ExxonMobil Canada Ltd.
2019-2020 Eastern Newfoundland Offshore Exploration Drilling Project – EL 1165A and EL 1165B

EL 1165B (Harp) Conditions Closure Report

FINAL REPORT

Submitted by:

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ACRONYMS

Term or Abbreviation	Definition
AMAR	Autonomous Multichannel Acoustic Recorders
ADW	Approval to Drill a Well
BOP	Blow-Out Preventer
CEAA	Canadian Environmental Assessment Agency
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEPA	*Canadian Environmental Protection Act*
CHS	Canadian Hydrographic Service
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CNSOPB	Canada-Nova Scotia Offshore Petroleum Board
CWC	Cold Water Coral
DAT	Direct Action Tensioner
DFO	Fisheries and Oceans Canada
DND	Department of National Defence
ECCC	Environmental and Climate Change Canada
ECCC-CWS	Environmental and Climate Change Canada – Canada Wildlife Services
ECMP	Environmental Complicance Monitoring Plan
ESRF	Environmental Studies Research Fund
EIS	Environmental Impact Statement
EL	Exploration Licence
EMCL	ExxonMobil Canada Limited
MARPOL	International Convention for the Prevention of Pollution from Ships
M MD	Metres Measured Depth
MMO	Marine Mammal Observer
MODU	Mobile Offshore Drilling Unit
NEB	National Energy Board
NL	Newfoundland and Labrador
OA	Operations Authorization
ORB	O-Ring Boss
OSP	Operations Safety Plan
OSRP	Oil Spill Response Plan
OVID	Offshore Vessel Inspection Database
OWS	Oily Water Seperator
OWTG	Offshore Waste Treatment Guidelines
PAL	Provincial Aerospace Limited
RAR	Remote Anchor Release
ROV	Remote Operated Vehicle
SAR	Species at Risk
SBM	Synthetic Based Mud
SEL	Sounds Exposure Level
SIMA	Spill Impact Mitigation Assessment
SOC’s	Synthetic on Cuttings
SMS	Safety Management System
TTS	Temporary Threshold Shift

VSP	Vertical Seismic Profiling
WBM	Water Based Mud

1 INTRODUCTION

ExxonMobil Canada Ltd. (EMCL) undertook an offshore exploration drilling program at Exploration Licences (EL) 1134 (Hampden Well) and 1135 (Harp Well - later consolidated and herein referred to as 1165A and 1165B, respectively), in the eastern portion of the Canada-Newfoundland and Labrador (NL) Offshore Area. EMCL had committed to preparing a Conditions Closure Report as part of commitments in the Decision Statement, Issued under Section 54 of the Canadian Environmental Assessment Act, 2012 for the Eastern Newfoundland Offshore Exploration Drilling Projects. This report outlines activities undertaken by EMCL to comply with conditions set out in the Decision Statement for exploration drilling activities at EL 1165B.

2 PROJECT DESCRIPTION

EMCL is conducting an exploration drilling project within offshore exploration licenses located in the Jeanne d'Arc Basin and the Flemish Pass Basin. The proposed Eastern Newfoundland Offshore Exploration Drilling Project would take place between 2019 and 2029, during which EMCL could drill to up to 18 offshore wells (up to six per exploration licence) to determine the presence, nature and quantities of the potential hydrocarbon resource in ELs 1165A, 1165B and 1137.

In 2016, the Canadian Environmental Assessment Agency (CEAA – herein referred to as the Agency) conducted an environmental assessment of the Designated Project in accordance with the requirements of the *Canadian Environmental Assessment Act, 2012*, and submitted its report to the Minister of Environment and Climate Change. On April 17, 2019, after considering the report of the Agency on the Designated Project and the implementation of mitigation measures, a Decision Statement was released, in which the Minister determined that the Designated Project was not likely to cause significant adverse environmental effects referred to in subsection 5(1) of the *Canadian Environmental Assessment Act, 2012*.

The Harp well was an undrilled prospect ~400 kilometres east of St John's, Newfoundland on EL1165B. The EMCL-operated Harp L-42 exploration well (and associate sidetrack - L42A) was drilled by the Seadrill West Aquarius Mobile Offshore Drilling Unit (MODU) under Operations Authorization (OA) no. 24020-020-OA06 in a water depth of 298 metres. The primary objective of the Harp L-42 well was to evaluate a late tithonian amplitude anomaly (~3696m md).

2.1 Project Location

Harp L42A is located in the southern Flemish pass, at 47° 31' 41.151" N; 47° 22' 20.671" W. The Project Area includes the Sackville Spur areas off the Eastern Grand Banks of NL (Figure 2-1) and is located in EL 1165B, which is an area of 2,661 km^2 with water depths of approximately 240-1,130 metres (m). The wellsite is located in the southwestern portion of the EL at approximately 300 m water depth. See Figure 1: Map of Well Location.

2.2 Project Activities

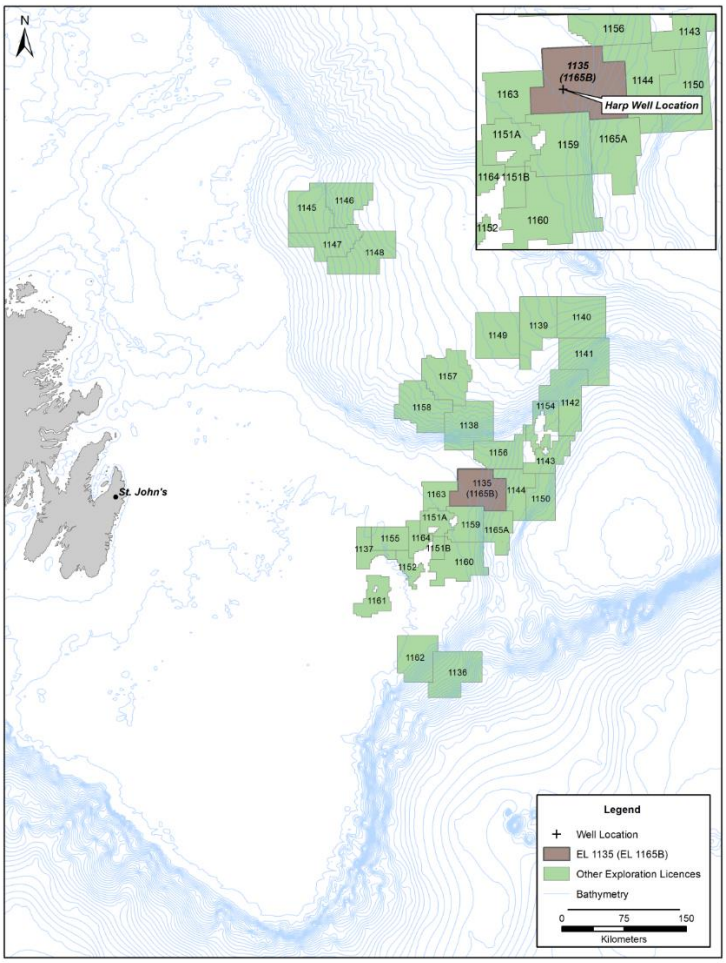
The following table, Table 1, outlines key activities that occurred during the Harp drilling campaign.

