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**OIMS Reference Document
System 10-2 Emergency Preparedness & Response**

**OIMS System 10-2
Exploration Oil Spill Response Plan**

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1.0 INTRODUCTION

ExxonMobil Canada Ltd. (EMCL) have contracted the Hercules, a sixth generation deepwater and harsh environment semi-submersible. This unit is a state-of-the-art dynamic-positioned unit of enhanced GVA 7500 design, capable of drilling in water depths up to 10,000ft., to complete drilling the Gale N-66 exploration well located on exploration licence (EL) 1167 in the Central Ridge region in the Newfoundland and Labrador Offshore Area.

The Operator of Record for the subsea drilling program is EMCL. Odjfell Drilling Ltd. (herein after referred to as Odjfell) is the drilling contractor for the Hercules.

2.0 ADMINISTRATION

This Oil Spill Response Plan (OSRP) provides guidance to EMCL personnel who may be involved in the response to an oil spill during drilling operations within EL 1167 (see Figure 1).

2.1 Spill Response Philosophy

EMCL recognizes that prevention is the most effective way to avoid damage to the environment due to oil spills.

Accordingly, this OSRP identifies the boundary of responsibility and key interfaces for oil spill response (OSR) while the Hercules is on hire to EMCL.

The Hercules has been designed to prevent spills and; policies, procedures, equipment and trained personnel are in place to reduce the probability of a spill and to minimize the consequences, should one occur.

This OSRP follows international good practice through application, where applicable, of:

- ISO 15544 - The Petroleum and Natural Gas Industries - Offshore Production Installations Requirements and Guidelines for Emergency Response Canadian National OSRP, ISO 15544;
- The International Maritime Organization (IMO) Manual on Assessment of Oil Spill Risk and Preparedness. Application of a tiered response structure that is consistent with the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC '90); and
- The guidelines for oil spill response contingency planning suggested by both the International Petroleum Industry Environmental Conservation Association (IPIECA) and the International Tanker Owners' Pollution Federation (ITOPF).

2.2 P.E.A.R. Principles

EMCL's response to any emergency will be based on the **PEAR** principles:

- Protection of People;
- Minimize impact on the Environment;
- Minimize impact on Assets; and
- Protection of Corporate Reputation.

3.0 SCOPE

3.1 Offshore Response

Chapter 7 of the project Environmental Impact Statement (EIS) states that most surface oil from the release sites was predicted to move eastward due to the prevailing westerly winds. Winds and currents in the Project Area are similar throughout the year, with most notable differences in wind intensity. The increased winds during wintertime conditions have the potential to enhance surface breaking waves and results in more entrainment of oil, which lowers the likelihood that oil will remain on the surface for extended periods of time.

This OSRP, therefore, covers the management, countermeasures, and strategies that will be used in an oil spill response occurring inside a 500 m safety zone within EL1167 (see Figure 1). Within that zone, spills could result from the following operations:

- Drilling activities; and
- Offshore Support Vessels (OSVs) within the 500 m safety zone.

This OSRP will be updated as required if / when additional wells are drilled under this OA, based on area-specific considerations for the additional well(s).

3.2 Nearshore Response

In the unlikely event that conditions cause oil spilled to approach shore, there will be no change to the management system described in this OSRP. The response will be expanded to include shoreline techniques.

EMCL will rely on the resources of Eastern Canada Response Corporation (ECRC), a certified Response Organization (RO) who has developed comprehensive plans certified under the *Canada Shipping Act (CSA)* for the response to near shore and shoreline incidents for the island of Newfoundland.

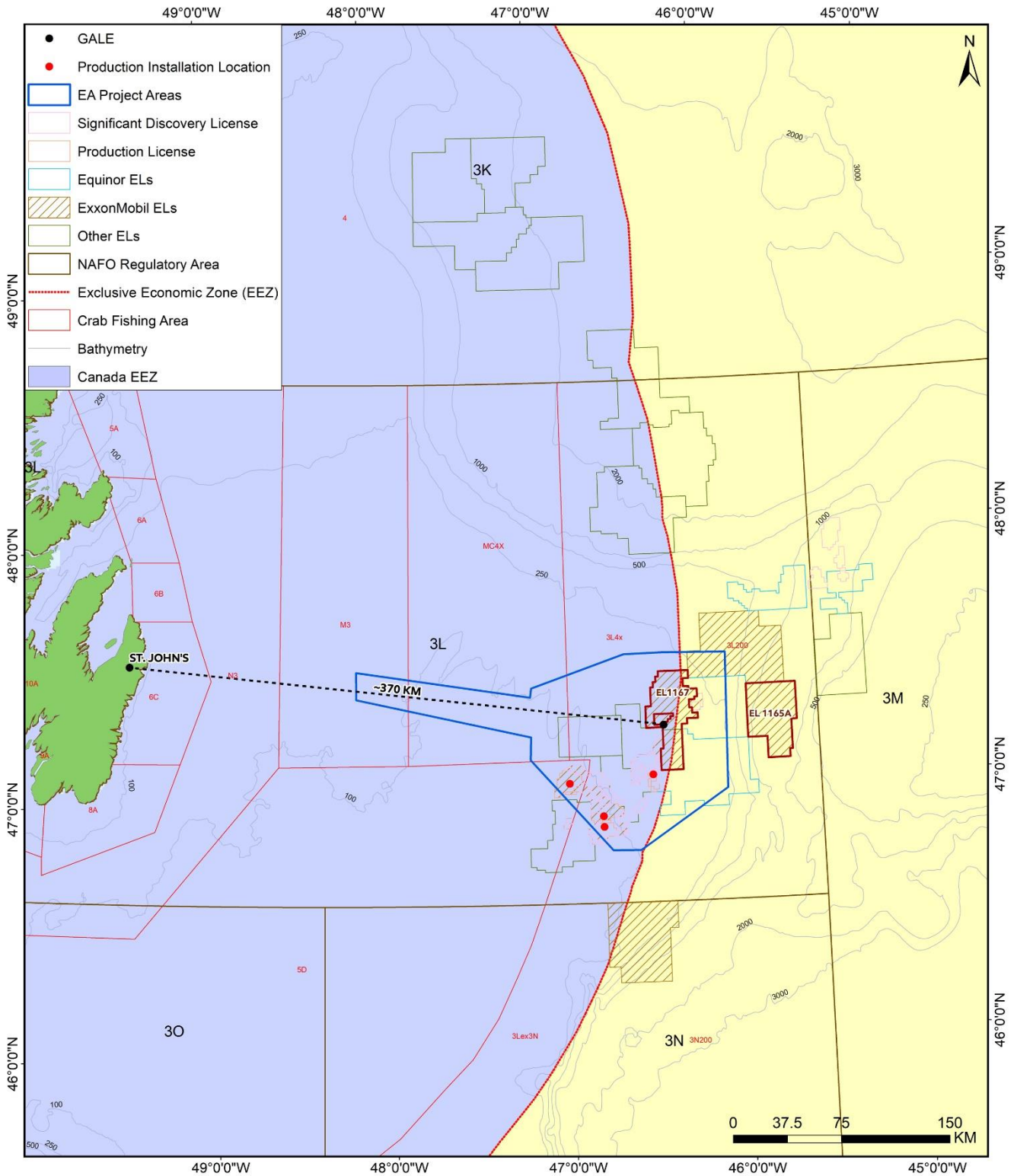


Figure 1: EL 1167 Project Area

4.0 CONSULTATIONS

As part of its on-going and planned operations off Eastern Newfoundland, ExxonMobil regularly consults with Indigenous groups, relevant individuals and stakeholders through existing and relevant forums and workshops and conducts additional and specific engagements with applicable persons and groups if and as particular issues and requirements arise.

In April 2018, there was a technical workshop in which various Indigenous groups were in attendance. Details on the various offshore exploration projects were provided and an update was provided on the Canadian Environmental Assessment Agency (CEAA) Regional study. Topics such as environmental effects of offshore drilling projects, baseline data and monitoring, accidental events, were discussed in detail with the Indigenous groups and the opportunity for comments and concerns from any groups was provided.

An additional technical workshop was held in October 2018 with various Indigenous groups, other operators as well as regulators and federal experts. The focus of this workshop was to provide the Indigenous groups with detailed information on spill modelling, preparedness and response strategies.

Input was provided from CEAA, Department of Fisheries and Oceans (DFO), Environment and Climate Change (ECCC), and the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) during the April 2018 workshop.

Information on the Project and its 2023 activities will continue to be communicated to and discussed with applicable groups.

5.0 OIL SPILL RESPONSE PLAN USE

In all major emergencies, the first actions to be taken in an oil spill are those described in the *Shipboard Oil Pollution Emergency Plan Hercules*.

Once the initial oil spill response scenario is completed, this OSRP will be utilized to provide information to rig personnel, the onshore Incident Management Team (IMT), charter vessels, and spill response contractors. Information includes:

- Philosophy and policies including the organization of response effort and its escalation with the increasing scale of the spill response;
- Initial actions and general response strategy;
- Oil spill response management;
- Assistance from contractors, other operators, and corporate resources; and
- Policies concerning safety, oil spill waste management, and training.

The *Oil Spill Response Reference Manual* (CAEL-EF-OOREF-01-010-2017-000) to the OSRP also provides information related to:

- Actions - Forms to be used during an oil spill response;

- **Resources** - Details of the equipment and vessel resources available to EMCL for use during an oil spill response; and
- **Procedures** - Stand-alone detailed procedures which describe specific actions that may be undertaken offshore by Hercules assets during an oil spill response.

5.1 Regulatory Compliance

Under the Atlantic Accord, the C-NLOPB is responsible for the regulation of all drilling activities. Through jurisdictional authority, the C-NLOPB will be the lead agency in the event of an oil spill originating from the Hercules within any Safety Zone related to this OSRP.

Note: Spills originating from vessels within the 500 m safety zone fall under the jurisdiction of Transport Canada (TC).

