.

Table 4: Oil Transported in NT Waters

Oil Name	Oil Group	Density (S.G)	Viscosity (cSt) (1)	Flash Point (°C)	Pour Point (°C)
Petroleum Spirit-Leaded	I	0.755	<1	30	Low
Petroleum Spirit-Unleaded	I	0.7306	<1	38-40	Low
Aviation Gasoline (Avgas)	I	0.79	<2.0	40 -80	<-40
Jet Fuel-A	I	0.7973	~4.0	38-40	Low
Diesel	II	0.8272	3.5	50-60	Low
Lubricating Oils	III	0.86 - 0.88	Variable (30-240)	50 to very high	Low
Heavy Fuel Oil (HFO)	IV	0.8 to 1.0	High	Very high	High
Crudes	II-IV	Variable	Variable	Variable	Variable
Crude Condensate	I	0.6-0.8	<11	-30 to 30	Low
Intermediate Fuel Oil	II	0.92 to 0.99	Variable (18 to 380)	80 to 100	Low

(1) At 15.5°C all are fluid except some fresh or weathered Heavy Fuel oils.

Many marine spill response methods are limited by oil characteristics (e.g. viscosity) or characteristics of the slick (surface area or slick thickness). It is important, therefore, to determine or predict the properties and behaviour of oils at sea.

Oil properties and behaviour depend not only on oil type but also on ambient conditions, particularly temperature, winds and sea state. Weathering characteristics are outlined in **Table 15** and predicted persistence at sea is listed in **Table 16.**

Table 5: General Weathering Trends for Various Oil Types

Weathering Process	Petroleum Spirit-	Avgas	Jet Fuel- A	Diesel	Lube' Oils*	HFO	Crude Condensate	Intermediate Fuel Oil
Spreading.	Rapid	Rapid	Rapid	Rapid	Rapid-Moderate	Slow-Moderate	Rapid	Rapid-Moderate
Evaporation	High	Moderate	Moderate	Low		Very Low*	High	Low-Moderate
Emulsification	Little or no tendency	Low*-Moderate	Moderate*-High	High	High (1)	Low-High	Low-Moderate	High
Physical Dispersion	Rapid	Rapid	Rapid	Rapid	Variable	Low	Rapid	Rapid
Dissolution	Little	Little	Little	Little or None	Little or None*	Little	Little	Little
Photo-oxidation	Not significant	Not significant	Not Significant	Not significant	Not significant	Not significant	Not significant	Not significant
Sedimentation	Very Low Probability	Very Low Probability	Low Probability unless in contact with muds		Moderate	Moderate-High*	Very Low Probability	Low Probability unless in contact with muds

Table 6: Predicted Persistence Oils at Sea

(Figures Indicate % Remaining at Sea)(1)

Volume Spilled	Time after	Petroleum Spirit	Avgas	Jet Fuel	Diesel	Lube' Oils*	HFO
10 tonnes	1	17	40	66	69	100	100
	2 hrs	9	21	47	52	99(>150)	99
	3 hrs	*	14	36	40	98 (>190)	98
	4 hrs	*	9	27	30	98 (230)	97
	5 hrs	*	*	21	23	97 (270)	96
	6 hrs	*	*	16	17	97 (>300)	95
	7 hrs	*	*	13	12	96(>300)	94
	8 hrs	*	*	10	9	96>300)	93
	9 hrs	*	*	*	*	96(>300)	92
	12 hrs	*	*	*	*	95 (>300)	89 (100)
	24 hrs	*	*	*	*	92 (300)	82 (120)
	36 hrs	*	*	*	*	89 (300)	79 (120)
	48 hrs	*	*	*	*	86 (>280)	75 (120)
100 tonnes	1	35	66	80		100	100
	2 hrs	23	42	65		100(150)	100
	3 hrs	16	29	56	61	100 (200)	100
	4 hrs	13	21	48		100 (240)	99
	5 hrs	10	15	41		100 (270)	99
	6 hrs	*	12	35	39	100 (300)	99
	7 hrs	*	9	30		100 (300)	98
	8 hrs	*	*	26		100 (300)	97
	9 hrs	*	*	23	26	100 (>300)	96
	12 hrs	*	*	14	15	99 (>300)	91
	15 hrs	*	*	10	9	98 (>300)	90
	18 hrs	*	*	*	*	97 (>300)	88
	24 hrs	*	*	*	*	96 (>300)	87
	48 hrs	*	*	*	*	92 (>300)	79 (120)
500 tonnes	1	47	80	88		100	100
	2 hrs	34	59	78		100 (150)	100
	3 hrs	26	45	70	73	100 (200)	100
	6 hrs	14	21	51	55	100 (300)	100
	9 hrs	10	13	44	42	100 (300)	99
	12 hrs	*	*	27	32	100 (>300)	98
	15 hrs	*	*		24	100 (>300)	97
	18 hrs	*	*	16	17	100 (>300)	96
	21 hrs	*	*	10	12	100 (>300)	95
	24 hrs	*	*	*	*	100 (>300)	94
	48 hrs	*	*	*	*	97 (>300)	84 (120)

