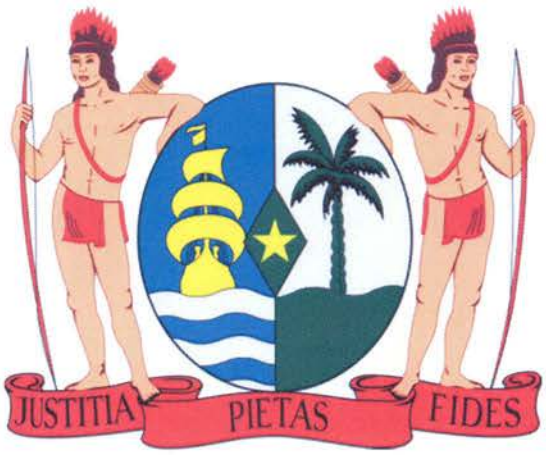

National Oil Spill Contingency Plan

of

Suriname

Document Title				
Document No.		Initial Issue No.	Issue Date	Approved
Amended Issue No.	Reissue Date	Amendment Description	Author	Approved

The Republic of Suriname

Letter of Expectation

The Republic of Suriname recognizes the importance of proper Emergency Response Planning and Preparedness capabilities for all levels of industry that have the potential to cause harm to human health, the biological and social environment and the Suriname economy as a result of onshore or offshore spill incidents from their hydrocarbon handling operations.

To ensure that, in the event of an incident, the procedures of these industrial organizations are fully supported by the Republic of Suriname, this National Oil Spill Contingency Plan has been developed to provide a framework to allow a rapid and cooperative response to oil spill incidents, with the aim of protecting against all the adverse effects as a result of oil pollution and, where this is not possible, minimizing the effects.

After careful review of international and regional best practice, International Organization for Standardization (ISO) 15544, the International Maritime Organization (IMO) Manual on Assessment of Oil Spill Risk and Preparedness (2010 Edition) and the tiered preparedness and response recommendations consistent with the International Convention on Oil Pollution Preparedness, Response and Co-operation Convention (OPRC '90), the Republic of Suriname expects all organizations carrying out hydrocarbon handling operations within the territory of Suriname, or areas for which Suriname carries certain responsibilities, to have the following safeguards in place:

- A written Oil Spill Contingency Plan or Procedure that contains:
  - an oil spill risk assessment of the operations covered by the plan / procedure
  - descriptions of the initial actions, notifications, safety procedures and response strategies
  - the oil spill response management structure that is contractible and expandable according to the needs of the response
  - a system to allow reviews and updates to be made to the plan / procedure following exercises, actual response incidents changes in operational scope and/or management structure.
- The ability to mount a Tier 1 spill response operation with identified on-site available resources as well as potential external resources, should escalation to a Tier 2 or 3 response operation be needed. Response capacity is commensurate to the scope of the contingency plan / procedure.
- Regular training for response personnel.
- Exercises response capabilities and contingency plan / procedures.
- A description on how any oiled waste resulting from an oil spill incident will be dealt with.
- A financial plan to provide emergency funds to initiate response, and procedures in place to receive claims.

The guidelines and expectations described in this document will allow for an effective response to occur. They do not reflect the legal requirements of specific jurisdictions. Organizations must be aware of any requirements applicable to their respective operational activities.

Signed _____ Dated 1/6/16

Contents

Figures

Tables / Forms

Abbreviations

ARPEL	Regional Association Of Oil, Gas And Biofuels Sector Companies In Latin America And The Caribbean
API	American Petroleum Institute
ATV	All Terrain Vehicle
BAOAC	Bonn Agreement Oil Appearance Code
DC	District Commissioner
DDR	Dispersant Dosage Rate
DRC	Disaster Response Committee
EEZ	Exclusive Economic Zone (SB 1978 no.26)
HSE	Health, Safety and the Environment
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IMO	International Maritime Organization
IMT	Incident Management Team
INEA	Venezuelan Aquatic Authority
IPIECA	International Petroleum Industry Environment Conservation Association
ISO	International Organization for Standardization
JIP	Joint Industry Project
MARPOL	International Convention on Prevention of Pollution from Ships 1973 and its 1978 Protocol
MAS	Maritime Authority Suriname
MEEA	Ministry of Energy and Energy Affairs (Trinidad & Tobago)
MSDS	Material Safety Data Sheet
NEBA	Net Environmental Benefit Analysis
NCCR	Nationaal Coordinatie Centrum voor Rampenbeheersing
NIMOS	National Institute for Environment and Development in Suriname
NOC	National Emergency Operations Center
NOSCP	National Oil Spill Contingency Plan
OGP	International Association of Oil & Gas Producers
OPRC	Oil Pollution Preparedness, Response and Cooperation
OSRA	Oil Spill Risk Assessment
OSRL	Oil Spill Response Ltd
PDVSA	Petroleos de Venezuela S.A.
POC	Point of Contact
RAC	Regional Activity Centre
REMPEITC-Caribe	The Regional Marine Pollution Emergency Information and Training Centre for the Wider Caribbean
SCAT	Shoreline Clean-up Assessment Techniques
SCBA	Self Contained Breathing Apparatus
SMART	Specific Measurable Achievable Realistic Time-bound
SOPEP	Shipboard Oil Pollution Emergency Plan
Tote	Tote tank or International Bulk Container (IBC) holding 1,000lts of liquid
TTCG	Trinidad and Tobago Coast Guard
UC	Unified Command
UNEP	United Nations Environment Programme
UNCLOS	United Nations Convention on the Law of the Sea

Definition of Terms

Oil Spill	An oil spill is the release of a liquid petroleum hydrocarbon into the environment, due to human activity, and is a form of pollution. For the purpose of this document the term is applied to marine oil spills, where oil is released into the ocean or coastal waters.
Persistent Oil	Generally, persistent oils contain a considerable proportion of heavy fractions or high-boiling material. They do not dissipate quickly and will therefore pose a potential threat to natural resources when released to the environment. Such threats are evident in terms of impacts to wildlife, smothering of habitats and oiling of amenity beaches.
Non-persistent oil	Non-persistent oils are generally of a volatile nature and are composed of lighter hydrocarbon fractions. When released into the environment they will dissipate rapidly through evaporation. As a result, spills of these oils rarely require a response but when they do, clean-up methods tend to be limited. Impacts from non-persistent oils may include, for example, effects on paint coatings in marinas and harbours and - at high concentrations - acute toxicity to marine and/or riverine organisms.
Responsible Party	The Responsible Party (RP) of an incident is the person, business, or entity that has been identified as owning the vessel or facility that caused the spill. The term does not imply criminal negligence.
Tier 1 Spill	An accidental discharge occurring at or near a facility during a routine operation. Impacts are low and an on-site response capability is adequate.
Tier 2 Spill	An accidental discharge occurring in the vicinity of a facility as a result of a non-routine event. Significant impacts are possible and external (regional) support for adequate oil spill response is required.
Tier 3 Spill	An accidental discharge occurring either near to, or remote from, the facility as a result of a non-routine event, and requiring substantial resources and support from national or international organizations to mitigate effects perceived to be wide-reaching, i.e., of national or international significance.
Contingency Plan	A plan for action prepared in anticipation of an incident. In this case the contingency is for an oil spill incident. The contingency plan prepared for a site or region usually consists of guidelines and operating instructions intended to increase the efficiency and effectiveness of clean-up operations and to protect areas of biological, social and economic importance.
Net Environmental Benefit Analysis	A process of weighing the advantages and disadvantages of taking a particular course of action (such as dispersant spraying), including recognising the likely outcomes if the course of action is not taken (the impact of doing nothing). The result will determine if there will be a net (overall) beneficial or detrimental outcome of taking the action.

Preface

Document Control

The National Oil Spill Contingency Plan (NOSCP) resides in its most recently updated electronic version at ...
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NOTE:
It is the responsibility of the Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR) to review, revise and update this NOSCP. Reasons this document may require revising could include:

- Amendments to Suriname's national legislation or policies that directly affect the information contained in this document
- Changes that occurred within Suriname's authorities or regulatory bodies, for example:
  - High level organisational restructuring
  - A change in national response capabilities
- National exercises or emergency events, following oil spill incidents that directly affect the information contained within this document.

1 Introduction

Threats

Suriname experiences a relatively high density of marine traffic, including oil tankers, in close proximity to the coast as well as onshore and offshore petroleum storage, production and exploration activities.
These activities present a risk of oil pollution from either events such as accidental or illegal operational discharges, groundings, collisions, blowouts and other accidents.
Such pollution can threaten Suriname's economic, fishing and tourist industry, natural environment potentially affecting sea birds, land and marine life in the inter-tidal zone, coastal operations and nearby industries.

The NOSCP

This National Oil Spill Contingency Plan (NOSCP) has been developed to demonstrate how the combined resources of the Republic of Suriname and Industry will work together to combat any incidence of an oil spill resulting from oil related operations throughout the Republic of Suriname.
It outlines Suriname's National Policy and Response Organization to a national level event as well as what is expected of the Responsible Party in ensuring a rapid, cooperative and effective response to an oil spill incident.
The Plan has been developed in conjunction with the Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR), the Maritime Authority Suriname (MAS), National Security, the National Institute for Environment and Development in Suriname (NIMOS), RAC/REMPEITC Caribe, Staatsolie Maatschappij Suriname N.V. (Staatsolie), and Oil Spill Response Ltd (OSRL).
Following international and regional best practice, ISO 15544[1] and the International Maritime Organization (IMO) Manual on Assessment of Oil Spill Risk and Preparedness (2010 Edition), this plan establishes the roles, duties and responsibilities of the above mentioned organisations in the response to a national level oil spill incident.

Aim

The NOSCP aims to ensure that any response operation recognizes the following as primary objectives:

- Protecting human health and safety
- Minimizing any social and environmental impacts
- Ensuring that the socio-economic and environmental conditions are restored, as near as is practicable, to pre-spill conditions.

Scope

This NOSCP describes the organizational structure, communication procedure and anticipated actions to be taken by the relevant Suriname Authorities and Agencies in preparedness for, and response to, oil spills at a national level.
Under the Suriname National Disaster Plan, currently pending approval[2], the Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR) would oversee the response activities, assisted by the Maritime

[1] International Organization for Standardization (ISO) 15544: Petroluem and natural gas industries – Offshore production installations – Requirements and guidelines for emergency response.

[2] The Suriname National Disaster Plan is pending approval by ..., as of ... 2015.

Authority Suriname (MAS), and the National Institute for Environment and Development in Suriname (NIMOS), as well as coordinate the activities of other Government departments such as the Coastguard.

Geographical Area

The geographical area where an oil spill has the potential to impact on Suriname's interests, which is covered by the NOSCP, includes Suriname's Territorial Sea, Exclusive Economic Zone (EEZ), and the High Seas, as defined by UN Convention on the Law of the Sea (UNCLOS 1982) and detailed in Figure 1.

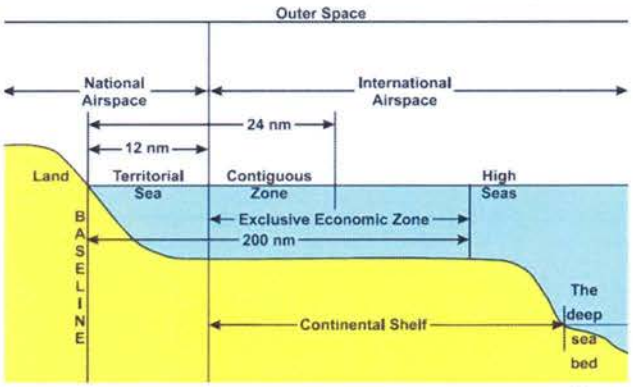

Figure 1: Maritime zones under UNCLOS[3]

Activation of this NOSCP

The NOSCP is established in order to facilitate the national response to oil spills of magnitude Tier 2 or above, occurring within the geographical region as shown in Figure 2.

Figure 2: Geographical area covered by this NOSCP

It is the Responsible Party's duty to take the necessary actions, including making the required notifications to the Suriname Authorities using the communications procedure detailed in this NOSCP, in the event of an oil spill incident during their operational activities.

Once notified, it is the decision of Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR) whether to further activate this NOSCP.

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[3] UN Convention on the Law of the Sea (UNCLOS 1982)

2 Notification Structure

2.1 Overview

In the event of an oil spill occurring in the geographical area covered by this NOSCP, Suriname's National and District Response Agencies will be notified as follows.

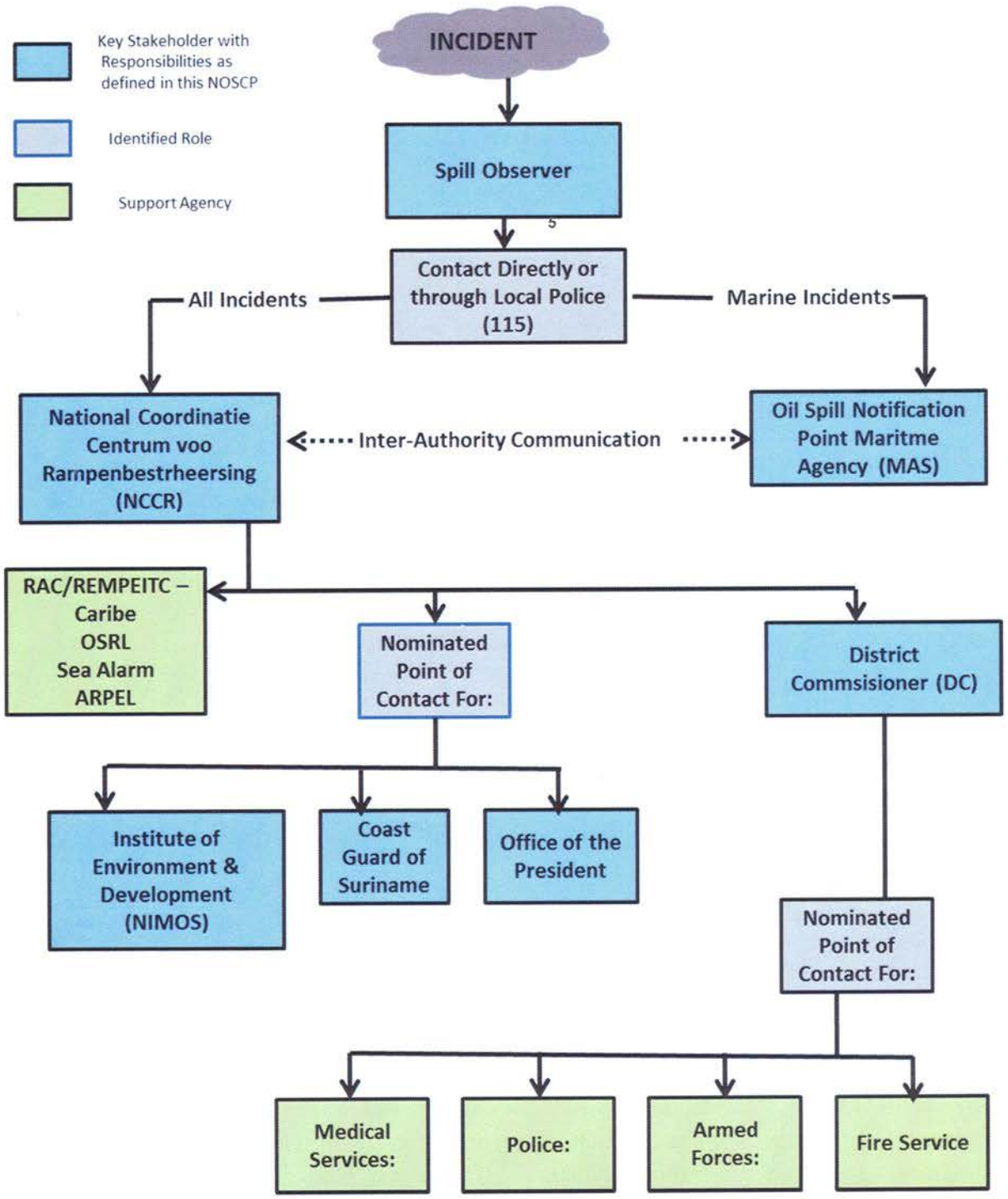


Figure 3: National / District Response Agencies Notification Structure

Initial Notification Checklist		
Agency	**Contact Details**	**Type and Format of Information**
Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR)	**POC:** Duty Manager **TEL:** +(597) 426 416 +(597) 426 522 **or** +(597) 426 511 ext 226 **FAX:** +(597) 520 840 **EMAIL:** nccr@sr.net	Within 24 hours[6] the following information should be provided verbally or using the Oil Spill Notification Form as shown on page 15; • Name and contact details of person making the report • Safety and status of on-site personnel • Location of pollution incident • Source and cause of spill • Extent of spill and whether it is ongoing or under control • Time and duration of spill • Oil / Pollutant type • Potentially hazardous aspects indentified. • Any further useful / relevant information
Maritime Authority Suriname (MAS) Spill Notification Point[4]	**POC:** Mr. Michel Amafo, Director **TEL:** +(597) 476 769 **or** +(597) 476 733 ext 258 **FAX:** +(597) 472 940 **EMAIL:** mamafo@mas.sr **or** amafomichel@yahoo.com	

