Orphan Basin Oil Spill Response Plan

Newfoundland & Labrador Orphan Basin Exploration Drilling Program

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Signature Block	Name	Role	Signature	Date
Owner	Landry, Carlton	CCM Senior Manager	Carlton Landry	April 4, 2023
Approver	Sherritt, Allen	Senior Wells Manager	DocuSigned by: Allen Sherritt 167A273F7FC34DE...	April 4, 2023
Stakeholders	Baccigalopi, Michael	CCM Advisor	DocuSigned by: Michael J Baccigalopi 0A48CF3AA1654F9...	April 4, 2023
Stakeholders	Cobb, Katherine	CCM Lead Advisor	DocuSigned by: Katherine Cobb 7D1BCE5AAE904F6...	April 4, 2023

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04/Apr/2023	B03		Revised all required sections to address comments from CNLOPB

Operating Management System (OMS) – Sub Elements and Group Essentials

Sub Element	Sub Element Title	Group Essentials
4.6-0001	Crisis & Continuity Management	
4.6-0002	Oil Spill	

Reviewers

Name	Role	Type of Review	Date Reviewed
Boudreau, Monique	HSE Team Lead	Stakeholder	March 31, 2023
Rothery, Kevin / Manuel Laperia	Wells Superintendent	Stakeholder	March 31, 2023
Scott A. Neuhauser	Oil Spill Manager	Stakeholder	March 31, 2023

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Acronyms and Abbreviations

Agency	Impact Assessment Agency of Canada
AMIC	Asset Monitoring Intelligence Centre
bp	bp Canada Energy Group ULC, the Proponent
BST	Business Support Team
CCG	Canadian Coast Guard
C&CM	Crisis and Continuity Management
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CCO	C-NLOPB Chief Conservation Officer
CEO	Chief Executive Officer
COP	Common Operating Picture
CSA	Canada Shipping Act
CST	Country Support Team
CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ECRC	Eastern Canada Response Corporation
EL	Exploration License
ERT	Emergency Response Team (Offshore)
EST	Executive Support Team
EU	Environmental Unit
GoMC	Gulf of Mexico Canada
GRN	Global Response Network
HSE	Health Safety and Environmental
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IMS	Incident Management System
	Incident Management Team
ISB	In-situ burning
JRCC	Joint Rescue Coordination Centre
km^2	Square Kilometres
MCTS	Marine Communications and Traffic Services
MEAA	Mutual Emergency Aid Agreement
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding

MRT	Mutual Response Team
NEEC	National Environmental Emergencies Centre
NOP	Next Operating Period
OIM	Offshore Installation Manager
OSCAR	Oil Spill Contingency and Response Model
OSC	On-Scene Commander
OSRL	Oil Spill Response Limited
PSV	Platform Supply Vessel
RO	(Canadian) Response Organizations
ROV	Remotely Operated Vehicle
SBV	Standby Vessel
SIMA	Spill Impact Mitigation Assessment
SIMOPS	Simultaneous Operations
SOPEP	Shipboard Oil Pollution Emergency Plan
SSDI	Subsea dispersant injection
TC	Transport Canada
THC	Total Hydrocarbon Content
Tier 1	Local capability
Tier 2	Regional capability
Tier 3	National/international capability
TRP	Tactical Response Plan
UAV	Unmanned Aerial Vehicles
UK	United Kingdom
UV/IR	Ultraviolet/Infrared sensor
VOO	Vessel of Opportunity
WSL	Wellsite Leader

Foreword

This Oil Spill Response Plan (OSRP) provides the bp Incident Management Team (IMT) and response personnel with tactical and strategic guidance regarding response management, capabilities, and resources in the unlikely event of an oil spill during the BP Canada Energy Group ULC ('BP') Orphan Basin Drilling Exploration Project.

Introduction

The Orphan Basin Oil Spill Response Plan (OSRP) covers the management, countermeasures, and strategies that will be used in the response to spills originating inside the safety zone at any offshore Newfoundland exploration drilling site operated by bp Canada Energy Group ULC

(bp). This OSRP details the response actions to be taken in the event of an oil spill during drilling operations offshore Newfoundland. This Plan aligns with the guidance established by the Canada-Newfoundland and Labrador Offshore Petroleum Board (CNLOPB) for oil spill contingency planning.

This OSRP follows international practices, the International Maritime Organisation (IMO) Manual on Assessment of Oil Spill Risk and Preparedness and the Canadian Coast Guard's (CCG) Marine Spills Contingency Plan – National Chapter. The tiered preparedness and response in this OSRP are consistent with the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 1990).

bp recognizes that the most effective way to avoid environmental impact from an offshore spill is to prevent the occurrence of releases. Spill trajectory modelling shows that there is only a remote probability of a spilled product reaching the coastline, prior to dispersion, due to the prevailing wind and current conditions in the Orphan Basin. In the unlikely event that conditions do allow a spill to approach shore, response techniques will change to coastal and shoreline applications, maintaining the management system described within this plan.

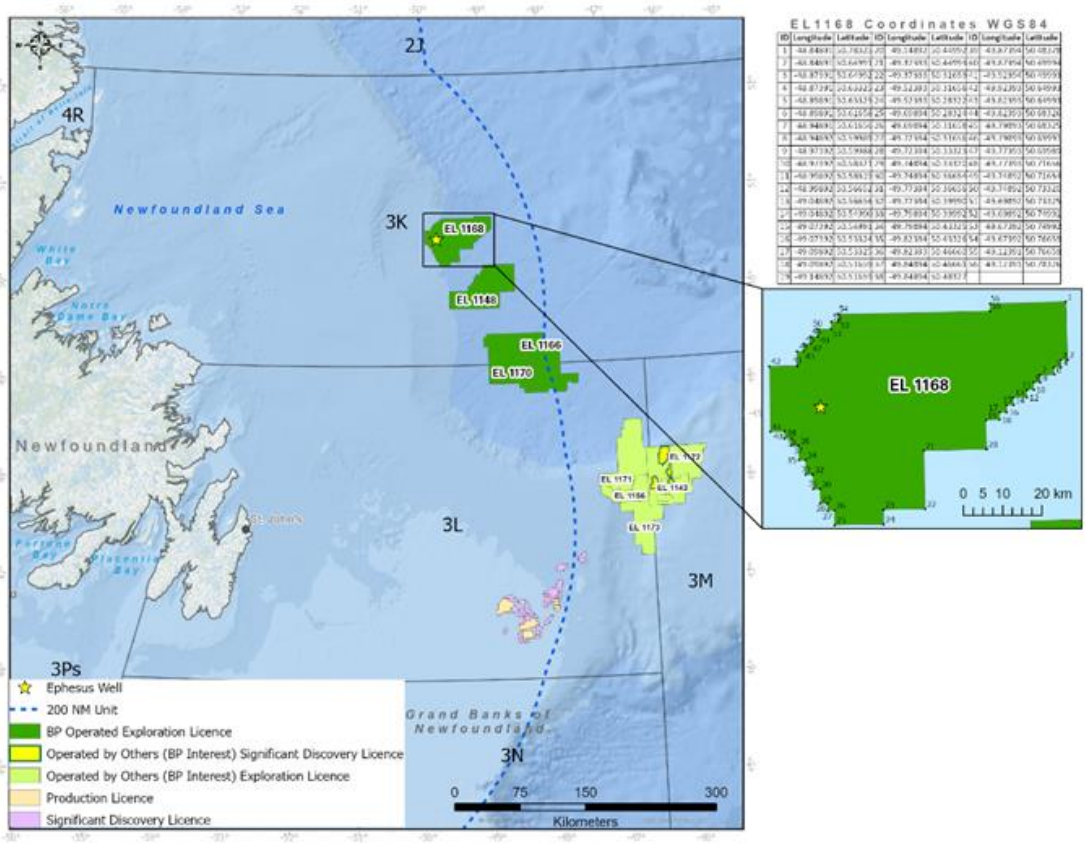


Figure 1. Orphan Basin Exploration Project Offshore Overview

Indigenous and Stakeholder Engagement

bp continues to engage with Indigenous groups located in Newfoundland and Labrador, Nova Scotia, New Brunswick, Prince Edward Island, and Quebec. Early engagement began in

November 2017. Engagement over the course of the EA included face-to-face meetings, phone calls, and emails. bp also participated in the three workshops organized by the Impact Assessment Agency (Agency) in April 2018 to build relationships between Indigenous groups, proponents, and government; provide an overview of offshore drilling projects; and identify and address concerns from Indigenous groups. bp was invited to participate in the workshops so that they could provide information and answer questions about their project. Additional workshops in were organized in October 2018, in which the Agency and proponents of other offshore exploratory drilling projects also participated.

bp has ongoing communication and engagement with all identified Indigenous Groups and Stakeholders to exchange information and enhance mutual awareness of operational activities in the offshore. bp is, and will continue to, engage directly with stakeholders through all phases of project planning and operations. bp will maintain a database of contact information for identified Stakeholders and Indigenous Groups. The point of contact for each group will receive operational and emergency response communications as outlined in the Indigenous Fisheries Communications Plan.

bp's Stakeholder Relations Advisor will be the single point of contact to serve as the liaison with Stakeholders and Indigenous Groups and to receive requests for information and/or meetings from the Groups.

The requirement to communicate with indigenous and commercial fishers is required by conditions 5.1.3 and 5.1.4 of the Decision Statement Issued under Section 54 of the Canadian Environmental Assessment Act, 2012 to BP Canada Energy Group ULC. For detail please refer to Indigenous Fisheries Communications Plan (CN002-CO-PLN-600-00002).

Additionally, as required by Condition 6.12 The Proponent shall provide Indigenous groups with the results of the exercise conducted pursuant to condition 6.8, following its review by the Board. The Proponent shall provide the final Spill Response Plan to Indigenous groups prior to drilling and any updates to the Spill Response Plan pursuant to condition 6.8.

1 Scope

This OSRP covers the bp Canada exploration phase of the Project offshore Eastern Newfoundland. Specifically:

- Drilling and completions: Oil spills arising from drilling activities including exploration and delineation drilling
- Field Support; Oil spills arising from field support vessels in the Project activities or within the 500m permanent safety zone.

This OSRP provides guidance to personnel who may be involved in a spill response related to any aspect of the bp Canada exploration operations. Specifically, it provides onshore and offshore incident response personnel with the tactical and strategic response strategies, main procedures and information required during an oil spill response incident.

2 Oil Spill Response Framework

2.1 Interface with other Plans

The strategy established in the bp Region Crisis and Continuity Management Framework requires that bp is prepared to respond quickly and effectively should an emergency occur. In this regard, practical guidance documentation is necessary to ensure such a response. bp Crisis and Continuity Management Framework provides the overarching strategy. This OSRP also links with numerous other tactical and strategic documents.

Together, these documents and the bp *Orphan Basin Exploration Drilling Safety Plan* (CN002-HS-PLN-600-00007) provide the foundation for effective emergency response and crisis management within the bp Canada region and specifically for the Project. Figure 2 and Appendix A provide an overview of these linked plans.

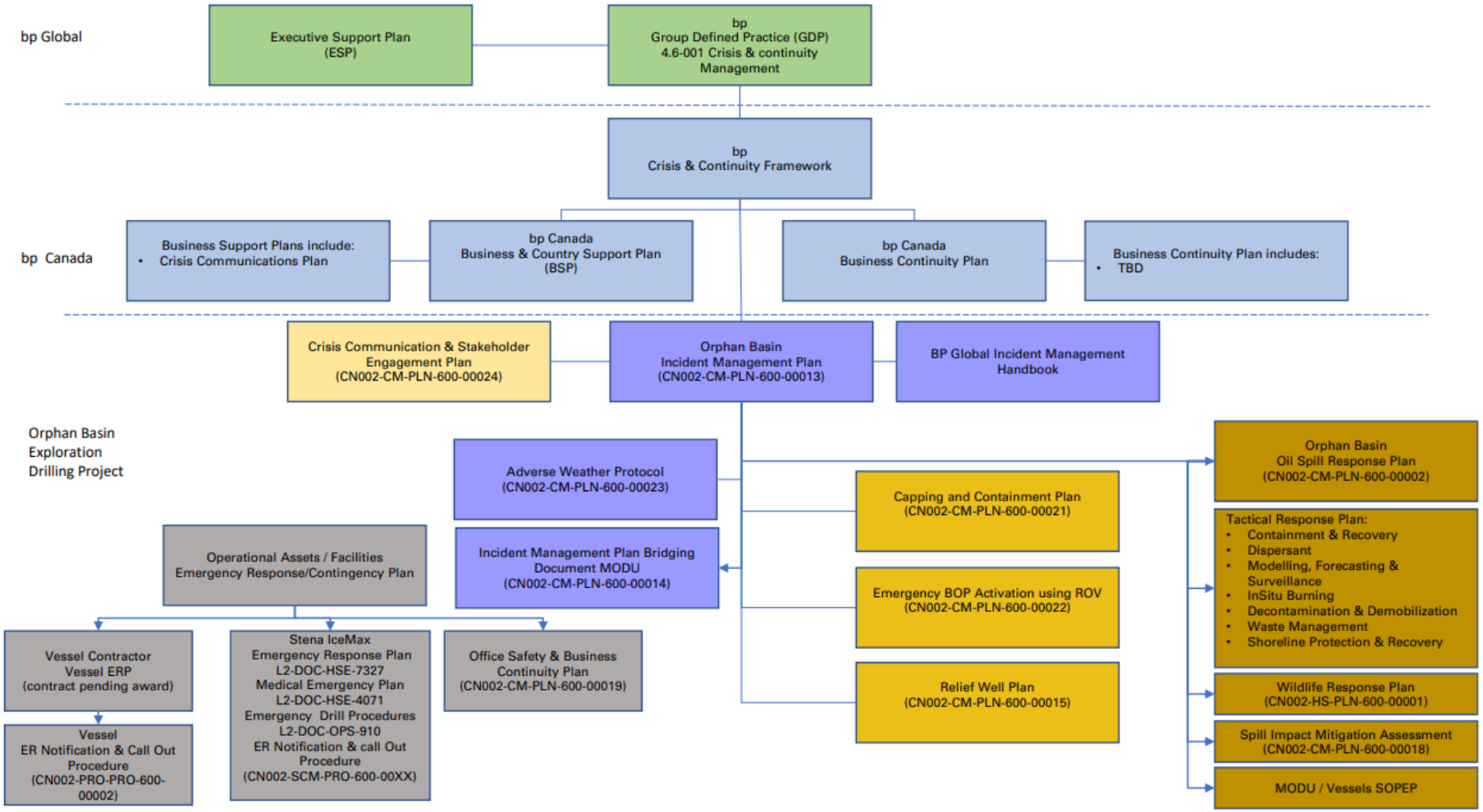


Figure 2. Bp Document Map

2.2 Tiered Response Strategy

The tiered preparedness and response model utilized by bp for this OSRP gives a structured approach to both establishing oil spill preparedness and undertaking a response. The tiered response descriptions are provided below in Table 1 and expanded upon in Appendix B Spill Description and Response Strategy

Response Tier	Resources	Details	Plan
Tier 1	Local capability	Response can be managed at the site (MODU) using support vessels in the field in addition to response equipment onboard. Tier 1 spills do not require onshore based resources.	SOPEPs, OSRP
Tier 2	Regional capability	Spills that cannot be managed by the resources onsite/locally. Tier 2 spills require support from a regional location and will require the coordination of more than one source of equipment and response personnel. These are provided by bp onshore resources, resources obtained from Eastern Canada Response Corporation (ECRC) and/or Mutual Emergency Aid Agreement (MEAA) from other operators.	OSRP
Tier 3	National/international capability	Spills requiring full mobilization of all Tier 2 available national resources, and activation of spill response resources available to bp globally as described in the Plan. Deployment of international oil industry resources from Oil Spill Response Limited (OSRL).	OSRP

Table 1.Tier Response Strategy

Tier level will be evaluated at the beginning of a spill by the Incident Command and resources activated accordingly. The tiered response approach provides a full range of response tools and strategies that can be mobilized, demobilized, and implemented efficiently and appropriately.