** = Oil slick expected to be broken up*

(1) Weathering rates assume sea temperatures of 25°C, and winds of 15 knots. Higher wind speeds and warmer seas would increase losses.

(2) See Table 5.

(3) Volumes in brackets indicate potential volume of slick considering emulsification These should be considered upper estimates.

(4) Numbers in italics are for spill volumes above those that can be spilt in NT.

DP RESPONSE IMPLICATIONS

The following advisory information should be considered by the DP IMT during any spill response:

Group I Oils including condensates

The rapid spreading rates of these oils indicates that containment strategies are unlikely to succeed in the open sea. Inshore containment using booms deployed in a collection or deflection array may be possible.

The rapid evaporation rate and low flash point indicate that containment strategies should only be attempted after initial weathering has occurred and only if sensitive resources are threatened.

These oils pose a significant health and safety risk when fresh.

The use of dispersants is not warranted unless the oil poses a fire risk and other fire prevention strategies (e.g. use of foam) are unavailable. Dispersant use is generally not advisable because:

- The oil film is too thin for effective application;
- Dispersed oil would be toxic to marine life; or
- The oil is not persistent.

Diesel Fuel Oil including Intermediate Fuel Oil

Although classed as persistent oils, diesels are expected to undergo a rapid spreading and evaporative loss in warm waters and, consequently, slicks are likely to break up. Diesel oils tend not to form emulsions at temperatures or mixing energies likely to be found in the region and so this will not inhibit spreading of the slick or evaporation rates.

Modelling of diesel using the 'Automated Data Inquiry for Oil Spills' (ADIOS) Model indicate that up to 80% of a small diesel spill would be dissipated within 6 hours of release. Less than 10% of the oil is likely to persist beyond 24 hours post spill.

The rapid spreading rate of diesel presents problems for containment strategies at sea but if contained, diesel is easily recovered with sorbent or oleophilic disc skimmers.

Although dispersible, the rapid spread makes this strategy ineffective; i.e. the oil film is too thin.

Lubricating Oils

Lubricating oils are highly persistent and are characterised by a very high tendency to form emulsions with seawater and a low evaporation rate. These features can combine to produce large volumes of "mousse" at sea – in a relatively brief time.

The viscosity of the emulsions can, with continuous weathering, present difficulties for dispersant application and recovery using skimmers.

Heavy Fuel Oils (HFO)

Heavy fuel oils are carried by bulk carriers as fuel. Although highly variable in their composition, all HFOs are highly persistent and have high viscosities. Depending on specific gravity, they can emulsify, after a brief period of weathering.

Viscosity is increased by weathering. Emulsification may also result in a significant increase in the volume of the slick.

USING ADIOS TO PREDICT OIL BEHAVIOUR

The ADIOS program models the behaviour of oil under various conditions.

The model requires the user to input:

- Oil type (by name).
- Spill volume.
- Instantaneous spill or timed release.
- Wind speed.
- Wave height (or set defaults based on wind).
- Sea temperature.
- Sea salinity and density (or defaults based on temperature).