Figure 2 shows the participants and other parties who may be involved in the response to an oil spill at the Hercules

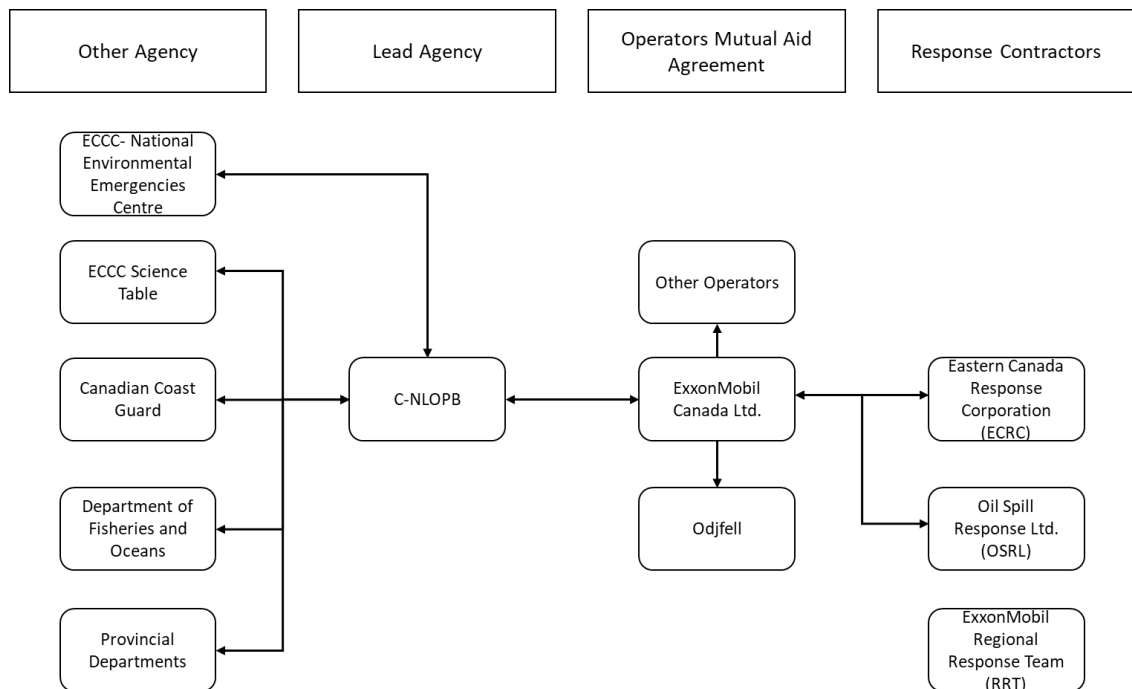


Figure 2: Participants in an Oil Spill Response originating at the Hercules

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

- Other agencies including the Canadian Coast Guard (CCG), the DFO, ECCC, and departments of the Province of Newfoundland and Labrador also 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.

6.0 REGULATIONS ESTABLISHING A LIST OF SPILL TREATING AGENTS

The *Regulations Establishing a List of Spill Treating Agents (Canada Oil and Gas Operations Act)* sets out the spill-treating agent (STA) products that may be considered by regulators under the *Canada Oil and Gas Operations Act* and the corresponding accord acts for response to spills from offshore petroleum exploration and production. Those STAs are:

- Corexit EC9500A; and
- Corexit EC9580A.

STAs may only be utilized if:

- The STA is listed in a regulation made by the Minister of ECCC;
- The use of the STA is included in the operator's contingency plan;
- The use of the STA is permitted for use under an authorization received from the C-NLOPB;
- In response to a spill, the C-NLOPB's Chief Conservation Officer (CCO) determines that its use is likely to achieve a net environmental benefit (NEB) in the particular circumstances of the spill and approves the use of the STA;
- The STA is used in accordance with conditions set out in any regulations and any other conditions stipulated by the CCO at the time of the spill; and
- The federal Minister of ECCC and the Minister of Natural Resources, and the relevant provincial Minister, are consulted at the time of a spill in the five-year period following royal assent, during which STA conditions of use regulations may be developed.

6.1 Application for use of STAs

EMCL may consider the use of STAs to disperse oil on water into the water column, by:

- Following the STA "Application Decision Making Process" identified in Figure 3;
- Applying to C-NLOPB to use STAs should this be considered to be an appropriate countermeasure;
- Conducting an assessment of the effectiveness of the STA through a preliminary test application in the field prior to full scale operations; and
- Commencing STA operations as soon as possible after receiving confirmation for use.

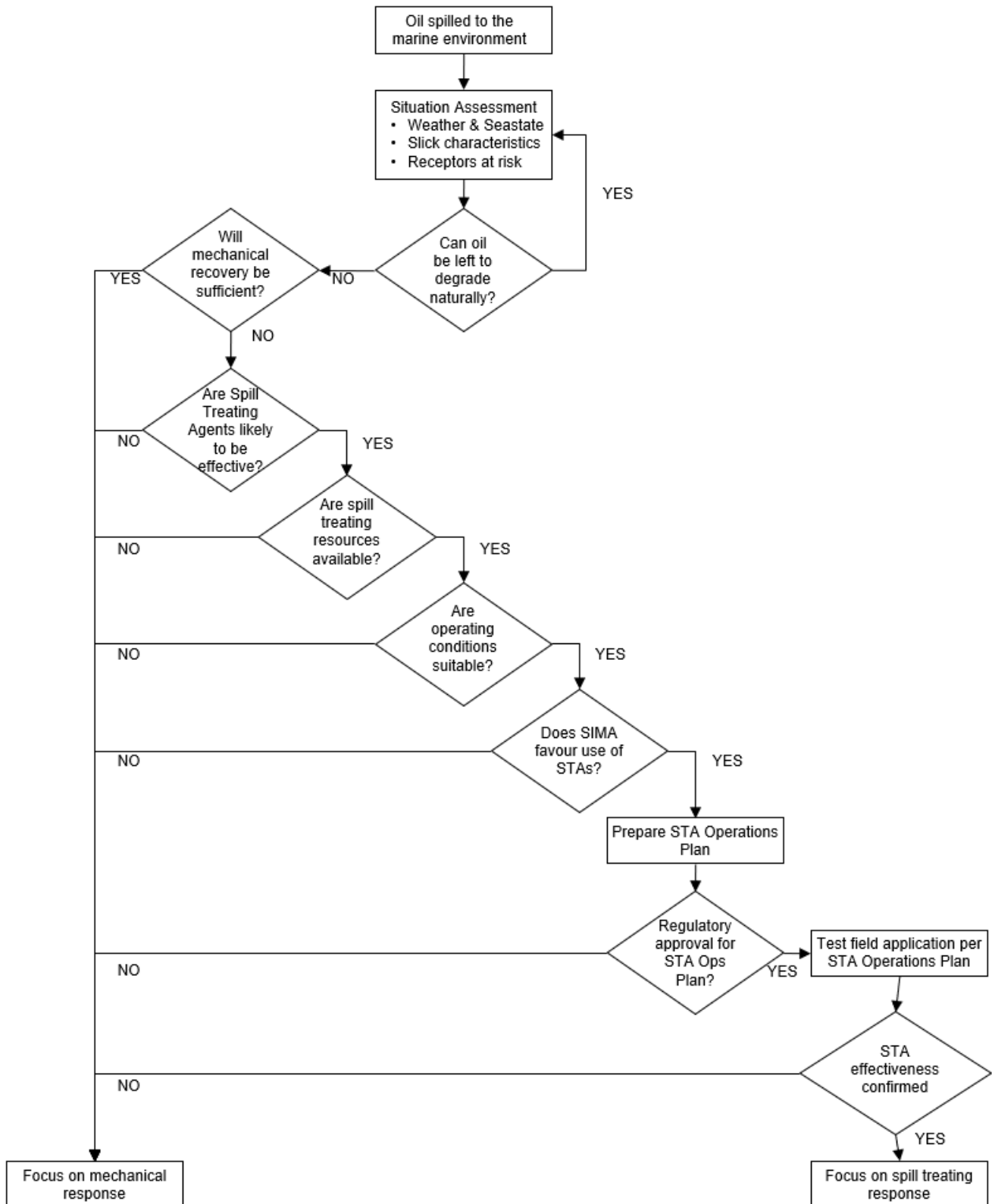


Figure 3: STA Application Decision Making Process

7.0 OIL SPILL RESPONSE STRATEGY

7.1 Command and Control

It is important that clear spill response objectives are established, initially by the On-Scene Commander (OSC), offshore; and later by the Incident Commander (IC), onshore, to ensure that both environmental and stakeholder issues are addressed.

The prioritized objectives will be especially helpful when conducting a Spill Impact Mitigation Assessment (SIMA - see Section 2.5).

Clear spill response objectives will then become the guidelines through which subsequent planning and tactical decision making takes place. The list of objectives; however, will depend upon circumstances at the time of the spill.

NOTE (WHO IS THE INITIAL OSC):

- The initial OSC for Oil spills occurring within the 500 m Safety Zone is the Hercules Offshore Installation Manager (OIM).

NOTE (PRIORITIES WHEN SIMULTANEOUS EMERGENCIES OCCUR):

- The OIM and IC will, at all times, prioritize their respective response and supports efforts to ensure the Protection of People takes precedence over the implementation of this OSRP.
- Accordingly, the *Emergency Response Plan for Hercules*, will, at all times, take precedence over all procedures in this OSRP.
- This will not limit IMT personnel from the activation of corporate resources, response contractors, equipment, and personnel who can support an oil spill response.

7.2 Strategy Considerations

In the event of an oil spill, it will be important to determine the most effective strategy to employ in the response. Several factors must be considered in response strategy decisions, the foremost of which is always safety. Other considerations include the:

- Anticipated fate of the spill;
- Operating conditions; and
- The potential impact of the spill on the environment, wildlife, and socio-economic resources.

Given the location of the Hercules, and the prevailing weather and sea state conditions in the area, it is unlikely a significant spill or blowout would impact the shoreline.

7.3 Situation Assessment

For any spill, a Situation Assessment will always be required as the basis for evaluation of response measures under consideration. An overview of environmental conditions and resources at risk that may be considered in strategy development can be found in the [EIS - Chapter 4.0 - Existing Marine Physical and Biological Environment](#) of the project.

In fulfilling the requirements of the assessment, no action should be taken in response to an oil spill without an understanding of the nature of the problem. This will provide the information required to decide:

- Whether a response is necessary;

- The safest manner to conduct that response; and
- Where and how to implement that response in the most effective manner.

The decision process is identified in Figure 4, which demonstrates that ongoing situational assessment of the:

- Nature and type of spill;
- Trajectory, volume, and weathering of oil;
- Weather and environmental conditions;
- Resource sensitivity;
- Logistics, equipment, and personnel availability; and
- Effectiveness of the response to date.

Based on this assessment, response options are selected that can best achieve the response objectives, and the selected option is evaluated for operational feasibility.