[4] The Caribbean Island OPRC Plan states that:

2. 9 Spill Notification Point

2.9.1 Each Island State or Territory is required under Article 5 of the Oil Spill Protocol to establish appropriate procedures to ensure that information regarding oil spill incidents is reported as rapidly as possible. To facilitate this process REMPEITC's website has an updated list of Spill Notification Points for each of the members. http://cep.unep.org/racrempeitc

2. 1 0 National Operational Contact (Under MARPOL)

2.10.1 National Operational Contact Points under MARPOL are included in Annex B of the Plan. This information enables compliance with Regulation 26 of Annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating there to (MARPOL 73/78) which, inter alia, requires that the ship board oil pollution emergency plans contain a list of Authorities or person to be contacted in event of an oil pollution incident. Further, the Guidelines for the Development of Shipboard Oil Pollution Emergency Plans, published by the IMO, requires that the shipboard oil pollution emergency plans should include, as an appendix, the list of agencies or officials of administration responsible for receiving and processing reports as developed and updated by the Organization incompliance with Article 8 (Reports on incidents involving harmful substances) and protocol I (provisions concerning Reports on Incidents involving Harmful substances) of MARPOL 73/78. Requirements for oil pollution emergency plans and relevant oil pollution reporting procedures are also contained in Articles 3 and 4 respectfully of the International Convention on Oil Pollution and Preparedness, Response and Cooperation (OPRC) 1990. In some cases the National Operational Contact Point is different from the Spill Notification Point for an Island State or Territory as some states have different authorities responsible for these international Conventions.

http://cep.unep.org/racrempeitc/regional-oprc-plans/caribbean-island-oprc-plan

3 Roles and Responsibilities

The following section provides details on the roles and responsibilities for each key person / agency notified as a result of an oil spill incident, as identified in the National / District Response Agency Notification Structure (Figure 3).

3.1.1 Spill Observer

The Spill Observer's main role in respect to this plan is to make the required initial notifications using the formats as described here.

The Spill Observer will report the incident as soon as reasonably possible, but no later than within 24 hours, to Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR) and, if the incident has occurred at sea, to the Spill Notification Point of the Maritime Authority Suriname (MAS) as well.

Every effort must be made to report using the Oil Spill Notification Form as shown in on page 15.

The Spill Notification Form has been specifically designed to provide information on:

- Name and contact details of person making the report
- Safety and status of personnel
- Location of pollution incident
- Source and cause of spill
- Extent of spill and whether it is ongoing or under control
- Time and duration of spill
- Oil / Pollutant type
- Potentially hazardous aspects
- Any further useful or relevant information

In addition to making the notification to NCCR and / or MAS' Spill Notification Point if applicable, the Spill Observer should activate their own site / operation specific Spill Contingency Plan (if appropriate) and begin response operations to mitigate the potential impacts that may result from the incident.

Oil Spill Notification Form

Number of pages in Report (including attachments):		
Date/Time of Report:		
Date/Time of Incident:		
Location of Incident:		
Latitude:	Longitude:	
Original Report Source:		
Contact:	Phone/Mobile:	Fax/Email:
Nature of incident and spill source (if source unknown give identity and position of adjacent vessels):		
Point of Discharge from Source:		
Cause of Discharge:		
Oil Type or Description:		
Has Discharge Stopped/Temporarily Stopped?		
Extent of Spill:		
Projected Trajectory of Spill:		
Samples Taken: Yes No	Photographs Taken: Yes No	
Weather / Sea / Tide Conditions:		
Initial Response Actions:		
Corrective Actions Taken:		
Additional Information:		
Report Prepared By:	Phone/Mobile:	Fax/Email:

3.2 Nationaal Coordinatie Centrum voor Rampenbeheersing (NCCR)

The *Nationaal Coordinatie Centrum voor Rampenbeheersing* (NCCR) was created as a special division of the Ministry of Defense committed to *"the development of a defensive, self-conscious and safe community, where everybody knows their responsibilities*[5]*"*.

Within the NCCR, specialist sections are assigned to address the logistical, operational, legal, planning and communications requirements of an emergency response operation. NCCR also works in partnership with the District Commissioners and their staff, (police, armed forces, fire service and other regional resources).

To ensure that Suriname maintains the highest possible level of oil spill preparedness the NCCR is responsible for:

- The development, testing and maintenance of the NOSCP
- Advising the District Commissioner (DC) on the development and integration of any District Oil Spill Response Plans.
- The training and education of personnel who would be involved in responding to an oil spill incident at a national level (Appendix 4, Maintaining Oil Spill Preparedness).
- Maintaining contacts with the oil industry.
- Maintaining any response resources available at a national level including any agreements with national response contractors, such as price fixing (revised annually).
- The identification of any nationally recognized environmental or socio-economic sensitive areas.
- Develop and evaluate any National Emergency Operations Center (NOC) or National Oil Pollution Response Team training and exercises completed, including the development of reports and recommended improvement actions.
- Identifying the need for and advising on the purchase of oil spill response resources.

In the event of a spill incident requiring the activation of this NOSCP, the NCCR will lead the response from the Suriname authorities. Its role as Incident Commander, or as part of a Unified Command, is to provide strategic coordination services in support of the response operation including the identification of a suitable location for the Unified Command Center.

Specifically, NCCR's responsibilities are to:

- Review the Initial Information received from the Responsible Party / Spill Observer and make and / or confirm the initial assessment of the situation.
- Establish direct contact with the Responsible Party / Spill Observer and begin a process to receive regular incident updates / communications from them.
- Establish what initially the appropriate level of response should be from the Suriname authorities.
- Notify all key persons to be involved in the National Emergency Operations Center (NOC) team.
- Establish and organize the NOC.
- Prepare an initial incident brief and deliver to key members of the NOC team.
- In conjunction with the Unified Command, determine incident objectives and strategy required to achieve the objectives.
- Monitor incident response progression and provide regular briefings to the NOC team.
- Provide a support framework to deal with requests for support from the Responsible Party / DC.
- Order the demobilization of the incident when appropriate.

[5] NCCR Mission Statement (J. Slijngard, Head Coordinator NCCR, 2011)

NCCR Action Checklist

Initial Actions - as Incident Commander (IC) or as part of a Unified Command (UC)	
Ensure that all decisions and actions are documented. Use Personal Log Form (Appendix 2)	✓
Conduct an in-depth risk evaluation of the incident: • Verify and validate information provided during the notification phase. • **Safety First**. Confirm details of any injuries, fatalities, and threats to the public and responders. • Verify the extent of the current response operation. • Confirm any exclusion, hazard and safety zones; evacuation areas; and places of safe refuge that have been established. • Provide direction as required to minimize risks to responders and the public. • Consider the early assignment of a Safety Officer to manage the HSE issues resulting from the incident. • Determine additional risks, i.e. security, weather, unstable situation, etc. • Review any contingency plans currently in use in the response operation. • Begin developing the ICS 201 Incident Briefing Form (Appendix 2).	
Identify the initial response priorities and objectives: • Determine initial response area of responsibility. • Identify primary factors that may cause rapid incident escalation or significant change. • Identify at-risk locations and populations. • Develop or update initial incident priorities. • Develop or update initial incident objectives. • Conduct a needs analysis by reviewing objectives and identifying resource shortfalls. Consider tactical resources, incident management team personnel, incident facilities, etc. Also consider escalation potential and other contingencies or "what if" possibilities • Continue developing the ICS 201 Incident Briefing Form (Appendix 2).	
Evaluate, resource, organize and deploy response resources: • Establish an Incident Management Team (IMT) of sufficient size to manage the incident. • Ensure that effective communications exist between all elements and teams involved in the response operation. Ensure that the roles and responsibilities of all response organisations are clearly defined. • Communicate response priorities and objectives to the IMT. • Examine the IMT span of control and sub-divide operations into manageable work units if required. • Identify resources required to complete the incident objectives. • Obtain identified resources. • Deploy resources as required. • Document decisions and actions and ensure that they are communicated to all teams involved in the response operation.	
Complete ICS 201 Incident Briefing Form and deliver to IMT Command Staff and Section Chiefs	
Begin developing the Incident Action Plan (IAP) (Appendix 2)	

3.3 Maritime Authority Suriname (MAS)

The Maritime Authority Suriname (MAS) is the national agency responsible for and dedicated to ensuring the safety of ships, the protection of life and property at sea and in the marine environment and ensuring compliance with applicable national laws and regulations.

In the context of this NOSCP and the Caribbean OPRC Plan, the MAS is designated as both the National Focal Point Agency and Lead Agency, responsible for organizing and maintaining the oil spill preparedness levels for Suriname. In the event that this NOSCP is activated, MAS would become part of the Unified Command Planning Team.

3.4 District Commissioner (DC)

The role of the District Commissioners (DC) is to provide district-based strategic leadership for all emergency response operations. It is necessary that the DC has a good understanding of the principles involved in undertaking an oil spill response operation, and works closely with the NCCR in the event of an oil spill incident.

To ensure that each district maintains the highest possible level of oil spill preparedness sufficient to meet the level of oil spill risk faced, the DC is responsible for:

- The content of the District Oil Spill Response Plan.
- Ensuring the District Oil Spill Response Plan ties in to the NOSCP.
- The updating of the District Oil Spill Response Plan.
- The training and education of personnel who would be involved in responding to an oil spill incident.
- Maintaining contacts with the oil industry.
- Maintaining any response resources available in the district, including any agreements with local response contractors including price fixing (revised annually).
- The identification of any district environmental or socio-economic sensitive areas.
- Evaluating any training and exercises completed including the development of reports and recommended improvement actions.
- Identifying the need for and advising on the purchase of oil spill response resources.

A Disaster Response Committee (DRC) will be established by the District Commissioner for a Tier 2 or above oil spill incident. The committee could include such officials as the head of the police and fire departments, military personnel, harbour master, the head of the department of Public Works, or the first employee of one of these organizations. They will assist the DC in the organisation and implementation of oil spill response operations in the district concerned and cooperate closely with the NCCR.

3.5 National Security

National Security, residing in the Office of the President, has overall responsibility for the protection of the marine environment and the living resources that it supports in waters adjacent to Suriname. National Security manages this responsibility through the provision of advice on fisheries, environmental and natural heritage matters from other Ministries and departments within the Government or entities in Suriname. In the event of an oil spill incident leading to the activation of this plan, National Security will provide guidance and technical assistance to NCCR.

3.6 National Institute for Environment and Development in Suriname (NIMOS)

It is the stated aim of the National Institute for Environment and Development in Suriname (NIMOS) to initiate the development of a national legal and institutional framework for environmental policy and management in the interest of sustainable development in the Republic of Suriname.

NIMOS works with departments within the Suriname Government, international regional associations such as the World Wildlife Fund (WWF), the Regional Association Of Oil, Gas And Biofuels Sector Companies in Latin America and the Caribbean (ARPEL), and industry partners in Suriname to examine and address issues of environmental and social protection and conservation within Suriname.

Working with industry in the region, NIMOS will offer advice relating to oil spill preparedness on topics such as the identification of environmentally sensitive areas within Suriname, response strategy selection and its environmental and social effects.

The use of dispersants is addressed in Section 5 - Dispersant use in Marine Environments, and Appendix 3 - Sampling Procedures.

Following guidance detailed in the Caribbean Island OPRC Plan (Section 10.2.3), NIMOS will pre-approve the use of certain types of dispersant as part of a Tier 1 equipment stockpile. In the event of an incident requiring the continued use of dispersants and the establishment of a Unified Command, NIMOS would form part of the Environmental Group who, working together with HSE staff from the responsible party, and would follow the process for approving the longer term use of dispersant in a response operation, detailed in Section 5.4 of this NOSCP.

3.7 Coast Guard of Suriname

The Coast Guard's main responsibilities are safety at sea, maritime security and law enforcement, search and rescue services (with partner agencies), and protection of the marine environment. In the event of an oil spill incident leading to the activation of this plan the Coast Guard will provide technical assistance to NCCR.

3.8 Office of the President

The role of the Office of the President is to support the administrative, managerial and political terms of the President in order to achieve objectives of government policy as effectively as possible. In the event of an oil spill incident leading to the activation of this plan, the Office of the President will provide assistance to NCCR in order to communicate with, and utilize effectively, all Ministries within the Suriname Government, and ensure that a common communications message is presented by all parties involved. The Office of the President will also provide assistance when it is necessary to contact neighbouring countries who may be affected by an oil spill incident.

3.9 Trans-boundary Incidents

In the event there is an incident that impacts areas outside of Suriname's marine or land borders, NCCR, as part of the Unified Command, will notify the designated Spill Notification Point(s) and work with identified representatives for the respective locations to:

- Coordinate operations and communication between the two or more different command posts.

- Create a trans-boundary workgroup to manage waste from a product release – including pinpointing waste-handling locations in the impacted region, sorting out legal issues, among others.
- Identify places of refuge in the impacted region where vessels in mechanical trouble could go for repairs and assistance.
- Determine how the Unified Command and the impacted regional stakeholders can work together to allow equipment and personnel to move to assist in a spill response outside the region while still retaining a core level of response readiness within the two jurisdictions.
- Work with local communities within the impacted area to raise awareness of oil spill planning and preparations.

3.9.1 GUYANA

There is no designated pollution response authority, although the Coast Guard of the Guyana Defence Force is identified as the lead agency in a draft national contingency plan prepared by IMO. The responsibilities in the maritime sector are split between several departments and ministries. The Lands and Surveys Department of the Ministry of Agriculture has jurisdiction in river waters. The Transport and Harbours Department of the Ministry of Public Works, Communications and Regional Development is responsible for port areas and territorial waters. The Coast Guard enforces all maritime regulations and is a key operational organisation in any marine incident investigating reports of pollution in navigable waters on behalf of the relevant ministry and department. In addition, the Guyana Defence Force and the Fire Service would also assume some operational responsibility for pollution response.

Spill Notification Point

Coast Guard	Tel: +592 260570
Guyana Defence Force Ruimveldt Georgetown	Tel: +592 260579 (24hrs)

3.9.2 VENEZUELA

The Venezuelan aquatic authority INEA, with the support of the national oil company Petroleos de Venezuela S.A. (PDVSA), is responsible for contingency planning and response arrangements.