Table 1: Project Activities

Dates (Month, Year)	Activity	Comments
August 2018	Cold Water Coral and Sponge Survey conducted	Pre-drilling seabed survey conducted at drill center, cuttings dispersal area and anchor pre-lay transects to evaluate the presence and distribution of corals and sponges.
April 2019	Minister of Environment and Climate Change releases Decision Statement	Honourable Catherine McKenna released Decision Statement concluding that, with the implementation of applicable conditions, the Designated Project was not likely to result in significant adverse environmental effects.
July 2019	Additional Cold Water Coral (CWC)/Sponge Survey	Phase Two Site Investigation acquired additional Remote Operated Vehicle (ROV) video to identify the entirety of all anchor chains, plus 50 m beyond the anchors resting point on the seabed.

September, 2019	Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) grants Approval to Drill a Well (ADW) for Harp L-42	C-NLOPB granted an ADW to EMCL and authorized the commencement of drilling operations for the Harp L-42 exploration well.
September, 2019	Rig move to location and mooring operations	Rig move to Harp well location and anchor mooring activities commenced
October, 2019	Harp L42 Surface Hole section	Drilling commenced on Harp L42
October, 2019	Harp L-42A Surface Hole section (re-spud)	Following the initial surface hole section of L-42, a re-spud was required in order to meet planned well objectives.
November, 2019	711mm (28”) hole section	Drilling, casing and cementing of 711mm hole section.
November, 2019	Run Blow-Out Preventer (BOP) and Marine Riser	BOP and marine riser run and installed on well head.
November – December, 2019	457mm (18”) hole section	457mm hole section drilled and liner installed and cemented.
December 2019 – February, 2020	346mm (16 ½”) hole section	346mm hole section drilled, cased and cemented. Delays due to weather.
March, 2020	Marine Mammal Observer (MMO) Monitoring for planned Vertical Seismic Profiling (VSP) Operations	VSP operations were not conducted, therefore MMO monitoring was not required.
April, 2020	Well Sealed and Pressure Tested	Cement plugs set and pressure tested to plug and abandon (P&A) the main wellbore.
April, 2020	BOP recovery	BOP recovered from wellhead and secured on rig.
April, 2020	Remote Anchor Release (RAR) disconnect and rig move to Hampden.	Disconnected mooring through release of RAR mechanism and commenced rig transit to Hampden well location.
May, 2020	Anchor recovery	Recovered anchors with anchor handler vessel

Figure 1: Map of Well Location



3 SCOPE

This report has been prepared to fulfill Condition 2.7 and contains details of how all conditions in the Decision Statement have been addressed. Table 2 details how conditions in the Decision Statement were met by the Proponent, EMCL.

Table 2: Closure Response to Decision Statement Conditions

Cond. #	Condition	Relevant Closure Report Sections	Proponent Response
2.1	The Proponent shall ensure that its actions in meeting the conditions set out in this Decision Statement during all phases of the Designated Project are considered in a careful and precautionary manner, promote sustainable development, are informed by the best information and knowledge available at the time the Proponent takes action, including community and Indigenous	All	EMCL had taken careful and precautionary considerations throughout all phases of the project, considered Indigenous and stakeholder knowledge and feedback and utilized recognized methods/models and best available technologies throughout the life of this exploration campaign and with regular communication and engagement with the C-NLOPB. These considerations and efforts can be seen through various components of

	traditional knowledge, are based on methods and models that are recognized by standard-setting bodies, are undertaken by qualified individuals, and have applied the best available economically and technically feasible technologies.		the program and corresponding sections of this closure report.
2.2	The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement: 2.2.1 provide a written notice of the opportunity for the party or parties being consulted to present their views and information on the subject of the consultation; 2.2.2 provide sufficient information on the scope and the subject matter of the consultation in a period of time that allows the party or parties being consulted, to prepare their views and information; 2.2.3 undertake and impartial consideration of all views and information presented by the party or parties being consulted on the subject matter of the consultation; and 2.2.4 advise in a timely manner the party or parties being consulted on how the views and information received have been considered by the Proponent.	4	Indigenous and stakeholder notifications, consultation and engagement is critical to creating projects and programs in the offshore. EMCL recognizes the importance of communication and engagement with various Indigenous groups and stakeholders. The EMCL Exploration Communications Plan detailed the methods and procedures for engagement with regulatory bodies, fisheries and Indigenous groups prior to and during operations. Section 4 provides further detail on the groups with which engagement occurred as well as the timing and nature of engagement, including those actions described in Conditions 2.2.1 to 2.2.4. When consultation was a requirement of this Decision Statement, written notification of opportunity for participation was provided.
2.3	The Proponent shall, where consultation with Indigenous groups is a requirement of a condition set out in this Decision Statement, communicate with each Indigenous group with respect to the manner by which to satisfy the consultation requirements referred to in condition 2.2, including methods of notifcation, the type of information and the period of time to be provided when seeking input, the process to be used by the Proponent to undertake impartial consideration of all views and information presented on the subject of the consultation, the period of time to advise Indigenous groups of how their views and information were considered by the Proponent and the means by which Indigenous groups will be advised.	4	EMCL had been engaging with Indigenous groups on the proposed drilling program since 2017. Where consultation with Indigenous groups was required by a condition set out in the Decision Statement, appropriate engagement methods were followed according to consultation requirements referred to in condition 2.2 and 2.3.
2.4	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, determine the following information, for each follow-up program:	5, 6, 7	Where a follow-up program was a requirement of the Decision Statement, EMCL provided a follow-up program plan to the C-NLOPB which included the information required in condition 2.4.