2.3 Health Safety and Environment (HSE) Commitment

bp's HSE goals are simply stated – no accidents, no harm to people and no damage to the environment. The HSE Commitment Statement, shown in Appendix C, is endorsed by the Chief Executive Officer (CEO) and reinforces bp's commitment to systematically manage operational activities and risks while complying with applicable laws and company policies and procedures.

2.4 Response Philosophy

To make sure an adequate response is available to address the incident, bp will, as required, apply the following response philosophy:

- Over-Respond
- Assessment
- Response

- Stand-down

An initial over-reaction

- Is based on an initial incident potential assessment that assumes a credible worst case has occurred
- Prevents an inadequate response caused by lack of detailed incident information

Once the initial response is underway, an assessment can be conducted based on accurate incident information to consider whether the level of response is appropriate. Periodic re-assessment allows the response to be managed effectively.

Finally, it is important to clearly confirm that response teams are 'standing down' so that all stakeholders are aware that the emergency phase has ended.

2.5 Response Priorities

bp's key priorities and objectives during oil spill response include, but are not limited to, the following:

1. **People** – Preserve safety of human life.
2. **Environment** – Minimize adverse effects to the environment.
3. **Property** –Stabilize the situation to prevent the event from worsening.
4. **Business -** minimize the impact the local economy or business.

As part of the overall response, bp is committed to developing incident-specific objectives and strategies to address these priorities as well as developing incident-specific response objectives that minimize further spill impacts and protect resources at risk. These response priorities do not change during any phase of the response and will be assessed on an ongoing basis.

2.6 Regulatory

Under the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act, the C-NLOPB has been assigned responsibility to ensure that spills from petroleum exploration and development activities are responded to appropriately. In this regard, the C-NLOPB's Chief Conservation Officer may monitor an oil spill response, or, if the response is inadequate, may direct actions to be taken or take over management of the spill response. Through a series of Memoranda of Understanding, other government Departments and Agencies provide support to the C-NLOPB in its role as the lead agency in the event of an oil spill originating from a petroleum operation in the offshore area

If a spill occurs and originates from any vessel or other equipment operating in the safety zone, but which is not an installation as defined under the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act or associated regulations, Transport Canada is the lead regulatory agency.

Additionally, C-NLOPB is named as the lead in offshore incidents under the National Environment Emergencies Centre Contingency Plan and the CCG National Emergency Response Plan.

Figure 3 shows the participants and stakeholders who may be involved in the response to an oil spill at the drilling location.

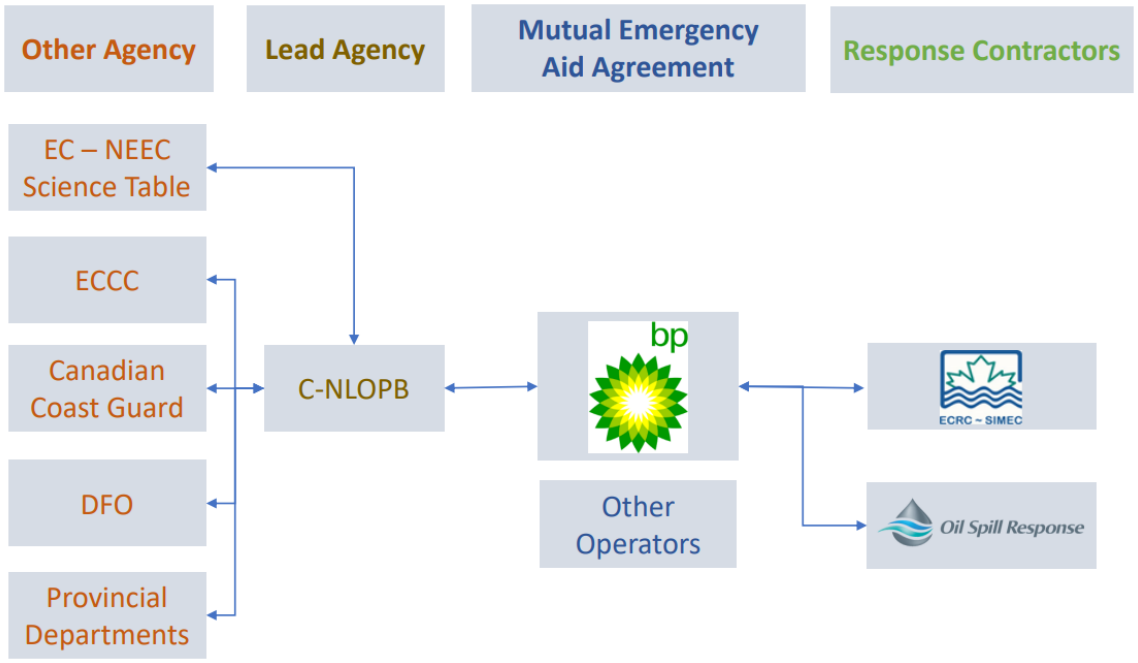


Figure 3. Stakeholders in an Oil Spill Response

Specific matters relating to the regulation of oil spills at the site include:

- Agencies including the CCG, the Department of Fisheries and Oceans (DFO), Environment and Climate Change Canada (ECCC), and departments of the Province of Newfoundland and Labrador have Memoranda of Understanding with C-NLOPB and act as advisors in all environmental issues.
- C-NLOPB requires that all operators have the capability to respond to a major oil spill offshore and that operating approvals for drilling and production operations are contingent upon the operator demonstrating said capability to the C-NLOPB
- ECCC's National Environmental Emergency Centre (NEEC) acting as the advisory focal point between ECCC and the C-NLOPB in the event of a polluting incident that requires ECCC's involvement, through which the provision of scientific advice (through the Science Table) can be provided.

3 Incident Management Response Structure

Three functional tiers collectively constitute the bp tiered response structure. The following accountabilities shall apply to the adoption of bp's tiered response structure:

- Incident Management Team (IMT) - supports and guides the ERT that conducts emergency response actions at the facility in distress.
- Business Support Team (BST) - Provides support to the IMT and assist with coordination of activities outside the immediate IMT response.
- Executive Support Team (EST) - Provide support to the IMT & BST while coordinating activities from a global support.

The following additional teams shall support the bp tiered response structure as needed:

- Country Support Team (CST)
- Mutual Response Team (MRT)

Additionally, facility Emergency Response Teams (e.g., Drilling Contractor ERTs) form the primary part of the tactical response at site and are included in all levels of response strategy.

3.1 Offshore Emergency Response Team

The offshore Emergency Response Team (ERT) manages the first assessment and response to an incident. The overall site response of the ERT will be directed by the On-Scene Commander (OSC). The Offshore Installation Manager (OIM) will fulfil this role in an incident. However, if the OIM is incapacitated, the Standby Vessel (SBV) Master will assume the role of OSC. Notifications to the bp Incident Commander (IC) will be made immediately following an oil spill by the Senior bp Offshore Representative.

The ERT will typically consist of (Figure 4):

- OIM
- Senior Offshore Representative
- Safety Supervisor
- Designated installation personnel
- SBV Captain & crew

Additional support may be provided by members of the St. John's IMT if required.

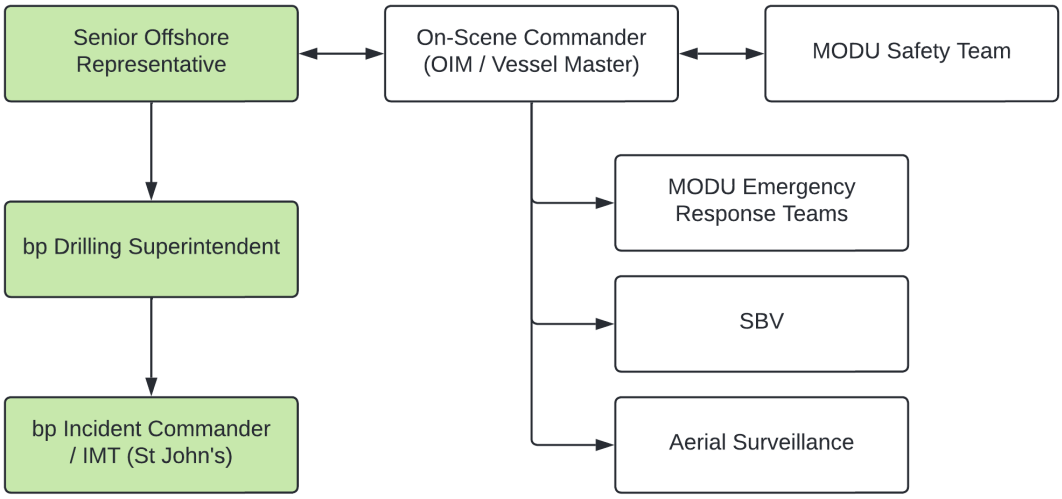


Figure 4. Tier 1 Incident Management Structure

3.2 Incident Management Team

The bp Canada Energy Group ULC's IMT is based in St John's at suite 740 Cabot Place, 100 New Gower. St. John's, NL A1C 6K3. Other off-site locations may be established as determined by the magnitude of the event. The IMT will provide process management and/or subject matter expertise to ensure that the company is able to mount an effective response to a major incident in the field whenever and wherever it occurs.

The organizational structure of the IMT is based on Incident Command System (ICS) and operates within a tiered response framework, which allows for the mobilization of resources at varying levels as dictated by incident circumstances. Refer to Figure 5 for the IMT Organizational Structure.

The bp St. John's Regional IMT organization, is responsible for providing direct support to the offshore Emergency Response Team (ERT).

The ERT is comprised of trained personnel who initially respond to the incident and conduct the on-the-scene, hands-on tactical response operations.

The IMT is composed of bp personnel located in St. John's, Newfoundland and Houston, Texas; however, the IMT may be supported by members of bp's MRT, IMT personnel from other bp business units, bp retirees, and/or contractors. Figure 5 below depicts a bp response structure that would be activated for a Proactive Response as per the bp Incident Management System.

Figure 5. Onshore IMT Structure

3.3 Business Support Team

In the event of a Tier 2/3 incident, the bp BST may be required to provide strategic, technical, and financial support to the local IMT; the structure of this BST is outlined in Figure 6. As an incident develops the BST's composition may change to reflect the gravity of the incident or the phase of the response.

It is not the responsibility of the BST to manage the incident response or replicate the work of the IMT but to provide the necessary support.

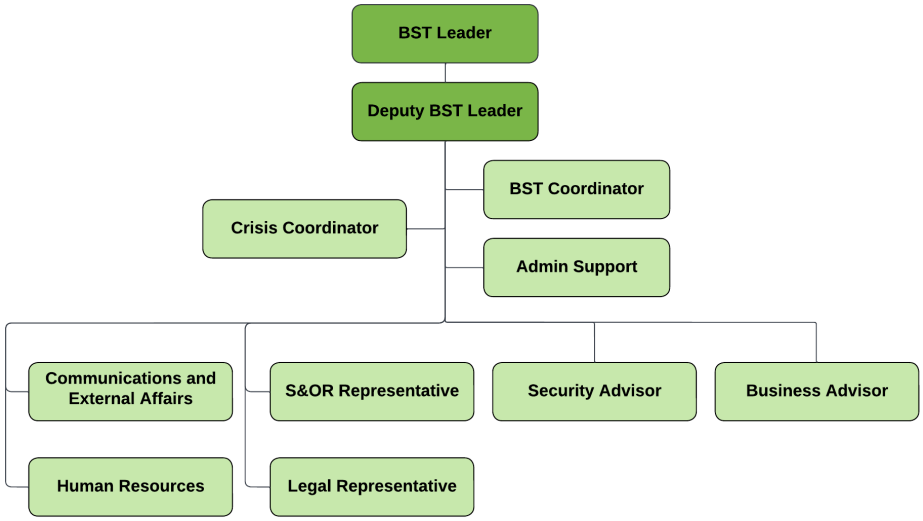


Figure 6. Business Support Team Structure

3.4 Oil Spill Response Organizations

3.4.1 Eastern Canada Response Corporation

ECRC is a private management company, owned by several major Canadian oil companies. Under its response contract with bp, ECRC's role is to provide marine oil spill response services when requested. ECRC will not assume the role of OSC but will act under the direction of the bp IC to provide a plan of action, equipment, resources, and operational management in the clean-up effort.

ECRC is certified by Transport Canada (TC) as a Response Organisation (RO) under the Canada Shipping Act (CSA). As a certified RO, ECRC provides oil spill response arrangements on contract to ships and oil-handling facilities to meet the requirements.

ECRC equipment and personnel are stationed at the six response depots in Atlantic Canada, Quebec, and Ontario. In addition to the permanent staff at each depot, ECRC maintains a pool of trained responders and consultants that can be called out at short notice to assist with the response.