Output is either as a table or graph and includes:

- Changes to oil:
  - - Density.
  - - Viscosity.
  - - Water content (emulsification).
- Evaporative loss.
- Physical dispersion.
- Oil budget, i.e. percentage or volume of oil lost and remaining at sea.

WEB LINK for free download:

http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/downloading-installing-and-running-adios.html

APPENDIX 4 – CONTACT LIST

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
Aviation	Air Services Australia Canberra				1300 301 120 02 6268 5555 Int'l - 1800 801 960	
Aviation	Airborne Solutions			0429 775 555		info@airbornesolutions.com.au
Aviation	North Australian Helicopters	Annika Berendes	Operations Manager	0427 432 666	08 8972 5666	nahoperations@bigpond.com
Aviation	Civil Aviation Safety Authority (CASA)		Switchboard		131 757	oar@casa.gov.au darwin.emergencies@casa.gov.au
Aviation	Nautilus Helicopters				08 8945 0944	darwin.administration@nautilus.com.au
Commonwealth Gov	Australian Border Force		Switchboard	AH -1300 558 099	02 6264 1111	rcu_nc@abf.gov.au act.op.command@abf.gov.au
Commonwealth Gov	Australian Border Force Marine Logistics Darwin		Marine Logistics	0419 515 859		marine.logistics@homeaffairs.gov.au
Commonwealth Gov	AusSAR - Search & Rescue		Aviation 24H Maritime 24H		1800 815 257 1800 641 792	
Commonwealth Gov	Australian Maritime Safety Authority (AMSA)	Joint Rescue Coordination Centre	First Contact Head Office Switchboard Oil Spill 24/7 Joint Rescue Coordination Centre		02 6230 6811 1800 627 484 02 6279 5000 1800 641 792	rccaus@amsa.gov.au
Commonwealth Gov	Australian Transport Safety Bureau (ATSB)		24/7 Aviation, Marine, Rail Accident/Incident Notifications		1800 011 034	atsbinfo@atsb.gov.au
Commonwealth Gov	Bureau of Meteorology (BOM)	Offices	Casuarina Alice Springs Gove Airport Tennant Creek		08 8920 3800 1300 659 210 Ext 7	weatherquestion@bom.gov.au www.bom.gov.auGlobal
Commonwealth Gov	Bureau of Meteorology (BOM)	Telephone Weather	NT Services Darwin Temps & Weather Obs NT Tropical Cyclone Information		1300 659 210 1300 659 211 1300 659 214	rdnt@bom.gov.au

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
			NT Coastal & Land Weather Warnings			
Commonwealth Gov	CSIRO				1300 363 400	csiroenquiries@csiro.au
Defence	Coonawarra Tower (Navy)	Port Services Manager	Port Services North Wharf Manager	0408 625 370 0419 036 358		postservices.darwin@defence.gov.au
Emergency Services	Bushfires				08 8922 0844	BushfiresNT.Compliance@nt.gov.au
Emergency Services	Darwin Private Hospital				08 8920 6011	
Emergency Services	St Johns Ambulance		General Enquiries		08 8922 6200	
Emergency Services	NT Fire & Rescue	Stephen Sewell	Headquarters A/Chief Fire Officer		08 8946 4133 08 8985 8328	Stephen.sewell@pfes.nt.gov.au
Emergency Services	NT Police				08 8999 0800	
Emergency Services	Water Police				131 444	
Environmental Services	Cleanaway		Emergency Spills After Hours Hotline		08 8935 1111 1800 774 557 131 339	
Environmental Services	Cleanaway Waste Solutions				08 8947 3388 131 339	darwin.scheduling@cleanaway.com.au
Environmental Services	NTRS	Rodney Awty	Operations Supervisor	0477 266 020	08 8984 1500	operations@ntrs.com.au
Environmental Services	Veolia Environmental		Operations Manager		08 8947 8947	nt.service@veolia.com
Engineering	Pearl Marine Engineering	Tania Thiel		0448 817 181	08 8901 2000	tthiel@pearlmarineengineering.com.au admin@pearlmarineengineering.com.au
Local Gov	Darwin City Council	Reece Ravlich	Manager, Emergency Planning	0475 451 172	08 8930 0640 08 8930 0300	emergency.management@darwin.nt.gov.au darwin@darwin.nt.gov.au
Marina	Bayview Marina	John Ludbrook	Bayview Manager	0477 661 130	08 8943 1250	marinamanager@bayviewmarina.com.au