Spill Notification Point

Petroleos de Venezuela SA (PDVSA)	Tel: +58 212 201 3864
Manager of Contingency Plans	Tel: +58 414 328 6147 (after hours)
Av. Francisco de Miranda Caracas	

3.9.3 TRINIDAD AND TOBAGO

The Ministry of Energy and Energy Affairs (MEEA) is the lead agency for oil pollution preparedness, response and cooperation. In the event of a threat of pollution, an Incident Command Team (ICT) is activated comprising representatives from MEEA, other government departments, regional/borough corporations and the Responsible Party. The MEEA directs the Trinidad and Tobago Coast Guard (TTCG) as the response agency and plans, prepares and monitors response operations.

Spill Notification Point

Trinidad and Tobago Coast Guard (TTCG)	Tel: +1 868 634 4235
Staubles Bay Base Chaguaramas	Tel: +1 868 634 4439/444

3.9.4 REMPEITC-CARIBE

REMPEITIC_ CARIBES has a role in assisting countries to develop their national capabilities to implement the Cartagena Convention Oil Spill Protocol, the OPRC 1990 Convention and other IMO Conventions and Protocols relevant to preparedness for and response to oil, hazardous and noxious substances releases, and other marine environmental threats from ships in the Wider Caribbean Region.

In the event of an incident REMPEITIC-CARIBE resources and contacts can be used to ensure the good flow of information between the Suriname Authorities and their neighbouring states.

REMPEITC-CARIBE Regional Activity Center: Tel: +599 9 868 4612 / 340

Fax: +599 9 868 4996

4 Response Organization

4.1 Overview

In the event of an incident requiring the activation of this NOSCP, the NCCR and assisting Suriname agencies will look to organise their response operation using the Incident Command System (ICS) methodology and the Operational Planning Cycle.

4.1.1 Incident Command System (ICS)

ICS consists of a standard management hierarchy and procedures for managing temporary incident(s) of any size. An ICS enables integrated communication and planning by establishing a manageable span of control. An ICS divides an emergency response into five manageable functions essential for emergency response operations: Command, Operations, Planning, Logistics, and Finance and Administration.
NCCR will respond with the NCCR Incident Management Team (IMT) as the Incident Command System.

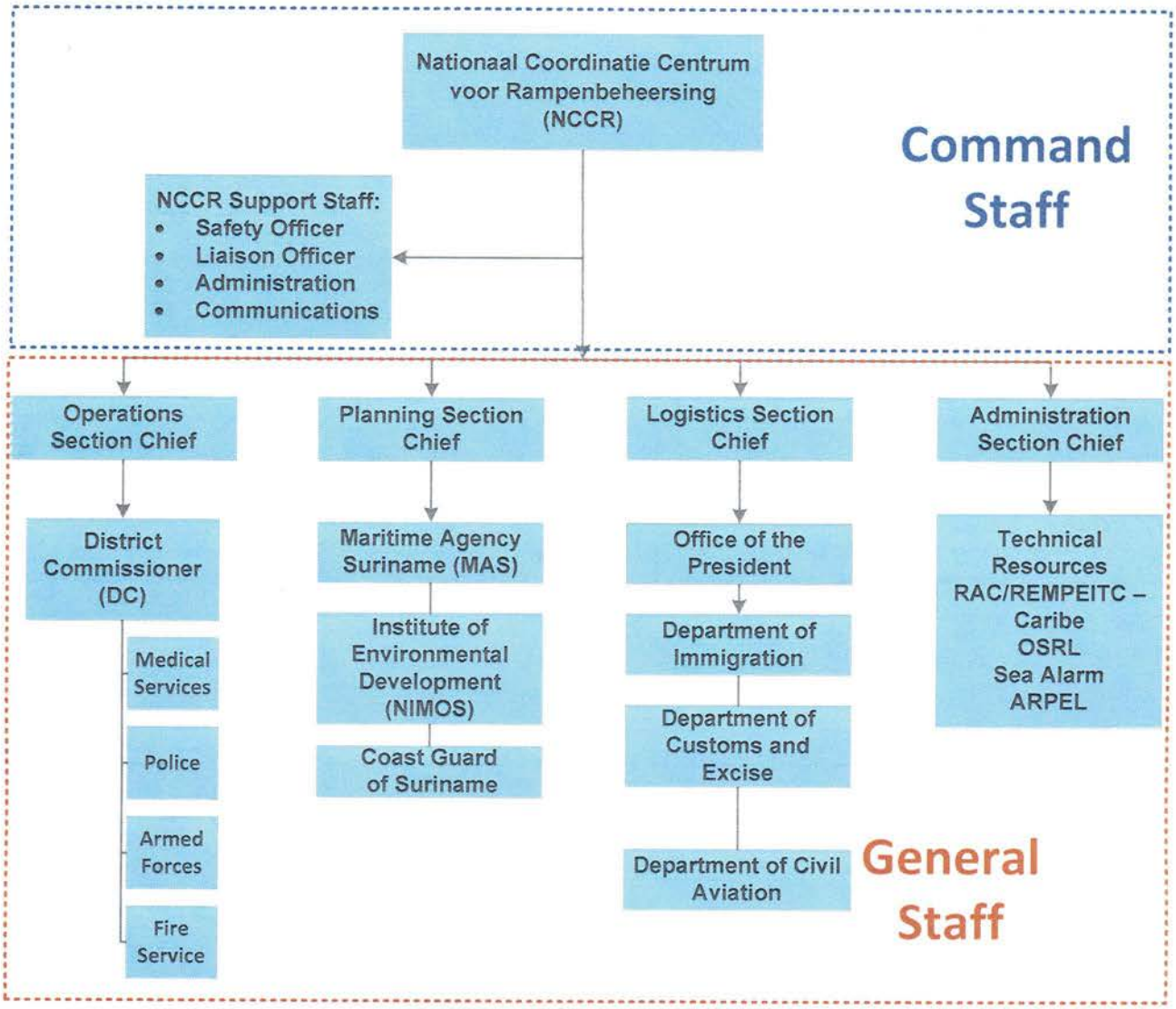


Figure 4: Organizational Structure of the NCCR Incident Management Team (ICT)

Common Responsibilities for IMT General Staff	
Ensure that all decisions and actions are documented. Personal Log Form (Appendix 2)	
Comply with all safety practices and procedures, report unsafe conditions to the Safety Officer	
Receive briefing from Incident Commander (IC) / Unified Command (UC) as appropriate.	
Confirm your roles and responsibilities within the IMT with the IC / UC.	
Ensure total understanding of the tasks set for you by the IC / UC.	
Participate in IMT meetings as appropriate.	
Understand assigned communication methods, your span on control and procedures for your area of responsibility.	
Assign duties and responsibilities to staff under your control	
Complete forms and reports required of assigned position as part of the Incident Action Plan (IAP)	

4.1.2 Unified Command

The Unified Command (UC) is a feature of the ICS. The need for a UC is brought about when an incident affects the jurisdictional or statutory responsibility of more than one agency. UC members can include agencies, organizations or private industries (when an incident affects their facilities).
If established, the UC links the responding organizations to the incident and provides a forum for these agencies to make consensus decisions. Incident Commanders (IC's) continue to carry out their respective agency's jurisdictional responsibilities in UC. Under UC, the various jurisdictions and/or agencies and nongovernmental responders blend together throughout the organization to create an integrated response team.

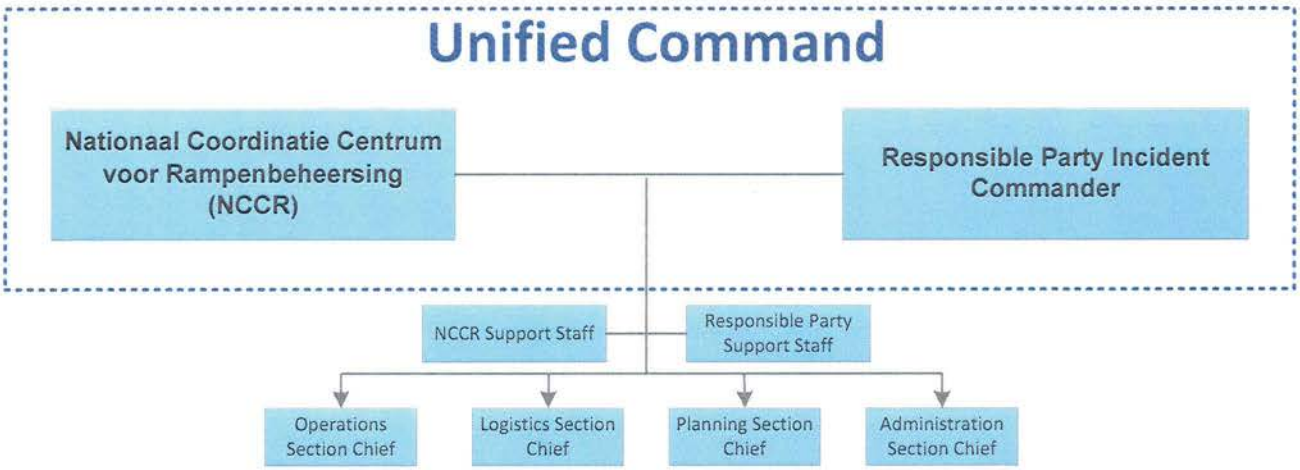


Figure 5: Organizational Structure of the Unified Command

4.2 Operational Planning Cycle

4.2.1 Overview

Sound, timely planning provides the foundation for effective incident management. NCCR uses the ICS Operational Planning Cycle as a template for strategic, operational, and tactical planning that includes all steps an Incident Commander (IC) and other members of the Command and General Staffs take to develop and disseminate an Incident Action Plan **(IAP).**

The ICS Operational Planning Cycle begins with the scheduling of a planned event, the identification of a credible threat, or the initial response to an actual or impending event.
The process continues with the implementation of the formalized steps and staffing required in developing a written IAP.

The Operational Planning Cycle follows these five primary phases to ensure that a comprehensive IAP is developed:

- Understand the situation
- Establish incident objectives and strategy
- Develop the plan
- Prepare and disseminate the plan
- Evaluate and revise the plan

The Operational Planning Cycle will also provide the following:

- Current information that accurately describes the incident situation and resource status
- Predictions of the probable course of events
- Alternative strategies to attain critical incident objectives
- A realistic IAP for the next operational period

The Operational Planning Cycle and meeting guidance shown below will be used to prepare, plan and execute the response.

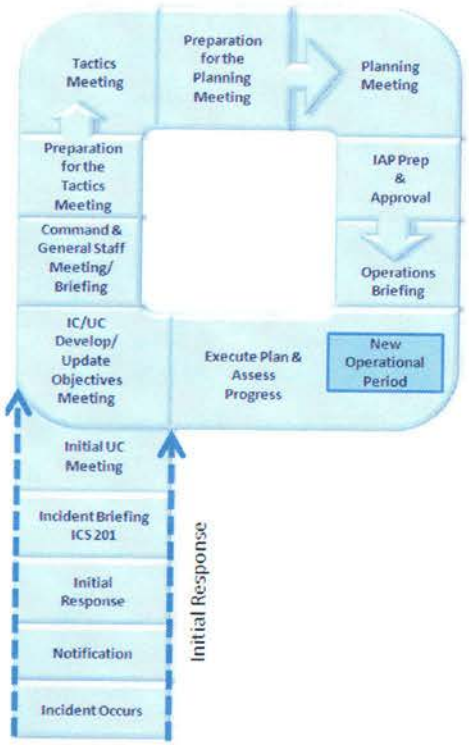


Figure 6: The Operational Planning Cycle

4.2.2 Incident Occurs and Notifications are made

In accordance with the procedure for activation of this NOSCP (p. 11), an oil spill incident **of a Tier 2** magnitude or greater will result in notifications being made to NCCR and MAS as the appropriate Suriname Authorities.

Once NCCR and MAS have received notification of the incident, they will decide whom to initially notify within their own organizations as well as those agencies that will be required to provide assistance to the response operation.

4.2.3 Initial Response

The Initial Response period allows the NCCR and MAS time to gather as much information as possible regarding the incident and make an assessment regarding what level of response is required from the Suriname Authorities. In particular, they will:

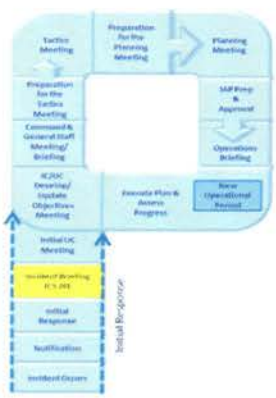
- Review the Initial Information received from the Spill Observer and make and / or confirm the initial assessment of the situation.
- Establish direct contact with the Spill Observer and begin a process to receive regular incident updates / communications from them.
- Establish what initially the appropriate level of response should be from the Suriname Authorities.

Section 5 details the spill assessment techniques to be used in the event of an oil spill in both inland and offshore environments.

4.2.4 Incident Briefing

An initial Incident Briefing provides the incoming Incident Commander (IC) or Unified Command (UC) with the basic information regarding the incident situation and the resources currently allocated to the response operation.

Incident Briefing	
WHEN	The Incident Briefing serves as an opportunity to provide initial information to incoming key IMT and agency personnel or upon the arrival of a new Incident Commander when a transfer of Command will take place.
FACILITATOR	The Current (and often initial) Incident Commander.
ATTENDEES	• Incoming Incident Commander • Command Staff • General Staff • Senior Responding Government Representatives • Senior Contractor Representatives
AGENDA	• Situation (note territory, exposures, safety concerns, etc. use map/charts) • Objectives and priorities • Strategy(s) and tactics • Current organization • Resource assignments • Resources *en-route* and / or ordered • Facilities established



For the initial Incident Briefing, the ICS 201 Incident Briefing Form will be used, outlining:

- The current situation
- Initial objectives and priorities
- Current and planned activities
- Current on-scene organization
- Resource assignments
- Resources en-route and / or ordered
- Facilities enabled
- Incident potential