ECRC will provide spill response services in support of the bp's overall response to an incident.

The response services that ECRC offers its clients include

- Operational services which include field personnel who have been trained to work with offshore response equipment on industry vessels
- Logistics services in the provision of personnel, equipment, and third-party services to support operational activities
- Response management services to support the IMT

Recognizing ECRC's status as a certified RO, bp have an offshore response agreement with ECRC. Under the contract, ECRC can provide comprehensive response management services, equipment, and trained field personnel to implement technical operations in the field.

Note: Special consideration is required for ECRC personnel to be deployed beyond the 200nm Economic Exclusion Zone (EEZ) limit. For response operations beyond 200nm, OSRL/Global Response Network (GRN) personnel may be required.

3.4.2 Oil Spill Response Limited

bp has a membership with OSRL, a large oil spill response cooperative that specializes in providing global oil spill response services from their bases in:

- United Kingdom
- Bahrain
- Brazil
- Singapore
- United States

The OSRL equipment pool has been pre-packaged with appropriate shipping and customs documentation to be transported by air to any international destination at short notice.

The strengths that OSRL can provide include:

- Large pool of experienced personnel
- Access to GRN resource
- Large scale aerial dispersant capability on 24-hour standby
- Capping stacks stored in Brazil, Norway, Singapore and South Africa
- OSRL has a Duty Officer available 24/7 to receive activation requests
- OSRL also uses a precautionary approach in supporting its members. That is:
    - If the situation is uncertain, but has the potential to escalate, OSRL will immediately dispatch a spill response officer to assess the situation and support bp.
    - Should the situation not escalate within 48 hours, OSRL will withdraw the response officer.

3.5 Mutual Aid

Effective September 29, 2022, bp became party to a formal Mutual Emergency Assistance Agreement with Grand Banks Operators to provide assistance to each other in the event of an emergency. Local offshore operations have considerable logistics resources that can be used in the event of a spill offshore. Supply vessels (Maersk, Secunda, Atlantic Towing, DOF), surveillance aircraft (Provincial Aerospace Ltd.), and all rig helicopters (Cougar Helicopters) can all be considered as potential resources to assist in spill response.

Support from mutual aid partners would be sought by the IMT as appropriate, and bp could reciprocate, if requested, in the event of an emergency at a mutual aid partner's site.

4 Initial Oil Spill Response Actions

Table 2 Initial Response Actions provides the sequence of steps and activities to be followed offshore during the initial stages of an oil spill response. Additionally' the *Orphan Basin Incident Management Plan* (CN002-CM-PLN-600-00013) Rev B02 and its subsequent Appendices A to G containing IMT role specific checklists support bp's initial response approach during an oil spill response.

Initial Response Actions Offshore				
Immediate Response Actions:	Initiated by	Action completed	Additional Detail	Performance target
Oil Spill is Reported		✓		

Initial Response Actions Offshore				
Undertake Assessment – spill has been reported, safety issues are satisfactorily addressed			OIM to complete all immediate safety actions with MODU before commencing the environmental damage assessment	
1. Assessment				
Complete Initial Oil Spill Data Form	OIM		OIM or delegate to complete assessment; report to bp IMT via WSL what type of oil and how was this spilled?	As soon as practicable
2. Notifications				
Notify bp IMT via AMIC	OIM			As soon as practicable
Alert support vessel	OIM			Immediate
Alert supply base	OIM			As soon as practicable
Alert helicopters provider	OIM			As soon as practicable
3. Response Actions; following assessment				
Launch tracking buoy (support vessel)	OIM		Deploy into leading edge of slick if safe to do so	Immediate
Mobilize additional support vessel	OIM		Each vessel is equipped with dispersant and tracking buoy	As soon as practicable
Mobilize helicopter for aerial surveillance	OIM		Consider hours of darkness	As soon as practicable
Hand over to IMT once formed	OIM		Ensure ICS 201 is completed on handover	

Table 2.Initial Response Actions

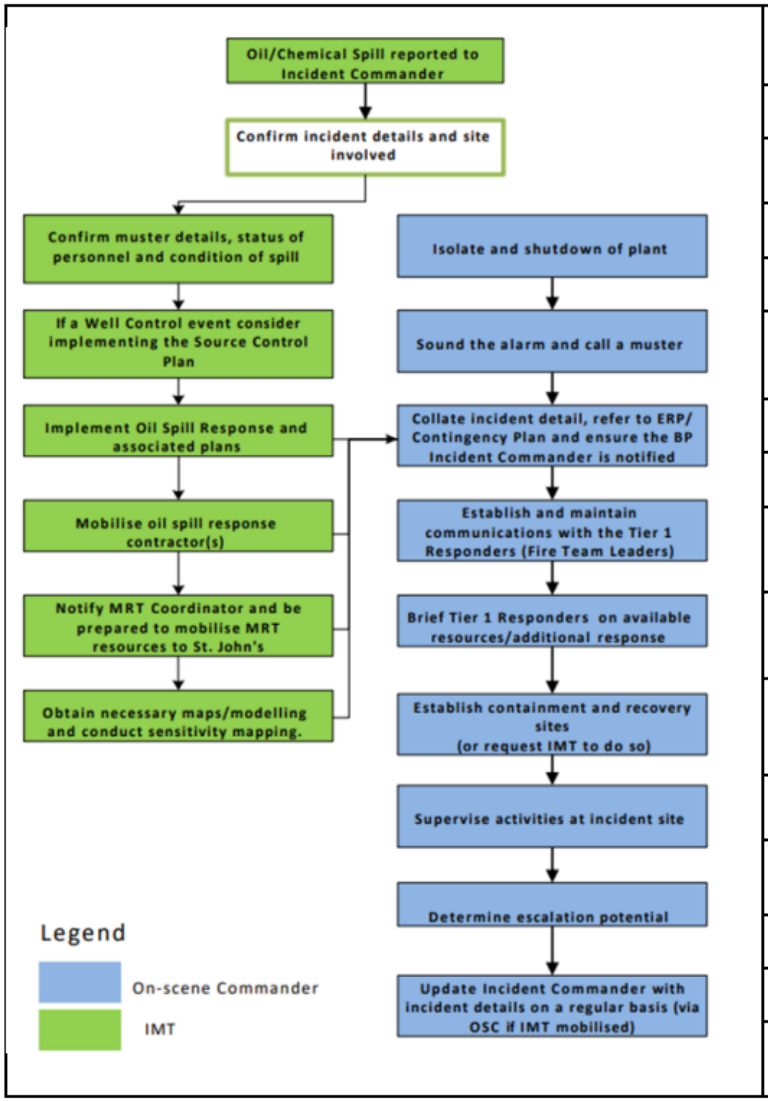
Initial spill information will be collected by the person observing the spill using the Oil Spill Initial Data Form (Table 3). This information must be sent to the Duty Incident Commander

OIL SPILL INITIAL DATA FORM					
Contact Details					
Reporter			Company		
Contact Number			Position		
Alt. Contact Number					
Release Details					
Date/Time					
Installation	Name				
	Operator				
	Response Primacy				
Hydrocarbon released	Type				
	Name of Product				
Location of slick	Latitude		Block		
	Longitude		Field		
Any casualties / damage to installation			HSE team been advised?	YES / NO	
Source of release (if known)					
Cause of release (if known)					
Quantity released / potential (if known)	Quantity		Is it ongoing?	YES / NO	
	Potential				
Has Installation been shut down and / or will incident affect operations?					
Appearance of hydrocarbon			Travel direction of slick (if known)		
Possibility of pollution reaching Shoreline/ Crossing Median Line	Where				
	Time				
Which other agencies been informed					
Current weather at Release Location					
Wind direction & speed (kts)			Surface current direction & speed (kts)		
Sea state and direction			Significant wave height (m) & direction		

Table 3.Oil Spill Initial Data Form

4.1 Oil Spill Incident Management Guide

Once the IMT is activated, staff members will be mobilized to the designated Incident Command Post (ICP) to manage the response. Figure 7 indicates the initial actions that will be taken by the IMT IC during an oil spill.



1. Notify Incident Management Team Members (IMT) to mobilize to Incident Command Post (ICP)
2. Confirm a reliable communications line with the incident site
3. Confirm muster numbers, status of personnel and current situation with release
4. Confirm shutdown and isolation
5. Identify material and quantity released
6. If a Source Control event, notify the VP of Wells for GOMC, as per the Incident Notification Chart for Non-US Waters for mobilization of Source Control resources.
7. Implement the project Oil Spill Response Plan
8. Mobilize oil spill response contractor(s) if appropriate
9. Obtain all necessary maps/modelling from GIS software and establish sensitivity mapping
10. Notify Business Support Team and appropriate VPs as necessary (i.e., OBO, Projects etc.)
11. Ensure that there is sufficient staffing within the Environment Unit and consider use of Technical Experts (at site if possible and within IMT)
12. Notify all relevant government agencies via CNLOPB and other external parties. Develop press release (if required)
13. Consider containment and recovery sites - support site response team with provision of all logistical requirements
14. Ensure essential information is recorded.
15. Prepare for potential evacuation of personnel from the incident site
16. Put MRT resources on standby and be ready to mobilize if required.

Figure 7. Oil Spill Incident Management Guide

4.2 Risk Management

bp's structured risk management process is a consistent method for assessing and managing risk(s) during the well design and execution phase based on the bp Procedure Risk Management 100096. The Risk Management process is applied to identify, assess, respond, monitor and review of the effectiveness of risk management measures, and correction of identified gaps. Additionally, it provides a common approach to the prioritization and management of operational and HSE risk and aligns with common industry standard hazard evaluation and risk assessment techniques, including those in use by Stena and other bp contractors or service companies supporting the Orphan Basin Drilling Project. Figure 8 Risk Management Process Flow provides a visual of bp's risk process.

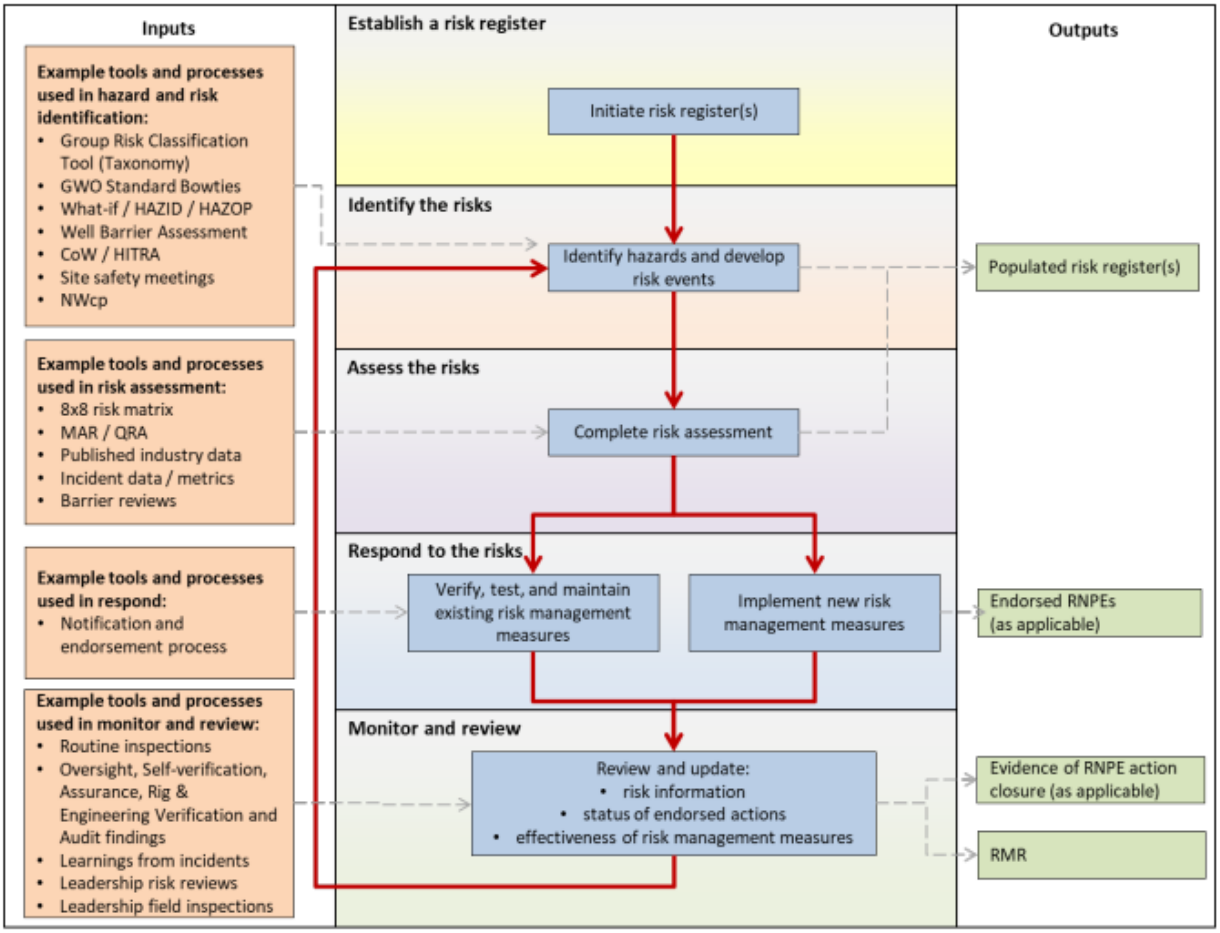


Figure 8. Risk Management Process Flow

bp's priority during oil spill response is to ensure the safety of the public and all oil spill response personnel. Several potential hazards have been identified for response personnel (see Table 4). bp procedures are in place to eliminate or mitigate potential hazards present during an oil spill. The potential health and safety risks associated with oil spill response efforts include (but are not limited to):

Chemical Hazards	Physical Hazards	Environmental Hazards

Oxygen deficiency Total Hydrocarbon Content (THC) Toxic gases Vapors Mists Fumes Dusts	Noise Slips, trips and falls Heavy equipment Hydraulic and pneumatic On-water operations Pressure washers Steam cleaning Fire/explosion hazards Flammable gas generation	Cold stress Heat stress Radiation

Table 4.Hazard Identification Chart

4.2.1 Hazard Identification

All responders must identify hazards and the actions, conditions and possibilities that could lead to an incident. Once hazards are clearly identified, responders can decide what actions or procedures are necessary to eliminate or mitigate the associated risk. Potential actions are managed through the Hierarchy of Controls as shown in Figure 8.