	2.4.1 the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program as necessary to verify the accuracy of the environmental assessment predictions as they pertain to the particular condition and to determine the effectiveness of any mitigation measure (s); 2.4.2 the scope, content and frequency of reporting of the result of the follow-up program; 2.4.3 the levels of environmental change relative to baseline conditions and predicted effects as described in the Environmental Impact Statement, that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may be required to stop Designated Project activities; and 2.4.4 the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change have reached or exceeded the limites referred to in condition 2.4.3.		
2.5	The Proponent shall submit the information referred to in condition 2.4 prior to the implementation of each follow-up program. The Proponent shall update that information in consultation with relevant authorities during the implementation of each follow-up program, and shall provide the updated information to the Board within 30 days of the information being updated.	NA	Where follow-up programs were required, the information in condition 2.4 was submitted to the C-NLOPB prior to implementation of that program. When comments or feedback was received the plans were updated and submitted to the C-NLOPB to its satisfaction.
2.6	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement: 2.6.1 conduct the follow-up program according to the information determined pursuant to condition 2.4; 2.6.2 undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition an/or to	5,6,7	All follow-up programs were conducted according to the information and plans submitted with some minor exceptions, all of which were discussed with the C-NLOPB: -VSP monitoring was not conducted because VSP operations did not occur - Additional coral and sponge pre-surveys were conducted at the EL1165B location once anchor locations were confirmed (per conditions 3.5 and 3.6)

	determine the effectiveness of any mitigation measure(s); 2.6.3 determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken pursuant to condition 2.6.2; and 2.6.4 if modified or additional mitigation measures are required pursuant to condition 2.6.3, develop and implement these mitigation measures in a timely manner and monitor them pursuant to condition 2.6.2.		- Daily seabird monitoring during the Harp (EL 1165B) exploration program was limited to stranded seabird searches and did not include daily live bird monitoring.
2.7	The Proponent shall, within 90 days of the completion of the drilling program for a single year program, or annually within 90 days of the end of each calendar year of a multi-year drilling program, submit to the Board and the Agency a report, including an executive summary of the report in both official languages. The Proponent shall document in the report: 2.7.1 the activities undertaken by the Proponent in the reporting year to comply with each of the conditions set out in this Decision Statement; 2.7.2 how the Proponent complied with condition 2.1; 2.7.3 for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation; 2.7.4 the information referred to in conditions 2.47 and 2.5 for each follow-up program; 2.7.5 the results of the follow-up program requriements identified in conditions 3.12 and 4.3; and 2.7.6 any modified or additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.6.	All	The Closure report for EL1165B was submitted on July 16, 2020. This was within 90 days of well completion (April 18, 2020). An executive summary in both official languages was posted to the internet on January 5, 2021.
2.8	The Proponent shall cause to be published on the Internet the reports and the executive summaries referred to in condition 2.7, the coral and sponge	4	All required documents were posted to the Internet at the following domain as they became available or were finalized: https://exploration.exxonmobilcanada.ca/

	survey results referred to in condition 3.6, the communication plan referred to in condition 5.1, the well and wellhead abandonment plan referred to in condition 5.2, the well control strategies referred to in condition 6.5, the spill response plan referred to in condition 6.6, the Spill Impact Mitigation Assessment referred to in condition 6.10, the implementation schedule referred to in condition 7.1, monitoring and follow-up results for marine mammals, fish and fish habitat, and migratory birds and any update(s) or revision(s) to the above documents, upon submission of these documents to the parties referenced in the respective conditions. The Proponent shall notify Indigenous groups of the availability of these documents within 48 hours of their publication.		When the site went live Indigenous groups were made aware of the availability of the documents and site location via written notification from EMCL's Indigenous Affairs consultant or EMCL employees. As documents were added to the website Indigenous groups were also notified of these new additions.
2.9	When the development of a plan is a requirement of a condition set out in this Decision Statement, the Proponent shall submit the plan to the Board prior to the start of the drilling program, unless otherwise required through the condition.	All	When the development of a plan was required per the Decision Statement, it was submitted to the C-NLOPB prior to drilling unless otherwise required through the condition and as specified in the implementation schedule reviewed with the C-NLOPB monthly.
2.10	The Proponent shall notify the Agency and Indigenous groups in writing no later than 60 days after the day on which there is a change of operator for the Designated Project.	4	There was no change of operator for the Designated Project.
2.11	The Proponent shall consult with Indigenous groups prior to initiating any material changes to the Designated Project that may result in adverse environmental effects, and shall notify the Board and the Agency in writing no later than 60 days prior to initiating the change(s).	4	No material changes that may have resulted in adverse environmental effects were made during the program.
2.12	In notifying the Board and the Agency pursuant to condition 2.11, the Proponent shall provide the Board and the Agency with a description of the potential adverse environmental effects of the change(s) to the Designated Project, the proposed mitigation measures and follow-up requirements to be implemented by the Proponent and the results of consultation with Indigenous groups.	4	No material changes that may have resulted in adverse environmental effects were made during the program.
3.1	The Proponent shall treat all discharges from offshore drilling ínto the marine environment which, at a minimum, will meet the volumes and concentration	5.4	Sampling, analysis and reporting requirements for regulated waste streams were outlined in the EMCL Environmental Compliance Monitoring plan (as submitted Dec 2, 2018). A robust process was developed to ensure