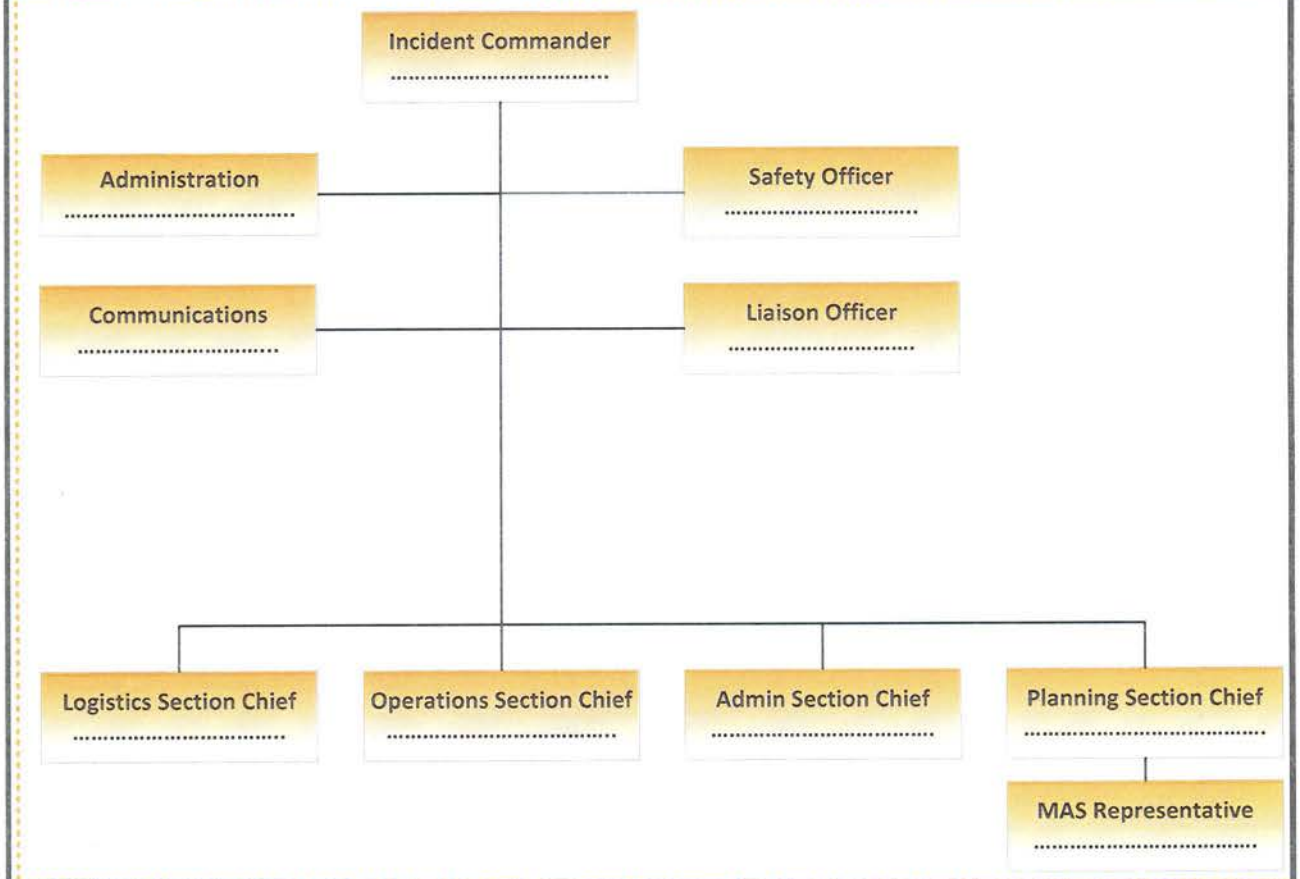
INCIDENT BRIEFING ICS Form 201	1.Incident Name	2.Date Prepared	3.Time Prepared
4. MAP/SKETCH (Could include maps showing the total Area of Operations, the Incident site, over flight results, trajectories, impacted shorelines, or other graphics depicting situation and response status.)			
Page 1 of 4		Prepared By:(Name and Position)	

INCIDENT BRIEFING ICS Form 201	Summary Of Current Actions

5. Provide details of the Response Operation that is currently being carried out.

INCIDENT BRIEFING ICS Form 201	Current Response Organizational Structure

6. Provide details of the Response Organizational Structure involved in the response operation.



On Site Teams:	Additional Support Teams:	Technical Support:
On Site Supervisor: SSRP Emergency Response Team Members:		Suriname Officials:

INCIDENT BRIEFING **ICS Form 201**	Summary of Resources

Resource(s)/Identifier	Quantity	ETA	On Scene	Location/Assignment/Status

Page 4 of 4	Prepared By:(Name and Position)

Short Term Incidents (an initial phase of long term events)

Short term responses which are small in scope and or duration can often be coordinated using only the ICS 201 Incident Briefing Form. Responses to longer term events will begin with the completion of the ICS 201.

Long Term Incidents

Longer term, more complex responses, will require a dedicated Planning Section Chief who must arrange for the transition into the multiple Operational Period Planning modes. This transition requires the development of detailed Incident Action Plans.

4.2.5 Initial Unified Command Meeting

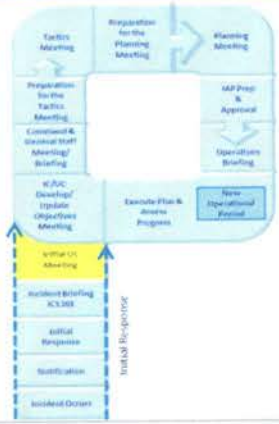
In the event that a Responsible Party has been identified as the owner of the oil spill incident and has taken steps to respond to the incident, the NCCR will look to work with the Responsible Parties Incident Management Team to provide a single point of contact between the Responsible Party and the Suriname Authorities.

Should the incident require such, NCCR and the Responsible Party will work together to establish a Unified Command. The Unified Command is a structure that brings together the Incident Commanders of all major organizations involved in the incident in order to coordinate an effective response while at the same time carrying out their own jurisdictional responsibilities. The UC links the organizations responding to the incident and provides a forum for these entities to make consensus decisions. Under the UC, the various jurisdictions and/or agencies and non-government responders may blend together throughout the operation to create an integrated response team.

The meeting attendees will refer to and update the initial ICS 201 Incident Briefing Form to capture the organizational structure and roles and responsibilities of the UC.

Initial Unified Command Meeting	
WHEN	The Unified Command is formed prior to the first Objectives Meeting
FACILITATOR	Unified Command Member or Planning Section Chief, if available. The current (and often initial) Incident Commander.
ATTENDEES	Only the Incident Commanders that comprise the Unified Command.

AGENDA	• Validate make-up of the newly formed Unified Command
	• Clarify Unified Command roles and responsibilities
	• Review agency policies
	• Negotiate and agree on key decisions:
	  ○ Unified Command jurisdictional boundaries and focus
	  ○ Name of incident
	  ○ Overall response organisation including integration of assisting and cooperating agencies
	  ○ Location of Incident Command Post and other critical facilities
	  ○ Operational period length, start time and work shift hours
	  ○ Best qualified Operations Section Chief and Deputy
	  ○ Other key Command and General staff assignments and technical support
	• Summarise and document key decisions



4.2.6 Objectives Meeting for Single or Unified Command

The Incident Commander or Unified Command will set response priorities, identify limitations and constraints, develop incident objectives and establish guidelines for the IMT to follow. The ICS 202 Incident Objectives Form will be used.

For reoccurring meetings, all points will be reviewed and updated as needed. Products of this meeting as well as decisions and direction from the Initial Unified Command meeting, will be presented at the Command and General Staff meeting.

Objectives Meeting for Single or Unified Command	
When	Prior to Command and General Staff meeting.
Facilitator	Incident Commander / Unified Command Member or Planning Section Chief.
Attendees	Only the Incident Commanders that comprise the Unified Command.

Agenda	• Review and update key decisions
	• Develop / review response priorities, limitations and constraints
	• Develop / review incident objectives
	• Develop / review key procedures:
	  ○ Managing sensitive information
	  ○ Information flow
	  ○ Resource ordering
	  ○ Cost sharing and accounting
	  ○ Security
	• Develop / review tasks for Command and General Staff to accomplish
	• Review / document or resolve status of any open actions
	• Agree on division of Unified Command workload
	• Prepare for the Command and General Staff meeting

Guidance for completing the ICS 202 Incident Objectives Form

Enter clear, concise statements of the objectives for managing the response. Ideally, these objectives will be listed in priority order. These objectives are for the incident response for this operational period as well as for the duration of the incident. Include alternative and/or specific tactical objectives as applicable.

Objectives should follow the SMART model or a similar approach:

- **S**pecific: Is the wording precise and unambiguous?
- **M**easurable: How will achievements be measured?
- **A**ction-oriented: Is an action verb used to describe expected accomplishments?
- **R**ealistic: Is the outcome achievable with given available resources?
- **T**ime-sensitive: What is the timeframe?

INCIDENT OBJECTIVES (ICS 202)

1. Incident Name:	2. Operational Period: Date From: Date To: Time From: Time To:

3. Objective(s):

4. Operational Period Command Emphasis:

General Situational Awareness

5. Site Safety Plan Required? Yes ☐ No ☐

Approved Site Safety Plan(s) Located at:

6. Incident Action Plan (the items checked below are included in this Incident Action Plan):

☐ ICS 202	☐ ICS 206	Other Attachments:
☐ ICS 203	☐ ICS 207	☐ _____
☐ ICS 204	☐ ICS 208	☐ _____
☐ ICS 205	☐ Map/Chart	☐ _____
☐ ICS 205A	☐ Weather Forecast/Tides/Currents	☐ _____

7. Prepared by: Name: _____ Position/Title: _____ Signature: _____

8. Approved by Incident Commander: Name: _____ Signature: _____

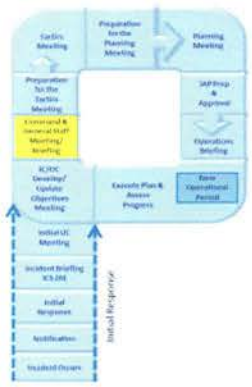
ICS 202	IAP Page _____	Date/Time: _____

4.2.7 Command and General Staff Meeting

The Incident Commander / Unified Command will present their decisions and management direction to the Command and General Staff Members, using the ICS 203 Organization Assignment List and the ICS 205a Communications List.

Command and General Staff Meeting	
WHEN	Prior to Tactics Meeting.
FACILITATOR	Planning Section Chief.
ATTENDEES	• Incident Commander and Unified Command Members • Command and General Staff

AGENDA	• Situation Unit Leader conducts situation status briefing
	• Incident Commander / Unified Command:
	  ○ Provides comments
	  ○ Reviews key decisions, priorities, constraints, and limitations
	  ○ Discuss incident objectives
	  ○ Review key procedures
	  ○ Assign or review functional tasks
	• Planning Section Chief facilitates open discussion
	• Incident Commander provides closing comments



Guidance for completing the ICS 203 Organization Assignment List and the ICS 205a Communications List

The ICS 203 Organization Assignment List provides personnel with information on the units that are currently activated, while the ICS 205a Communications List mentions the names of personnel staffing each position/unit. Guidelines to populate these lists are:

- The lists are used to complete the Incident Organization Chart.
- An actual organization will be incident or event-specific.
- Not all positions need to be filled.
- Some blocks may contain more than one name.
- The size of the organization is dependent on the magnitude of the incident, and can be expanded or contracted as necessary

ORGANIZATION ASSIGNMENT LIST (ICS 203)

1. Incident Name:	2. Operational Period: Date From: Time From: Date To: Time To:

3. Incident Commander(s) and Command Staff:	
IC/UCs	
Deputy	
Safety Officer	
Public Info. Officer	
Liaison Officer	

4. Agency/Organization Representatives:	
Agency/Organization	Name

5. Planning Section:	
Chief	
Deputy	
Resources Unit	
Situation Unit	
Documentation Unit	
Demobilization Unit	
Technical Specialists	

6. Logistics Section:	
Chief	
Deputy	
Support Branch	
Director	
Supply Unit	
Facilities Unit	
Ground Support Unit	
Service Branch	
Director	
Communications Unit	
Medical Unit	
Food Unit	

7. Operations Section:		
Chief		
Deputy		
Staging Area		
Branch		
Branch Director		
Deputy		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Branch		
Branch Director		
Deputy		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Branch		
Branch Director		
Deputy		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Division/Group		
Air Operations Branch		
Air Ops Branch Dir.		

8. Finance/Administration Section:	
Chief	
Deputy	
Time Unit	
Procurement Unit	
Comp/Claims Unit	
Cost Unit	

9. Prepared by: Name: _____	Position/Title: _____	Signature: _____
ICS 203	IAP Page _____	Date/Time: _____

COMMUNICATIONS LIST (ICS 205A)

1. Incident Name:	2. Operational Period:	Date From: Date Time From: HHMM	Date To: Date Time To: HHMM

3. Basic Local Communications Information:

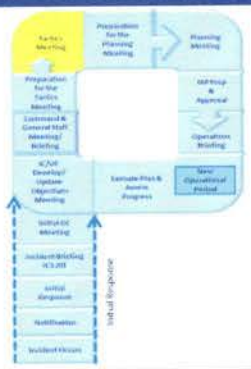
Incident Assigned Position	Name (Alphabetized)	Method(s) of Contact (phone, pager, cell, etc.)

4. Prepared by: Name:	Position/Title:	Signature:
ICS 205A	IAP Page	Date/Time: Date

4.2.8 Tactics Meeting

A 30 minute meeting produces operational input needed to support the IAP, using the ICS 204 Assignment List.

Tactics Meeting	
WHEN	Prior to Planning Meeting.
FACILITATOR	Planning Section Chief.
ATTENDEES	• Operations Section Chief • Logistics Section Chief • Communications Unit Leader • Safety Officer • Technical Specialists (as required)
AGENDA	• Reviews current and projected incident situation • Planning Section Chief reviews incident objectives and ensures accountability for each • Operations Section Chief reviews the Operational Planning Worksheet which addresses work assignments etc • Operations Section Chief reviews and completes Operations Section organisation chart • Safety Officer reviews and or completes the Hazard Risk Analysis Worksheet and identifies and safety issues • Technical (Environmental) Specialist reviews and/or completes Resources At Risk worksheet (ICS 214) and identifies environmental and socio-economic issues • Logistics Section Chief discusses and resolves and logistics issues • Planning Section Chief validates tactics and operational objectives



Guidance for completing the ICS 204 Assignment List

The ICS 204 Assignment List uses guidance from the ICS 202 Incident Objectives Form and the ICS 203 Organization Assignment List Form.

- It is used to complete the Incident Action Plan.
- It must be approved by the Planning and Operations Section Chief.
- Specific instructions for specific resources may be entered on the form for communication to on-site responders.
- A separate ICS 204 form is to be used for each Section, Division or Group.

ASSIGNMENT LIST (ICS 204)

1. Incident Name	2. Operational Period (Date/Time) From: To:	Assignment List ICS 204-CG
3. Branch	4. Division/Group/Staging	

5. Operations Personnel Name Affiliation Contact # (s)

Operations Section Chief: _____

Branch Director: _____

Division/Group Supervisor/STAM: _____

6. Resources Assigned "X" indicates 204a attachment with additional instructions

Strike Team/Task Force/Resource Identifier	Leader	Contact Info. #	# Of Persons	Reporting Info/Notes/Remarks	▼
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐
					☐

7. Work Assignments

8. Special Instructions

9. Communications (radio and/or phone contact numbers needed for this assignment)

Name/Function	Radio: Freq./System/Channel	Phone	Cell/Pager	

Emergency Communications

Medical _____ Evacuation _____ Other _____

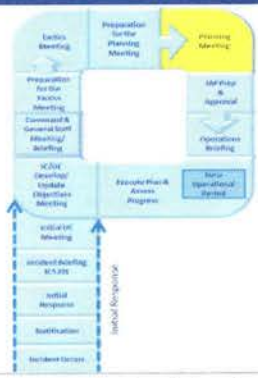
10. Prepared by: Date/Time	11. Reviewed by (PSC): Date/Time	12. Reviewed by (OSC): Date/Time

4.2.9 Planning Meeting

The Operations Section Chief presents the proposed plan to the Command and General Staff for review and comment.

Planning Meeting	
WHEN	After the Tactics Meeting.
FACILITATOR	Planning Section Chief.
ATTENDEES	• Incident Commander • Unified Command • General Staff • Safety Officer • Technical Specialists (as required)

AGENDA	• Situation Unit Leader briefs on current situation, resources at risk, incident projections
	• Planning Section Chief reviews Command incident priorities, decisions and objectives
	• Operations Section Chief provides briefing on current operations and an overview on the proposed plan
	• Planning Section Chief:
	  ○ Reviews proposed plan to ensure that Command's priorities and operational objectives are met
	  ○ Reviews and validates responsibility for any open actions tasks and management objectives
	  ○ Requests final input and commitment of Command and General Staff members to the proposed plan
	  ○ Requests Incident Commander final comments
	  ○ Issues assignments to appropriate IMT members for developing the Incident Action Plan support documentation with deadline



A number of options exist for the treatment of oil that has been released into the environment. All may be effective to a degree according to the conditions prevailing and the sensitivity of the environment under threat. The response options include:

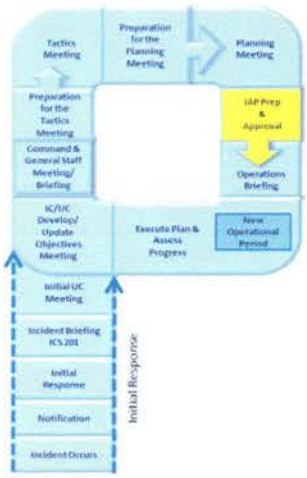
- Surveillance
- Dispersant Application
- Containment and Recovery
- Shoreline cleanup
- Inland Recovery
- In-situ burning

Appendix 5 describes these response options in more detail.