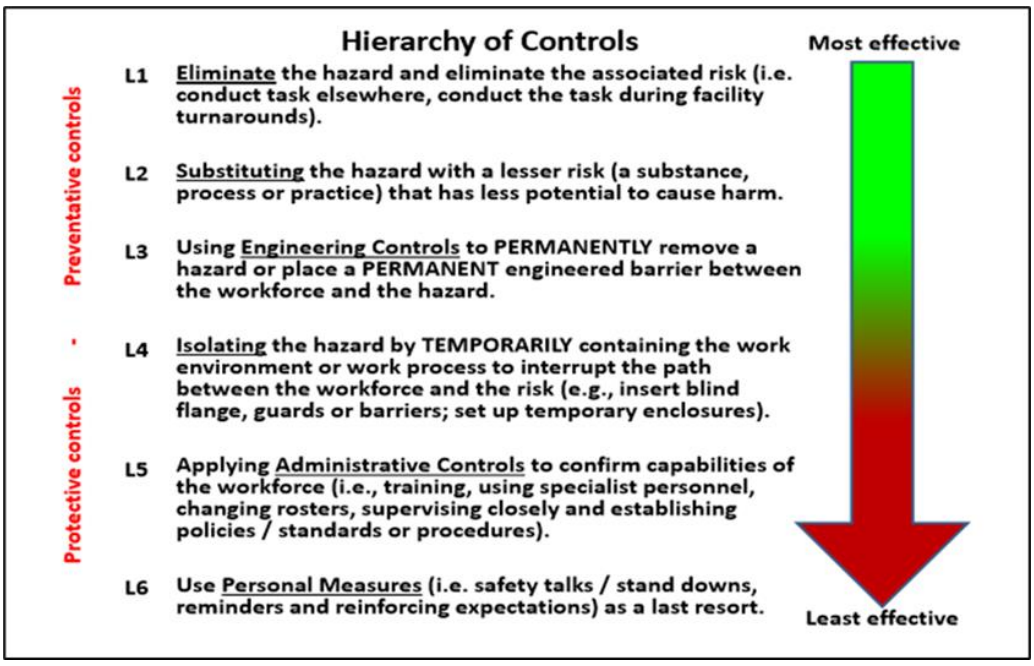


Figure 9. Hierarchy of Controls

4.2.2 Tool Box Talks

Even in an emergency no action is so urgent that workers cannot take the time to plan each task in advance. All hazardous or non-routine work offshore will be preceded by a Toolbox Talk.

This practice includes all oil spill response operations. The purpose of the Pre-Job HSE meeting is to ensure that:

- All workers understand the task to be completed, associated risks and management of change.
- All workers understand who is in charge and are aware of communications procedures.
- The roles, procedures, and equipment required to complete the task are reviewed.
- All anticipated hazards are discussed.

- Mitigative and contingency measures are established in the event that the operation does not proceed as planned.
- All workers understand that they have the authority and duty to stop any job if the task is or becomes unsafe.

4.3 Initial Notifications

In the event of an oil spill, timely internal and external notifications are necessary to initiate appropriate response actions.

5 Reporting Requirements

Details for all HSE-related incident reporting and investigation are contained in bp's *Incident Investigation and Reporting Procedure* (CN002-HS-PLN-600-00005).

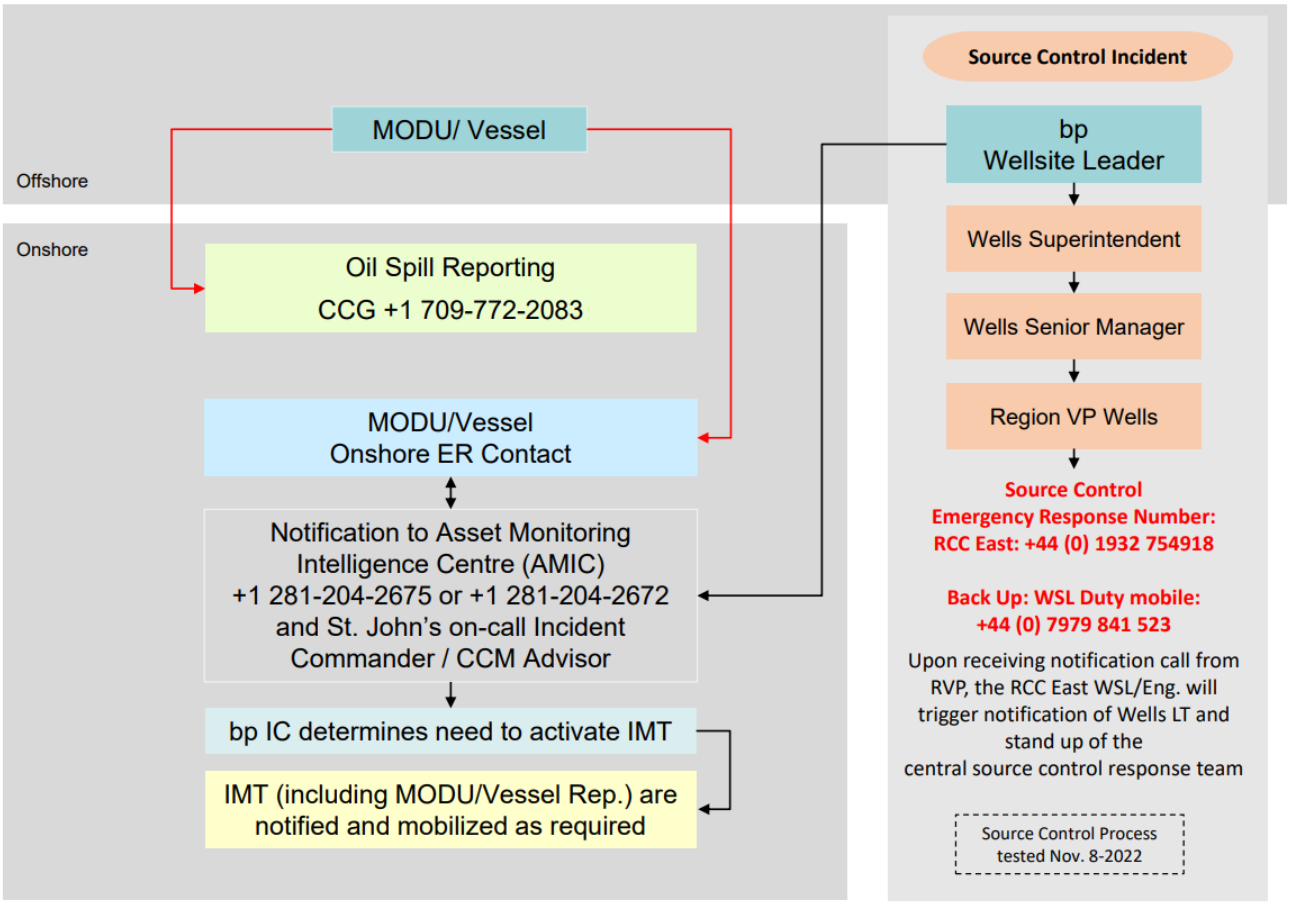
5.1 Internal Reporting Requirements

All those that may be required to assist in a response will be notified as early as possible. They are to be stood down as per instruction from the BST or bp St. John's IC respectively, only when their level of involvement has been accurately assessed. Therefore, the following notification process is to be used:

1. Initial notification is made to the Asset Monitoring Intelligence Centre (AMIC) by the bp Wellsite Leader offshore. The AMIC operator notifies the duty IC in St. John's and the Duty C&CM Advisor.
2. Wherever possible the IC will discuss the incident details with the OSC and mobilize the IMT accordingly. The nature of the incoming report may be such that the IMT is mobilized without contact with the OSC (e.g., ditched helicopter). In these cases, the IMT must form and gather the incident details.
3. If it is a well control event, the IC will notify the VP of Wells GoMC, as per the Incident Notification Chart for Non-US Waters for mobilization of Source Control resources.
4. The IMT will action any appropriate response plans and mobilize the required resources for the incident.
5. If the IMT is activated, the IC will notify the BST Leader (or alternate). The IC and BST Leader will decide if a BST needs to be stood up, and what type of support it would provide. For example, depending on the nature and scale of the incident, the bp St. John's IC may request additional support from Calgary such as HR and C&EA, or MRT support.
6. If the BST mobilizes, the BST Leader will notify the Group Duty Manager, by calling the Response Information Centre, who will liaise with the Duty Segment Executive and Head of Region as required.
7. The BST Leader and Group Duty Manager will review the situation and will consider the requirement to mobilize the EST or request assistance from the MRT.

Figure 10 below provides visual detail on regional notification and reporting related to the Orphan Basin Exploration Drilling Project.

Figure 10. Internal Reporting Requirement



5.2 External Reporting

Reporting Requirements			
Statutory body and contact details	**Spill Volume**		**By Whom**
	< 25 liters	**>25 liters**	
Canada-Newfoundland & Labrador Offshore Petroleum Board (C-NLOPB) C-NLOPB Duty Officer Tel: +1-709 682-4426 Written Notification Form posted on the C-NLOPB website (www.cnlopb.ca) Written notification must be sent to: incident@cnlopb.ca	Written notification as soon as reasonably practicable but no later than 24 hours after any Incident.	Immediate verbal report followed by written notification no later than 24 hours after any Incident.	bp Incident Commander or Delegate
Canadian Coast Guard **Newfoundland Regional CCG Station** Tel:- 1-800-563-9089 (or by calling the vhf Channel 12) The CCG will initiate notification of TC Marine Safety, ECCC, and DFO as part of their own notification procedures.	Immediate verbal report to the nearest Regional CCG Station.		Offshore Installation Manager (OIM) (or PSV/SBV Master if MODU has been evacuated)
Eastern Canada Response Corporation (ECRC) 24 hour Oil Spill Response Services: +1 (613) 930-9690 ECRC St Johns Office: +1 (709) 364-6600 ECRC Administration: +1 (613) 230-7369		Notified in the event of Tier 2 spills or greater. See ECRC Notification Form - Appendix D.	bp Incident Commander or Delegate
Oil Spill Response Limited (OSRL) (U.K.) +44 23 8033 1551 (International Notifications) (USA) +1 (954) 983-9880 (Fort Lauderdale Response Base)		For spills that are, or have, the potential to escalate to Tier 3 or greater or for the use of dispersant. See OSRL Notification Form - Appendix E	bp Incident Commander or Delegate
Joint Rescue Coordination Centre (JRCC) +1-904-427-8200 1-800-565-1582 Email: jrcchalifax@sarnet.dnd.ca			Offshore Installation Manager (OIM) (or PSV/SBV Master if MODU has been evacuated)
Indigenous Groups and Fisheries	Indigenous Fisheries Communications Plan (CN002-CO-PLN-600-00002)		bp Communications Advisor

Table 5.External Reporting

6 Spill Assessment

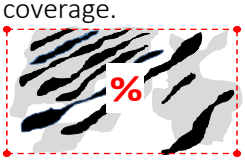
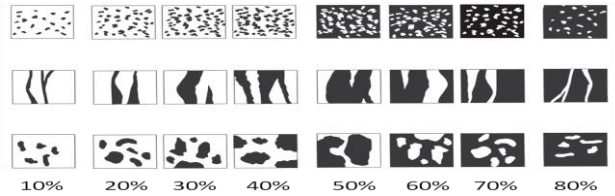
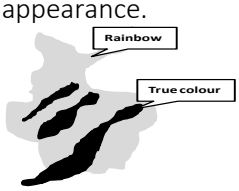
Spill assessment is conducted by the Planning section of the IMT using information provided by field personnel and involves:

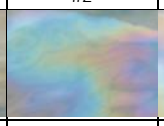
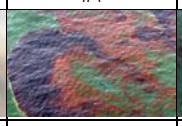
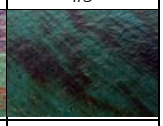
- spill volume estimation
- oil spill surveillance
- oil spill trajectory modelling

6.1 Spill Volume Estimation

There are two methods to estimate spill size:

- Known quantity: for example, if you know that all the oil has been lost from a tank or a hose that contained a known amount, report that amount.
- Unknown quantity: estimate the quantity visually based on the area the slick covers (see Figure 11 and the relationship between the observed oil colour / appearance which determines its thickness (see Table 7).

Step	Procedure
A - Calculate Slick area. 	• Calculate the area of the slick by travelling at a fixed speed and direction along the approximate length of the slick. • Repeat this process for the width of the slick. • Multiply the length and width sums together to obtain the total observed oil slick area in km^2.
B - Calculate percentage coverage. 	• Calculate what percentage of the surveyed area is covered by oil. Use the percentage coverage chart for guidance. • Use the following formula to calculate the area of the slick: *Total slick area [km^2] X % covered by oil [max 100] ÷ 100 = Total oil area [km^2]* 
C -Identify the oil colour/ appearance. 	➢Estimate and record the relative proportions of each colour (appearance) for the whole survey area. Use the BONN Agreement Oil Appearance Code to aid calculation.

Code	#1	#2	#3	#4	#5
Picture Reference					
Appearance	Sheen	Rainbow	Metallic	Discontinuous	True Colour
Thickness Range	0.00004mm 0.0003mm	0.0003mm 0.005mm	0.005mm 0.05mm	0.05mm 0.2mm	>0.2mm

Calculate Oil Volume.	• Calculate the min & max volume for each appearance type. • Formula: *min & max loading X coverage X total oil area.* • Sum the volumes of each appearance type to estimate total min & max volume.
A x B x C = D	

Oil Appearance Code	Thickness [mm]	Loading [m^3/km^2]		Coverage [%]	÷ 100		Total oil area [km^2]		Min volume [m^3]	Max volume [m^3]
1. Sheen	0.00004 to 0.0003	0.04 0.3	X		/100	X		=		
2. Rainbow	0.0003 to 0.005	0.3 5.0	X		/100	X		=		
3. Metallic	0.005 to 0.05	5.0 50	X		/100	X		=		
4. Discontinuous true colour	0.05 to 0.2	50 200	X		/100	X		=		
5. Continuous true colour	>0.2	+200	X		/100	X		=		
							Total Spill Volume			

Figure 11. Spill Volume Estimate Chart

6.2 Oil Spill Surveillance and Tracking

The surveillance strategy will be implemented as soon as a notification of an incident is received with the following actions:

1. Obtain first visual observations from the MODU (if safe to do so) and support vessels on site.
2. Deploy satellite tracking buoys from MODU or support vessel in the spill.
3. Mobilize aerial surveillance aircrafts.
4. Satellite imagery may be obtained from OSRL if necessary.
5. Reassess aerial surveillance needs throughout the response.