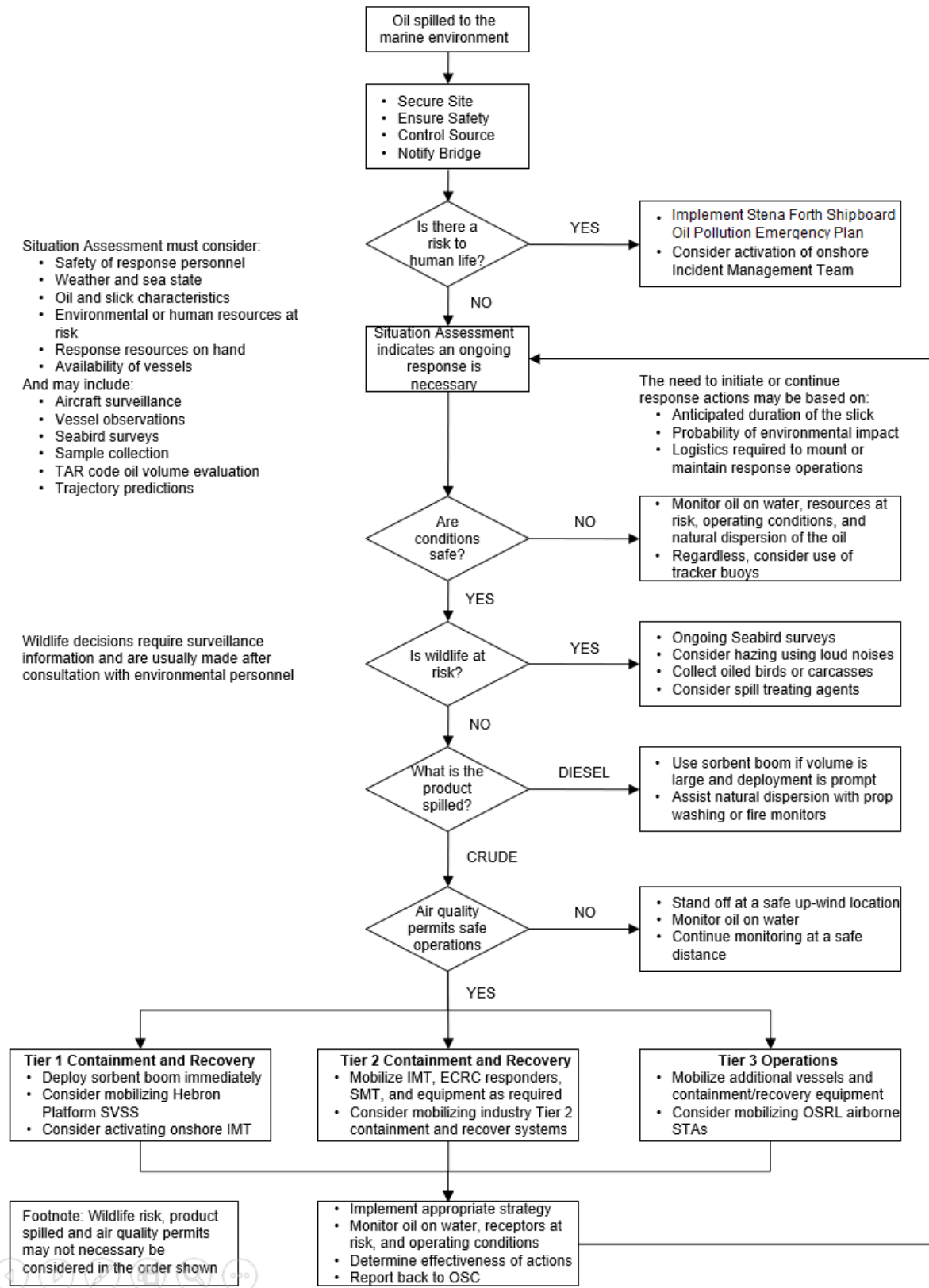


Figure 4: Decision Process

7.4 Environmental Concerns

In an offshore oil spill incident, the Canadian Wildlife Service (CWS) of ECCC will be engaged with respect to seabird monitoring. The Department of Fisheries and Oceans will be engaged for advice on fish or invertebrate populations and also mammals monitoring. Seabirds that live on or close to the sea surface have been identified as the biological resource most vulnerable to an offshore oil spill. Whales are present in low numbers at selected times during the year, with little potential for impact.

7.4.1 Seabirds

Oiling may affect seabirds due to toxic effects, smothering or destruction of habitat. Even small amounts of oil on feathers will affect a bird's buoyancy and insulation. The degree of impact will be determined by their seasonal distribution, behavioral characteristics and reproductive strategy.

Seabirds are present offshore throughout the year, although individual species occur in higher concentrations only at certain seasons and locations. The level of impact in event of a spill will be primarily determined by the time of year in which it occurs. A primary activity in any situation assessment will be to conduct seabird observations at the spill site (also see Section 9.4.1).

For information related to seabird populations refer to the [EIS - Section 6.4 Seabirds](#).

7.4.2 Other Wildlife

Whales, dolphins, seals and turtles may also be present in the operations area. In general, cetaceans and seals do not exhibit large behavioral or physiological reactions to limited surface oiling, incidental exposure to contaminated food, or ingestion of oil. There is a low likelihood that sea turtles would be exposed to oil from an accidental release at the Hercules. The small number of sea turtles transiting the area makes exposure to spilled oil unlikely.

For information related to Marine Mammals and Sea Turtles refer [Chapter 6.3 of the EIS](#).

7.4.3 Fishery

The project area includes the shelf and slope regions of the Grand Bank, areas of the Flemish Cap and parts of the Orphan Basin. Within this marine environment, habitats transition from relatively shallow shelf zones, through the continental slope to very deep abyssal regions. These areas are used by fish and invertebrate species of commercial, cultural, and/or ecological value and support regionally important areas of biodiversity and marine productivity. The abundance and distributions of these fish and invertebrate species are dependent on their linkages with other species across fish habitats and interactions with the physical parameters of the marine environment. For information related to the Fishery refer to [Chapter 4 of the EIS](#).

7.4.4 Existing Human Environment

There is the potential for the environmental effects of an oil spill to have an impact on human activities and employment in the offshore, primarily as the spill might affect surface transportation (fishing and support vessels) and the activities of other offshore operators. In the unlikely event of a vessel transiting the spill area, there is also the potential for health effects on crew, and the logistics of vessel

decontamination. For information related to the Existing Human Environment refer to [Chapter 4 of the EIS](#).

7.5 Spill Impact Mitigation Assessment

Each spill response option may have some impact on the environment beyond that of the spill itself.

The EMCL response strategy, while not limiting the initiation of containment and recovery operations, is based on the principle of SIMA. SIMA takes into consideration the advantages and disadvantages of response actions and their impact on the environment. Some response methods have the potential to cause adverse environmental impacts, but may be justifiable because of overriding benefits and/or the avoidance of further, more serious impacts. In considering dispersant use the Guidelines on Implementing Spill Impact Mitigation Assessment (SIMA) (Industry Environmental Conservation Association-American Petroleum Institute-International Oil and Gas Producers [IPIECA-API-IOGP], provides the strategy for analyzing oil spill impacts and facilitating response option selection.

When conducting a SIMA, EMCL will consult with ECRC, C-NLOPB, and the NEEC Science Table to:

- Compile and evaluate data to identify an exposure scenario and potential response options, and to understand the potential impacts of that spill scenario;
- Predict the outcomes for a given scenario to determine which techniques are effective and feasible;
- Balance trade-offs by weighing a range of ecological benefits and drawbacks resulting from each feasible response option. This will also include an evaluation of socio-economic benefits and costs resulting from each feasible response action; and
- Select the best response options for a given scenario, based on which combination of tools and techniques will minimize impacts.

7.6 Response Options

Within the IMT, strategy development should consider the range of offshore spill response options detailed in Section 4. The decision to use each of these is based on an evaluation of the:

- Current and forecast operating conditions;
- Anticipated characteristics of the oil;
- Effectiveness of the option; and
- Effects on the environment.

Section 9 also provides guidelines for possible actions at each level of response.

7.7 Tiered Approach to Oil Spill Response

The extent of response to an oil spill can be classified into three tiers which considers the:

- Response effort required; and
- Volume of oil released.

This classification allows for an appropriate initial response and provides for escalation of effort should the potential impact of the spill increase. The parameters to be considered in selecting the appropriate level of response include:

- Size and nature of the oil spill;
- Environmental and operational conditions at the time of the spill;
- OSV, and equipment availability;
- On-site waste oil storage; and
- Corporate impacts as a result of the oil spill.

7.7.1 Tier 1 - The incident is small and under control

- The spill likely disperses before leaving the safety zone;
- The environmental impact is minor;
- The spill response can be managed using resources available at site; and
- Little or no media attention.

7.7.2 Tier 2 - The incident is large, but under control

- The spill more likely extends beyond the safety zone;
- Potential environmental impact to local resources at risk;
- The response requires local shore-based management support, and operational resources in addition to those already at site; and
- Local to National media attention.

7.7.3 Tier 3 - The incident is large and not under control

- Environmental impact to local resources at risk;
- The spill has the potential to affect EMCL's business operations;
- The response effort may require considerable corporate and contract resources drawn from local, regional, and international sources;
- Resources from outside of Newfoundland and Labrador are required;
- Significant government presence; and
- Global media attention.

7.8 Countermeasures Strategy Development

Guidelines for developing a strategy include:

- SAFETY IS FOREMOST;
- The OSC should make informed decisions in consultation with responders;
- When high sea states (Beaufort 4-5) prohibit a response, or when the OIM decides, natural dispersion of oil is enhanced;

- Absorbent boom should be considered early in the response because of the speed of deployment and the high probability of capturing the oil on water before spreading;
- Every planned task should include frequent situation assessment; and
- Ensure adequate waste disposal measures are in place. Wherever possible, waste products should only be handled once to prevent secondary contamination.

8.0 OIL SPILL RESPONSE / MANAGEMENT PARTICIPANTS

8.1 Oil Spill Response Participants – Internal

8.1.1 Central Control Room (CCR)/Bridge and Emergency Response Teams

The **Actions by an Observer** to any emergency, inclusive of an oil spill, is to follow the initial procedures identified in the *Hercules Station Bill*.

That is to:

Report any incident to the CCR/Bridge (Tel TDB)

As oil spills on, or at, installations tend to involve other circumstances that the observer may not be aware of, notification to the CCR/Bridge immediately ensures the OIM is quickly notified so that personnel can be mustered, systems shutdown or further executive action taken, as required.

8.1.2 Onshore Incident Management Team

In addition to the offshore emergency management process discussed in section 7.1.1, EMCL maintains a fully equipped IMT room located on the 4th floor, 20 Hebron Way, St. John's. The onshore IMT can be notified to through the EMCL Designated Person Onshore and, as required, mobilized to the IMT room.