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
Marina	Cullen Bay Marina Manager	 Mike Van Der Ley Lockmaster on Duty	Estate Manager General Manager Lockmaster (Radio CH - VHF 11)	0409 885 891 0499 177 323 0419 421 363	 08 8942 0400	estate.manager@cullenbaymarina.com.au manager@cullenbaymarina.com.au admin@cullenbaymarina.com.au
Marina	Frances Bay Marina (Duck Pond) Lock	Clay Frederick Greg Hocking Thalia Puckett	Business Manager Wharf Supervisor Small Ship Scheduler	0438 924 274 0428 207 612	8924 7509 8922 0617	clay.frederick@nt.gov.au gregory.hocking@nt.gov.au smallships.scheduler@nt.gov.au
Marina	Frances Bay Mooring Basin		Lock Operations	0427 910 220		FBMB.DIPL@nt.gov.au
Marina	Tipperary Waters Marina	Peter Watt	Lockmaster	0407 075 077		tipperarywatersmarina@bigpond.com
Marine Service Provider	Auriga Express	Cindy Holden Steve McCallun Peter Haragon Susan Lansdoun	Operations Manager General Manager Vessel Manager Marine Administrator	0437 398 531 0487 083 950 0400 385 760 0447 889 493	08 8947 4960	cindy.holden@aurigamarine.com.au susan.lansdoun@aurigamarine.com.au
Marine Service Provider	Bhagwan Marine	Luke Morand Tynan Bartolo	NT Manager Marine Superintendent	0407 664 266 0499 939 080	08 8982 0600	luke.morand@bhagwanmarine.comadam. tynan.bartolo@bhagwanmarine.com
Marine Service Provider	Darwin Tug & Line	Peter West	General Manager	0417 886 048		info@dtls.com.au
Marine Service Provider	DOF Subsea	Carole Cartledge Khann Sinclair	Base Manager Regional HSEQ Manager	0437 158 614 0414 498 207		carole.cartledge@dofsubsea.com khann.sinclair@dofsubsea.com
Marine Service Provider	Hall Contracting	Mark McCurdy	General Manager	0417 240 407		markmccurdy@hallcontracting.com.au
Marine Service Provider	Sealink NT (Mandorah Ferry)	Alex Sutclisse-Larsen	Operations Manager	0429 105 301	1300 130 679	alexsutclisse-larsen@sealink.com.au
Marine Service Provider	Seaswift	Keith De Saram	Operations Support	0456 857 157	08 8935 2414	keithd@seaswift.com.au
Marine Service Provider	Serco	Sean Barker Abdul Aiyub	Operations Manager Maintenance Manager	0461 499 558 0417 073 879		sean.barker@serco-ap.com dmms.coonawarra@serco-ap.com
Marine Service Provider	Shorelands Shore Barge	Eric Wilbing Richard Chandler	Operations Manager Barge Manager	0419 036 425 0477 878 128	08 8932 3344	cranes@shorelands.com.au supervisor@shorebarge.com.au
Marine Service Provider	Svitzer Tugs	Tom Abraham Tug Control	Port Manager 24/7	0447 673 683	 1800 451 129	tom.abraham@svitzer.com