If the spill scenario requires so, these assets may be supplemented by other means such as airborne remote sensing, aerostats (tethered balloons with remote sensing equipment) and Unmanned Aerial Vehicles (UAV/drones). These tools will be tasked to specific surveillance missions such as monitoring operations or wildlife. Each of these tools have advantages and disadvantages, and no single tool will provide all surveillance requirements and therefore a suite of surveillance tools will be deployed to provide a 24-hr comprehensive surveillance capability based around aerial visual observation and satellite imagery. Oil spill trajectory modelling will also be used and will be validated by the surveillance from multiple platforms.

6.3 Oil Spill Trajectory Modelling

Oil spill trajectory modelling provides information on potential movement of oil slicks. This information supports the decision-making process for identifying resources at risk and mobilization of response resources.

Oil trajectory is evaluated using two methods:

Manual calculation:

Responders estimate oil trajectory with vector addition using 3% of wind speed and direction and 100% of current speed and direction. Results are plotted by hand on a marine chart or topographic map. This method provides a rough estimate of potential oil movement over time (see Figure 12 illustration below).

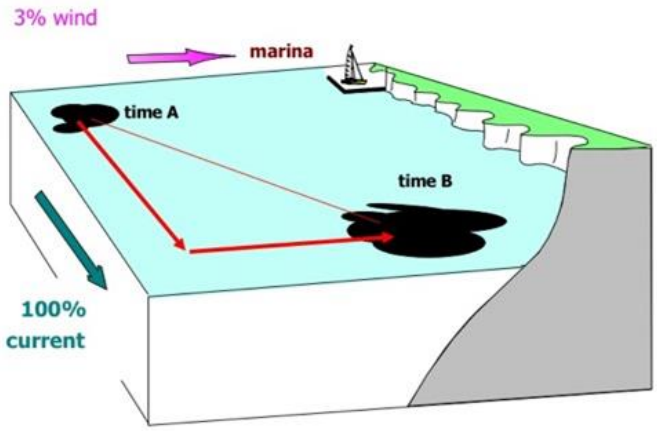


Figure 12. Oil Trajectory – Manual Calculation

Computerised oil trajectory modelling:

These models provide reliable oil movement predictions (2D and 3D) as well as detailed information about oil weathering such as evaporation, emulsification and natural dispersion.

In the event of a spill, the Planning section may request trajectory modelling from various sources as shown in Table 6 below.

Provider	Model
bp Sunbury / Houston	OSCAR, OilMap
OSRL	OSCAR, OilMap
ECRC	OilMap

Table 6.Trajectory Modelling Sources

For smaller spills, ECRC will be requested to run trajectories using OilMap with results likely available within a 6-hour period.

For larger or more complex spills (such as loss of well control), modelling will be done internally at bp using OSCAR with results likely available within a 12- to 24-hour period. OSRL modelling capacity is used as a backup solution.

All models will require spill data to calculate trajectory and behaviour such as:

- oil properties
- spill information (location, volume, source, continuous spill or not, etc.)
- met-ocean data (weather forecast, currents, tides)

It is important to note that oil spill trajectory calculations provide an estimate of oil movement and potential behaviour. The results must be validated by actual spill surveillance.

6.4 Response Information Management

bp will utilize the OneMap system to establish a Common Operating Picture (COP) during an incident. The system integrates and synthesizes various types of information, provides a map interface to all individuals involved in an incident, improves communication and coordination among responders and stakeholders, and provides resource managers with the information necessary to make faster and better-informed decisions. It can also provide for different views for various responders and stakeholders (e.g., Incident Command, regulators, public), based upon the most current data available.

The Situation Unit (responsible for coordinating with external agencies for mapping and data verification, QA/QC) ensures a fully validated and correlated operating (maritime) picture between all parties generating maps and materials for operational and external distribution.

6.5 Situational Awareness and Common Operating Picture

During an oil spill response, all effective and feasible response tools will be activated and used simultaneously to maximize the effectiveness of the response.

Should simultaneous operations (SIMOPS) response occur, the probability of a hazardous or conflicting event is increased as numerous assets will be working at the same time in close proximity. Coordination of SIMOPS and effective communications are necessary to ensure all activities are performed in a safe and controlled manner. bp has established SIMOPS procedures which will be followed during a spill response, and an incident specific SIMOPS plan will be developed if required and adapted with the scale of the spill (Figure 13).

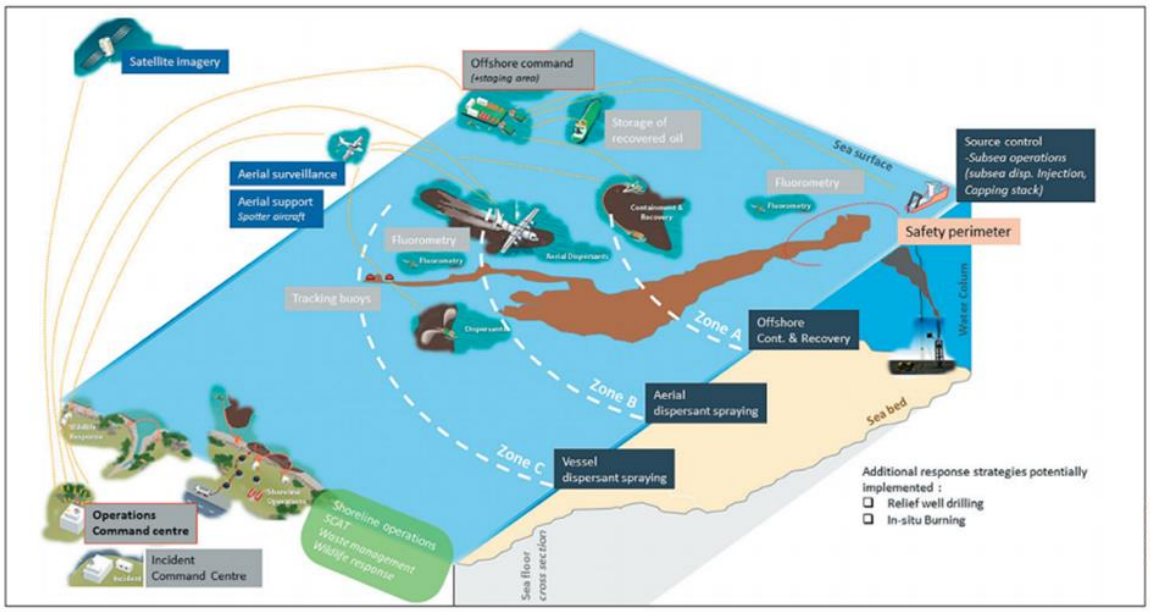


Figure 13. Simultaneous Operations Concept

7 Response Resources

Resources for spill response include those available locally, regionally and internationally through contracts and Memorandums of Understanding (MoUs). Some or all of these will be activated during a spill response depending upon the severity and nature of the spill. In the event of an incident, the initial response operations will be conducted by bp-contracted vessels assisting with drilling operations. Pre-staged equipment will be deployed if it is feasible and safe to do. This includes equipment for containment and recovery and vessel dispersant application.

For larger spills that cannot be managed by resources on site or for in-situ burning operations, additional Vessels of Opportunity (VOOs) will be activated and fitted with the required equipment. The IMT will escalate the response by cascading response equipment from the shore supply base, from the ECRC in St. John's, and/or OSRL, as required. If aerial dispersant application is employed, resources will be deployed from OSRL in the UK, with additional resources if required.

7.1 Containment and Recovery Resource Inventory

bp can contain and recover oil from the sea surface using two general techniques. In the first, oil is corralled inside an impermeable floating boom then removed from the surface using a skimming device. The second method employs a floating oleophilic sorbent boom which both corrals the oil and removes it from the surface.

The conventional boom and skimmer system require considerable mobilization although it can be used over an extended period to collect large volumes of oil. The equipment is restricted by sea state and towing speed.

The sorbent boom can collect as much oil as will adhere to its surface, making it effective for smaller spills. The lightweight sorbent boom has no subsurface skirting and offers little resistance in the water. It can be towed at higher speeds and can be used in higher sea states than conventional containment boom.

7.1.1 Sorbent Boom

An inventory of 320 feet of sorbent boom is stored on each supply vessel. Additional supplies are available as required. The boom is 8 inches in diameter and 10 feet in length and is packaged in bundles of 40 feet. The sections clip together with an overlap to form a boom system of any length (in 10-foot increments). The boom can be stretched between the side of the supply vessel and the end of the vessel crane to be used in a side sweep configuration (see Figure 14). Due to its sorbent capacity this boom could be deployed in an extended length with a loose end trailing through the slick.

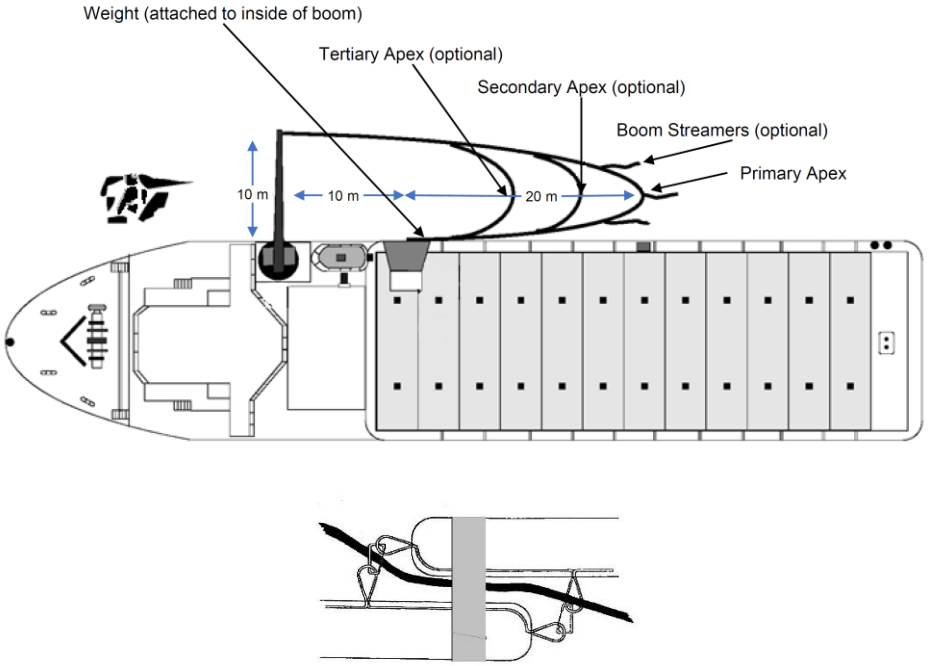


Figure 14. Sorbent Boom Towing Configuration and Junction

Producing operators within the Offshore Newfoundland region maintain joint ownership of three Single Vessel Side Sweep (SVSS) response systems. Through bp's MEAA with those operators access to the SVSS can be made possible and considered for deployment as part of an incident specific response plan. bp's current support vessel fleet can readily accept SVSS for sea fastening and deployment.

7.1.2 Two Vessel Containment System

Most open-ocean containment and recovery systems consist of a long section of floating boom towed in a wide arc by two vessels. Typically, one of these vessels will be equipped with a floating skimmer to recover oil collected at the apex of the towed boom. Most towed booms must be towed at very low speeds (< 1 knot) to ensure efficient oil collection. For this reason, the oil encounter rate is increased by the larger swath width a two-vessel operation can offer. The two-vessel deployment is shown in the Figure 15 below.

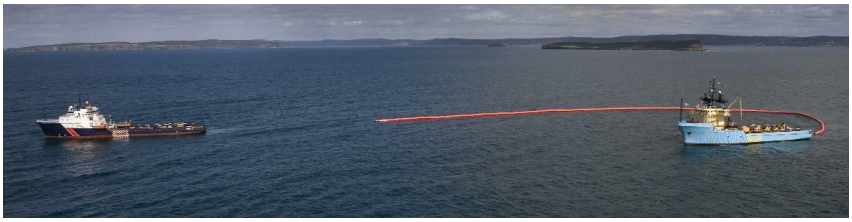


Figure 15. NorLense 1200-R Boom – Two Vessel Deployment

For more details see *Containment and Recovery Tactical Response Plan* (TRP) (CN002-CM-PLN-600-0003).

7.2 Dispersion Resource Inventory

7.2.1 Mechanical Dispersion

Mechanical dispersion is the best method of dealing with thin layer slicks. Prop washing or physical dispersion with a vessel's fire-fighting equipment can be used.

There are several prop-washing techniques. For long streaming slicks, the vessel can cut back and forth along the axis of the slick from the source to the ultimate end of the slick. If the slick is concentrated or thicker, in one area, the vessel may use its thrusters and main propulsion to rotate inside the slick for maximum mixing.

When winds exceed thirty knots or sea states exceeds three meters, natural mixing and dispersion of the spill is enhanced. When conditions exceed the safe operating limits of equipment, the response should shift from active response options to surveillance and monitor the effects of natural forces.

7.2.2 Chemical Dispersion

Dispersants can be used rapidly and selectively to treat a spill over large areas. The high-speed application rate along with the elimination of the need for recovery, storage, shipping, and disposal of spill response waste makes the use of dispersants a highly attractive option.

The effectiveness of chemical dispersants varies depending on prevailing environmental conditions. Corexit 9500A is on the list of chemicals acceptable to Environment and Climate Change Canada (ECCC). In larger applications, it is probable that ECCC will require post application water sampling to determine the effectiveness of the chemical.

Dispersants may be considered for application on slicks in cases where seabirds are at immediate risk of oiling. In these cases, chemical dispersion should be considered but only if the net environmental benefit of the chemical dispersion outweighs any impact caused by the chemical itself.

The use of chemical dispersants for offshore spill response is regulated by ECCC. No dispersants will be used by bp without prior approval. Refer to bp's SIMA for further detail on chemical dispersion.

7.2.3 Aerial Dispersant Application

For larger spills, it may be desirable to deploy dispersants using an aerial spray system. OSRL may be used if aerial dispersion is required.

It is likely that Tier 3 resources may be mobilized in the event of a major offshore spill response. As part of this effort OSRL may be asked to provide airborne dispersant capability.