In the event that the IMT room loses electrical supply from the grid, phone communications or is unavailability for use as an IMT room, ECRC at 3 Old Placentia Rd, Donavon's Industrial Park, Mount Pearl, has been designated as the backup location from where the IMT can operate.

Importantly, however, Hebron Way is equipped with backup generation that will allow the IMT to continue to operate for 24 hours. In addition, the IMT's telephone system fully operates during grid power outages, as does the satellite telephone within the IMT room.

Operating under the Incident Command System (ICS), the IMT is led and managed by an IC who is supported by a Command Section consisting of Section Chiefs titled Operations, Planning, Logistics and Finance. The support sections are further sub-divided into branches, divisions, or units that can be incorporated into the team, depending on the scale and type of incident.

Upon arrival in the IMT, personnel will:

- Refer to, and action, the *IMT Emergency Response Deskguide* (IMT ERDG) checklists;
- Make additional / confirm notifications;
- Provide support, as required, to the Hercules;

- Utilize the Incident Management Handbook for guidance on ICS process; and
- Refer to the *Oil Spill Response Reference Manual*, as required.

Figure 5 provides an example of the possible structure of the IMT as it expands from the core on-call team (in red boxes) to an extended team that can meet the needs of an offshore oil spill response. Only the roles that are necessary for a response are mobilized.

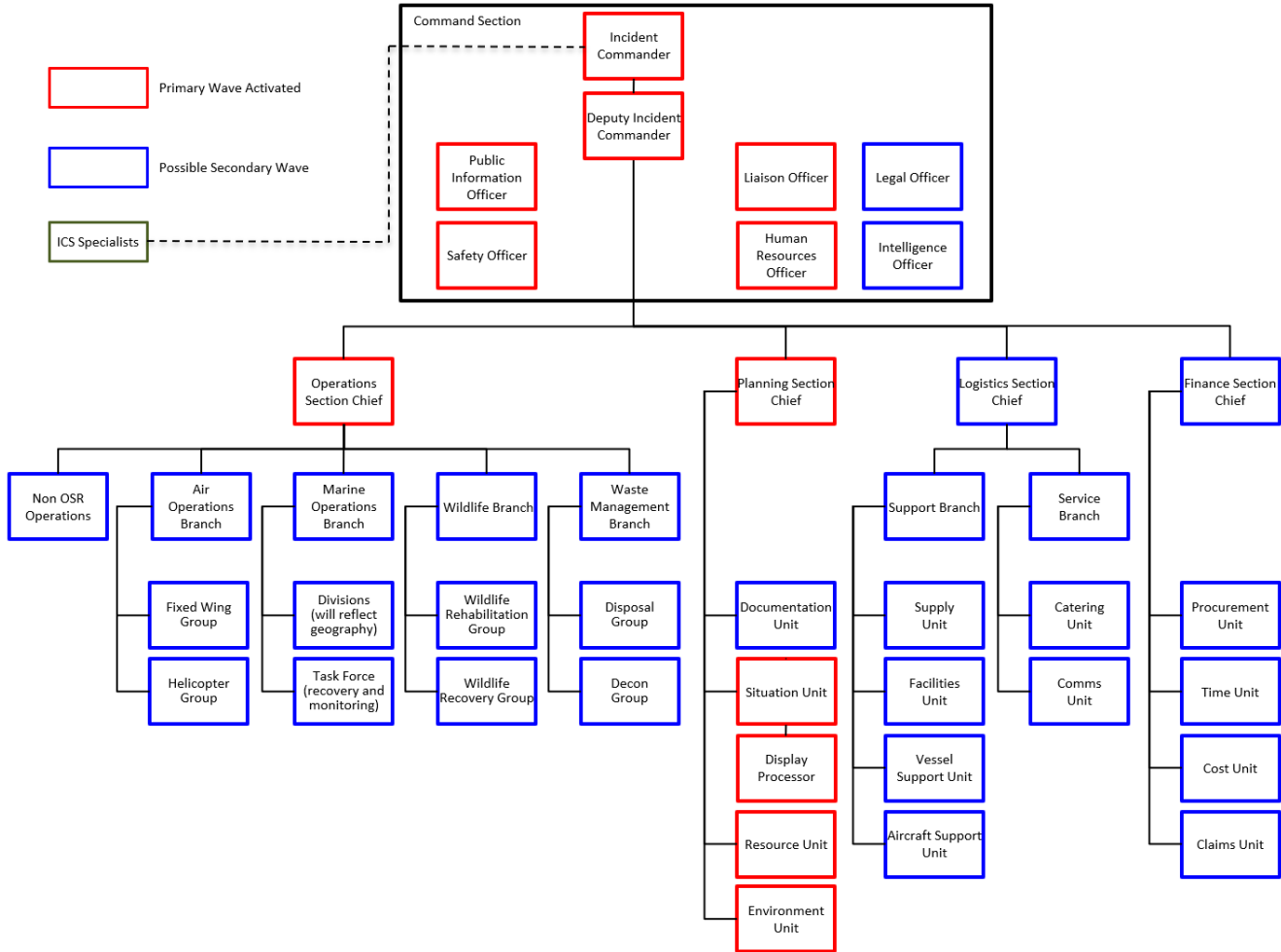


Figure 5: IMT Structure to Support an Offshore Oil Spill Response

8.1.3 ExxonMobil Regional Response Team

ExxonMobil maintains designated specialists available at short notice for response to spills throughout the company’s operations. EMCL operations are supported by these specialists. Once mobilized, support can be provided to the:

- IMT; and
- ECRC Spill Management Team (SMT).

Upon recommendation from the IMT, involvement from ExxonMobil’s Regional Response Team (RRT) may be triggered, as required, by the EMCL St. John’s Emergency Support Group (ESG) for Tier 2 and Tier 3 oil spill responses.

The first point of contact is the Emergency Preparedness and Response Coordinator for RRT, who can initiate activation following instructions from the EMCL in-Country Manager. Although corporate response teams are organized geographically, resources from all ExxonMobil RRTs units can be mobilized.

The RRT can be partially or fully activated. As the team is organized in accordance with the ICS (see Section 7.1.2) it can be easily integrated with the IMT and ECRC SMT.

8.2 Oil Spill Response Participants – External

8.2.1 Eastern Canada Response Corporation

ECRC is a private management company, owned by several major Canadian oil companies. Under its response contract with EMCL, 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 EMCL OSC to provide a plan of action, equipment, resources and operational management in the clean-up effort.

ECRC is certified by TC as a RO under the CSA. As a certified RO, ECRC provides oil spill response arrangements on contract to ships and oil-handling facilities to meet the requirements of the CSA.

ECRC has established mutual aid support agreements with the three other ROs in Canada: ALERT and Point Tupper Marine Services on the east coast, as well as, Western Canada Response Corporation in British Columbia.

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 EMCL's overall response to an incident.

The response services that ECRC offers its clients include:

- Operational services which includes 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; and
- Response management services to support the IMT and the ExxonMobil RRT.

Recognizing ECRC's status as a certified RO, EMCL will 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. ECRC is responsible for the direction of resources provided by other contractors and offshore operators under the authority of the OSC and to provide spill management services in support of the EMCL's emergency response process.

Suncor Energy, Cenovus Energy, Hibernia Management and Development Company Ltd. (HMDC), Hebron and EMCL will have an oil spill preparedness

integration agreement with ECRC. Included in the integration agreement are items such as contingency planning, training, and equipment maintenance.

ECRC staff use a version of the ICS called the Spill Management System (SMS) which is designed for managing its spill response activities. The SMS is a structured process allowing ECRC's SMT to fulfill its initial response and tactical phase responsibilities while focusing on a movement toward the strategic phase of the response.

The structure of the ECRC SMT is shown in Figure 6 and its role in an industry oil spill response is described in Section 3.2.1.

ECRC maintains a 24-hour call centre for activation. The procedure for activating ECRC is outlined in Section 2.0 of the *Oil Spill Response Reference Manual*.

The ECRC SMT is structured on the principles of ICS and is compatible with the expanded structure of the IMT.

The general interactions between the ECRC SMT and the IMT in the management of an offshore spill response are discussed in Section 9.6. The model presented in Figure 6 is flexible and can be modified at the time of an oil spill response.