	limits identified in the Offshore Waste Treatment Guidelines, issued jointly by the National Energy Board, the Canada-Newfoundland and Labrador Offshore Petroleum Board, the Canada-Nova Scotia Offshore Petroleum Board, and any other legislative requirements, where applicable.		that discharges overboard met the requirements of subsection 9(i)(j) of the *Newfoundland Offshore Drilling and Production Regulations*. Section 5.4 below provides additional clarity on how this expectation was met.
3.2	The Proponent shall dispose of spent or excess synthetic-based drilling muds that are not re-used at an approved on-shore facility.	5.2	EMCL removed synthetic based drilling mud from the mud tanks and transported onshore for disposal or reuse at another facility. Section 5.2 provides additional information on how this expectation was met.
3.3	The Proponent shall apply, at a minimum, the standards identified in the Offshore Chemical Selection Guidelines for Drilling & Production Activities on Frontier Lands, issued jointly by the National Energy Board, the Canada-Newfoundland and Labrador Offshore Petroleum Board and the Canada-Nova Scotia Offshore Petroleum Board, to select lower toxicity chemicals for use and discharge into the marine environment, including drilling fluid constituents, and shall submit any necessary risk justification pursuant to the Guidelines to the Board for acceptance prior to use.	5.4	All fluids intended for release to sea were managed in accordance with the C-NLOPB *Guidelines Respecting the Selection of Chemicals Intended to be used in Conjunction with Offshore Drilling & Production Activities on Frontier Lands*. Chemicals were approved through the EMCL Agent Master process. See section 5.4 for additional information.
3.4	The Proponent shall treat all discharges from supply vessels into the marine environment in accordance with the International Maritime Organization's International Convention for the Prevention of Pollution from Ships and any other legislative requirements, where applicable.	5.4	All supply vessels followed the International Convention for the Prevention of Pollution from Ships (MARPOL) which outlines all discharge requirements. See section 5.4 for additional information.
3.5	The Proponent shall conduct a pre-drill survey with qualified individual(s) at each well site to confirm the presence or absence of any unexploded ordnance or other seabed hazards. If any such ordnance or seabed hazard is detected, it shall not be disturbed and the Proponent shall contact the Canadian Coast Guard's Joint Rescue Coordination Centre in Halifax and the Board to determine an appropriate course of action, prior to commencing drilling.	NA	Canadian Hydrographic Service (CHS), Department of National Defence (DND) and Fugro databases were reviewed, for indicators of shipwrecks, munitions, cables or other anthropogenic objects on the seafloor within the Harp L-42 hazards surveys area. None were found and all required information was submitted to the C-NLOPB as required by the geoscience team.
3.6	The Proponent shall develop and conduct, in consultation with Fisheries and Oceans Canada and the Board, a coral and sponge survey, using remote	5.1	Pre-drilling coral and sponge surveys were developed prior to conducting the program in consultation with DFO and C-NLOPB. The surveys were conducted via ROV in August 2018 and June 2019. EMCL contracted RPS

	operated vehicles guided by a qualified individual, to confirm the presence or absence of any aggregations of habitat-forming corals or sponges or any other environmentally sensitive features. Survey transect length and pattern around wellsite's shall be based on applicable drill cutting dispersion model results. Transects around anchor sites should extend at least 50 metres from the extent of the anchor pattern.		Canada Ltd and Wood Int. to provide biological support for the survey, which was conducted using the Paul.A.Sacuta, a support vessel owned and operated by Atlantic Towing. Section 5.1 details the survey methodology and findings.
3.7	If the survey(s) conducted in accordance with condition 3.6 confirm(s) the presence of aggregations of habitat-forming corals or sponges, or if other environmentally sensitive features are identified by a qualified individual, the Proponent shall change the location of the well on the seafloor or redirect drill cuttings discharges to avoid affecting the aggregations of habitat-forming corals or sponges, unless not technically feasible, as determined in consultation with the Board. If not technically feasible, the Proponent shall consult with the Board and Fisheries and Oceans Canada prior to commencing drilling to determine an appropriate course of action, subject to the approval of the Board, including any additional mitigation measures.	5.1	While the pre-drilling cold water coral and sponge surveys did note the presence of a single species of cold-water soft coral, the size and abundance was determined to be not large enough to constitute a coral colony. Based on survey findings, it was determined not necessary to change the location of the well or redirect drill cuttings discharges. Full details of the survey findings and conclusion are found in section 5.1.
3.8	The Proponent shall apply Fisheries and Oceans Canada's *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment* during the planning and conduct of vertical seismic surveys. In doing so, the Proponent shall establish a safety zone of a minimum radius of 500 metre from the seismic sound source.	NA	No vertical seismic surveys were conducted during this exploration program. VSP monitoring program was developed in consultation with DFO and C-NLOPB prior to conducting the program. Dispensation not to perform VSP was received from the C-NLOPB in February, 2020
3.9	The Proponent shall develop, in consultation with Fisheries and Oceans Canada and the Board, a marine mammal monitoring plan that shall be submitted to the Board at least 30 days prior to the commencement of any vertical seismic survey. The Proponent shall implement the plan during the conduct of vertical seismic surveys. As part of the plan, the Proponent shall: 3.9.1 develop and implement marine mammal observation requirements, including the use of passive acoustic monitoring, or equivalent technology, and visual monitoring by marine mammal	NA	No vertical seismic surveys were conducted during this exploration program. VSP monitoring program was developed in consultation with DFO and C-NLOPB prior to conducting the program. Dispensation not to perform VSP was received from the C-NLOPB in February, 2020

	observers throughout vertical seismic surveys; 3.9.2 ensure that observation requirements specify the requirement for shut down of the seismic sound source if any marine mammal or sea turtle is observed within the 500 metre safety zone; and 3.9.3 submit the results of the activities undertaken as part of the marine mammal observation requirements to the Board within 60 days of the end of the vertical seismic surveys.		
3.10	The Proponent shall implement measures to prevent or reduce the risks of collisions between supply vessels and marine mammals and sea turtles, including: 3.10.1 requiring supply vessels to use established shipping lanes, where they exist; and 3.10.2 requiring supply vessels to reduce speed to a maximum of 7 knots when a marine mammal or sea turtle is observed or reported within 400 metres of a supply vessel, except if not feasible for safety reasons.	N/A	Marine traffic follows traditional routes during trans atlantic voyages based on final destination, there are no established shipping lanes to or near the exploration area, and therefore supply vessels were not required to follow established shipping lanes during this campaign. Requirements for reduced speeds were communicated to vessel operators, who then communicated requirements to all captains of vessels under contract for this exploration scope. Supply vessels were required to reduce speed to a max. of 7 knots when a marine mammal or sea turtle was observed or reported within 400m of the supply vessel. During this program there were no reported sightings of marine mammals within 400m of a supply vessel.
3.11	The Proponent shall report any collisions of a supply vessel with marine mammals or sea turtles to the Board, Fisheries and Oceans Canad's Canadian Coast Guard Regional Operations Centre, any other relevant authorities as soon as reasonably practicable but no later than 24 hours following the collision, and notify Indigenous groups within three days.	NA	No collisions of supply vessels with marine mammals or sea turtles occurred during this exploration program.
3.12	The Proponent shall develop and implement follow-up requirements, pursuant to condition 2.4, to verify the accuracy of the predictions made during the environmental assessment as it pertains to fish and fish habitat, including marine mammals and sea turtles, and to determine the effectiveness of mitigation measures identified under conditions 3.1 to 3.11. As part of these follow-up requirements, for the duration of the drilling program, the Proponent shall: 3.12.1 for every well, measure the concentration of synthetic-based drilling	5	Synthetic on Cuttings (SOC's) monitored and discharge within prescribed guideline cirteria with monthly reports submitted to the C-NLOPB as required. See section 5.2 for further detail treatment of SOCs. A pre-drill coral and sponge survey program was developed in consultation with the various regulatory bodies. The survey was conducted around the well head and along the proposed anchor chain layout pattern prior to the start of drilling. The pre-drill survey also included the identification and cataloging of any benthic fauna encountered. The post drilling cuttings survey collected benthic video