Airborne operations will only be considered in cases where a large volume of oil can be effectively treated. An operational plan will be required before dispersants are applied.

Figure 15 depicts the OSRL TERSUS Dispersant Aerial Spray System. It provides a visual of the onboard system components and application equipment.

Figure 16. OSRL TERSUS Dispersant Aerial Spray System

When to consider using Dispersants:

- Oil characteristics are suitable for safe and effective dispersion
- The thickness of the oil is sufficient to allow efficient application
- Sufficient water depth to allow complete mixing of oil and chemical
- Sensitive environmental or social resources are at risk of oiling
- Physical recovery methods or natural dispersion will not be adequate
- Weather or sea state conditions exceed safe working limits for physical recovery

The application of dispersants may be conducted, if authorized. For larger spills, resources will be managed by the IMT. The IC will escalate the response by cascading response equipment from the shore supply base or from ECRC for a Tier 2 incident and OSRL for a Tier 3 incident.

For further detail refer to the *Dispersant Tactical Response Plan* (CN002-CM-PLN-600-00004).

If aerial application of dispersants is implemented, B727 aircraft will be mobilized from OSRL in the UK. Should a well control incident occur for which the use of subsea dispersant injection is approved, the *Capping and Containment Response Plan* (CN002-CM-PLN-600-00021) will be utilized.

7.2.4 Vessel Dispersant Application

Dispersants are applied using vessels fitted with a dispersant spray system. The spraying system consists of spraying arms fitted with adapted nozzles, a pump and a stock of dispersants. Systems using spray booms are mounted on the vessel as far forward as possible in order to benefit from additional mixing energy provided by waves generated by the vessel and its propellers. The vessel must sail at speeds between 1 to 10kts targeting thicker areas (black/brown oil) of the oil slick. Vessels can carry larger supplies of dispersants and stay “on station” for longer periods than aircraft. However, they are less rapid, and coverage is more limited.

Figure 17. Vessel Dispersant Application

7.3 InSitu Burning Resource Inventory

Full scale experiments have shown that fresh crude oil can be effectively burned while on water if conditions are good and if the oil has been thickened through booming. Ideally, burning is done inside a fire-proof boom to allow all oil to burn without escaping.

The decision to use in-situ burning techniques will be made based on:

- The probability of success.
- The effort required to collect oil to be burned.
- The net environmental benefit of the action.

Although In-Situ-Burning has not been accepted as a viable spill response approach in THE C-NLOPB jurisdiction, the Newfoundland Offshore Petroleum Drilling and Production Regulations, paragraph 68(b), contemplate burning oil in an emergency. As a result, any decision to burn will be made in consultation with ECCC and NEEC. Refer to the project SIMA for further detail.

There are two scenarios where in-situ burning should be considered:

- In pack ice where the oil may collect and thicken naturally between floes; and
- In a blow-out (after a risk assessment) where fresh oil is being continuously released over an extended period allowing timely mobilization of fire booms

In-situ burning (ISB) resources are available regionally and internationally through contracts and MoUs. Some, or all, of these will be activated, if authorized, during a spill response depending upon the severity and nature of the spill. If weather and sea state are favourable, strike teams using VOOs in the area will be established for the deployment of required equipment and personnel. For larger spills that cannot be managed by resources on site, the IMT will escalate the response by cascading response equipment from OSRL and other bp global operations if necessary. For more details see *InSitu Burning TRP* (CN002-CM-PLN-600-00006)

7.4 Surveillance Resource Inventory

Resources for surveillance and spotting include bp owned iSphere satellite tracking buoys, which are stored on board each Platform Supply Vessel (PSV) and the MODU and can be launched immediately following an incident. Additional resources available regionally and internationally through contracts and MoUs include satellite imagery, surveillance aircraft, airborne remote sensing, aerostats, UAVs and trajectory modelling. Some or all will be activated during a spill response depending upon the severity and nature of the spill. For more detail see the Modelling, *Surveillance and Forecasting* TRP(CN002-CM-PLN-600-00009).

7.5 Cascading Resources

Acquiring and mobilizing additional response resources should a spill escalate into a sustained response may require cascading equipment from unplanned sources and/or exhaust immediately available inventories of expendable supplies. This may include human resource needs, manufacturing of expendable supplies, out-of-region resources, government-owned resources and international resources.

7.5.1 Response Personnel

Additional personnel resources for spill response may be procured by cascading from within bp via the MRT, and through ECRC. ECRC has response centres with trained and experienced personnel that may be available.

7.5.2 Out of Region Resources

bp may request mobilization of spill response resources (skimming vessels, fire boom, dispersants, aircraft, etc.) from response contractors or other providers located in other regions of Canada. OSRL maintains an inventory of oil spill equipment including offshore containment and recovery equipment, ISB equipment, a dispersants stockpile and dispersant application equipment. A current list of equipment is available on the website: http://www.oilspillresponse.com/activate-us/equipment-stockpile-status-report

7.5.3 Specific Expertise

bp maintains a roster of specialized oil spill response experts who are readily available and managed through the MRT. Additional technical specialists may be procured through the Standing Agreement with ECRC and OSRL who maintain current lists of advisors and specialized service providers. Subject matter experts (SMEs)and consultants who may be utilized include, but are not limited to:

- scientific support (including hazard assessment and spill/air trajectory modelling)
- shoreline clean-up assessment technique (SCAT) specialists
- wildlife protection experts

7.6 Other Potential Resources

ECRC maintains an “evergreen” list of local VOOs to supplement its response vessel resources and support specific spill response activities as necessary. This list may be accessed through the Standing Agreement with ECRC.

Typical categories of VOOs that may utilized include:

a) contracted maritime vessels (vessels already contracted, owned or operated by the responsible party, but not dedicated to spill response services)

b) dual-certified commercial vessels (vessels authorized and configured for quick conversion to skimming and oil storage operations)

c) public vessels (CCG, DFO)

d) commercial maritime vessels (platform supply vessels, offshore supply vessels, crew boats, commercial tugs or push boats, maritime construction vessels, lift boats, tank barges, and tank ships)

e) commercial fishing vessels

f) private vessels.

The identified response activity; required support for that activity, and the operating environment will dictate which type of VOO is most appropriate. Considerations for VOO selection includes, but are not limited to:

a) type of vessel required for the response function (size, storage, berthing, safety systems).

b) proximity to spill location or load-out port.

c) availability of above deck storage for response equipment (as appropriate).

d) availability and appropriateness of on-board tankage to contain the grade of oil being recovered.

e) sea keeping and weather-related operational characteristics.

f) level of crew training required based on assigned activities.

8 Spill Response Strategies and Tactics

The intent of this section is to outline the approach used by bp for developing a response strategy; specifically:

- understanding the spill risks / events.
- identifying and selecting spill scenarios – what can spill, how much, the fate and transport of the oil, and potential impacts of a spill.
- developing response strategies – the collection of response tactics that might be employed, including when and where, informed by a Spill Impact Mitigation Assessment (SIMA).

Subsequent sections of this Plan, including the associated TRPs, outline the steps and requirements to implement the response strategy. Additionally, the Spill Response Strategy / Tactic Selection Guide shown in Figure 17 can aid in termination of appropriate response actions.

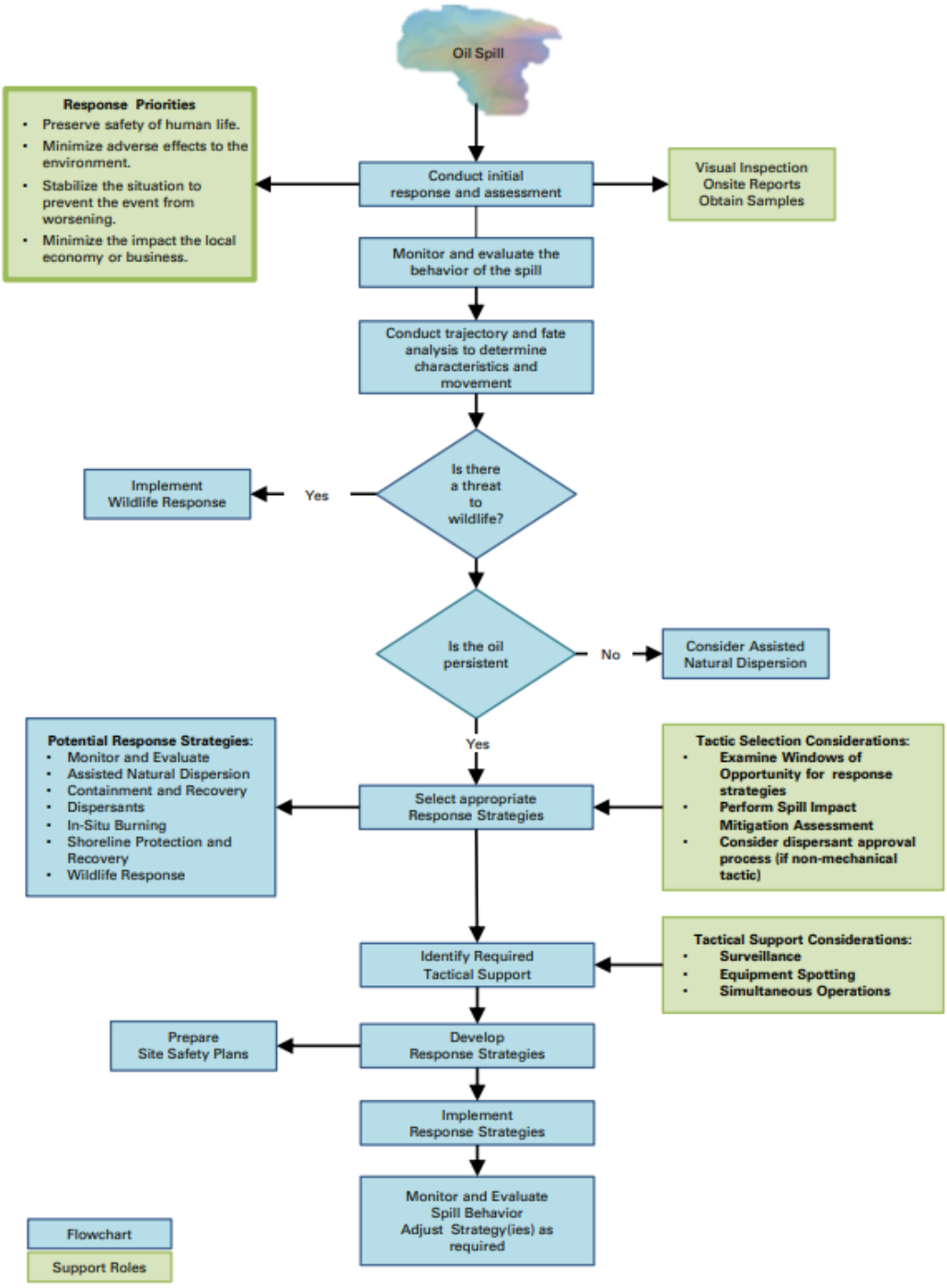


Figure 18. Oil Spill Response Strategy / Tactic Selection Guide

8.1 Spill Events / Scenario

The potential spill events identified for this Project are:

- PSV Spill
- MODU Spill
- Synthetic-based mud (SBM) Spill (Surface)
- SBM Spill (Sub-Surface)
- Loss of Well Control

8.2 Spill Impact Mitigation Assessment (SIMA)

A SIMA is a structured, scientific and consensus-based tool used by bp to help select the most effective and feasible oil spill response option(s) that will yield the greatest benefit with the least net environmental and socio-economic effects.

The SIMA conducted for this project utilized stochastic modelling runs, based on the selected scenario, to help determine the full geographic area for response. A worst case seasonal deterministic model run was used to help further define various planning criteria and for individual response techniques and capability. Additional modelling was conducted to validate the assumptions of the primary modelling site. The results of the planning SIMA for this project can be found in the bp *Orphan Basin Spill Impact Mitigation Assessment* (CN002-CM-PLN-600-00018).

8.3 Response Strategy Summary

Based on the worst-case scenario, and informed by the considerations and limitations as presented in the SIMA, bp's response strategy to a loss of well control event in this plan consists of:

- A comprehensive situational awareness, both surveillance and monitoring
- A focus on mounting a timely, robust, continuous dispersant operation offshore initially using vessels, followed by the use of aerial and subsea delivery if required.
- Implementation of containment & recovery, ISB, and shoreline protection tactics when conditions permit.
- A robust oiled wildlife response, including measures to keep wildlife from the oil to the extent practical.
- An effective shoreline response and waste management strategy planned and executed in conjunction with affected/likely to be affected jurisdictions.

A decision guide is provided in Figure 18 and indicates the progression of decisions and considerations used to select the most appropriate response options and develop an overall strategy for the response.