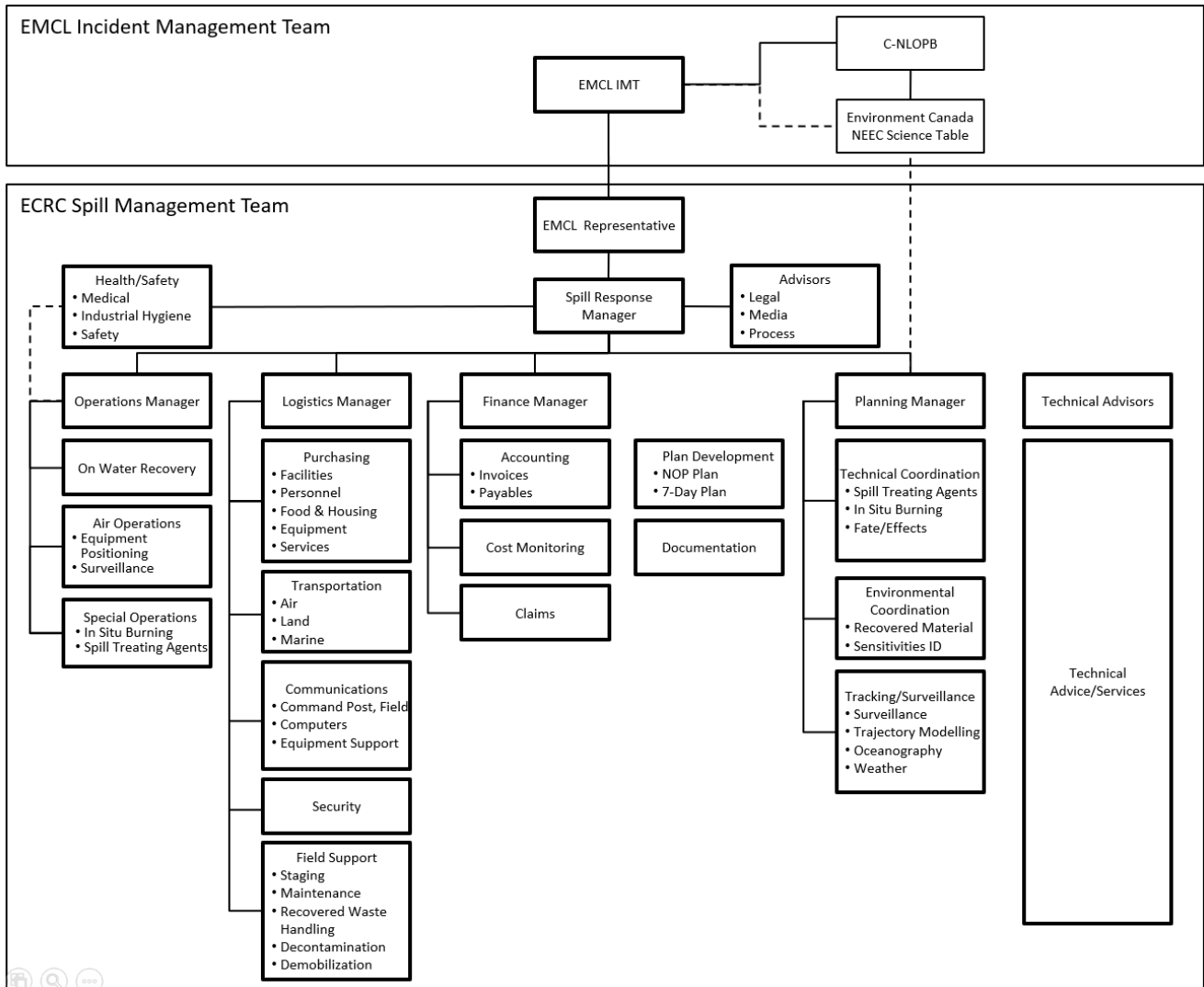


Figure 6: ECRC – SMT Structure in an Offshore Oil Spill Response

8.2.2 Oil Spill Response Limited

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

- Southampton, UK;
- Bahrain;
- Singapore; and
- Miami, USA, through Clean Caribbean & Americas.

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 Global Response Network (GRN) resources; and
- Large scale aerial STA capability on 24-hour standby.
- 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 EMCL.
- Should the situation not escalate within 48 hours, OSRL will withdraw the response officer.

8.2.3 Global Response Network

OSRL and ECRC are both members of the GRN, an association of the major ROs which also includes:

- Australian Marine Oil Spill Centre;
- Marine Spill Response Corporation (USA);
- NOFO (Norway); and
- Western Canada Marine Response Corporation;

8.2.4 Mutual Aid

Regional Operators have entered into a formal Mutual Emergency Assistance Agreement (MEAA) that establishes the terms in which emergency assistance can be provided to each other. OSVs, surveillance aircraft, and helicopters can all be considered as “for use” in a spill response. Under the agreement, each party agrees to use reasonable effort to make available designated resources in the event of an emergency.

Note: Resources will be provided to a requesting party only to the extent that the donor party’s operation is not jeopardized or its personnel or facilities put at risk.

9.0 OIL SPILL OPERATIONS

9.1 Response Options Summary

Option	Comments
Natural Dispersion/ Degradation	<ul style="list-style-type: none"> • Weathered oil breaks into small droplets by wave action • Droplets are naturally metabolized by micro-organisms • Effectiveness improves as wind and sea state increase • Favorable conditions when winds are > 25-30 kts and sea state > 2.5-3.0 m
Surveillance and Monitoring	<ul style="list-style-type: none"> • Assists in determining the scope of the problem prior to forming a strategy • Confirms effectiveness of response actions • More difficult in darkness or low visibility • Monitoring is the only response option in poor operating conditions • Oil spill tracker buoys are equipped on all OSVs; including the Hercules • CWS protocol for seabird survey (see Section 9.4.1)
Containment and Recovery	<ul style="list-style-type: none"> • Effective but limited by sea state, encounter rate of boom system, and need for high logistics support • Low recovery rates as oil on water spreads

Option	Comments
	<ul style="list-style-type: none"> Two available options at site: <ul style="list-style-type: none"> Absorbent boom on OSVs; and Single Vessel Side Sweep (SVSS) systems at the 4 production installations (Hebron, Hibernia, Terra Nova and White Rose) See Section 8.2.2 also. Options available in Newfoundland and Labrador: <ul style="list-style-type: none"> EMCL will always have access to an SVSS system in St. John's that is used for training and maintenance ECRC booms and skimmers that can be used offshore Options available elsewhere in Canada: <ul style="list-style-type: none"> ECRC has booms and skimmers in Dartmouth and Quebec City that can be used offshore International options: <ul style="list-style-type: none"> Containment and recovery equipment that could also be sourced through the GRN via ECRC or OSRL (see Section 7.2.3)
Mechanical Dispersion	<ul style="list-style-type: none"> Prop washing or high-pressure water spray (Fire Monitor) Good for small spills/thin layers of oil, not good for crude as the mixing with water can encourage emulsification Quick implementation, no specialized equipment required
Spill Treating Agents	<ul style="list-style-type: none"> May be used in a large oil spill event or where significant human or environmental resources are at immediate risk of impact (see Section 9.3) Approval will be required from the C-NLOPB prior to use Weathering of the oil will reduce the window of opportunity for use of STAs Airborne application using OSRL personnel, aircraft, and equipment is recommended
Wildlife Measures	<ul style="list-style-type: none"> Surveillance to determine potential for impact to wildlife by oil on water (see Section 8.4.1) Techniques for deterring wildlife are limited to loud noise (see Section 9.4.2) Consult the EMCL onshore Environmental Advisor or IMT in any incident involving wildlife Recover and clean wildlife (see section 8.4.3)
Oil and Wildlife Sampling	<ul style="list-style-type: none"> Kits are available on OSVs for the collection of oil and water and oiled wildlife samples The CWS of ECCC requires that any oiled birds collected be retained as samples for further assessment on shore EMCL has a permit issued by CWS for the collection of oiled seabirds

9.2 Countermeasures Descriptions

9.2.1 Tier 1 Equipment

The equipment listed in Figure 7 is stored offshore at all times and is available for prompt deployment in a Tier 1 response, or as the first response in a larger oil spill event. The equipment assigned to each OSV is stored on the ship.

Equipment	Storage Location	Deployment Time
GPS/Satellite Spill Tracking Buoys	1 Met-Ocean I-sphere buoy on the Hercules and each OSV	Less than 15 minutes
8" Sorbent Boom	320 ft. of boom and 100 ft. of pompoms stored onboard each OSV	Less than 30 minutes
Oil Sampling Kit	Each OSV	Immediate

Figure 7: Tier 1 Equipment Available at the Hercules Site

9.2.2 Single Vessel Side Sweep System

EMCL will have an enhanced Tier 1 capability by accessing one of the 4 SVSS systems located at Hebron, Hibernia, with additional SVSS located on Terra Nova and White Rose FPSO's.

The system can be stored in a single DNV 2.7.1 approved 20 ft. ISO container that can be transferred to the OSV as a single lift.

Refer to Section 3.0 of the *Oil Spill Response Reference Manual* for more information.

9.2.3 Industry Tier 2 Equipment

Suncor Energy, Cenovus Energy, ExxonMobil Canada Properties (an affiliate of EMCL) and HMDC are partners in two Tier 2 offshore oil spill containment systems suitable for use in offshore Newfoundland conditions. The system consists of a Framo Transrec 150 weir skimmer, a 400 m Norlense 1200-R self-inflating boom, and a portable hydraulic power pack to run them. The system is identical to the NOFO Norwegian Standard System (NSS) currently in use in the North Sea. EMCL will have access to these systems.

9.2.4 Other Tier 2 & 3 Containment and Recovery Equipment

There are three additional sources of oil spill response equipment that could be considered for use in a Tier 2 or 3 offshore oil spill response:

- Operator-owned equipment - additional SVSS systems;
- Local ECRC equipment or equipment cascaded in from other ECRC depots;
or
- Equipment provided by OSRL or another international RO's through the GRN.

Section 3.2 of the *Oil Spill Response Reference Manual* describes equipment from these sources that are suitable for use offshore. The criterion for this selection is that the equipment can be safely and effectively used in sea states above 1.5 meters Hs.

9.2.5 Responding Multi-Function Platform Supply Vessels

To effectively respond to a spill, response vessels must be available quickly after the spill has occurred. Available OSVs will be determined by the IMT in conjunction with other operators through the use of the MEAA.

Any offshore class vessel can be useful in an extended spill response and can be configured, as appropriate for spill response.

Vessels with no special features can be used:

- As second towing vessels in containment and recovery operations;
- For sampling to support environmental or STA missions; or
- As surveillance vessels to provide data for situation assessment.

9.3 Spill Treating Agents

As part of a response, EMCL may consider the use of STAs to disperse the oil on water into the water column. For more information, refer to Section 1.8 - Other Spill Treating Agents.

9.4 Seabird Operations

Wildlife operations will be a component of the offshore oil spill response. The following operations may be undertaken in the event of an offshore spill:

- Downwind aerial and vessel surveillance in advance of the drifting oil on water to identify seabirds and mammals at risk;
- Employment of bird hazing techniques to deter seabirds from the affected area, using vessels, aircraft, and noise making devices. The intention is to scare birds away from oil on water; and
- Recovery, evaluation, and appropriate treatment for affected seabirds (collect carcasses, euthanize, or recover for rehabilitation) and delivery of birds to a central location for shipment to shore.

9.4.1 Monitoring

OSV personnel are trained by ECRC to make initial seabird observations that lead to a first quantitative assessment of seabird populations at the spill site. The process is based on the system developed by the CWS of ECCC, but has been streamlined so that the information collected by non-expert observers will be useful in planning ongoing monitoring activities.

Should the oil on water pose a risk to seabirds offshore, EMCL will mobilize seabird experts to travel to the site.

9.4.2 Hazing

Wildlife deterrent techniques can be used to move wildlife from locations that are in the projected pathway of the spill. Some deterrent techniques may require a permit from the CWS through the ECCC NEEC. The IMT Liaison Officer and Environmental Unit will interact with NEEC and CWS through the C-NLOPB.

Hazing techniques can be used to deter wildlife from entering into spill areas. Hazing should be carefully planned and executed, with guidance from CWS, since hazed wildlife could move into other areas of the spill. Hazing techniques can include the following:

- Noise, including pyrotechnics, shotgun or pistol-launched projectiles, air horns, motorized equipment and recorded bird alarm sounds.

As required, permits to haze will be requested.

9.4.3 Handling

The cleaning of oiled seabirds must be conducted by skilled responders. CWS must give approval to all initiatives taken with regard to migratory birds; including prevention of further oiling, the salvage of birds, and the euthanizing or cleaning of oiled birds. CWS will make available designated personnel to provide advice through the NEEC, and where appropriate, to monitor activities relating to migratory birds in an oil spill response.