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
Medical	Royal Darwin Hospital				08 8922 8888	
NT Government	Coroner's Office		Police On-Call	0417 875 624	08 8999 7770	nt.coroner@nt.gov.au
NT Government	Darwin Waterfront	Alana Madden Ralph Dsouza	Business Development Manager - SHW Operations Manager - DWC	0417 169 553 0428 710 061	08 8999 5155	alana.madden@nt.gov.au ralph.dsouza@nt.gov.au
NT Government	Department of Agriculture and Water Resources		Biosecurity Biosecurity Hotline Exotic Aquatic Pest Hotline Fisheries	0413 381 094 0409 678 675	08 8999 2372 1800 900 090 1800 084 881 1800 891 136 08 8999 2126 08 8999 2144	aquaticbiosecurity@nt.gov.au
NT Government	Department of Infrastructure, Planning & Logistics	Cindy McDonald	Executive Director Transport, Safety & Services Marine Safety	0488 936 480 0408 813 735	08 8924 7598 08 8924 7100	cindy-lee.mcdonald@nt.gov.au
NT Government	Department of Mining and Energy	Louis Gomatos	Senior Director Petroleum Operations	0447 046 435 1300 935 250	08 8999 6030 08 8999 6528 08 8999 5396	louis.gomatos@nt.gov.au mineral.info@nt.gov.au dittpetroleumoperations@nt.gov.au
NT Government	Emergency Services (Police/Fire/ Ambulance)		Emergency Non-Emergency		000 (112 from mobile) 131 444	
NT Government	Harbourmaster Office	 Anil Chadha Jon Abbey	 Regional Harbourmaster Deputy Region Harbourmaster	 0428 181 480 0417 549 023	 08 8999 3867 08 8924 7101	RHM.NTG@nt.gov.au Anil.chadha@nt.gov.au Jon.abbey@nt.gov.au
NT Government	NT Emergency Services		Duty Officer	0408 896 245	08 8922 3630	territorydutyofficer.ntes@pfes.nt.gov.au
NT Government	NT EPA		Marine Pollution Legislation	1800 064 567	08 8924 4218	pollution@nt.gov.au
NT Government	Parks and Wildlife NT		WildCare Rescue 7am – 9pm	0408 885 341	08 8988 6121	wildcare@hotmail.com
NT Government	WorkSafe	Workplace Health & Safety	For all accident notification, general enquiries & complaints		1800 019 115	ntworksafe@nt.gov.au
NT Government	Pollution Hotline		(24x7)		1800 064 567	pollution.epa@nt.gov.au
Oil and Gas Industry	AusFuel/Direct Haul				08 8984 0840	

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
		Andrew Swart Paul Zerafa	Emergency Response Service - Aurica Darwin Operations Manager General Manager	0448 886 939 0407 974 564	1800 033 111	a.swart@directhaul.com.au p.zerafa@directhaul.com.au
Oil and Gas Industry	Australian Energy Producers Limited				02 6247 0960	contact@energyproducers.au
Oil and Gas Industry	Baker Hughes	Kevin Smith	Lead Onsite Service Specialist	0419 817 613	08 8943 5603	Kevin.j.smith@bakerhughes.com
Oil and Gas Industry	Darwin Marine Supply Base (DMSB) ASCO	Kylie Arnel	DMSB Manager	0418 533 048	08 8985 9508	kylie.arnel@ascoworld.com
Oil and Gas Industry	INPEX		Terminal Ops Coordinator LNG1 Panel – LNG Loading (24Hr) LNG2 Panel - LPG Loading (24Hr) Utilities Panel – Condensate Loading (24Hr)		08 8983 8110 08 8983 8050 08 8983 8051 08 8983 8070 08 8983 8071 08 8983 8060	
Oil and Gas Industry	Intertek	Fiona Dunbar-Smith	Branch Manager	0403 830 284	08 8947 0510	fiona.dundar-smith@intertek.com
Oil and Gas Industry	Santos	Neel Sud	Marine Superintendent	0409 029 173		Neel.sud@santos.com
Oil and Gas Industry	Vopak	Shaun Stewart Matthew Jeffree	Operations Manager Darwin Safety Co-Ordinator	0419 180 057 0437 839 789	08 8999 9121 08 8999 9104	shaun.stewart@vopak.com matthew.jeffree@vopak.com
Poisons Information	Poisons Information Centre				13 11 26	
Port Operations	Darwin Port	Peter Dummett	Chief Executive Officer	0401 117 056	08 8919 0880	peter.dummett@darwinport.com.au
Port Operations	Darwin Port	David Power	General Manager Operations	0417 867 886	08 8919 0801	david.power@darwinport.com.au
Port Operations	Darwin Port	Rhys Jones	General Manager Strategy & Growth	0400 872 554	08 8919 0805	rhys.jones@darwinport.com.au
Port Operations	Darwin Port	Sarah-Jane Archdale	General Manager Legal	0436 014 587	08 8919 0823	sarahjane.archdale@darwinport.com.au