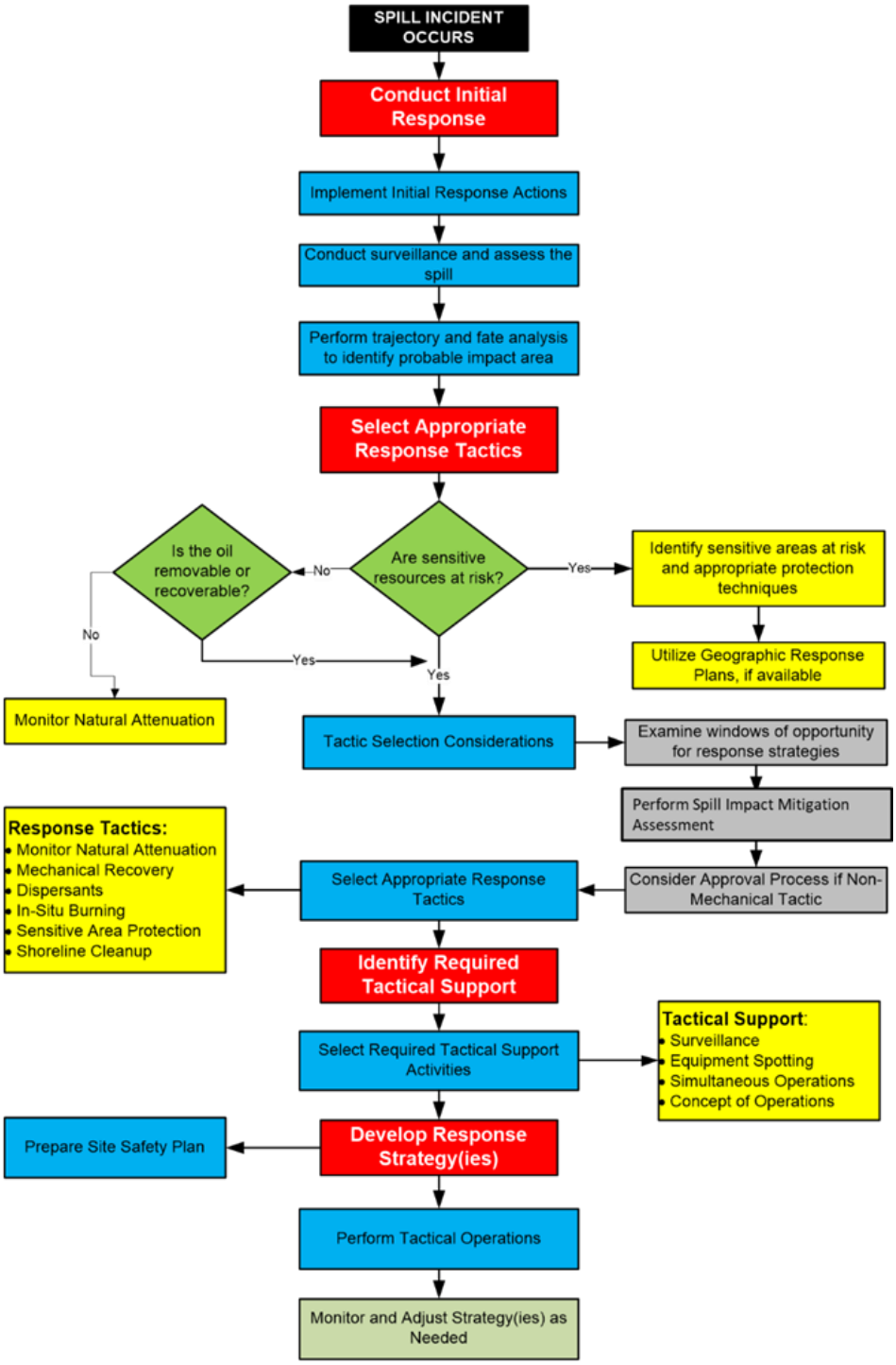


Figure 19. Spill Response Strategy Decision Guide

8.4 Response Tactic Selection Considerations

When selecting the most appropriate response tactic(s) as part of the response strategy development, certain considerations include:

1. Windows of Opportunity
2. Non-Mechanical Countermeasures
3. Non-Mechanical Removal Technique Approval

8.5 Window of Opportunity

Response techniques have "windows of opportunity," specific timeframes and/or environmental conditions during when each response method works the best. These windows are defined by the type of product spilled, the initial spill conditions, product weathering and emulsion rates, and the different environments that are, or will be, impacted. When the methods are used within these windows, they are more effective and less damaging to organisms, thereby reducing the time affected environments need to recover. An example is ISB which is most effective in low wind and wave conditions and on un-weathered oil. If a storm is forecast to arrive before in-situ burning can be implemented and is expected to emulsify the oil, the window of opportunity for this option will have passed and it would not be considered for inclusion in the response strategy.

Assuming there is not a continuous source, three primary time-related windows exist following an offshore oil spill (very early, early, and later). Within each window, certain spill control measures may be taken to minimize adverse safety, health and environmental effects. For spills with an extended continuous source, all three windows may be open concurrently. Both time and conditions-related windows of opportunity descriptions are provided in Table 7.

Timeframe-Related	Description and Response Strategies
Very Early	• Open from the first hours of the spill, up to 1-2 days. • Oil is fresh and concentrated near the discharge source. • Responders focus on source control, containment near the source, and removal with dispersants, high volume skimming and/or in-situ burning.
Early	• Open for several days to weeks. • Oil is weathering and its physical properties are changing. • Responders work to minimize the spread of oil, prevent it from contacting resources at risk, and protect sensitive areas. • Removal strategies may transition to near-shore, highly mobile skimming.
Later	• Open for weeks or months. • Oil may become stranded on shorelines, pick up debris and continue to weather. • Responders use shoreline cleanup strategies to minimize environmental effects and enhance natural recovery. • Offshore operations are typically terminated
Conditions-Related	**Description and Response Strategies**
Calm winds and sea conditions, no adverse weather conditions	• All available response strategies are generally applicable, except for dispersant application (requires surface disturbance for mixing energy).
Moderate winds and sea conditions and / or significant adverse weather conditions (i.e., fog, rain, extreme cold)	• Vessel-applied dispersants may be possible if conditions allow. • Aerial dispersant application if visibility is sufficient. • High-volume skimming may be possible for larger oil spill removal vessels. • Limited visibility oil spill monitoring/tracking such as UV/IR cameras or radar. • Some "monitored natural attenuation" may occur.
High winds and sea conditions and/or major adverse weather conditions (i.e., thunderstorms, tropical cyclones, winter storms)	• "Monitored natural attenuation" may be the only possible strategy. • Oil spill monitoring/tracking may be restricted at certain intervals. • If trajectory analysis indicates the spill may move towards shorelines, transition into shoreline protection and cleanup planning since offshore removal is not possible.

Table 7.Time- And Conditions-Related Windows of Opportunity Descriptions

8.6 Non-Mechanical Countermeasures Authorization

Prior to initiating ISB, bp will advise the C-NLOPB. bp understands that the C-NLOPB may solicit advice from the Science Table. Unless explicitly advised to halt the ISB by the C-NLOPB, bp will proceed with ISB operations if it is determined to be an effective and feasible response option for the specific incident.

Approval from C-NLOPB must be obtained prior to the use of dispersants. Any dispersant used must be on the Canadian Spill Treating Agents list; only Corexit EC9500A is currently approved for use in Canada, and is the only dispersant considered for use in this plan. The C-NLOPB will accept or decline the use of dispersant based on the incident-specific SIMA and dispersant operations plan submitted at the time of the incident. bp will submit a dispersant use request to the C-NLOPB.

8.7 Tactical Support Activities

When developing a response strategy (or strategies), the associated tactical support activities must be identified and included in each strategy. The most common tactical support activities are:

- Containment and Recovery TRP
- Dispersant TRP
- Modelling, Surveillance and Forecasting TRP
- In Situ Burning TRP
- Waste Management TRP

Additionally, SIMOPS Plans will be used when there is a potential for interaction and conflict between multiple operations.

8.7.1 SIMOPS

Simultaneous operations may result in potential safety hazards, logistical conflicts, operational conflicts and /or the need to schedule activities in a certain order. For the purposes of oil spill response planning, SIMOPS involves multiple concurrent activities such as, but not limited to, source control operations (i.e., well containment), subsea dispersant application, in-situ burning, surface dispersant application, and mechanical recovery. SIMOPS includes multiple entities and multi-disciplined workforces engaged in a wide variety of 24-hour activities.

The SIMOPS function, accountable to the Ops Section Chief will:

- Track operations activity.
- Ensure that simultaneous operations are conducted in a safe manner.
- Liaise closely with marine and aviation functions in the IMT in preparing SIMOPs plans.
- Advise marine and aviation parties of the rules and policies regarding SIMOPS.

If required, a SIMOPS Plan will be developed for the incident. The potential elements of the SIMOPS Plan may include, but are not limited to:

a) general roles and responsibilities of SIMOPS positions onshore and offshore.

b) SIMOPS facilities and contact information (both onshore and on-scene).

c) specific role and responsibilities of the SIMOPS Group Supervisor, Offshore Vessel Control SIMOPS Task Force Leader, and any other designate positions.

d) SIMOPS Area boundaries (size, description and charts/diagrams).

e) communication procedures in the SIMOPS Area.

f) acoustic frequency management and position referencing for subsea objects and operations (e.g., ROVs, tools, wet storage items).

g) check-in/check-out procedures for the SIMOPS Area.

h) Metocean limitations for major activities including severe weather operating and evacuation procedures.

i) SIMOPS Daily Operations Action Schedule (master activity tracking tool for vessels working in SIMOPS area as well as vessels in stand by status and in staging area).

j) figures, tables and illustrations that show examples of SIMOPS vessel tracking, communications plan, daily operations schedule, SIMOPS boundary area.

k) required forms or work plan templates.

l) Ice Management coordination activities.

A SIMOPS situation status display will be used to display subsea equipment, vessel and aircraft locations, and track the status of all concurrent operations. This information will be updated (real time or periodically) as well as accessed, viewed and/or communicated to external parties (e.g., technical specialists).

8.8 Waste Management

Oil spills to the marine environment can generate significant amounts of oily waste that need to be collected and disposed of properly, in accordance with all applicable laws and regulations. bp has developed a Waste *Management TRP* (OSWTRP) (CN002-CM-PLN-600-00009)

8.9 Decontamination and Demobilization

The overall objective of decontamination is to minimize worker exposure and limit secondary contamination through the spread of oil to uncontaminated areas.

In the event of a spill, an incident-specific Decontamination Plan will be developed by bp to be appropriate with the nature and extent of the spill. The Decontamination Plan describes the general strategies for decontaminating personnel and small equipment at localized decontamination facilities during on-going response operations; decontamination must be coordinated with Site Safety Plan requirements. A separate plan may be required to describe larger-scale decontamination facilities and procedures for major equipment (vessels, barges, storage tanks, skimmers, boom, etc.) at designated locations, often performed as part of demobilization.

Prior to implementation of the Decontamination Plan, bp will engage with the relevant regulatory agencies dependant on where decontamination activities will occur to ensure acceptance of the proposed plan. The PSC will support development of the Decontamination Plan with input from Operations and Logistics. See the *Decontamination and Demobilization TRP* (CN002-CM-PLN-600-00010).

8.10 Wildlife Response

As a stand-alone plan, the bp *Orphan Basin Wildlife Response Plan* (CN002-HS-PLN-600-00001), has been developed to provide specific guidance and strategies to effectively manage the wildlife response. The wildlife response plan includes information and procedures regarding all aspects of wildlife response.

9 Incident Termination and Debrief

Termination of response will be determined by the IMT in collaboration with government agencies. Considerations for terminating a response include:

- sensitive areas are no longer threatened.
- no recoverable oil remains on the water.
- only residual, immobile oil remains on the shorelines.
- shoreline clean-up endpoints have been met.

Termination will identify the last Operational Period for planning purposes. The incident site will return to normal management and business activities. At termination, the IMT will stand down and submit all equipment and documentation to the Planning Section.

9.1 Transition to Project Teams

After spill response activities have terminated, additional activities may continue for some time. These may include investigations, legal challenges, financial claims, restoration, long-term monitoring, and human resource activities. bp may establish a project team (or teams) to continue long-term incident-related activities.

9.2 Response Debrief / Critique

After incident termination, the IC will initiate an evaluation of the response. This evaluation is focused on how the response was managed, not the cause of the incident. All appropriate personnel and external responders that participated in the response may be asked to contribute to the evaluation through a formal or informal lessons-learned briefing.

The evaluation may include, but is not limited to:

- general site characterization information.
- description of incident type and circumstances.
- immediate emergency actions undertaken.
- notification and alert.
- organization and efficiency of the IMT.
- resources utilized and their efficiency.
- lessons learned.

9.3 Incident Final Report

A final report of the incident will be developed for internal use. The final report will capture all incident documentation and information from response evaluations.

The final report may include, but is not limited to:

- initial event summary.
- key response activities.
- response resource use and efficacy.
- summary of lessons learned.
- recommended improvements in response planning or preparedness.
- financial impact analysis.
- legal impact analysis.
- future operational or business recommendations.

10 Training and Exercise Program

The Training and Exercise Program is a critical component of bp's oil spill preparedness. Training sessions and exercises are conducted regularly to improve and evaluate bp's capability to execute one or more portions of its response plans. They are used to improve both individual skills and the overall emergency management system. A comprehensive program is made up of progressively more complex and demanding situations, each one building on the previous; culminating into an exercise that is as close to reality as possible to measure the capabilities of the team. Details of the Project Crisis & Continuity Management (C&CM) -related training and exercise program can be found in the *bp Incident Management Plan* (CN002-CM-PLN-600-000013).

10.1 Training Program

Spill response training is structured to provide a variety of skills to the team that may be assembled in the event of an offshore spill. bp's spill response training program is aligned with that of other offshore Newfoundland Operators. A summary of training modules is presented in Table 8.

10.2 Spill Response Management Training - Onshore

Presented to selected members of the IMT, this training provides:

- An overview of spill response and response management, including types of spills, regulatory framework and environmental issues.
- An introduction to the role of ECRC in an offshore response, including the operation of ECRC's Response Centre and an introduction the ECRC spill management system and how it related to bp's IMS.
- ICS 300 - The course is designed to enable personnel to operate efficiently using the ICS in a supervisory role on expanding incidents.

10.2.1 Operational Training - Offshore

bp will ensure that key field personnel receive practical instruction in spill response operations. Emphasis will be on Tier 1 response training.

10.2.2 Tier 1 Spill Response Orientation

Intended for offshore management and supervisory personnel. i.e. OIM, Vessel Master, and WSL). This training is focused on Tier 1 response and first response actions for a larger spill. Offshore personnel are provided with an overview of:

- The nature of offshore spills.
- Notification procedures.
- An overview of the Oil Spill Response Plan.
- Spill response preparation.
- Review of available spill response resources.
- Determining first response strategies.

Tier 1 Vessel Spill Response Training

Crews of bp's chartered supply vessels receive annual hands-on training that includes:

- Surveillance Procedures
- Wildlife Response Plan (CN002-HS-PLN-600-00001)
- Oil and Wildlife Sampling Procedures
- Sorbent Boom Handling
- A review of good practices in spill response

Safety during a spill response operation is covered in this module and is delivered to both installation and supply vessel personnel.

IMT Role	Management Training			Operational Training			
	Tier 1 Spill Response Orientation	General Spill Response Orientation / ECRC / OSRL	ICS 300	Surveillance Procedures	Oil and Wildlife Sampling Procedures	Wildlife Response Plan	Sorbent Boom Handling
Onshore Personnel							
Incident Commander		✓	✓				
Operations Section Chief		✓	✓				
Planning Section Chief		✓	✓				
Logistics Section Chief		✓	✓				
Safety / Liaison Officer		✓	✓				
HR Officer		✓	✓				
Public Information Officer		✓	✓				
Contractor Representative		✓					
Offshore Personnel							
MODU Management	✓						
MODU Weather / Environment Observer	✓			✓	✓	✓	
Supply / Standby Vessel Crew	✓			✓	✓	✓	✓

Table 8.Spill Response Training Matrix

10.2.3 Spill Countermeasures Exercise (Synergy)

Synergy is an integrated spill response options exercise facilitated by ECRC. This annual exercise emphasizes the integration of operator owned equipment and contractor resources, response management and communication processes.