	fluids retained on discharged drill cuttings as described in the Offshore Waste Treatment Guidelines to verify that the discharge meets, at a minimum, the performance targets set out in the Guidelines and any applicable legislative requirements and report the results to the Board; 3.12.2 for the first well in each exploration license, and for any well where drilling is undertaken in an area determined by coral and sponge surveys to be sensitive benthic habitat, and for any well located within a special area designated as such due to the presence of sensitive coral and sponge species, or a location near a special area where drill cuttings dispersion modelling predicts that drill cuttings deposition may have adverse effects, develop and implement, in consultation with Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment and effectiveness of mitigation measures as they pertain to the effects of cuttings discharges on benthic habitat. Follow-up shall include: 3.12.2.1 measurement of sediment depostition extent and thickness post-drilling to verify the drill waste deposition modeling predictions; 3.12.2.2 benthic fauna surveys to verify the effects of mitigation measures; and 3.12.2.3 The Proponent shall report the information collected, as identified in conditions 3.12.2.1 and 3.12.2.2, including a comparison of modelling results to *in situ* results, to the Board within 60 days following the drilling of the first well in each exploration license; and 3.12.3 for the first well in each exploration license, develop and implement, in consultation with Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment as it pertains to underwater noise levels. As part of the development of these follow-up requirements, the Proponent shall determine how underwarter noise levels		imagery covering 13.65 km of the seafloor. The post drilling survey evaluated the extent and thickness of sediment via visual analysis of the drill cuttings the extent of which was further quantified and supplemented by depth penetration measurements and sediment cores. *EL 1165B Drilling Discharge Follow-up Programs: Drill Cutting Measurement and Monitoring 2020 Report* (Wood, 2020) and *EL 1165B Drilling Discharge Follow-up Program: Benthic Habitate Monitoring 2020 Report* (Wood, 2020) were submitted to the regulatory agencies within 60 days and verified the predicted modeling results. An extensive acoustic monitoring program was developed in consultation with Fisheries and Oceans Canada (DFO) and C-NLOPB. Acoustic receivers were deployed prior to the commencement of the drilling program to establish baseline sound scape conditions in the area. An acoustic monitoring report, *ExxonMobil Canada Ltd Flemish Pass Exploratory Drilling Operations Soundscape Characterization, Marine Mammal Occurrence, and Potential Effects of Underwater Noise Emissions on Cetaceans (Jasco, 2020),* was submitted to the C-NLOPB on November 16, 2020.

	shall be monitored through field measurement by the Proponent during the drilling program and shall provide that information to the Board prior to the start of the drilling program.		
3.13	The Proponent shall submit to the Board a letter, prior to drilling, confirming its intent to participate in research pertaining to the presence of Atlantic salmon (Salmo salar) in the Jeanne d'Arc Basin and the Flemish Pass and update the Board and Indigenous groups annually on related research activities.	4.5	A letter was submitted to the C-NLOPB on August 9th, 2019 detailing the activities related to salmon research. For more information see section 4.5.
4.1	The Proponent shall carry out the Designated Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall be in compliance, where applicable, with the *Migratory Birds Convention Act, 1994,* the *Migratory Birds Regulations* and with the *Species at Risk Act* and shall take into account Environment and Climate Change Canada's *Avoidance Guidelines.*	7	After consultation with Environmental and Climate Change Canada (ECCC) a seabird handling permit was issued, along with associated protocols for seabird handling, avoidance and release, which were distributed to the MODU and support vessels along with the permit. In addition, a follow-up monitoring program was developed in consultation with C-NLOPB and Environmental and Climate Change Canada – Canada Wildlife Services (ECCC -CWS) to verify the accuracy of the predictions made during the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures implemented.
4.2	The Proponent shall implement measures to avoid harming, killing or disturbing migratory birds, including: 4.2.1 using formation testing while tripping, or similar technology, rather than formation testing with flaring, where acceptable by the Board; 4.2.2 limiting flaring to the length of time required to characterize the wells' hydrocarbon potential and as necessary for the safety of the operation; 4.2.3 flaring as early as practicable during daylight hours to limit flaring that occurs during nighttime; 4.2.4 operating a water curtain barrier around the flare during flaring; 4.2.5 notifying the Board at least 30 days in advance of planned flaring to determine whether the flaring would occur during a period of migratory bird vulnerability and to determine how the Proponent plans to avoid adverse environmental effects on migratory birds; 4.2.6 requiring supply and other support vessels to maintain a minimum lateral	7	No flaring operations were required during the exploration program. Vessels were required to maintain a minimum lateral distance of 300 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiveristy Areas. Supply helicopters were required to fly above 300 metres altitude from active bird colonies and a lateral distance of 1000 metres from the above areas except for approach, take-off and landing or if not feasible for safety reasons.

	distance of 300 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas, unless there is an emergency situation; and 4.2.7 requiring supply helicopters to fly at altitudes greater than 300 metres above sea level from active bird colonies and at a literal distance of 1000 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas except for approach, take-off and landing maneuvers, as required under the *Canadian Civil Aviation Regulations,* or if not feasible for safety reasons.		
4.3	The Proponent shall develop, prior to the start of the drilling program and in consultation with Environment and Climate Change Canada, and the Board, follow-up requirements, pursuant to condition 2.4, to verify the accuracy of the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures implemented by the Proponent to avoid harm to migratory birds, their eggs and nests, including the mitigation measures used to comply with conditions 4.1 to 4.3. The Proponent shall implement these follow-up requirements for the duration of the drilling program. As part of the follow up, the Proponent shall: 4.3.1 monitor daily for the presence of marine birds from the drilling installation using a trained observer following Environment and Climate Change Canada's Eastern Canada Seabirds at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms; and 4.3.2 monitor the drilling installation and supply vessels daily for the presence of stranded birds and follow Environment and Climate Change Canada's Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada.	7	As per condition 4.3 of the Decision Statement, EMCL developed a Migratory Birds follow-up monitoring program, in consultation with C-NLOPB and ECCC-CWS, to verify the accuracy of the predictions made during the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures implemented. Both the MODU and supply vessels were monitored daily for the presence of stranded marine birds, following ECCC's *Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada*.
5.1	The Proponent shall develop and implement a Fisheries Communication	4	A Fisheries Communication Plan and Indigenous Fisheries Communications Plan were developed to meet