4.2.10 Incident Action Plan Development

After the Planning Meeting, the development of the Incident Action Plan (IAP) commences, starting with the preparation and ending with approval of the IAP. The Attendees of the Planning Meeting prepare their assignments for the Incident Action Plan early enough to permit timely approval by the Incident Commander and duplication of sufficient copies for the Operations Briefing.

Incident Action Plan Development	
WHEN	After the Planning Meeting.
FACILITATOR	Planning Section Chief facilitates the process.
COMMON PLAN ELEMENTS	• Incident Objectives • Organisation List • Organisation Chart • Assignment Lists • Communication Plan • Situation Map
OPTIONAL PLAN ELEMENTS	• Medical Plan • Air Operations Summary • Traffic Plan • Demobilisation Plan • Waste Management and Disposal Plan



In the event of an oil spill incident, it is the role of the NCCR or other nominated party to ensure that an assessment of the magnitude (size) of the oil spill is made.

4.3 Spill Size Estimation – for Marine Incidents

Calculate Oil Spill Size: Marine Incidents

If the source / quantity is unknown, then a visual estimation can be attained based on the relationship between observed oil colour and its thickness using the Bonn Agreement Oil Appearance Code (BAOAC). This can be achieved by taking observations directly from a vessel or dedicated aerial surveillance aircraft.

Average Width (km)		km	Average Length in (km)		km

STEP 1. Total area: Estimate total size of the area as a square or rectangle (in km^2).

STEP 2. Oil Spill Area: Assess the area affected by the slick in km^2 calculated as a % of the total area (i.e. 90% of 20 km^2 = 18 km^2).

STEP 3. Calculate area by colour: Estimate the area covered by each colour of oil as a % of area affected in km^2 (e.g. 60% silvery, 40% metallic = 10.8 m^2 and 7.2 km^2 respectively)

STEP 4. Calculate quantity by colour: Multiply the area covered by each colour (Min and Max) by the appropriate quantity of oil in the table (e.g. 10.8 km^2 x 0.04 and 0.3 for silvery and 7.2 km^2 x 5 and 50 for metallic).

STEP 5. Total quantity: Add all the quantity by colour figures to get total quantity of oil/m^3.

STEP 6. Conversion: If necessary you can convert m^3 to tonnes by multiplying total quantity in m^3 by the Specific Gravity of the spilt oil if known.

Step 1	Total Area (Width x Length) km^2		km^2
Step 2	Oil Spill Area (Estimated) km^2		km^2

Colour	Code	Minimum (m^3 / km^2)	Maximum (m^3 / km^2)	**(Step 3)** % of Area	**(Step 3)** Area Covered km^2
Oil Sheen Silvery	1	0.04	0.3		
Oil Sheen Rainbow	2	0.3	5.0		
Oil Sheen Metallic	3	5.0	50		
Discontinuous True	4	50	200		
Continuous True	5	200	>200		

Calculation for Area Covered: km^2 = Area / 100 x % of Area Covered.
This should be calculated for each code to give area covered by colour

Colour	**(Step 3)** Area Covered km^2	**(Step 4)** Min Volume (m^3)	**(Step 4)** Max Volume (m^3)
Oil Sheen Silvery			
Oil Sheen Rainbow			
Oil Sheen Metallic			
Discontinuous True			
Continuous True			
Step 5 Total Volume (m^3)			
Step 6 Total Volume in Tonnes (m^3 x SG)			

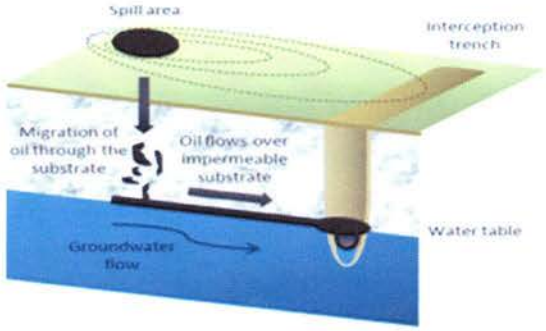
4.4 Spill Size Estimation (for Onshore Incidents)

Calculate Spill Coverage – Onshore

Overview

When oil spills on land it behaves in predictable ways. It will begin to spread laterally and it will infiltrate into the soil. Given sufficient quantity and time, the plume will migrate down until it reaches an impermeable layer or the groundwater table. The oil plume migration over time will be driven by topography, wind, and water movement. The rate and direction of oil plume movement is dependent on the characteristics of the oil, air temperature, soil temperature, water table hydrology, and the permeability of the soil. The extent and movement of the sub-surface oil plume can be very different from the surface plume.

Oil spilled on porous gravel may show little surface contamination, yet sink to a flowing water table and spread over a large area. Oil spilled on a wetland will usually remain on the surface, floating on the water-saturated soil. Oil deposited on mixed sand and gravel shoreline may sink down to a fine sand layer, migrate down slope, and resurface on an incoming tide.



Quantification of any spills onto non permeable surfaces (concrete, paved surfaces or tarmac areas) and permeable (open soil and vegetated areas) is very difficult to accurately assess due to the difference in spreading and absorption rates. Responses to these types of incidents should primarily concentrate locating the extent of the spill and containment and recovery operations.

Plume Delineation

The purpose of the Plume Delineation tactic is to use simple methods to quickly assess the spatial extent of surface and subsurface oil to aid in response planning during the emergent phase of the spill response. Repeating the delineation will establish the direction and rate of any movement of the plume, establishing a trajectory. A more detailed quantification of the spill plume for the cleanup and remediation phases of the response may be required and those techniques are not covered in this NOSCP.

Operating Environments

Plume Delineation can be used in the following operating environments:

- Permeable soil areas
- Areas covered by vegetation.

Equipment And Personnel Resources

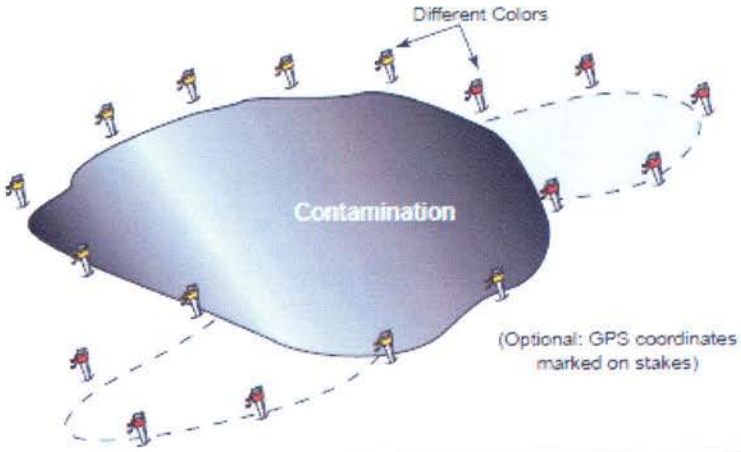
Resources for delineating a plume include hand-held GPS, a digital camera, a diagram or map, marking pens/pencils, logbook, paint or flagging tape, stakes, and a hammer to drive stakes. If the oil is not visible, test holes will have to be dug with an auger, rock drill, excavator, or other equipment suitable to the situation.

The objective of the Plume Delineation tactic is to determine the extent and trajectory of an oil spill plume both on the surface and subsurface. This is a good tactic to use on land but is very labor-intensive

and requires proper planning to be carried out effectively.

The general strategy used in performing Plume Delineation is to:

- Identify the approximate location of the spill.
- Assess the site characteristics and determine equipment and personnel needs.
- Deploy equipment and personnel to the location.
- Commence delineation operation.
- Repeat as necessary to determine oil movement and trajectory.



Guidance: If the Spill Plume is Visible and Accessible

The tactic is deployed by mapping the edges of the plume. If the plume has distinctly different levels, layers, or concentrations, then each facet of the plume is mapped separately. The edges of the plume are marked and labelled with surveyor's stakes, wooden laths, or something similar. Different colour paint or flagging tape may be used to indicate different layers or concentrations in the plume.

Simultaneously, a record is made of the location of each stake with a handheld GPS. This may be done by setting waypoints in the GPS, using the same label as marked on the stakes. The same GPS may be used to record a track of the plume edge. A hand drawn map is sketched in the field to assist in developing final maps.

Repeating the delineation procedure after a period of time has passed will aid in the assessment of the direction and rate of movement of the spill.

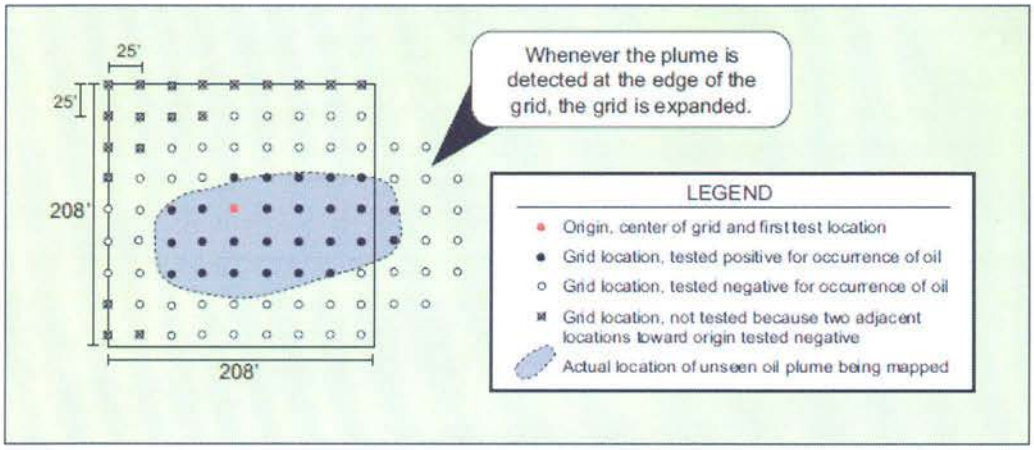
One or two crews walk around the perimeter of the spill, placing stakes in the ground every 50 to 100 feet while recording the stake locations with a handheld GPS. Setting waypoints on the GPS is a convenient way to record the stake locations. Once the stakes are set, a track of the spill edge can be recorded with the GPS. Many GPS have a function to calculate the area of a track that forms an enclosure. Digital photographs of the site, taken from several perspectives after the color-coded stakes are in place, are also very useful.

For large spills, an all-terrain vehicle (ATV) or other vehicle can be used to assist in moving around the spill, if vehicle use is approved and will not damage the environment. Very large spills may require a helicopter.

Guidance: The Spill Plume is not Visible

If the perimeter of the spill cannot be seen, because it is below ground, then a different approach is required. First, assess the probable location of the spill and the surrounding terrain to determine the likely migration path of the plume. In this case a grid may be used to delineate the plume. The grid is first laid out from a starting point where the spill is known or suspected to have occurred. From this origin, the grid is set in all directions.

The grid is established with stakes set at a consistent distance apart. If the spill is thought to be less than an acre in size, the grid should be set on 25 foot spacing. If the spill is over one acre, the grid spacing can be increased accordingly.



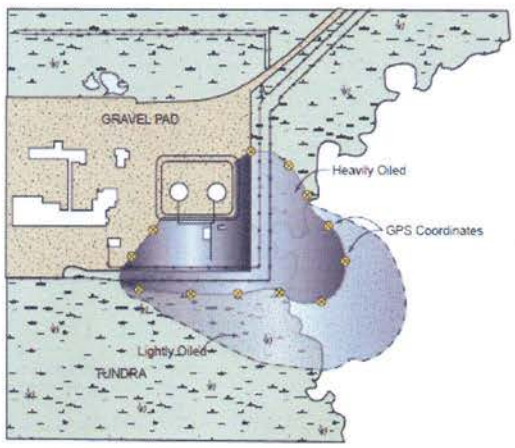
Once the grid is established, a method to test for the occurrence of oil must be established. The method usually involves digging or drilling a hole to the water table or some pre-determined depth to assess for the presence of oil. Other remote sensing technology, such as infrared cameras or Photo Ionization Detection (PID), can be used. The test method is first applied at the origin/center of the grid and then to adjacent grid locations in a systematic fashion. If oil is not detected at the origin, re-assess the most likely location of the spill and re-set the grid if necessary. If oil is detected, the adjacent untested grid locations are tested too. When an adjacent location tests negative for oil, its adjacent locations are also tested. When two successive locations test negative for oil, subsequent locations in the direction away from the oil are not tested. If a location on the edge of the grid tests positive for oil, then the grid must be expanded. This tactic may have to be modified depending on the terrain and situation.

Once the tests are completed, the stakes marking the grid locations should be color coded to indicate if they were tested and if so, the results of the test. A hand sketch and digital photographs, as described above, should also be completed for the site.

Guidance

An initial hand-drawn sketch is best drawn on a topographic map, as-built survey, aerial photograph, or other depiction of the site.

The sketch should have as much detail and labeling as possible. Make sure to note the time, date, and person making the drawing. The sketch can be used to produce more precise maps when combined with GPS data.



The Site Safety and Health Plan (Appendix 2) can be used as a basis for an onshore spill assessment.

4.5 Pre - Oil Spill Risk Assessment

As described in the Letter of Expectation (page 2), the Republic of Suriname expects all organisations carrying out hydrocarbon handling operations within Suriname to have carried out an Oil Spill Risk Assessment (OSRA) for their operations, prior to any oil spill event. The main objective of conducting an OSRA is to identify, characterize, evaluate and present the risk. The evaluation includes consideration of risk mitigation measures, incorporating oil spill prevention, preparedness and response. Oil spill response planning is a tool to reduce potential consequences of an incident, which forms an integral part of the risk mitigation.

The oil spill risk assessment process starts by defining the context of the assessment such as objective, scope, methods, boundaries, risk tolerance criteria, etc. and describing the activity to be assessed.[6] This process is designed to answer the following questions:

- What can go wrong to lead to the potential release of oil (hazard identification)?
- How likely are the identified scenarios?
- What happens to the spilled oil (consequences)?
- What are the key environmental (both ecological and socio-economic) receptors?
- What is the risk for environmental damage?
- How is the established risk utilized in oil spill response planning?

Appendix 6 of this NOSCP describes the actions to be undertaken by operators when carrying out an OSRA.

4.6 Post – Oil Spill Assessment (Tier Level)

Use the Tier assessment system to confirm the severity of the oil spill and determine the Tier Level. If any Tier 3 characteristics are present, then it is a Tier 3 spill. Always assume the worst case.

By identifying the tier level, the NCCR can mobilize the appropriate response technique resources to combat the spill, based on the oil type spilled, location and the available resources.