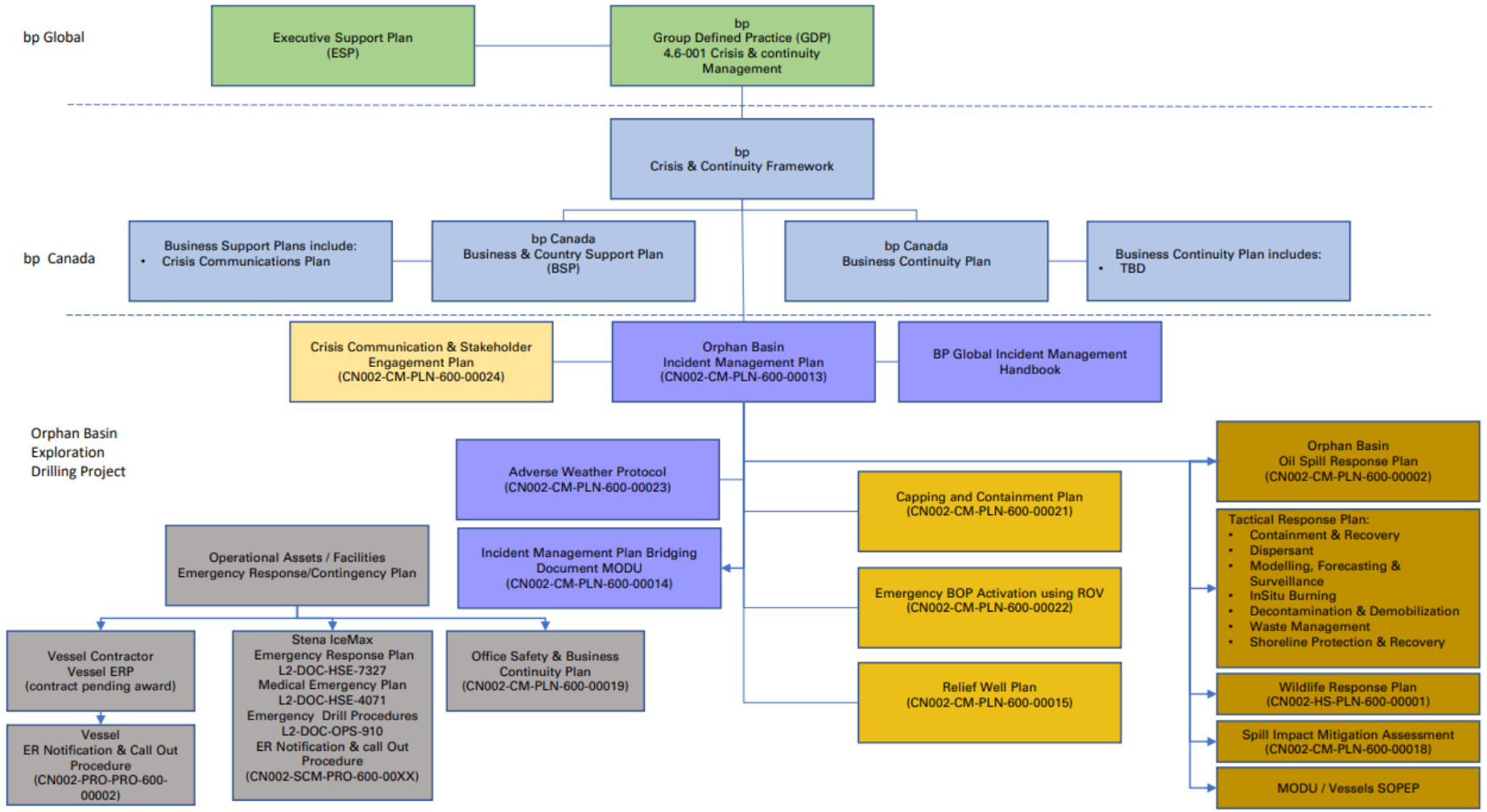
10.3 Exercise Program

The Exercise Program helps to ensure that personnel are well prepared to respond to an incident. It also helps to test the plans and the procedures that are in place and provides an opportunity to correct any lessons learned before an incident occurs. Exercises bring together responders in various roles and from various agencies, including regulatory agencies, support agencies, contractors and SMEs. This allows those most likely to be involved in an incident an opportunity to work together in a constructive environment and to practice their roles and responsibilities.

Exercises will be scheduled and conducted in accordance with regulatory requirements and/or internal requirements.

As per EA Condition 6.8 the Proponent shall conduct an exercise of the Spill Response Plan prior to drilling activities as recommended in the Newfoundland Offshore Drilling and Production Guidelines. Bp will document any deficiencies observed during this exercise and provide these deficiencies to the Board for review. The OSRP will be revised accordingly to the satisfaction of the Board to address any deficiencies identified during the exercise. .

Appendix A. Document Map



Appendix B. Spill Description and Response Strategy

		Spill Description	Spill Strategy	Offshore Response		Onshore Response	Resources Available
Tier 1	Type:	• Batch • Instantaneous	• Prop-wash for small volumes, thin slick; • Recover with Sorbent Boom; • Chemical Dispersion for fresh oil with authorization from ECCC • Opportunistic aerial surveillance if aircraft are already in the field; and • Consider dedicated aerial surveillance for spills >1m^3	Facility:	• Ensure safety of personnel and facility; • Secure spill source; • OIM in command; • Advise onshore IMT; • Initial notification to CCG, Status reports sent to on call IC onshore for distribution	• Offshore WSL notifies the IC • If IMT is activated, the Safety / Liaison Officer notifies C-NLOPB; • Ensure CCG MCTS is notified;	• Sorbent Boom stored on each supply vessel. Possible deployment of side sweep with vessel crane; • Dispersants – may be stored on offshore assets; • Wildlife – use ship and noise makers where seabirds congregate; and • Surveillance – use Helicopter contractor as available; • Spill Tracker buoy; • Use aerial surveillance if available • Complete oil and oiled wildlife sampling.
	Volume:	• Small (50 L or less as per C-NLOPB Incident Reporting and Investigation Guideline)					
	Source:	• Identified; • Stopped					
	Continued Risk:	• Low		Marine:	• On-water operations • Oil & wildlife sampling • May be supported by installation personnel • Supply Vessel may use prop-washing, sorbents, or dispersants.		
	Examples:	• Product transfer operations with Supply Vessel; • Minor process leaks; • Failure of Installation drainage systems; or • Failure of MODU SBM solids control					
Tier 2	Type:	• Batch • Instantaneous or continuous discharge over short period.	• Spill Impact Mitigation Assessment (SIMA) • Contain and recover; • Dispersants for fresh oil with slick thickness >0.0001 mm with ECCC authorization.	Facility:	• Ensure safety of personnel and facility; • Secure spill source; • OIM in command initially then passes to IMT onshore • Initial notification to CCG • Field support and local coordination of marine operations	• Response managed by Expanded IMT with ECRC support; • Resources form shore on site within 24 hours of spill; • Dispersant approval application to C-NLOPB, unless pre-approval is in place; and • ECRC prime response contractor managing routine response operations including response personnel and equipment. (For ECRC activities outside the 200-mile limit special consideration and sign off is required.)	• Tier 1 plus; • Deploy bird scaring devices where seabirds congregate; • Helicopter sweeps of area; • Area surveillance; • Spill tracking buoys; and • Trajectory modelling.
	Volume:	• Significant (between 50 and 500 L as per C-NLOPB Incident Reporting and Investigation Guideline)					
	Source:	• Identified and Controlled		Marine:	• Large on-water response effort with equipment and vessels mobilized from shore, as required • Possible dispersant usage with authorization from ECCC; • Monitoring and surveillance; and • Oil & oiled wildlife sampling.		
	Continued Risk:	• Moderate to High					
	Examples:	• Failure during bunkering operations; or • SBM spill.		Aerial	• Aerial Surveillance to be used routinely • Helicopter contractor to incorporate surveillance into daily operations; and • Report to Installation and response vessels by radio. Hard copy to IMT		
Tier 3	Type:	• Blow-out or very large Batch spill; • Continuous over extended period (days to weeks)	• Contain and recover; • Dispersants – ongoing for fresh oil; • In situ burning – for fresh, thick oil; and • Surveillance – continuous, routine.	Facility:	• Ensure safety of personnel and facility; • Increased Tier 2 actions plus; • Provide operational support, as required; • Possible well control; and • Possible down-manning or abandon.	• Tier 2 actions plus; • Dispersant approval application to C-NLOPB • Mobilize OSRL • May require extended well and source control effort.	• Tier 2 resources plus; • OSRL Aerial Dispersant Delivery System for large area coverage; and • Fire boom and ignition mechanism to be sourced as required for in situ burning
	Volume:	• Major (Greater than 500 L less as per C-NLOPB Incident Reporting and Investigation Guideline)					
	Source:	• Loss of well control • May be unidentified • May be uncontrolled		Marine:	• Large on-water response with equipment and vessels mobilized from shore; • Possible dispersant usage • Monitoring and surveillance • Well and source control may be required		
	Continued Risk:	• High					
	Examples	• Loss of Well control		Aerial	• Dispersant application - OSRL Aerial surveillance to be conducted routinely; • Helicopter contractor to incorporate sweep surveillance in daily flights • Report to installation and response vessels by radio. Hard copy to IMT		

Appendix C. HSE Commitments Statement (bp)

BP's Commitment to **health, safety, security** and **environmental** (HSSE) performance

Our HSSE goals are simply stated – no accidents, no harm to people and no damage to the environment.

We strive to be a safety leader in our industry, a world-class operator, a good corporate citizen and a great employer.

Nothing is more important to us than the health, safety and security of our workforce and the communities in which we operate, and behaving responsibly towards our shared environment. We must be vigilant, disciplined and always looking out for one another.

We are committed to:

– Complying with applicable laws and company policies and procedures.
– Systematically managing our operating activities and risks.
– Reporting our HSSE performance.
- Learning from internal and external HSSE events.

Everyone who works for BP has a part to play in meeting our HSSE commitment.

Bernard Looney,
Group Chief Executive
5 February 2020

Appendix D. ECRC Notification Form

OIL SPILL RESPONSE CALL-OUT PROCEDURES

Contract Numbers		
In Field	xxxx-xxxxx	
Location	**Latitude**	**Longitude**
Ephesus F-94		

ECRC – Eastern Canada Response Corporation

Eastern Canada Response Corporation Call-Out

bp has a standing offer contract with ECRC for the provision of spill response services when specifically requested. Only the persons listed below are authorized to implement the contract arrangement with ECRC.

- Contact the 24-Hour ECRC Call Centre at: **(613) 930-9690**
- Call out **MUST** be made by a bp representative named in the contract
- The caller **MUST** refer to the appropriate contract number (see above) at the time of the call

TBD

ECRC 24-Hour Emergency Call Centre - (613) 930-9690
Quote Appropriate Contract Number (see above)
Give Position (Lat and Long) of Spill (see above)

September 23, 2022

Appendix E. OSRL Notification Form

Oil Spill Response

OSRL Notification Form

(Initial Incident Information)

Warning! Please telephone the Duty Manager before e-mailing or faxing this form

To	Duty Manager		
OSRL Base	Southampton, UK	Loyang, Singapore	Fort Lauderdale, USA
Telephone	+44 (0)23 8033 1551	+65 6266 1566	+1 954 983 9880
Emergency Fax	+44 (0)23 8072 4314	+65 6266 2312	+1 954 987 3001
Email	dutymanagers@oilspillresponse.com		

Guidance: This information will be used to develop and recommend the most appropriate response strategy. If new information should become available, or the situation changes, please inform the Duty Manager as soon as possible.

Section 1 – Contact Details						
Member Company						
Name of Person Notifying OSRL						
Job Title (Designation)						
Direct Phone Number	Country code		Number			
Mobile Number	Country code		Number			
Fax Number						
Email Address						
Command Centre Address						
Date and Time of Notification	Date and Time		Time Zone			

Section 2 – Location					
Country / Region of Spill					
Latitude of spill (north/south)					
Longitude of Spill (east/west)					
Area Affected	☐Offshore	☐Subsea	☐Shoreline	☐Estuary	☐Other
	☐Port	☐Harbour	☐Inland	☐River	
Water Depth (if applicable)					

Section 3 – Spill Details						
Date and Time of Spill				Time Zone		
Source of Spill						
Cause of Spill						
Status of Spill	☐Secured		☐Uncontrolled		☐Unknown	
Product Properties	Product Name / Type					State Units Provide an assay sheet if available. ☐Assay sheet provided
	Specific Gravity		API			
	Pour Point					
	Wax Content					
	Asphaltene					
	Sulphur Content					
	Viscosity		Reference Temperature		°C	
Type of Release	Instantaneous Release	☐	Volume			State Units
	OR					
	Continuous Release	☐	Release Rate			

Section 3 – Spill Details continued			
Description of Observed Spill	Estimated Quantity		State Units
	Size		
	Appearance		
	Direction of Travel		

Section 4 – Weather and Modelling				
Weather forecast provided? e.g., Excel/Word	☐Yes	☐No, OSRL to source a weather forecast		
Sea Temperature				State Units
Sea State				
Visibility				
Cloud Base				
Do you require Oil Spill Trajectory Modelling?	☐Surface 2D	☐Sub-surface 3D Additional time and costs apply		☐Not at this time
Sub-surface 3D Modelling Information if requested	Gas to Oil Ratio	Sm^3/m^3	Release Hole Diameter	m

Section 5 – Safety and Security		
Highlight any known safety or security risks e.g. high levels of H_2S, high risk country		☐ Not Applicable
Describe security arrangements for OSRL staff		☐ Not Applicable

Section 6 – Resources at Risk (if available)		
Environmental or socio-economic sensitivities that may be impacted. Provide the relevant oil spill contingency plan and sensitivity maps if available.		☐Contingency plan included. ☐Sensitivity maps included

Section 7 – Equipment (if available)	
Equipment already deployed or being mobilised (other than OSRL resources)	

Section 8 – Further Information