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
Port Operations	Darwin Port	Stacey Smith	Work Health & Safety Manager	0488 118 728	08 8919 0825	Stacey.smith@darwinport.com.au
Port Operations	Darwin Port	Ryan Akers	Senior Manager Maintenance & Engineering	0408 270 919	08 8919 0830	ryan.akers@darwinport.com.au
Port Operations	Darwin Port	Wayne Bodkin	Senior Manager, Landside Operations	0448 658 652	08 8919 0818	wayne.bodkin@darwinport.com.au
Port Operations	Darwin Port	Security Gatehouse		0401 110 320	08 8919 0816	security@darwinport.com.au
Port Operations	Darwin Port	Harbour Control	Duty Harbour Control Officer		08 8919 0821	harbourcontrol@darwinport.com.au
Port Operations	Darwin Port	Landside Operations	Duty Landside Officer	0408 465 063	08 89190856	cargo@darwinport.com.au
Port Operations	Darwin Port	Peter Sedgwick	Senior Manager Marine Operations	0497 199 726	08 8919 0818	Peter.sedgwick@darwinport.com.au
Port Operations	Darwin Port	Joel Kevan	Maintenance Manager	0436 105 010	08 8919 0832	jkevan@darwinport.com.au
Port Operations	Darwin Port	Carleen Mitchell	Executive Assistant & Cruise Facilitation Coordinator	0430 548 743	08 8919 0881	carleen.mitchell@darwinport.com.au
Port Operations	Darwin Port	David Cairns	Wharf & Bulk Materials Superintendent	0401 319 706	08 8919 0857	david.cairns@darwinport.com.au
Port Operations	Darwin Port	Jeremy Wu	IT Systems Manager	0401 117 050	08 8919 0810	jeremy.wu@darwinport.com.au
Port Operations	Darwin Port	Kristy Bellas	Head of Technology and Systems	0438 415 189	08 8919 0808	kristy.bellas@darwinport.com.au
Recreation Marine	Darwin Sailing Club	Steve Green	General Manager	0411 294 963	08 8981 1700	gm@dwnsail.com.au
Recreation Marine	Darwin Trailer Boat Club	Alecs Ehrlich	General Manager	0425 313 501	08 8981 6749	admin@dtbc.com.au
Recreation Sector	Amateur Fishermans Association of the NT (AFANT)	David Ciaravolo	CEO	0415 471 600	08 8945 6455	ceo@afant.com.au research@afant.com.au office@afant.com.au
Recreation Sector	Dinah Beach Cruising Yacht Club	Wendy McCallum	General Manager	0499 346 242	08 8981 7816	manager@dbcya.com.au
Transport & Logistics	Linfox Intermodal Specialised				08 7922 4202	lfxintermodaldarwindepot@linfox.com

CATEGORY	COMPANY	NAME	POSITION	MOBILE	OFFICE	EMAIL
Transport & Logistics	Linx	Edward Wilson Phil Brewster	Darwin Stevedore Manager Senior Shift Manager	0429 259 464 0418 898 164	08 8984 4701 EXT 3	E.Wilson@linxcc.com.au p.brewster@linxcc.com.au
Transport & Logistics	Qube	Scott Sims	Operations Manager	0401 542 089	08 8922 2300	scott.sims@qube.com.au
Transport & Logistics	Rentco	Jarrod Dennis	Branch Manager	0427 158 053	08 8947 4187	jarrod.dennis@rentco.com.au
Transport & Logistics	Toll Remote Logistics	Melanie Brady	Port Manager On-Call contact	0428 094 298 0429 380 850		melanie.brady@tollgroup.com
Shipping Agent	Monson Offshore	Dion Robinson	Senior Operations	0448 850 006	08 8947 2570	Darwin@monsonoffshore.com.au
Shipping	OM Manganese	Andre De Villiers	Administration & HR Manager	0447 716 704	08 8962 0234	andre@ommanganese.com.au