If required, EMCL will establish a temporary bird cleaning center near St. John's. The process for cleaning birds will be based on the guidelines established by Tri-State Bird Rescue and Research.

9.5 Environmental Effects Monitoring in the Event of a Spill

The initial biophysical conditions of the Hercules site have been assessed as a baseline for comparison of environmental effects of an oil spill. The level of environmental monitoring activity will be determined by:

- Spill volume;
- Product spilled;
- Resources at risk; and
- Observed environmental degradation.

C-NLOPB may recommend that an Environmental Effects Monitoring (EEM) program relating to the spill be undertaken, which may also include recommendations regarding its temporal and/or spatial scope. Figure 8 provides an overview of the EEM philosophy for Tiers 1 to 3.

Typical EEM Response			
	Tier 1	Tier 2	Tier 3
Potential EEM Response	<ul style="list-style-type: none"> • Utilize Operational EEM. • Data from reference stations not required 	<ul style="list-style-type: none"> • Utilize Operational EEM, plus additional monitoring stations and frequency as required • Data from reference stations may or may not be required 	<ul style="list-style-type: none"> • Utilize Operational EEM, plus additional parameters, monitoring stations and frequency as required • Data from reference stations is required
Potential Response Actions	<ul style="list-style-type: none"> • Natural dispersion to occur if weather conditions permit • Assisted physical dispersion by prop washing or water cannon • Containment and recovery of oil using sorbent boom • Consider containment and recovery using SVSS 	Tier 1 actions plus <ul style="list-style-type: none"> • Consider use of ECRC equipment and industry owned Tier 2 equipment • Consider use of STAs to disperse oil on water 	Tier 2 actions plus <ul style="list-style-type: none"> • Consider use of additional containment and recovery systems from outside Newfoundland • Consider use of STAs to disperse oil on water
Potential Monitoring Response	<ul style="list-style-type: none"> • Visual observations of oil on water • Consider tracker buoy deployment • Count oiled birds & recover only if safe • Initiate marine bird and mammal watch • Track fate of oil on water 	<ul style="list-style-type: none"> • Count oiled birds & recover only if safe • Track fate of oil on water • Put environmental consultant on standby • Consider initiating aerial wildlife survey 	Tier 2 actions plus <ul style="list-style-type: none"> • Develop sampling program, pending safe weather • Initiate aerial seabird/marine mammal survey(s)
Potential Sampling	<ul style="list-style-type: none"> • Tier 1 sampling kit 	<ul style="list-style-type: none"> • Tier 1 sampling kit • Potential recovery of oiled birds • Water sampling and fluorometer if STA are used 	Tier 2 actions plus: <ul style="list-style-type: none"> • Water and seabed sampling per sampling program

Figure 8: Potential Clean Up & Initial EEM Response Actions

10.0 OIL SPILL RESPONSE MANAGEMENT

Any oil spill response will begin with Tier 1 activities. Management structure processes will expand with time to meet the needs of an escalating spill incident and will work through an initial reactive stage into a longer-term proactive phase.

10.1 Tier 1 - Response Command

In accordance with Section 2.1.1, the Hercules OIM, as OSC, will assume command and control of the spill response

Tier 1 Onshore Management Support Options

Although a Tier 1 spill response is, by definition, undertaken using resources available at the Hercules, onshore personnel may be asked for advice in determining the appropriate response techniques and monitoring regime (i.e. tracking, oil and wildlife sampling, etc.).

Essential management links are shown in Figure 9.

10.2 Tier 1 - Communication Links

As soon as is practical after the spill occurs, the OIM or designate will make the following notifications:

- Canadian Coast Guard Spill Notification Line: (709) 722-2083
- C-NLOPB Duty Officer (709) 682-4426
- Odjfell Emergency Duty Officer (UK) and Hercules Rig Manager (local), number TBD

Should the response escalate to Tier 2, the EMCL onshore IMT may be activated through: EMCL Designated Person Onshore 709-725-6501

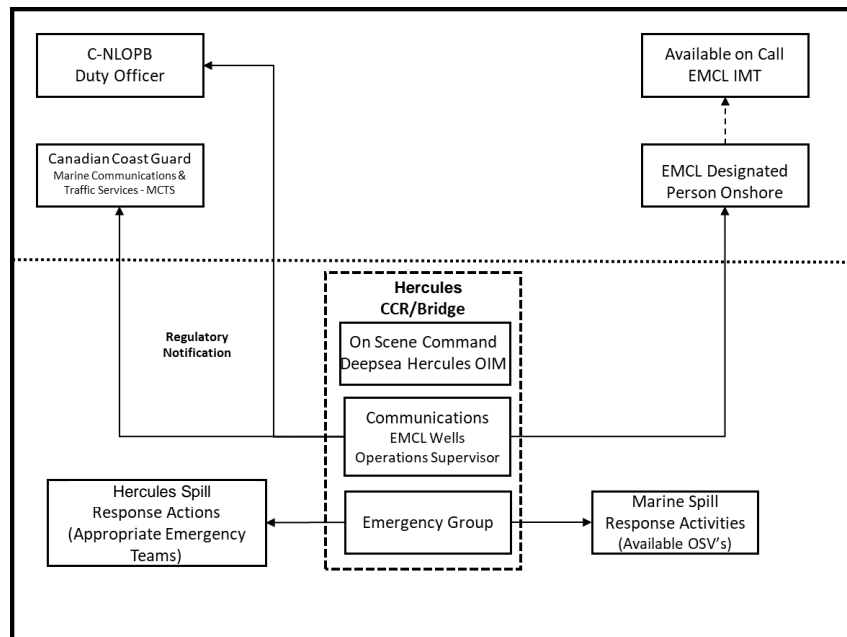


Figure 9: Essential Management Links

10.3 Tier 2/3 – Overall Management

As the response escalates to Tier 2, the tactical response will be supported by the EMCL onshore IMT in St. John’s.

10.4 Transition of Command

Transition of command with regards to the oil spill, will occur at an appropriate time, as discussed between the OIM, Odjfell and IMT IC though the IMT Ops Section Chief. Refer also to Figure 10: Transition of Command in an Offshore Oil Spill Response.

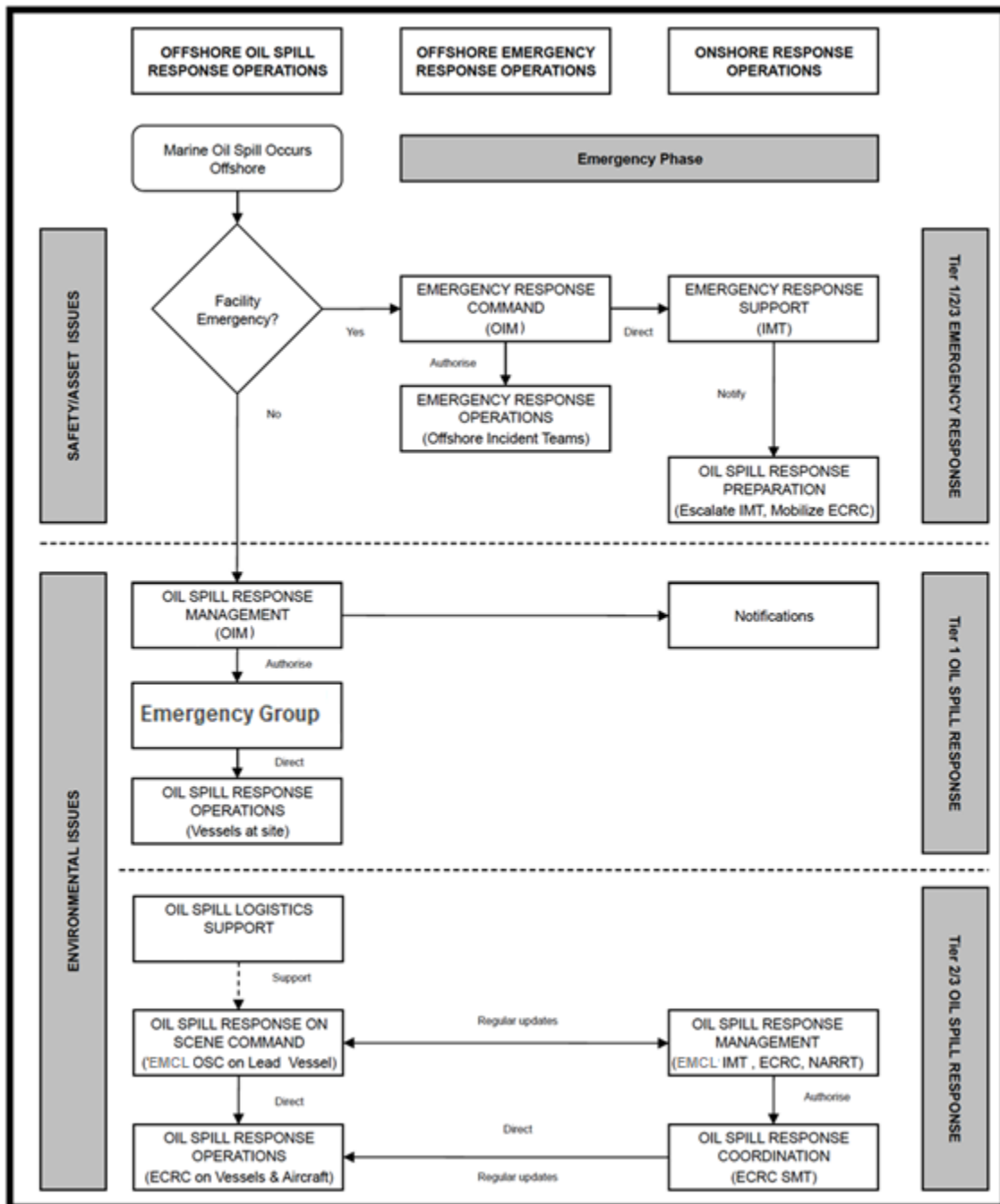


Figure 10: Transition of Command in an Offshore Oil Spill Response

10.5 Tier 2 & 3 Integrated Command and Control

ECRC is likely to be used in a Tier 2 or Tier 3 response. By offering both operational and management services, ECRC can be integrated into the EMCL response at multiple levels.

Figure 11 demonstrates how the IMT and the ECRC SMT can be integrated in the management of an escalating response.