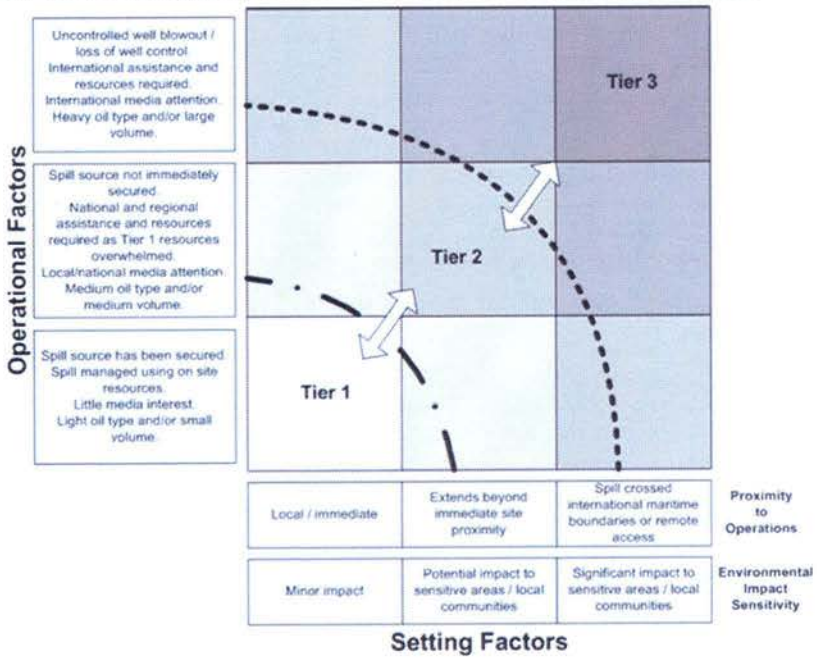


Figure 7: Oil Spill Tier Assessment

[6] As described in the "Oil Spill Response Joint Industry Project (JIP) Finding 6 – Oil spill risk assessment and response planning for offshore installations", of the International Petroleum Industry Environment Conservation Association (IPIECA)

5 Use of Dispersant in Marine Environments

5.1 Overview

Guidance regarding the use of dispersants in Suriname's Exclusive Economic Zone (EEZ) has been based on the Caribbean Island OPRC Plan, Section 10 and the IMO/UNEP Guidelines on Oil Spill Dispersant Application Including Environmental Considerations (1995 Edition).

5.2 Making the decision to use dispersants for Tier 1 Incidents

As stated in Section 3.6 of this NOSCP, NIMOS will study and pre-approve the small scale use of dispersants for use in the event of a Tier 1 oil spill incident offshore Suriname that meets the following criteria:

- The area of application is not less than one nautical mile from any shoreline, nor closer than three nautical miles up-current from important marine fisheries or coral reef ecosystems which are less than 6m (20 feet) from the water's surface.
- The water depth should exceed 9m (30 feet) in the area in which the dispersant will be applied.
- The method of application is one recommended by the dispersant manufacturer.
- The rate of application is as recommended by the dispersant manufacturer.
- The dispersant has been pre-approved by the NIMOS.
- The organization carrying out the dispersant spraying operation will work with NCCR to notify potentially affected downstream countries, Island States and/or Territories whenever dispersant use is intended to be conducted beyond their territorial seas.

5.3 Using the Net Environmental Benefit Analysis technique (NEBA) as part of the decision to use dispersants

Once oil has spilled, urgent decisions need to be made about the options available for clean-up. This is to ensure that environmental and socioeconomic impacts are minimised. Getting the correct balance is a difficult process and conflicts need to be resolved in a practical manner. The advantages and disadvantages of different response techniques need to be considered and compared with the advantages and disadvantages of a natural clean-up, a process known as Net Environmental Benefit Analysis (NEBA).

The process takes into account the circumstances of the spill (such as the meteorological conditions, the practicalities of clean-up response, scientific understanding of oil characteristics and judgement of the relative importance of the receiving environment (coastline type, habitats and species) and socio-economic factors.

NEBA can help to determine if the use of dispersant in a specific area, at a certain time of year is an appropriate response technique.

Examples of conflicts of interest and determining the resulting priority include:

- The protection of the fish and shellfish has priority over protection of the beaches and other tourist facilities as oil contamination takes months to disappear from the fish while concrete and firm sand surfaces usually recuperate fast.
- Marine life and seabirds have priority over coastal plants such as algae, bivalves and others, since the recuperation time of marine mammals and birds is usually longer.

- Wildlife has priority over fisheries namely when it is necessary to opt between applying dispersants at the expense of contamination of the fish, as oil is more likely to injure seabirds than the dispersants are for the fish.

Coastlines have various levels of sensitivity to oil and to clean-up methods. The adequate clean-up method must be determined after considering factors such as the type of beach, its sensitivity, access issues and reviewing the NEBA outcome. NEBA should be considered in detail when deciding on the most suitable response strategies to follow.

Net Environmental Benefit Analysis – Decision Making During a Response

Process used by the response stakeholders for making the best choices to minimise the impacts of oil spills on people and the environment. Stakeholders include Governments, industry and local community members.

Response Stakeholders – to be identified and contacted before, during and after a spill:

Government Authority 1	NCCR	Stakeholder 1	Mr. Jerry Slijngard - 426416
Government Authority 2	MAS	Stakeholder 2	Mr. Lloyd Gemerts - 476733
Government Authority 3	NIMOS	Stakeholder 3	Mr. Cedric Nelom - 490047
Government Authority 4	Nature Division (LBB)	Stakeholder 4	Mr. Hesdy Esajas - 471316
Government Authority 5	Fisheries Dept	Stakeholder 5	Mr. L.Lieveld - 472233
Government Authority 6	District Administrator (DC) Paramaribo North	Stakeholder 6	Mr. Jerry Miranda - 473111/474342

Spill Information

Well Name		Location	
Spill Scenario	Onshore/inland/subsea near shore / offshore	Oil information	Type, viscosity, thickness, depth, movement, volume
Weather	Wind / temperature	Waves conditions	

Response Tool Selection

Effectiveness	Tool that removes most oil? Applicable to oil type?	Feasibility	Tool safely executed? Enough resources available? Access points?	Minimise Impact	Tool minimal impact on environment and community?	Regulations	Tool allowed in country? Dispersant / ISB / mechanical recovery / natural recovery

Net Environmental Benefit Analysis – Decision Making During a Response

Proximity to local population		Presence of sensitive species		Proximity to sensitive shorelines		Geographical considerations	
Previous spill history		Seasonal variables		Impact on regional industries		Impact on regional infrastructure	
Dispersant		In situ burning		Containment and Recovery		Natural Recovery	
Benefits	Drawbacks	Benefits	Drawbacks	Benefits	Drawbacks	Benefits	Drawbacks

Communication and Monitoring Actions During Response	**Action 1:** Select most effective response approach based upon priorities and tradeoffs (pro's/cons)	Response approach selected	Agreement of response approach and date
	Action 2: Implement response using appropriate tools and techniques and monitor results	Response approach reviewed	Agreement of response review and date
	Action 3: Adapt response approach based upon changing conditions and additional information gathered.	Response approach adapted	Agreement of response adaptation and date

5.4 The use of dispersant for Tier 2 and above incidents

For the longer term surface or subsea application of dispersant, NIMOS will refer to the Dispersant Spraying Considerations flowchart to ensure that all conditions are met. NIMOS will also require the Responsible Party, or Organization carrying out the dispersant application operation, to complete the Dispersant Use Request Form (Appendix 2: Forms) to receive permission before the commencement of a longer term dispersant application operation.

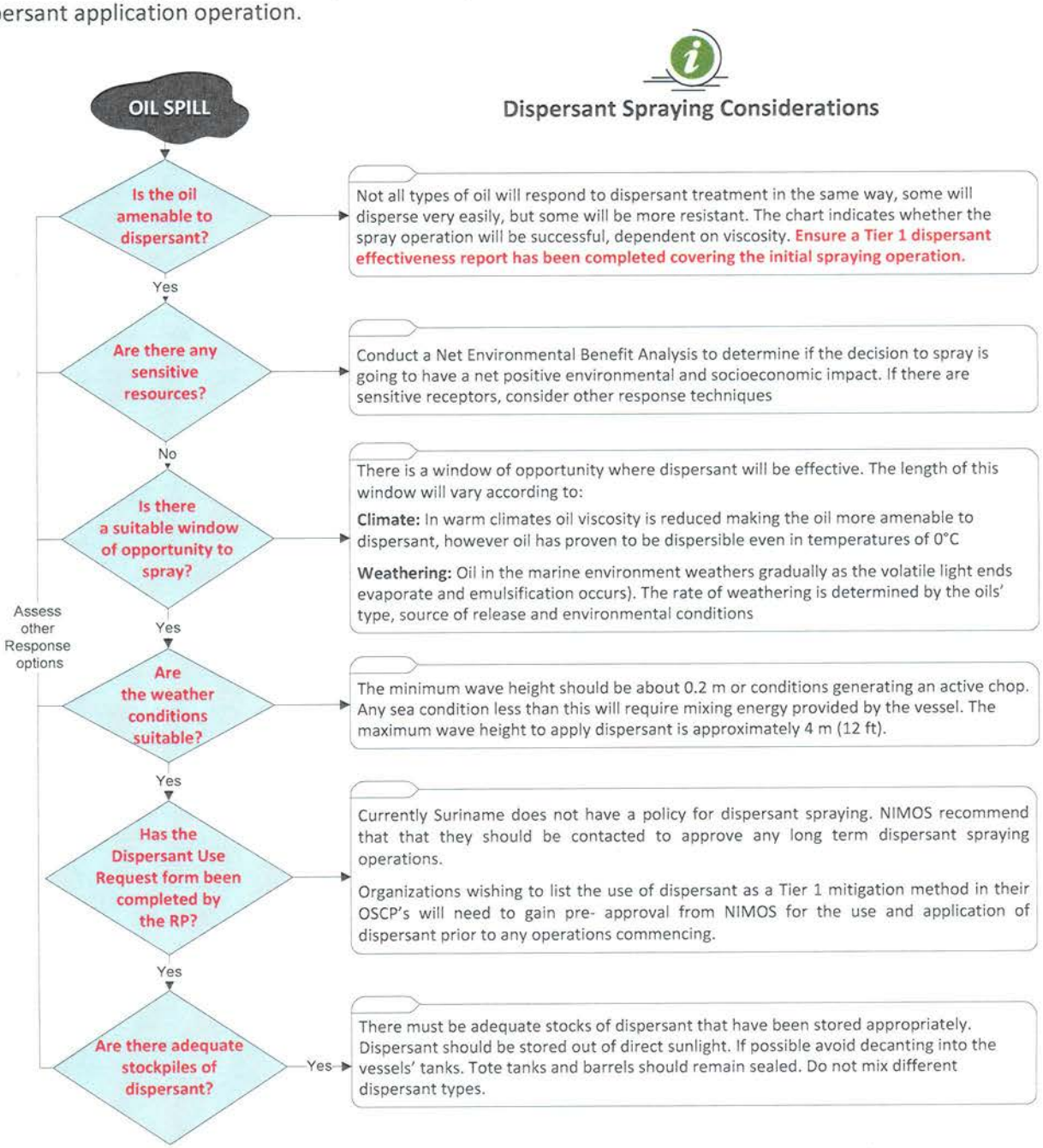


Figure 8: Dispersant Spraying Considerations flowchart for Tier 2 and above incidents

Dispersant Use Request Form

Request from		
Name and Position	Contact Details	Date and Time of Request
Request made to		
Name and Position	Contact Details	Date and Time Request Received

Reason for Dispersant Use Request	
Expected Dispersant Effectiveness	
Has a Dispersant Effectiveness Test or Test Spray Run been carried out? Yes/No (If yes attach results to request form).	
Based on the assessment of the Incident what is the estimated timeframe available for a dispersant spraying operation to be effective?	
Overview of Incident	
Describe the location and extent of spill, and spill volume (known or estimated).	
State oil type, API gravity, viscosity and pour point. (Attach MSDS if available).	
State whether the spill is in a location approved for Dispersant use by Caribbean Island OPRC Plan 2012 or provide details of why use dispersant approval is required if outside of these parameters.	
State whether spill is instantaneous or continuous (include flow rate if known).	
Predicted oil spill movement (attach oil spill modeling trajectory if available).	
Predicted sub-surface dispersant plume flow (attach oil spill modeling trajectory if available).	
Distance from shoreline.	
Depth of water.	

Weather Conditions	
Are current weather conditions suitable for a dispersant application operation? Yes/No	
Wind (from) direction.	
Wind speed (knots).	
Current velocity (knots).	
Current (to) direction.	
Visibility (nautical miles).	
Sea state	
Dispersant Application Details	
Dispersant type (Attach MSDS) What is the current Dispersant stockpile level available for the dispersant spraying operation?	
Application Method. (Include proposed DOR, dosage rate (gpa /lpha) and maximum equipment application rate.	
Estimated Dispersant quantity to be used.	
Describe Dispersant Spraying Operational area. Include any environmental and socio-economic sensitivities in the region. Use maps / charts if available.	
Dispersant Effectiveness Monitoring Program	
Describe the level of dispersant effectiveness monitoring to be applied during the dispersant spraying operations.	
Dispersant Spraying Operation Approval Decision	
Approved	Not Approved

Decision Makers Name and Position	**Contact Details**	**Date and Time**

6 International Rules for the Prevention of Pollution of the Sea by Oil and Other Harmful Substances

6.1 Overview

International rules for the general prevention of pollution of the sea by oil and other harmful substances normally lie outside the framework of any national emergency management plan. There are, however, certain international agreements and arrangements in place which have direct relevance to any national plans. Currently[7], Suriname is a signatory to The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)[8] which is directly relevant to the contents of this NOSCP.

6.2 International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)

MARPOL 73/78 provides a long series of detailed provisions regarding the construction and fittings of ships with a view to reducing pollution from ships.

The Convention is structured like a protocol, with 6 Annexes, each giving special detailed instructions on the following areas:

- Annex I Prevention of pollution by oil
- Annex II Control of pollution by noxious liquid substances carried in bulk
- Annex III Prevention of pollution by harmful substances in packaged form
- Annex IV Prevention of pollution by sewage from ships
- Annex V Prevention of pollution by garbage from ships
- Annex VI Prevention of air pollution from ships (not yet in force)

MARPOL 73/78 specifically:

- Prohibits the discharge of oil or oily mixtures from ships into the sea, except where 'the oil content of the effluent without dilution does not exceed 15 parts per million'.
- Makes allowance for oil spill operations for 'the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur.'
- Local regulation and guidance should always be sought prior to carrying out any decanting operations.
- Requires ships to have a Shipboard Oil Pollution Emergency Plan (SOPEP), in accordance with IMO guidelines and approved by the government of the state under whose authority the ship is operating.
- The SOPEP must include:
    - Procedures for reporting oil pollution incidents

[7] ... <date of issuance of the NOSCP>

[8] Suriname became a signatory to MARPOL 73/78 in November 1988 and has ratified the 1978 Protocol and Annexes I through V.

- List of authorities and persons to be contacted in an incident
- Detailed description of immediate action to be taken to reduce or control discharge of oil
- Procedures and point of contact for coordinating spill response actions with national and local authorities

7 Environmental Sensitivities

7.1 Overview[9]

Suriname, the smallest independent country in South America, shares coastal borders with Guyana and French Guiana and its southern land border with Brazil. The country's coastline is approximately 386 km long, much of it consisting of mud banks, mangrove swamps, salt marshes and some sandy beaches. Nearly 90% of the human population lives within 100 km of the coast.

Suriname has four nature reserves and one Multiple Management Area (MUMA) along its coast. The only Ramsar Wetland in the country[10], the Coppenamemonding Nature Reserve, covers 12,000 ha of coastal wetland protecting mangrove forests and brackish lagoons, which are habitat for fish, shellfish, breeding scarlet ibis and migratory shorebirds.