APPENDIX 5 – DP IMT CHECKLISTS

D.1 Incident / Event Notification Checklist

Notification Taken By:	**Date/Time:**
Notification Provided By:	**Date/Time:**

INCIDENT DESCRIPTION	DETAILS
What has happened?	
Where has the incident happened?	
When did the incident happen?	
What is currently at risk?	
Is everybody accounted for?	
Are there any known casualties?	

INCIDENT STATUS	DETAILS
Contained or escalating?	
Potential to escalate – what is potentially at risk?	
What are your objectives?	
What are you trying to make happen / prevent from happening?	
What actions are being undertaken?	
Is the area secured from unauthorised access?	
Who is undertaking these actions?	
Who is responding?	
What resources are currently being used?	

ADDITIONAL SUPPORT REQUIRED	DETAILS
Personnel	
Resources	
Specialist Equipment	

COMMENTS

D.2 Initial DP IMT Mobilisation Checklist

As soon as possible after becoming aware of an incident, the **IMT Leader** shall consider the following checklist to assist in obtaining incident information from the person reporting the incident:

Notification Taken By:	**Date/Time:**
Notification Provided By:	**Date/Time:**
INCIDENT ISSUE	**INCIDENT INFORMATION**
Incident description:	
• What happened?	
• Where did it happen?	
• When did it happen?	
• How did it happen?	
• Is everybody accounted for?	
• What casualties (if any) have occurred?	
• How have you been notified and how accurate is the information?	
Incident status	
• Is the incident contained or escalating?	
• What is potentially at risk?	
• What are your objectives?	
• What actions are being taken?	
• Who is taking them?	
• What resources (equipment/workforce) being used?	
• Have regulatory authorities been informed?	
• Has there been any media attention?	
How effective is the response?	
• What support does IC / ERT need from IMT / EMT – immediate / long term?	
Initial incident assessment	
• What are likely impacts on HSE / community?	
• What are likely social / cultural heritage issues?	
• What are likely community, government, media and / or reputation issues?	
• What is operational impact – short, medium and long term?	
• Any impact on Business Continuity?	
• What are actual / potential consequence and severity ratings?	
Follow up	
• Exchange / confirm contact details	
• Establish time for next SITREP call	
Comments	

D.3 Telephone Log Sheet

(One Page Per Call)

Call Taken/Made By:		Call In:	☐	Call Out:	☐

Caller Details:	Extn. No:		Date:		Time:						
Phone Number:											
Name:											
Title:											
Organisation:			Department:								
Mobile:			Fax Number:								
Message For:			Return Call By:								
Call Source:	Port User	☐	EPA	☐	Worksafe NT	☐	Mutual Aid	☐	AMSA	☐	
Media	☐	Public	☐	Employee	☐	Employee Family	☐	Community	☐		
Other:											

Message/Response:

Comments:

Action required:	Call Them Back	☐	Meeting Req'd	☐
	Send Fax/Email	☐	Will Call Back	☐

Other:

Actioned by:		Date:		Time:	

D.4 Situation Report (SITREP)

Information for internal **DP** use only

Emergency @		**Report No:**	
Date:		**Time:**	
Incident Type:	**Injury:**	**Accident:**	**Other:**
Release Details:			

Injury Details	**Number Of Fatalities:**		**Number Of Serious Injuries:**		**Number Of Minor Injuries:**	

Have names of fatalities and/or serious injuries been reported verbally to EMT/CMT?					
Give details of cause(s):					
Give details of injuries:					
General Info	**Weather:**	**Dry**	**Wet**	**Windy**	**Wind Direction/Speed**
Impact on facilities			**Facilities Damaged:**		
Facilities Shutdown/Evacuated					
Operational /Commercial Impact					
External Assistance Requested	**Medical**	**DOT**	**Police**	**EPA**	**Navy**
Other Information:					