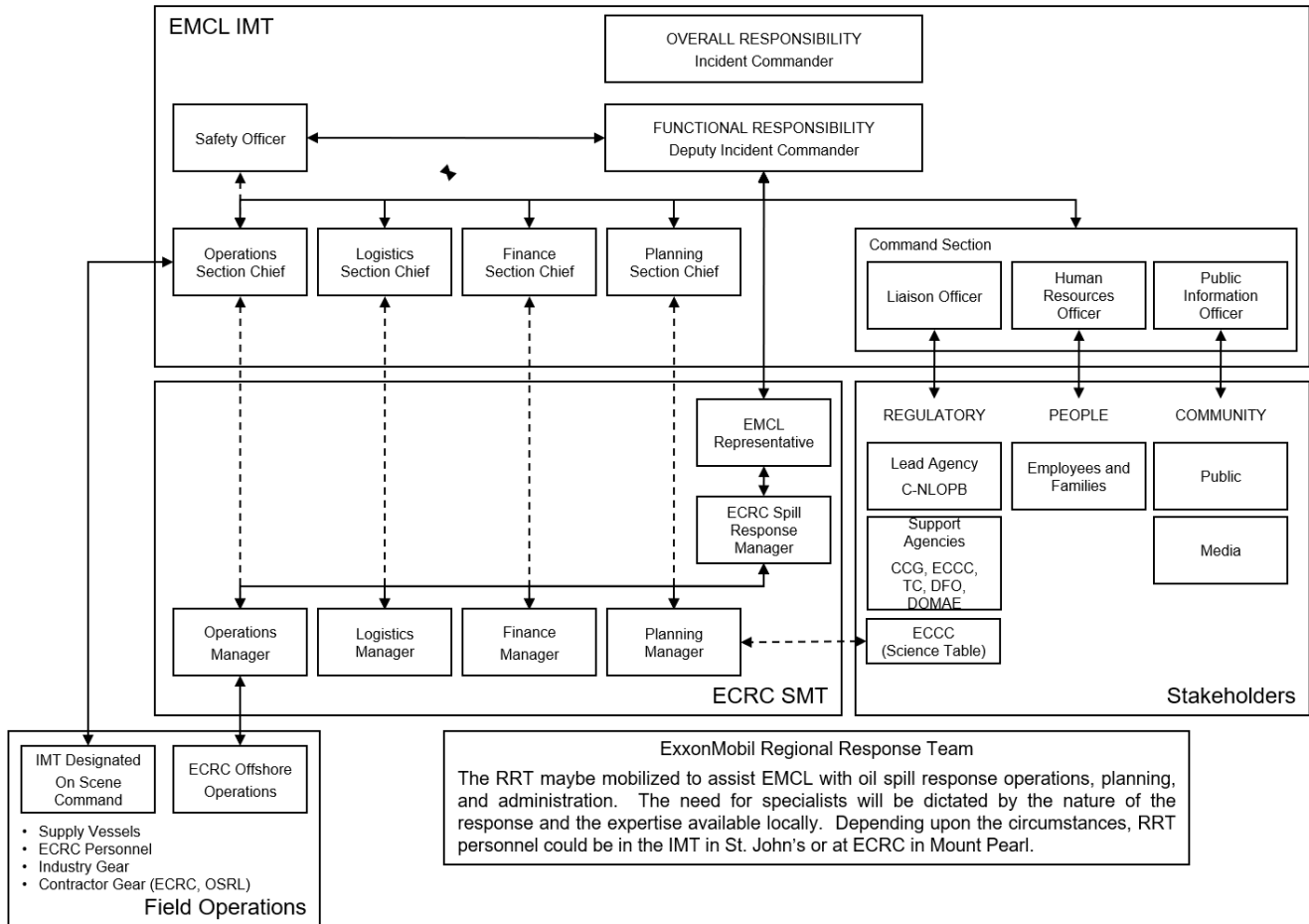


Figure 11: Tiers 2 & 3 INTEGRATED Command and Control

This model suggests the lines of communication between the operational response, the ECRC Response Centre, and the IMT. The links between EMCL Section Chiefs and ECRC supervisors are at a working level to ensure maximum cooperation without redundancy or omissions. More formal interaction will be accomplished by placing an EMCL representative at the ECRC Response Centre (if the IMT is not located at the same Response Centre).

10.6 ECRC Planning Process

ECRC has developed a process that guides the development of oil spill planning as the response progresses. Figure 12 presents the timeline (planning schedule) for an escalating response from the initial reactive phase (at the time of the spill) to the proactive phase.

This process allows for rapid ECRC activation and a clear basis for establishing funding requirements. Approximately 24 hours into the response, ECRC should be able to create budgets that are based on the operational plans that have been developed. In an offshore spill response, planning will be divided into operating periods. The first operating period will be brief to meet the emergency nature of the situation at the time of the spill. After that, operating periods are typically 24-48 hours long. Depending on the scale of the required response, it may be possible to develop a 7-day plan which will be a sequence of 24-hour operating periods. ECRC's operating periods can be readily integrated with the EMCL ICS process.

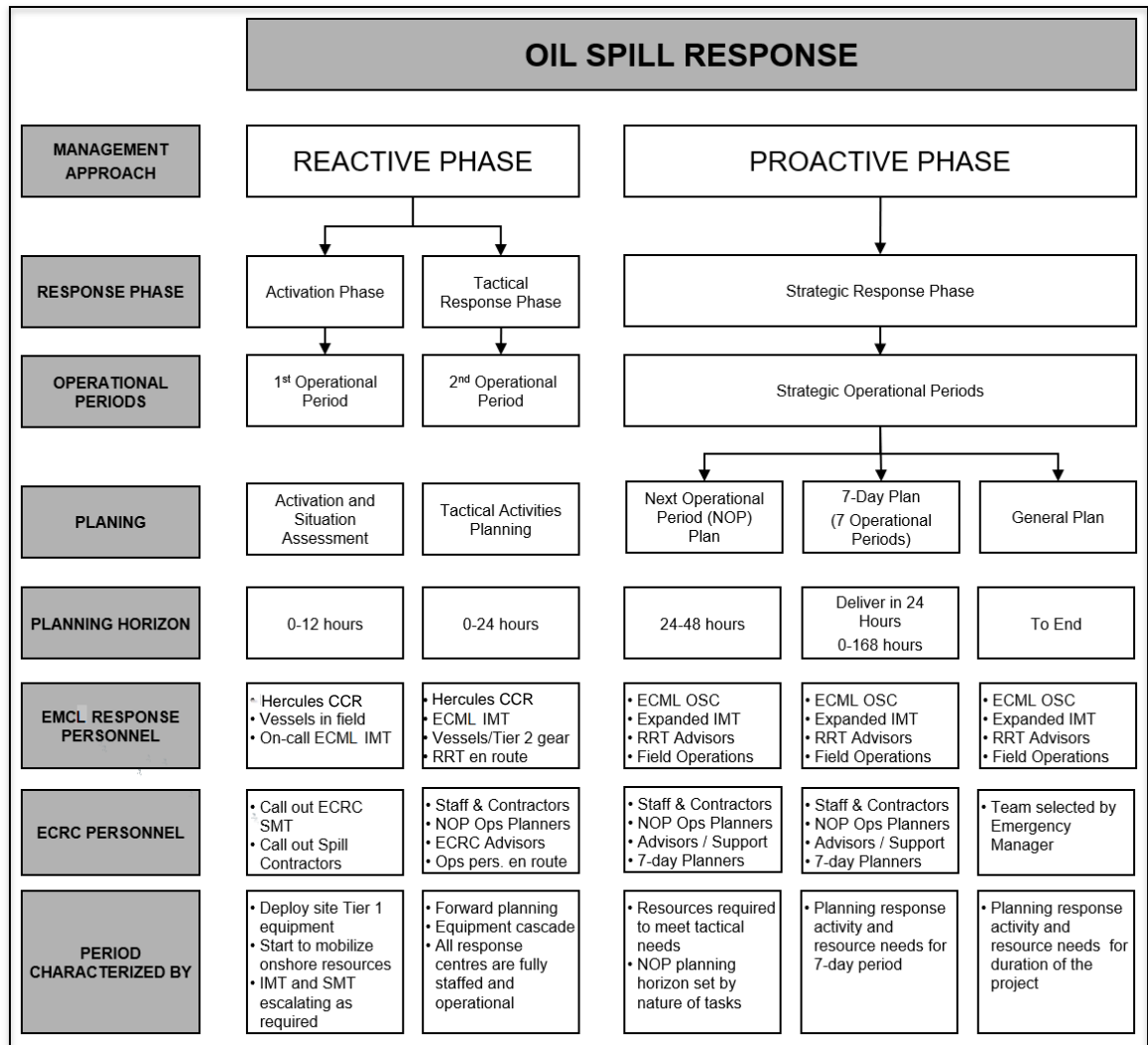


Figure 12: ECRC Oil Spill Response Timeline (Planning Schedule)

11.0 ACTIONS

This section provides a general overview of actions that might be undertaken in a response to oil lost at the Hercules.