	Plan in consultation with the Board, Indigenous groups and commercial fishers. The Proponent shall develop the Fisheries Communications Plan prior to the drilling and implement it for the duration of the drilling program. The Proponent shall include in the Fisheries Communication Plan: 5.1.1 procedures to notify Indigenous groups and commercial fishers of planned drilling activity, a minimum of two weeks prior to the start of drilling of each well; 5.1.2 procedures to determine the requirement for a Fisheries Liaison Officer and/ or fisheries guide vessel during drilling installation movement and geophysical programs; 5.1.3 procedures to communicate with Indigenous groups and commercial fishers, in the event of an accident or malfunction, the results of the monitoring and any associated potential health risks referred to in condition 6.9; and 5.1.4 the type of information that will be communicated to Indigenous groups and commercial fishers, and the timing of distribution of this information, that will include but not be limited to: 5.1.4.1 a description of planned Designated Project activities; 5.1.4.2 location(s) of safety exclusion zones; 5.1.4.3 anticipated vessel traffic schedule; 5.1.4.4 anticipated vessel routes; and 5.1.4.5 locations of suspended or abandoned wellheads.		the requirement of this condition. They were reviewed with the C-NLOPB, Indigenous groups and commercial fishers. Per the plan, Indigenous groups and commercial fishers were notified a minimum of two weeks prior to the drilling of each well. Commercial fishers were consulted to determine if a Fisheries Liaison Officer should be onboard during specific operations. No accidents or malfunctions occurred during the exploration program. Monthly notifications went out to Indigenous groups and commercial fisheries including project activities, location of safety exclusions zones, vessel information and locations of suspended or abandoned wellheads.
5.2	The Proponent shall develop and implement a well and wellhead abandonment plan and submit to the Board for acceptance at least 30 days prior to abandonment of each well. If the Proponent proposes to abandon a wellhead on the seafloor in a manner that may interfere with Indigenous or commercial fisheries, the Proponent shall develop the wellhead abandonment strategy in consultation with commercial fishers and potentially affected Indigenous groups with fishing licenses that overlap with the Designated Project	NA	The well and wellhead abandonment plan was developed and submitted as part of the OA documents package in December 2, 2018. The plan overview was also posted on the Internet. The wellhead was not proposed to be abandoned in a way that would interfere with fisheries. Dispensation to remove the wellhead by a vessel by Q3 2021 was received from the C-NLOPB in March, 2020.

	Area, identified in consultation with Fisheries and Oceans Canada.		
5.3	The Proponent shall provide the details of its operation, including the safety exclusion zones during drilling and testing, and the location information of abandoned wellheads if left on the seafloor, to the Marine Communications and Traffic Services for broadcasting and publishing the Notices to Shipping, to the North Atlantic Fisheries Organization Secretariat, and to the Canadian Hydrographic Services for future nautical charts and planning.	NA	A communication detailing location of abandoned well heads associated with the Designated Project was sent on July 6, 2020 to commercial fishers, Indigenous groups and other stakeholders per condition 5.3.
5.4	The Proponent shall report annually to the Board on known incidents of lost or damaged fishing gear attributed to the Designated Project.	NA	No known incidents of lost or damaged fishing gear were attributed to this exploration program.
6.1	The Proponent shall take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects and shall implement emergency response procedures and contingency plans developed in relation to the Designated Project in the event of an accident or malfunction. This shall include the development and implementation of operating procedures including thresholds for cessation of a work activity, with respect to meteorological and oceangraphic conditions experienced at the project location, and which reflect the facility's design limits and limits at which any work or activity may be conducted safely and without causing adverse environmental effects. These conditions include poor weather, high sea states, and presence of sea ice or icebergs.	8	Details regarding accident and malfunction prevention measures were included in the Emergency Response Plan, Oil Spill Response Plan (OSRP), Severe Weather Plan, Collision Avoidance Plan, Helicopter Operations Plan, Ice Management Plan, Marine Operations Plan and Operations Safety Plan (OSP) as submitted to the C-NLOPB on December 2, 2018. Revisions to the OSRP and Operations Safety Plan were also subsequently submitted to the C-NLOPB. See Section 8 for more information.
6.2	The Proponent shall develop, in consultation with the Board and Environment and Climate Change Canada, and implement for the duration of the drilling program, a physical environment monitoring program, in accordance with the *Newfoundland Offshore Petroleum Drilling and Production Regulations* that meets or exceeds the requirement of the *Offshore Physical Environmental Guidelines* (September 2008). The physical environment monitoring program shall be	NA	Details on the physical monitoring program are included in the EMCL Collision Avoidance Plan, EMCL Helicopter Operations Plan, and Metocean Monitoring Plan which were submitted to the C-NLOPB as part of the Operation Authorization on December 2, 2018. The physical environment monitoring program report was submitted to the C-NLOPB on July 19, 2020.

	submitted to the Board for approval prior to commencing drilling.		
6.3	The Proponent shall prepare a plan for avoidance of drilling installation collisions with vessels and other hazards that may reasonably be expected in the Designated Project Area and submit the plan to the Board for acceptance prior to drilling.	NA	Details regarding collision avoidance are included in the EMCL Exploration Collision Avoidance Plan which was submitted to the C-NLOPB as part of the OA application on December 2, 2018.
6.4	The Proponent shall prepare an Ice Management Plan that will include measures for avoidance of collisions with icebergs and submit the plan to the Board for acceptance prior to drilling	8.2	An Ice Management Plan was developed and submitted to the C-NLOPB as a part of the OA application. See section 8.2 for additional information.
6.5	The Proponent shall prepare and submit to the Board well control strategies that include: 6.5.1 - measures for well control and containment and the drilling of a relief well, as well as options to reduce overall response timeline; and 6.5.2 - measures to quickly disconnect the marine drilling riser from the well in the event of an emergency or extreme weather conditions.	8.1	Measures for well control & containment, relief wells and quick disconnect in the event of emergency or weather were included in the EMCL Well Intervention Plan and the Well Control Plan which were submitted to the C-NLOPB as part of the OA on December 2, 2018.
6.6	After considering the views of Indigenous groups, the Proponent shall prepare and submit a Spill Response Plan to the Board for acceptance prior to drilling. The Spill Response Plan will include the following: 6.6.1 - procedures to respond to and mitigate the potential environmental effects of a spill of any substance that may cause adverse environmental effects, including spill containment and recovery procedures; 6.6.2 - reporting thresholds and notification procedures; 6.6.3 - measures for wildlife response, protection and rehabilitation including procedures for the collection and cleaning of marine mammals, migratory birds, sea turtles and species at risk, and measures for shoreline protection and clean-up; and 6.6.4 - roles and responsibilities for offshore operations and onshore responders.	8.1	During the environmental assessment process, EMCL met with various Indigenous groups and discussed spill prevention, including spill response tactics. The final EMCL Exploration OSRP was submitted to the C-NLOPB on August 9, 2019 and was posted to the Exploration website as required. Included in this plan were procedures and measures related to spill containment/recovery, reporting and notification, wildlife response/protection/rehabilitation, and roles and responsibilities for onshore and offshore responders.
6.7	The Proponent shall conduct an exercise of the Spill Response Plan prior to drilling activities as recommended in the Newfoundland Offshore Drilling and	8.1	A spill response tabletop exercise was conducted on July 16, 2019. The results of this exercise and associated actions were provided to the C-NLOPB on July 31, 2019 and Indigenous groups on August 16, 2019.