Both coastal and onshore oil exploration threaten 1800 km² of Suriname's territorial waters. The neighboring countries of Venezuela, Trinidad and Tobago and Columbia have very active oil and gas industries while Suriname is in the process of approving exploration activities along its coast. In addition, more than 2,250 million barrels of oil are transported through the region with up to 100 oil tankers in transit through the region at any one time.

Suriname has over 115 species of coastal birds. Its mangrove swamps and mud banks are a principle wintering ground for arctic and boreal shorebirds and other aquatic avian species. The sandy beaches are nesting sites for leatherback, green and olive Ridley sea turtles and the mouths of the major rivers are home to the Guiana dolphin (which was once considered a subspecies of the tucuxi). Over 5 million waterfowl have been counted along the coast at one time.

7.2 Avian Species

Endangered, Vulnerable or Near Threatened: Orinoco goose (*Neochen jubata*), buff-breasted sandpiper (*Tyrngites subruficollis*). There are nearly 250 species of coastal and wetland birds listed for Suriname.

7.3 Marine mammals

Twenty eight (28) endangered/vulnerable species of marine mammal are found in Suriname waters: Sei whale (*Balaenoptera borealis*), blue whale (*Balaenoptera musculus*), North Atlantic right whale (*Eubalena glacialis*), West Indian manatee (*Trichechus manatus*).
In total, 28 marine mammal species have been sighted in Suriname waters. Of particular concern, other than the endangered species listed above, are the Guiana dolphin (*Sotalia guianensis*), Blaineville's beaked whale (*Mesoplodon densirostris*), Gervais beaked whale (*Mesoplodon europaeus*), True's beaked whale (*Mesoplodon mirus*), melonheaded whale (*Peponocephala electra*) and Cuvier's beaked whale (*Ziphius cavirostris*) whose populations are not well known.

7.4 Reptiles

Crocodile tegu (*Crocodilus amazonicus*), dwarf caiman (*Paleosuchus palpebrosus*), smooth-fronted caiman (*Paleosuchus trigonatus*).

7.5 Sea Turtles (all endangered)

Leatherback turtle (*Dermochelys coriacea*), green turtle (*Chelonia mydas*), Olive Ridley turtle (*Lepidochelys olivacea*), hawksbill turtle (*Eretmochelys imbricata*), loggerhead turtle (*Caretta caretta*).

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[9] All information in this Section is taken from Sea Alarm Country Wildlife Response Profile for Suriname Version 14/05/2012
[10] The Convention on Wetlands of International Importance (Ramsar Convention) was adopted in 1971 and came into force in 1975.

Appendix 1: Contacts Directory

National Emergency Operations Center

Organisation	Contact Name/Position	Telephone Number	Email

District Emergency Operations Center

Organisation	Contact Name/Position	Telephone Number	Email

Maritime Authority of Suriname

Organisation	Contact Name/Position	Telephone Number	Email

National Institute for Environment and Development in Suriname

Organisation	Contact Name/Position	Telephone Number	Email

Suriname Coastguard

Organisation	Contact Name/Position	Telephone Number	Email

Technical Resources

Organisation	Contact Name/Position	Telephone Number	Email

Appendix 2: Forms

PERSONAL LOG		
Name:		Date:
Name and Location of Incident:		
Latitude :		Longitude:
GUIDANCE	Safety hazards	Note potentially unsafe activities encountered and measures employed or suggested to mitigate the hazard.
	Initial notification	Record the time of notification of the incident and name of informant.
	Daily activities	Keep a record of the location and time of key activities including meetings attended instructions issued/received, site visits and movements, contacts with outside agencies.
	Personal contacts	Generate a list of relevant contacts, including name, organisation, responsibility and telephone/fax numbers.
	Photographic/video records	Note location, date and time of pictures taken. For oiled areas take a series of shots from different viewpoints and record location of viewpoint if possible.
	Oil distribution	If visiting oiled areas, make rough notes or a sketch showing extent of oiling.
	Site supervision	If leading a response team, ensure an accurate record is kept of the staff working under your supervision and their hours of work. Also keep records of the equipment utilised and its condition.
	Expenditure incurred	Keep receipts / record of all expenditure to validate claims.

INCIDENT ACTION PLAN COVER SHEET

Incident Name:	Operational Period:	Incident Action Plan Cover Sheet
Approved By:		

INCIDENT ACTION PLAN

CONTENTS

Prepared by:	Date / Time

SITE SAFETY AND HEALTH PLAN

Applies to site (name)		Date		Time	
Product(s)(Spilt / Used)		SDS on Site?			
Site Characterisation	Tick all relevant boxes				
Area	☐ Ocean	☐ Bay	☐ River	☐ Salt marsh	☐ Mudflats
☐ Inland	☐ Pipeline	☐ Mountainous	☐ Refinery	☐ Tank Farm	☐ Bunded Area
☐ Docks	☐ Shoreline	☐ Sandy	☐ Rocky	☐ Cliffs	☐ Other (specify)
Notes (Include tide times and other site altering details as applicable)					

Use	☐ Commercial	☐ Industrial	☐ Farming	☐ Public	☐ Government
	☐ Recreational	☐ Other			
Weather	☐ Ice/frost	☐ Snow	☐ Rain	Wind Speed ..... knots	Wind Direction.....
☐ Wind chill	☐ Fog/mist	☐ Sun	☐ Other (specify)	Cloud Cover ☐ High ☐ Low	Temp °C/F
Notes (Include current and forecasted weather and source of information)					

Site Type	%	Site access	Load bearing
Cliffs		☐ Metalled road	☐ Firm (will support any vehicle)
Bedrock		☐ Track	☐ Good (4 WD vehicles only)

Boulders (>10 cm)		☐ Pathway	☐ Soft (tracked vehicles only)
Pebbles (1-10 cm)		☐ Steps	☐ Very soft (will not support any vehicle)
Gravel (2mm - 1cm)		☐ Slipway	Notes
Sandy		☐ Car park	
Mud		☐ Boat	
Man-made		☐ Other	
Marsh/ Mangrove			

Site Specific Hazards		
☐ Bird handling	☐ Fire, explosion, in-situ burn	☐ Slips, trips and falls
☐ Boat safety	☐ Heat stress	☐ Steam and hot water
☐ Chemical hazards	☐ Helicopter operations	☐ Tides
☐ Cold stress	☐ Motor vehicles	☐ Trenches, excavations
☐ Electrical hazards	☐ Overhead/buried utilities	☐ UV radiation
☐ Fatigue	☐ Work near water	☐ Visibility
☐ Inclement weather	☐ Dangerous animals	☐ Other (specify)

Personal Protective Equipment (PPE) Where there is a risk of harm, PPE should be issued and worn correctly by all personnel			
☐ Foot protection	☐ Coveralls	☐ Ear protection	☐ Hand protection
☐ Head protection	☐ Impervious suits	☐ Eye protection	☐ Personal flotation
☐ Cold Weather Clothing	☐ Personal Air Monitors	☐ SCBA	☐ Respirators
☐ Survival suit	☐ Other (specify)		

Site Facilities Required		
☐ Sanitation	☐ First Aid	☐ Decontamination
☐ Security	☐ Shelter	☐ Other (specify)

Site Alerting/Alarm system

Evacuation Plan

Local Emergency Medical Facilities	
First Aid	
Doctor	
Hospital	
Ambulance	
Other Authorities	

Assessment forms		
Manual Handling	☐	Always seek to use mechanical aids first. Guidelines of 25kg for men and 15kg for women
Noise Assessment	☐	If you have to use your voice to communicate then you are exceeding the 80db limit
Working at Height	☐	Complete a working at height checklist for platforms, ladders, cliffs/ledges, tanker walkways or scaffolding etc
Lifting Operations	☐	Ensure any lifting gear used is within its inspection dates and in good condition
Confined Space	☐	As a guideline, a confined space is an area without a separate access or egress point. If you are unable to step out of the working area then it is a confined space
Hot Work	☐	Complete the hot work assessment if welding or open flame work may occur in response

Sketch Map of Area (Plan view and shore profile/s)

☐	A, B, C, etc. oiling zones	POINTS TO REMEMBER		KEY/NOTES	Scale			
☐	Boom anchor points	☐	Key landmarks					
☐	Likely disposal sites	☐	Access points					
☐	Backshore features	☐	North arrow					
☐	Access restrictions	☐	% Cover					
☐	Position H/L tide	☐	Slope					
☐	Photo locations	☐	Scale					
☐	Oil distribution	☐	Pits					
Site				Date		Initials		

Appendix 3: Sampling Procedures

Samples of oil/oily mixtures from the marine environment (water and foreshore areas) and all potential sources should be taken with the minimum of delay so that changes in the oil composition due to weathering are kept to a minimum. All samples should be kept in a cool, dark, secure location (i.e. within an insulated container, an ice chest or a refrigerator if available).

Marine environment - Every effort should be made to obtain representative samples of the pollutant from the water and foreshore areas or other polluted areas (including oiled wildlife). A number of samples should be taken from various locations within the spill. Note that any drains or outfalls in the area should be eliminated as a potential source of the spill. These samples should be contained in clean glass jars (preferably sterilized glass jars if available) and information about where the samples were taken should be recorded. This information should be provided to the laboratory to assist with the analysis of the samples. Blanks or clean water samples should also be taken upstream/outside the spill area and provided to the laboratory.

Ships – Sampling ships should only be undertaken with the assistance of an authorized officer with relevant shipping expertise. Samples from all potential ships that could have been responsible for the spill must be obtained. It is important to be able to eliminate ships as well as identifying the source of the spill. Samples should be taken from all waste oil tanks, bilge and bilge holding tanks, fuel oil tanks and the discharge from the oily water separator for comparison purposes, particularly if prosecution is envisaged. Information on how the sample was obtained should also be recorded and provided to the laboratory (eg from drain tap, valve, dipping into tank etc). Samples should be contained within sterilized or clean glass jars.

Continuity of Samples

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

Delivery of Samples

Where samples are collected for the purpose of prosecution appropriate safeguards need to be ensured during their transport. NIMOS will identify Failsafe Couriers that can provide transport of samples from the person responsible for its collection and/or custody to the designated analyst, incorporating rigid controls and security.

Analysis of Samples

NIMOS has arrangements in place whereby analysts will carry out testing of all samples for the purposes of prosecutions.

Further Details

Further details concerning sampling procedures and appointed analysts are available from NIMOS. The International Maritime Organization publication "IMO Guidelines for Sampling and Identification of Oil Spills" 1998 provides more detailed information on this subject.

OIL SPILL SAMPLE RECORD	
Sample ID	(#/initials/date/time)
Sample Description	Vol.
Incident Name	
Sample Location	Lat. Long
Date	
Time	
Purpose for which sample has been taken	
If known, suspected source	
Weather conditions (air/ sea temperature, wind speed / direction)	
Sampling Device	
Sampler Name	
Witness Name	
Sampling Platform	
Weather	
Sea State	
Additional Information (i.e. were dispersants used, type)	
Notes:	

Appendix 4: Maintaining Oil Spill Preparedness

Training

The following oil spill training schedule is upheld by NCCR for all IMT members however the actual training requirements depend on an individual's role and experience Developed by an international group of experts from government and industry based on over 30 years experience in oil spill preparedness and response; the International Maritime Organization (IMO) training courses cover skills required to responding to and manage oil spills.

Table 16 IMO Training Course Information

IMO Course Level	Oil Spill Incident Response Personnel	Course Outline
Level 1	Emergency Response Team members	Provides training on practical aspects of oil properties, response techniques, health and safety, boom and skimmer deployment, dispersant application, use of sorbents, shoreline cleanup, debris/waste handling and disposal and wildlife casualties.
Level 2	On-Scene Commanders and Emergency Response Team Leaders	Provides detailed training in oil spill behaviour, fate and effects, spill assessment, operations planning, containment, protection and recovery, dispersant use, shoreline cleanup, site safety, storage and disposal of waste, media relations, record keeping, command and control management, communications and information, liability and compensation, response termination and post incident review/briefing.
Level 3	Incident Management Team members	Provides an overview of the roles and responsibilities of Senior Personnel in the management of oil spill incidents, cause and effect of oil spills, response policy and strategies, contingency planning, crisis management, public affairs and media relations, administration and finance and liability and compensation.

Incident Command System

Table 17 ICS Training Course Information

ICS Course Level	Oil Spill Incident Response Personnel	Course Outline
100	Emergency Response Team Members	This course is a web based course aimed at introducing the ICS, basic terminology, common responsibilities, ICS principles and features. A foundation is set that will allow personnel to function appropriately in an ICS. Completing ICS 100 is prerequisite to completing ICS 200.
200		This course is also web based that builds on the foundation information from ICS 100. ICS 200 is required for first level supervisors involved in responding to the incident at the site, Site Response Team. Completing ICS 200 is prerequisite to completing higher level ICS training. Topics covered should include: principles and features, organisational overview, incident facilities, incident resources and common responsibilities.
300	On-Scene Commanders,	This course provides description and detail of the ICS organisation and operations in supervisory roles on expanding

	Emergency Response Team Leaders and Incident Management Team members	incidents. Topics covered should include: organisation and staffing, resource management, Unified Command, transfer of Command, event and incident planning, air operations and establishing incident objectives.
400		This course is designed of more Senior personnel who are expected to perform in a management capacity in the Incident Command Team or IMT. Topics covered should include: General and Command staff, major incident management, multi-agency coordination and ICS for Executives.

Oil Spill Exercises

Oil spill response exercises test incident response personnel function and responsibilities. They improve oil spill incident response teams skills and awareness, and provide management with an opportunity to assess equipment, measure performance, obtain feedback from participants, update and correct the contingency plans, and give a clear message about the company's commitment to oil spill prevention and response.

Table 18 Oil Spill Exercise Overview and Schedule

Exercise Type	Description and Purpose	Frequency
NOSCP Orientation	A contingency plan orientation exercise is a workshop which focuses on familiarising the IMT with their roles, procedures and responsibilities in an oil spill. The aim is to review each section of the plan, encourage discussion, and by using local knowledge and expertise, make useful and practical improvements to the plan where required.	As required or directed
Notification and Callout Exercise	A notification exercise practises the procedures to alert and call out the IMT. They are normally conducted over the telephone or radio, depending on the source of initial oil spill report. They test communications systems, the availability of personnel, travel options and the ability to transmit information quickly and accurately. This type of exercise will typically last 1-2 hours and can be held at any time of the day or night.	Quarterly
Practical Oil Spill Equipment Deployment Exercise	Simple deployment exercises give personnel a chance to become familiar with equipment, or they may be a part of a detailed emergency response scenario, where maps, messages, real-time weather and other factors are included. The exercise is designed to test or evaluate the capability of equipment, personnel, or functional teams within the oil spill response. In deployment exercises, the level of difficulty can be varied by increasing the pace of the simulation or by increasing the complexity of the decision-making and co-ordination needs. A deployment exercise would typically last from 4-8 hours.	Semi-annually
Incident Management Team Tabletop Exercise	A tabletop exercise uses a simulated oil spill to test teamwork, decision-making and procedures. The exercise needs to be properly planned with a realistic scenario, clearly defined objectives for participants, exercise inputs, and a well briefed team	Annually

Exercise Type	Description and Purpose	Frequency
	in control of the running and debriefing of the exercise. A tabletop exercise will typically last from 2-8 hours.	
Full-scale Incident Management Exercises	Full-scale exercises provide a realistic simulation by combining all of the elements of the tabletop exercise (maps, communications, etc.) and the deployment of related personnel and equipment. This complexity requires the response to be more co-ordinated than in basic tabletop or deployment exercises. The effort and expense in organising a realistic full scale exercise means that it is recommended that they be run only once every two years. It may also be cost effective to run full-scale exercises in partnership with other organisations within the region. Full-scale exercises can create a very intense learning environment that tests co-operation, communications, decision making, resource allocation and documentation. People involved in full-scale incident management exercises should have attended earlier tabletop exercises. Organising a realistic full-scale exercise could take many months, requires an experienced planner and a large support team to run the exercise. The full scale exercise will generally last at least one day and often carry on overnight into a second or third day.	2 Years
Joint Exercises (e.g., with other Operators or Regulators)	Joint exercises provide a realistic simulation by combining the full scale oil spill response equipment deployment and tabletop incident management to handle a major spill scenario. The spill scenario involves major consequences to a very wide range of resources, threatening national interests and requiring national and regional cooperation and coordination. Joint exercise involves very wide range of personnel from many different organisations, possibly in various locations, together with a range of equipment deployment opportunity. This exercise is designed to build confidence in NCCR's preparedness to effectively and efficiently deal with oil spills at all scales. This will also enhance the cooperation among the government and industry at national and regional level in responding to major and/or trans-boundary spills. A joint exercise will generally last at least one day and often carry on overnight into a second or third day.	2 Years

Appendix 5: Oil Spill Response Tactics[11]

For all spills, the most important initial action is the proper notification of the emergency response teams, regulatory defined notification points and the contracted response organizations that have the expertise and resources to effectively respond to an oil spill incident. Key personnel at this stage of the response are:

- Initial Spill Observer: Person who initially sights the oil spill and takes immediate action by raising the alarm and gathering initial details about the incident.
- Person in Charge at Incident Location: Sets overall direction and tactical management of the incident by completing an oil spill tier assessment and identifying suitable response strategies. Notifies the incident management team of the incident and requests assistance as required. They are also responsible for allocating sufficient resources and personnel from their onsite oil spill response equipment to initially respond to the incident. The Person in Charge would complete an Oil Spill Notification Form.
- Tactical Response Units: Responsible for practically responding to an oil spill incident under the direction of the Person in Charge. Units can consist of Pre-identified emergency response teams, Platform Support Vessels, aerial surveillance teams, etc.
- Incident Commander begins making the required notifications to the nominated regulatory authorities/ spill notification points and mobilises their Incident Management Team.