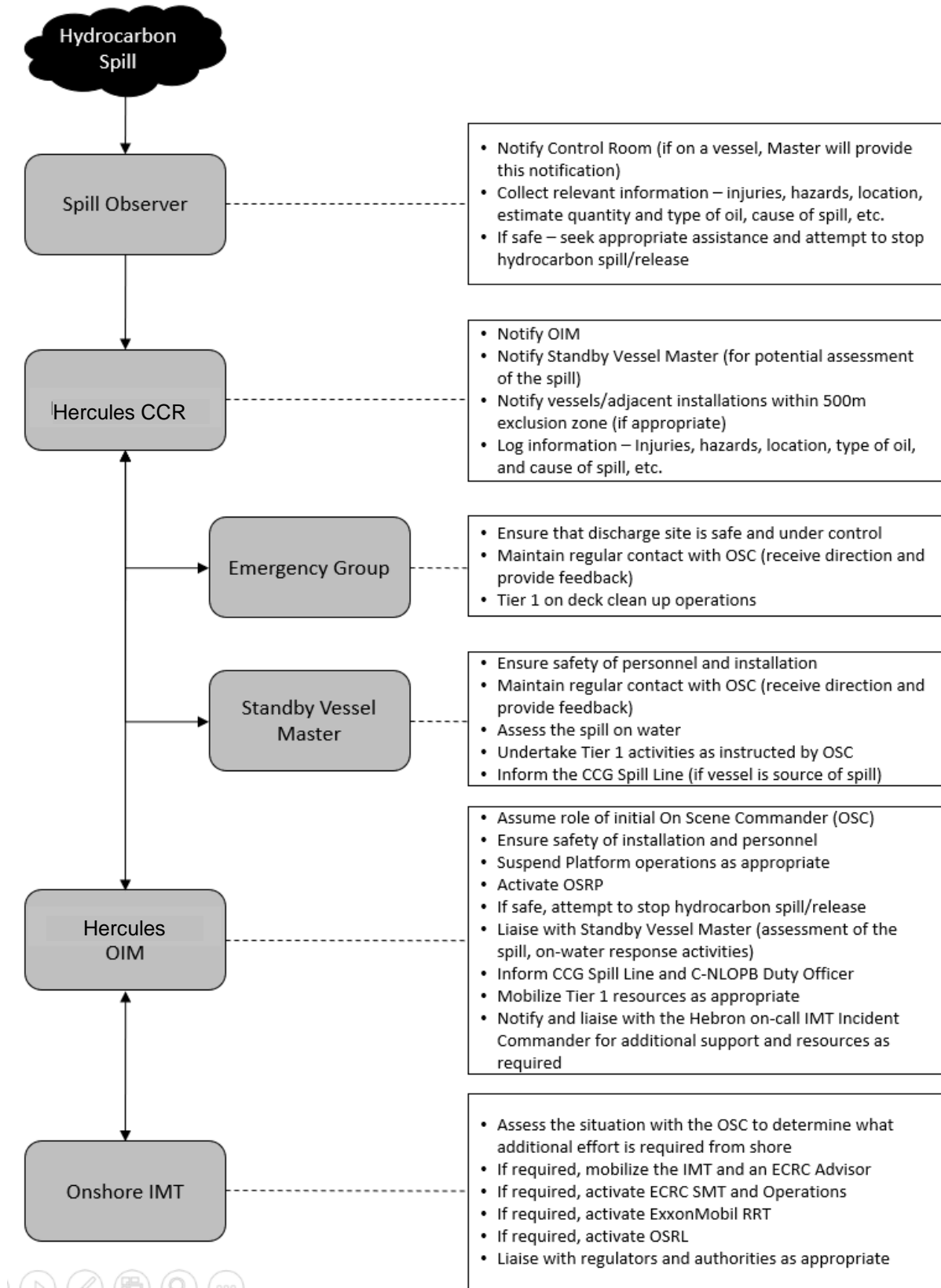


Figure 13: Initial Actions

12.0 WASTE MANAGEMENT

12.1 General

Waste Management is an important component of any marine oil spill response. The primary concerns of collecting oil on water will be:

- Safe storage of petroleum products following collection;
- Limiting secondary contamination of vessels, equipment, and personnel during collection;
- Segregation of waste products for efficient disposal;
- Temporary storage prior to disposal; and
- Appropriate disposal.

12.2 Waste Management References

Refer to Section 5.0 of the *Oil Spill Response Reference Manual* for further information (**List is truncated**):

- Federal and Provincial Regulations;
- EMCL Commitment;
- Waste Handling Documentation;
- Responsibility Issues;
- Waste Disposal Chain;
- Water Reduction;
- Skimmer Selection;
- Decanting;
- De-Emulsification;
- Collection Vessel Storage;
- Receiving and Storage of Fluid Waste Onshore;
- Local Contractors of Liquid Wastes;
- Industry-Owned Marine Terminals;
- Liquid, Solid and Biological Waste Disposal;
- Temporary Solid Waste Storage in the Field and on land;
- Disposal by Incineration;
- Decontamination;
- Personnel, Equipment, Vessel Decontamination;
- Government-Controlled Sites; and
- Industrial Sites.

13.0 HEALTH AND SAFETY

13.1 General

In any oil spill response, the primary focus will be on personnel safety. Ultimate responsibility for safety will rest with the Person in Charge (the Master on an OSV or the OIM on the Hercules). At any time, operations may be terminated if conditions are deemed to be unsafe by the Person in Charge.

13.2 Health and Safety References

Refer to Section 6.0 of the *Oil Spill Response Reference Manual* for further information on:

- General Procedures;
- Responding in Teams;
- Hand Signals;
- Pre-Job Safety Meetings;
- Risks;
- Work Permits;
- Personal Protective Equipment;
- Atmospheric Testing;
- Confined Space Entry; and
- Transportation Safety.

14.0 TRAINING AND EXERCISES

14.1 General

The oil spill response training program is modular and structured to provide a variety of skills to the team that may be assembled in the event of an offshore oil spill. The training program takes into account the following general areas:

- Oil spill response overview;
- Response management; and
- Response operations and equipment training.

14.2 Training References

Refer to Section 7.0 of the *Oil Spill Response Reference Manual* for further information on training.

Oil Spill Response Training for Offshore OSV Personnel includes:

- Tier 1 Training (conducted by ECRC); and SVSS System Operations (conducted by ECRC).

Oil Spill Response Training for Onshore IMT Personnel with applicable roles includes:

- ECRC Orientation (Conducted by ECRC); and
- General Oil Spill Response Overview.

Oil Spill Response Training for Onshore and Offshore Personnel could include:

- Exercises; and
- Joint Operators' Equipment Exercise.

15.0 ACRONYMS

Term or Abbreviation	Definition
CCG	Canadian Coast Guard
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CR	Control Room (offshore)
CSA	Canada Shipping Act
CWS	Canadian Wildlife Services
ECCC	Environment and Climate Change Canada
EMCL	ExxonMobil Canada Ltd.
ECRC	Eastern Canada Response Corporation
EEM	Environmental Effects Monitoring
EIS	Environmental Impact Statement
EL	Exploration Licence
ESG	Emergency Support Group
GRN	Global Response Network
ICS	Incident Command System
IMO	International Maritime Organization
IMT	(ExxonMobil Canada Ltd. – onshore) Incident Management Team
IMT ERDG	Incident Management Team Emergency Response Desk Guide
IPIECA	International Petroleum Industry Environmental Conservation Association
ISO	International Standards Organization
ITOPF	International Tanker Owners' Pollution Federation
MEAA	Mutual Emergency Assistance Agreement
NEB	Net Environmental Benefit
NEEC	National Environmental Emergency Centre
NOFO	North Sea Operators Clean Seas Association
NOP	Next Operational Period
OIM	Offshore Installation Manager
OSC	On-Scene Commander
OSRP	Oil Spill Response Plan
OSRL	Oil Spill Response Ltd.
OSV	Offshore Support Vessel
RO	Response Organization
SSHE	Safety, Security, Health and Environment
SIMA	Spill Impact Mitigation Assessment
SMT	(ECRC) Spill Management Team

STA	Spill Treating Agent
SVSS	Single Vessel Side Sweep

16.0 DEFINITIONS

Blowout - An uncontrolled flow or discharge of gas, oil, or other fluids from the subsurface reservoir. An offshore blowout might occur during drilling, completion, or workover operations. Blowouts, whether subsea or above surface, may introduce a large discharge over periods of time that can be of the order of days.

Communications - An integrated network of appropriate technologies to link both response management onshore and offshore response operations.

Dispersion - The separation of coalesced oil on water into very small droplets. Dispersion can occur naturally due to wave action or can be achieved through directed physical actions or use of Spill Treating Agents. Dispersion into the water column accelerates the natural degradation of spilled oil by making it available to marine bacteria.

External Communications - All communications, formal and informal, between response management personnel and government agencies, news media, and the public.

Hydrocarbon - Organic compounds composed only of hydrogen and carbon that are the principal constituents of crude oils, natural gas, and refined petroleum products.

Incident - An occurrence or event, either human-caused or as the result of natural phenomenon, that requires action by emergency response personnel.

Incident Commander - The person with overall responsibility for managing the oil spill response.

Incident Command System - A standardized approach to the command, control, and coordination of an emergency response through a common hierarchy of personnel, the development of objectives, tactics, and action plans through a series of scheduled meetings and standardized documentation forms.

Marine Communications Traffic Services - The Canadian Coast Guard duty person who will receive the initial *notification* of a spill event. For spills offshore Newfoundland, the MCTS Officer can be reached at (709) 772-2083.

Notification - In-house call-out procedures and mandatory notifications made to government agencies.

Objectives - Prioritized Objectives are used throughout the ICS process to ensure that everyone has a common view of the direction of the response so that they can develop plans and make decisions that will support the overall objectives established by the Incident Commander.

Oil Spill - A release of hydrocarbons to the marine environment from the Hercules or OSVs that occurs within, but may spread beyond, the field safety zone.

Oil Spill Trajectory - The path (modeled/predicted or observed) of oil spilled on the sea surface. The actual path is a function of a number of factors including wind velocity, surface current velocity, air and water temperature, the presence of ice, the amount of oil spilled, and the physical and chemical properties of the oil.

On-Scene Commander - The OSC is the person at site responsible for the implementation of response measures. During the initial response, or while the oil is at the Hercules, the OIM. Later, an EMCL IMT member may be named OSC to implement response actions as the oil moves away from the site.

Regional Response Team - The ExxonMobil corporate emergency response team that would be activated to assist in the response to oil spill incidents within North America.

Resources (at risk) - Environmental or human resources that could be impacted by their interaction with oil on water.

Resources - The vessels, equipment, personnel, and contracted services needed to carry out planned tactics.

Spill Management Team - The response management component of ECRC's response service. The SMT, structured along the principles of the ICS hierarchy, is prepared to provide planning and operational coordination services to EMCL during an offshore spill response.

Spill Response Manager - The ECRC manager responsible for the management of SMT response operations.

Spreading - The tendency for oil on water to form a thin layer over a large surface area. The rate and extent of spreading will depend upon the oil's viscosity, pour point, and wax content as well as on sea state and weather conditions.

Strategy - An approach to long term response planning to meet the response objectives established by the Incident Commander.

Surveillance and Monitoring - The observation and tracking of spilled oil, either visually or with the aid of electronic equipment.

Tactics - Tactics define specific activities to meet the planning strategies established by the IMT and the objectives of the Incident Commander.

Tier Levels - The categorization of an incident according to the level of response effort required. The offshore industry uses a three-tier system for classifying an oil spill response.

Weathering - The alteration of the physical and chemical properties of spilled oil through a series of natural processes that begin when the oil is spilled, and continue for as long as the oil is in the environment. These processes include spreading, evaporation, emulsification, dispersion, and biodegradation.

17.0 REFERENCES

Oil Spill Reference Manual CAEL-EF-OOREF-01-010-2017-000

Fisheries Compensation Document CAEL-EF-OOREF-01-006-5006-000

Incident Management Handbook

Shipboard Oil Pollution Emergency Plan Hercules

Hercules Emergency Response Plan

Hercules Station Bill