	Production Guidelines, document any deficiencies observed during this exercise and provide to the Board for review, and adjust the plan to the satisfaction of the Board to address any deficiencies identified during the exercise.		
6.8	The Proponent shall review the Spill Response Plan prior to the drilling of each well to verify that it continues to be appropriate and shall update the plan as necessary and in a manner acceptable to the Board.	8.1	An OSRP was included in the OA application package, with an updated OSRP submitted to the C-NLOPB on August 9th, 2019.
6.9	In the event of a spill or unplanned release of oil or any other substance that may cause adverse environmental effects, the Proponent shall notify the Board and any other relevant authorities as soon as possible and implement its Spill Response Plan, including procedures for notification of Indigenous groups and commercial fishers. As required by and in consultation with the Board, this may include monitoring the environmental effects of a spill on components of the marine environment until specific endpoints identified in consultation with relevant authorities are achieved. As applicable, this may include: 6.9.1 - sensory testing of seafood for taint, and chemical analysis for oil concentrations and any other contaminants, as applicable; 6.9.2 - measuring levels of contamination in recreational and commercial fish species with results integrated into a human health risk assessment to determine the fishing area closure status 6.9.3 - monitoring for marine mammals, sea turtles and birds for visible signs of contamination or oiling and reporting results to the Board; and 6.9.4 - monitoring benthic organisms and habitats in the event of a spill or other event that could result in smothering or localized effects to the benthic environment.	8.1	Throughout the duration of the Harp well, there were no accidents or malfunctions that required activation of the Spill Response Plan. There were two instances where regulatory notification was required, which are described in section 8.1.

6.10	The Proponent shall undertake a Spill Impact Mitigation Assessment to identify spill response options that will be implemented in the case of a spill to provide for the best opportunities to minimize environmental consequences, and provide it to the Board for review prior to drilling.	8.1	A draft Spill Impact Mitigation Assessment (SIMA) was prepared for EMCL by LGL Ltd and was submitted to the C-NLOPB on April 30, 2019. The SIMA was part of the contingency planning process for exploratory drilling in the Flemish Pass. The SIMA was a tool to help evaluate scientific, policy and stakeholder inputs to arrive at reasoned decisions as to which response tool(s) should be used under a particular set of circumstances, with the goal of minimizing overall harm once a spill has occurred. Following submission of the draft SIMA, a meeting was held with the C-NLOPB and National Environmental Emergencies Centre's Environmental Emergencies Science Table (the "Science Table") to review the draft. Participants included representatives from Fisheries and Oceans Canada, Environment and Climate Change Canada, Canadian Wildlife Service, Canadian Coast Guard, Transport Canada, and Natural Resources Canada. Comments were provided to EMCL and incorporated prior to submission of the final SIMA on August 19, 2019 and was posted on the EMCL Exploration website.
6.11	The Proponent shall provide Indigenous groups with the results of the exercise conducted pursuant to condition 6.7, 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.	8.1, 4	Exercise results were provided to Indigenous groups on August 16, 2019 and the Spill Response Plan was posted to the Internet with a link shared to groups the week of September 3, 2019.
6.12	In the event of a sub-sea well blowout, the Proponent shall begin the immediate mobilization of subsea containment and capping equipment to the blowout location. Simultaneously, the Proponent shall commence mobilization of a relief well drilling installation.	NA	Prior to commencement of drilling, as part of the OA application submitted to the C-NLOPB, EMCL prepared a Well Intervention Plan which outlined the procedure for initiation, mobilization and deployment of a primary capping stack and back-up capping stack, if required. During the 2019-2020 EMCL Exploration campaign on leases EL1165A and EL1165B, no sub-sea well blowouts occurred.
6.13	In the event of an accident or malfunction, the Proponent shall comply with the requirements of the *Accord Acts* and the *Canada-Newfoundland and Labrador Offshore Financial Requirement Regulations* and the requirements described in the Compensation *Guidelines Respecting Damages to Offshore Petroleum Activity.*	NA	During the 2019-2020 EMCL Exploration campaign on leases EL1165A and EL1165B, no accidents or malfunctions occurred. In the event of an accident or malfunction the proponent had sufficient processes in place to ensure compliance with the requirements of the *Accord Acts and the Canada-Newfoundland and Labrador Offshore Financial Requirement Regulations* and the requirements described in the *Compensation Guidelines Respecting Damages to Offshore Petroleum Activity*.
6.14	The Proponent shall report annually to the Board on the effectiveness of operating procedures and cessation of a work or activity thresholds, established for operating in poor weather, high sea state, and sea ice or iceberg conditions.	NA	The physical environment report was submitted on July 19, 2020.