Safety: The **first** task that should be undertaken when preparing to conduct oil spill response operations is a comprehensive risk assessment and hazard analysis as soon as possible to ensure that oil spill responders are not in danger.
The completion of a Site Safety and Health Plan will identify dangers such as:

- Chemical exposures that may include chemical dispersants, weathered crude oil, benzene and other volatile organic compounds, oil mist, polycyclic aromatic hydrocarbons, and diesel fumes, potential gas cloud and explosion risk,
- Physical hazards that may include ergonomic hazards, excessive noise levels, sun exposure and heat stress. Injuries may occur due to slips, trips, and falls on slippery or uneven walking and working surfaces,
- Other safety hazards that are associated with the use of tools, equipment, machinery, and vehicles,
- Biological hazards that could include possible exposure to biting or venomous insects or other animals,
- Psychological hazards that may include witnessing traumatic injuries or death, inability to help affected wildlife, and fatigue,
- Fatigue that may result from working in a fast-paced environment, working extended shifts, and doing heavy labour or demanding cognitive tasks such as problem-solving and decision-making.

First responders will focus on a source control operation to limit the amount of oil released, the early containment of the spilt oil near the source if achievable and the removal/ recovery of the oil as safely and quickly as possible from the impacted area.
The early containment of an incident and the fast removal of the oil from the area offer the best opportunity to reduce the adverse environmental and social impact resulting from an oil spill.

Point to note: The timeframe for this initial response depends on a number of variables such as:

- The type of incident
- The type of oil spilt,
- The location of the incident,
- The location of resources available to respond to the incident.

[11] Information taken from http://www.itopf.com/knowledge-resources/documents-guides/response-techniques/

Assessing the Incident.

The movement and impact of an oil spill can be monitored in a number of ways such as vessel and aerial surveillance. This includes monitoring of both the position (direction of travel, area covered) and the character (percentage cover, gross changes to oil character (e.g. emulsification)) of the slick.

In some oil spill situations, predicating the slick trajectory can be calculated manually from wind, current and oil data or by using computer-based oil spill trajectory models.

Section 5 of this NOSCP describes commonly used assessment techniques for both offshore and inland oil spills.

Vessel Based Dispersant Spraying Operations.

Among various response options, dispersants are now recognised as one of the most effective at-sea response techniques for many major open water spills, making them a primary response tool rather than an alternative strategy. This widespread acceptance stems from a growing awareness that:

- Traditional on-water mechanical response encounters only a small part of a large slick and can be severely limited by rough weather and seas, often resulting in recovery of not more than 10% of spilled oil.
- Advances in dispersant formulations have dramatically reduced their toxicity and improved their effectiveness. Today's dispersants do not add to the toxicity of dispersed oil. Recent tests have shown the latest dispersant formulations to be effective for a wider range of oils and at lower concentrations.
- Dispersed oil droplets dilute rapidly in open water and have not shown significant toxic effects on marine or benthic life. Where minor effects have occurred, biological recovery has been rapid.

Note: The prudent use of dispersants can reduce the overall impact of an oil spill on environmental and economic resources. Nonetheless, the decision to use dispersant should always be a careful one based on sound analysis of the overall environmental benefit.

Containment and Recovery Operations.

Containing floating oil within booms for recovery by specialised skimmers is often seen as the ideal solution to a spill at sea as this aims to physically remove oil from the marine environment. As a result, it is the primary at-sea response strategy adopted by many governments around the world.

For containment and recovery of oil to be successful, there are some key challenges that must be overcome. The drifting floating oil must be located and the equipment deployed in an effective arrangement. The sea state and weather conditions must be sufficiently calm to permit the selected equipment to function well and for the response personnel to safely operate the equipment. The oil must also be in a state that is amenable for recovering using the available skimmers. These interrelated challenges commonly combine to limit the proportion of spilled oil that can be recovered to 10-15%. However, where the environment conditions and response factors allow, containment and recovery can be an important strategy.

There is a long list of equipment and logistical support required to undertake an at sea containment and recovery operation. However, the two primary pieces of equipment required are a boom, to contain and concentrate the oil, and a skimmer, to recover the oil from the sea surface and pump it into a suitable storage container.

Aerial Dispersant Spraying Operations.

Dispersant application is a specialised operation that requires preparation and trained operators. In the interests of safety and effectiveness it is desirable to use spotter aircraft to guide and coordinate spraying vessels and aircraft. The crew of the spotter aircraft should be able to identify the heavier concentrations of oil or the slicks posing the greatest threat and they need to have good communication with the spraying aircraft in order to guide them to the target.

Good organisation on the ground is also needed to enable spraying operations to continue for the maximum available time during daylight hours. This may require routine maintenance and transport of additional supplies of fuel and dispersant to be carried out at night. Consequently, stockpiles of dispersant should be sufficiently well stocked and conveniently located in order to supply aircraft with the minimum

delay. Thought should also be given to the equipment required for reloading aircraft, such as high capacity pumps and road tankers.

Shoreline Recovery Operations.

The purpose of shoreline clean-up should be to produce a net environmental benefit, however, public pressure and the location of economic resources may contribute to influencing which sites are cleaned first. To avoid conflicts the balance of priorities must be resolved. It is important to involve technical advisors and community representatives from the outset of operations, and to make use of any environmental sensitivity maps or coastline studies. The relevant Local Authority will coordinate the shoreline clean-up operations with the support from the Incident Management Team.

The selection of the most appropriate clean-up techniques requires a rapid evaluation of the degree and type of contamination, together with the length, nature and accessibility of the affected coastline. Where possible, it is important to start removing oil from contaminated shorelines as quickly as practicably possible. As time passes and the oil weathers, it will stick more firmly to rocks and sea walls, and may become mixed or buried in sediments.

Shoreline clean-up operations are often considered in three stages; Stage 1 - bulk oil is removed from the shore to prevent remobilisation; Stage 2 - removal of stranded oil and oiled shoreline material which is often the most protracted part of shoreline clean-up, and; Stage 3 - final clean-up of light contamination and removal of stains, if required. Depending upon the nature of the contamination, progression through each of these stages may not be required. Consideration will also need to be given to the environmental and social sensitivity of the shoreline so as to ensure the planned level of cleaning will not cause more harm than leaving the oil in place.

Inland Recovery Operations.

A range of oil recovery options are available such as sorbent recovery, mechanical containment and recovery, in-situ burning, natural remediation (biodegradation) and flooding, dependent on resources and accessibility for inland oil spill recovery operations. Choose the suitable response technique for inland recovery operations after considering oil type, land surface type, degree of oiling, environmental, social and cultural sensitivities, NEBA and HSE requirements. Each technique will require a level of expertise, coordination and is likely to generate waste.

The response to pooled liquid oil should be a priority, prior to the liquid permeating into the soil/sand substrate if on a permeable surface. Groundwater may be contaminated as oil penetrates through permeable ground.

In-Situ Burning Operations.

In-situ burning is the term given to the process of burning oil slicks at sea, at or close to the site of a spill. Burning may be seen as a simple method which has the potential to remove large amounts of oil from the sea surface. In reality, there are a number of problems which limit the viability of this response technique. These include: the ignition of the oil; maintaining combustion of the slick; the generation of large quantities of smoke; the formation and possible sinking of extremely viscous and dense residues; and safety concerns. The decision whether or not to burn a slick at sea is often contentious. Issues such as the distance of the oil from the damaged vessel or from a populated area; the potential toxicity of the resultant smoke; the nature of the oil; the likelihood of the burn being successful; and the fate of any unburned residues all require careful attention before attempts are made to ignite the oil.

Appendix 6: Risk Assessment and Control Measures Register

Conducting a quantitative or semi-quantitative risk assessment is beyond the scope of this NOSCP.

The operator or facility should consider the following Risk Assessment and Control Measures (RACM) process described below to perform the risk identification and management process. It is designed to analyse the risk(s) faced in performing the locations operational activities and define the risk control measures in order to reduce the overall level of risk.

A rational Risk Assessment is an essential element of the contingency planning process and the potential spill scenarios that are identified not only enable processes to be put in to place to reduce the likelihood or severity of an spill from occurring but also to design and build the most appropriate tiered response capability to the resultant risks faced.

i. Risk Assessment Methodology

The spill risk assessment methodology consists of five key steps. This Risk Assessment looks to assess spill risk across a number of different locations and areas in both on and offshore environments. In writing this Risk Assessment Methodology guidance has been taken from the International Maritime Organisation (IMO) as issued in the Manual on Spill Risk Evaluation and Assessment of Response Preparedness (2010 Edition) and should be altered to suit each operators specific requirements. Each step should be undertaken collaboratively with key representatives from the operations working group.

Step 1 **Spill Scenarios**	Potential scenarios that may lead to an accidental release of a contaminating product that will require mitigation are identified. The source of the spill, event, material type and volume is considered. This is achieved by: • Conducting risk assessment surveys and engaging with operational staff to gather an understanding of all the processes and issues that may result in potential spills. This information is recorded in the Risk Assessment and Control Measures Register sheets.
Step 2 **Spill Scenario Impacts**	The potential impact of the identified scenarios is assessed by: • Reviewing current Operational activities and identifying possible quantities and type of product that may pose an environmental and social risk if accidentally released. • Assessing Historical data to identify past incidents that have occurred at similar operational sites. • Reviewing the environmental and socioeconomic sensitivities that may be impacted from a spill from the operations.
Step 3 **Likelihood and Severity/**	The relative likelihood and severity of all spill scenarios identified are semi quantitatively measured in accordance with operator's risk assessment procedure. The impact on the environment is the main potential severity that has been considered, along with reputation where appropriate. The definitions of severity and likelihood are described in

Consequence	the associated tables provided below. • The **Likelihood** of each scenario has been based on a degree of mathematical data derived from historical data sources. • The **Severity** for each scenario has been predicted based on the way the spilt material will behave when spilled and the environmental and social sensitivities which may be impacted based on the spill modelling results if required. The potential spill scenarios and assigned likelihood and consequences are recorded in the Risk Assessment and Control Measures Register sheets.

Step 4 **Tiered Response**	The tiered response approach and response strategy suitable for each scenario is defined. Influencing factors will include: spilt product type, spill volume, climate, proximity to sensitive resources and local, regional/national and international response capabilities. This information is recorded in the Risk Assessment and Control Measures Register.

Step 5 **Risk Assessment Matrix**	The risk profile is completed using the Risk Register and Risk Assessment Quantification sheets. These highlight the scenarios which are deemed low, medium or high risk.

ii. Severity Table for use in Spill Risk Assessment & Response Planning

Severity	Environment	Response	Reputation
Very Low	Discharge to land, air or water below regulatory or client reporting thresholds. Possible examples include: Fuel oil/ hydraulic fluid: <10ltrs, Crude Oil Spill: <1bbls, Produced Water Spill: <10bbls	Response can be effectively managed using on site response capabilities with no disruption to normal operations	No impact
Low	Discharge/release to land, air or water above regulatory or client reporting thresholds: Fuel oil/ hydraulic fluid: <100ltrs. Crude Oil Spill: <10bbls. Produced Water Spill: < 100bbls	Response can be effectively managed using on site response capabilities however disruption to normal operations occurs	Minor impact
Medium	Discharge/release to land, air or water resulting in area evacuation and/or wildlife loss of life Fuel oil/ hydraulic fluid: <1Kltrs, Crude Oil Spill: <100bbls. Produced Water Spill: < 500bbls	Requires the assistance of one approved external response resource (local provider) to effectively manage the response.	Moderate impact
High	Uncontrolled Release Hazardous	Requires the assistance of one	Major

	Substance Spill: > 10Kltrs. Crude Oil Spill: > 100bbls. Produced Water Spill: > 500bbls & Response is within operation's on-site capabilities	or more approved external response resource (regional / national provider) to effectively manage the response.	Impact
Very High	Uncontrolled Release Fuel oil/ hydraulic fluid: > 10Kltrs. Crude Oil Spill: > 100bbls. Produced Water Spill: > 500bbls & Response requires local vendor assistance	Requires the assistance of one or more approved external response resource (regional / national provider) to effectively manage the response.	Major Impact
Catastrophic	Uncontrolled Release Fuel oil/ hydraulic fluid: > 10Kltrs. Crude Oil Spill: > 100bbls. Produced Water Spill: > 500bbls & Response is beyond capacity of local vendors	Requires the assistance of one or more approved external response resource (national / international provider) to effectively manage the response.	Major Impact

iii. Definition of Likelihood Categories

Likelihood	Definition
Very Low	Incidents not known to have occurred in the specific organization (Region/ Area / Facility, etc.)
Low	Incidents occurring less than once per year in the specific organization (Region/ Area / Facility, etc.)
Medium	Incidents occurring once or more per year in the specific organization (Region/ Area / Facility, etc.)
High	Incidents occurring once or more per month in the specific organization (Region/ Area / Facility, etc.)
Very High	Incidents occurring once or more per week in the specific organization (Region/ Area / Facility, etc.)

Complete the Risk Assessment and Control Measures Register using information from the operation or facilities risk assessment document detailing the hazard and possible worst credible spill risk scenarios for the location.

iv. Spill Scenarios (all Substances)

Risk Register and Control Measures Register													
Location			Task / Process Assessed										
Date			Assessment Team										
No	HAZARD		Initial Risk			Control Measures		Residual Risk			Response Tier Level
	Hazard description	Possible worst-credible Scenario (largest realistic quantities that could be lost, time before incident could be responded to, consequences on environment)	Likelihood	Severity	Risk	List all current and planned control measures taking into account all contributing and escalating factors		Likelihood	Severity	Risk	
						Current and Planned prevention measures to reduce likelihood	Current and planned mitigation measures to reduce severity				