Response Forward Plan

Next 60 Minutes:
Next 6 Hours:
Next 12 Hours:

Last External Contact

Agency	Contact Name	Time	By Whom	Agency	Contact Name	Time	By Whom

ECC Room Personnel (role & person)

Update Prepared By:		**Update Approved By:**
Distribution:	**1. DP Managing Director**	
	2. DP CEO	
	3. DP CMT Leader	
	4. DP EMT / IMT Leader	

D.5 Personal Response Log

Log Number:	**Date:**
Name:	**DP IMT Position:**
Contact Numbers:	
Time:	**Activity / Events / Key Actions**

D.6 DP IMT Incident Control Centre (ICC) Equipment – Checklist

Kick-off Checklist	✓
DP OSCP wall prompts	❑
Large location wall maps and blow-up photographs of incident area and coastline	❑
Site environmental wall map	❑
Large organisational wall chart identifying **DP** IMT incumbent roles	❑
1 x Copy of the **DP** site *Emergency Response Plan* & ECMP (minimum)	❑
1 x Copy of the **DP** *Oil Spill Contingency Plan* (minimum)	❑
1 x Copy of any relevant Port User / Contractor ERP/ OSCP (where applicable)	❑
2 x Dedicated direct dial telephone lines or immediate vicinity access (minimum)	❑
1 x Dedicated speaker-phone - direct inside line from incident site	❑
	❑
Local Phone Books	❑
Spare copies of the current **DP** Emergency Contact Directory	❑
Dedicated and labelled in/out communications trays and ring binders	❑
Mobile phone battery chargers or spare batteries	❑
1 x main ICC time clock (for use on all Log Sheets)	❑
White board(s) (electronic if possible)	❑
Computer with e-mail capability	❑
Close access to video recorder, television and AM/FM radio	❑
Close access to photocopy machine	❑
Access to projector and screen	❑
Port Map and facility description drawings	❑
Incident Notification proformas (padded and punched)	❑
Telephone Call Record proformas (padded and punched)	❑
Emergency Response Logs (padded and punched)	❑
Stationery material (solar/battery calculators, pens, pads, highlighters, staplers, punches etc.)	❑
Name tags (showing name, external company and role in the response)	❑
Personnel roster for monitoring relief timetables (for extended incidents)	❑
Refreshments (and contact details for ongoing replenishment)	❑
Response pack (lockable box, aluminium case etc.) to secure appropriate items	❑
Dedicated “Response Pack” Coordinator role allocated	❑
Notes:	

Response Pack Contents Checked By:	**Name:** **Signature:**
Last Date Checked:	**Date**: ……/……../…….

D.7 Event Status Board – pages 1 & 2

Update No.	Time	Chronological list of Events	Resource Assets		Page No.
			Resource Requirements	Weather Conditions	
				6 hours Forecast	
				12 hours Forecast	
				24 hours Forecast	

Resource Type	Status	Time/Date	Location Required
Personnel			
Transport			
Materials			
Hand Equipment			
Mobile Equipment			
Other			

D.8 Event Contact Tracking

Time	Contact Name / Organisation	Contact Number	DP Contact Person	Next Contact Required

D.9 Master Event Log

Title of Incident: [i.e. Emergency @...] **…….**

Incident Date: / / 20 **Name of Event Logger:** **Page: of**

Date/ Time	Message		Details of Message or Event	Comments / Action
	From	To		

D.10 Key DP IMT Roles

KEY DP IMT Roles

Role	Contact	Business	After Hours	Email
Switchboard	**Receptionist on Duty**	8919 0800		
DP IMT Incident Control Centre (ICC)				
DP IMT Finance and Logistics Officer				
DP IMT Planning and Operations Officer				
DP IMT HSSE/HR/Regulatory Liaison				
Site Staging Coordinator				
Environment Coordinator				
Emergency Coordinator				
Media liaison Officer				
DP Emergency Management Team (EMT) Leader				
DP Crisis Management Team (CMT) Leader				