7.1	The Proponent shall submit to the Board a schedule for each condition set out in this Decision Statement at least 30 days prior to the start of a drilling program. This schedule shall detail all activities planned to fulfill each condition set out in this Decision Statement and the commencement and estimated completion month(s) and year(s) for each of these activities.	NA	The implementation schedules referred to in Condition 7.1 were submitted to the C-NLOPB, posted online and updated approximately monthly from the first submission in July 2019 until program completion in May 2020.
7.2	The Proponent shall submit to the Board a schedule outlining all activities required to carry out all phases of the Designated Project no later than 30 days prior to the start of the drilling program. The schedule shall indicate the commencement and estimated completion month(s) and year(s) and duration of each of these activities.	2.2	The activities schedule was prepared and submitted with OA document submission in 2019. For a complete list of activities and schedule see Section 2.2 of this closure report.
7.3	The Proponent shall submit to the Board in writing an update to schedules referred to in conditions 7.1 and 7.2 every year no later than June 30, until completion of all activities referred to in each schedule.	NA	The implementation schedules referred to in Condition 7.1 were submitted to the C-NLOPB, posted online and updated approximately monthly from the first submission in July 2019 until program completion in May 2020. The activities schedule was prepared and submitted with OA document submission in 2019.
7.4	The Proponent shall provide to the Board revised schedules if any change is made to the initial schedules referred to in condition 7.1 and 7.2 or to any subsequent update(s) referred to in condition 7.3, upon revision of the schedules.	NA	The implementation schedules referred to in Condition 7.1 were submitted to the C-NLOPB, posted online and updated approximately monthly from the first submission in July 2019 until program completion in May 2020. The activities schedule was prepared and submitted with OA document submission in August 2019. Changes to schedules were communicated to the C-NLOPB during regular monthly meetings and followed up with written e-mail notifications and/or posting updated schedules when required.
8.1	The Proponent shall maintain all records required to demonstrate compliance with the conditions set out in this Decision Statement. The Proponent shall provide the aforementioned records to the Board or the Agency upon demand within a timeframe specified by the Board or Agency.	NA	EMCL retains all records required to demonstrate compliance with this Decision Statement and has provided to the C-NLOPB as required.
8.2	The Proponent shall retain all records referred to in condition 8.1 at a facility in Canada. The records shall be retained and made available for a minimum of five years after completion of the Designated Project, unless otherwise specified by the Board. The Proponent shall inform the Board of the location of the facility where records are retained and notify the Board and the Agency at least 30 days prior to	NA	EMCL retains all records required to demonstrate compliance with this Decision Statement and utilizes document control practices to ensure adequate retention standards.

	any change to the location of the facility.		
8.3	The Proponent shall notify the Board and the Agency of any change to the contact information of the Proponent included in the Decision Statement.	NA	EMCL remained in contact with the C-NLOPB throughout the duration of the exploration program and notified them of any changes to personnel/ contacts as needed.

4 COMMUNICATIONS AND CONSULTATION

4.1 Communications Plan

The final EMCL Exploration Fisheries Communication Plan was submitted to the C-NLOPB on August 28, 2019. This plan was developed in consideration of Condition 5.1 and in consultation with the C-NLOPB, Indigenous groups and commercial fishers. Details regarding the consultation on this and other plans can be found in section 4.4. In addition an Indigenous Fisheries Communication Plan was created with other operators in the region to outline procedures for engagement with Indigenous groups and was submitted June 28 2019.

Both the EMCL Exploration Fisheries Communication Plan and Indigenous Fisheries Communication Plan included a list of contacts, a description of how information is shared with fishers and Indigenous groups, and a list of the type of information that is shared.

4.2 Monthly Notifications

Both section 5.1 of the Fisheries Communication Plan (titled '*Communication During Operations*') and the section titled "Communications During Operations" in the Indiginous Fisheries Communication Plan specified that beginning two weeks prior to drilling commencement and monthly thereafter, operational updates will be emailed to identified Indigenous groups and fisheries contacts.

Table 3 indicates the date and general contents of each of the e-mailed updates.

Table 3: Indigenous Groups and Fisheries Updates

Title	Date	Contents
Fisheries Update 1	11-Sep-19	Notification of website and documents posted
Fisheries Update 2	28-Sep-19	Operational Update
Fisheries Update 3	31-Oct-19	Operational Update
Fisheries Update 4	30-Nov-19	Operational Update
Fisheries Update 5	31-Dec-19	Operational Update
Fisheries Update 6	31-Jan-20	Operational Update
Fisheries Update 7	29-Feb-20	Operational Update
Fisheries Update 8	13-Mar-20	Operational Update
Fisheries Update 9	6-Apr-20	Operational Update
Fisheries Update 10	10-May-20	Operational Update
Fisheries Update 11	1-Jun-20	Operational Update, Final communication
Fisheries Update 12	6-Jul-20	Communication to provide locations of abandoned wellheads

4.3 Internet Site

The EMCL Exploration site went live on August 27, 2019. The following documents were posted to the Internet and email notification was sent to Indigenous groups on September 11, 2019:

- Reports and the executive summaries referred to in condition 2.7,

- Coral and sponge survey results referred to in condition 3.6,
- Communication plan referred to in condition 5.1,
- Well and wellhead abandonment plan referred to in condition 5.2,
- Well control strategies referred to in condition 6.5,
- Spill response plan referred to in condition 6.6,
- Spill Impact Mitigation Assessment referred to in condition 6.10,
- Implementation schedule referred to in condition 7.1.

Additional documents and the final report will be posted once finalized and available.

4.4 Engagement and Consultation

Table 4: List of Engagements and Consultations

#	CEAA Condition #:	Decision Statement Reference:	Date:	Group:	Record of Engagement/Consultation:
1	3.6	The Proponent shall develop and conduct, in consultation with Fisheries and Oceans Canada and the Board, a coral and sponge survey to confirm the presence or absence of any aggregations of habitat-forming corals or sponges or any other environmentally sensitive features. The equipment used to conduct the surveys shall be operated by a qualified individual. Survey transect length and pattern around well sites shall be based on applicable drill cutting dispersion model results. Transects around anchor sites should extend at least 50 metres from the extent of the anchor pattern.	13-Jun-18	DFO, C-NLOPB, CEAA	Presented the methodology for the cold water coral and sponge survey
			15-Jun-18	C-NLOPB, DFO	Emailed the CWC methodology
			6-Jun-19	C-NLOPB, DFO	Submitted the 2019 Environmental Program Application, which included the scope of work for the Phase Two Site Investigation - Coral and Sponge Survey, as the final anchor pattern for EL 1165B has been finalized
2	3.7	If the survey(s) conducted in accordance with condition 3.6 confirm(s) the presence of aggregations of habitat-forming corals or sponges, or if other environmentally sensitive features are identified by a qualified individual, the Proponent shall change the location of the well on the seafloor or redirect drill cuttings discharges to avoid affecting the aggregations of habitat-forming corals or sponges, unless not technically feasible, as determined in consultation with the Board. If not technically feasible, the Proponent shall consult with the Board and Fisheries and Oceans Canada prior to commencing drilling to determine an appropriate course of action, subject to the	16-Apr-18	C-NLOPB, DFO	Draft Marine Environmental Risk Assessment for EL 1165A & EL 1165B submitted
			19-Apr-19	C-NLOPB	Comments on the Environmental Risk Assessment for EL 1165B received. Incorporated the comments into the plan which included updates to the following sections: - Introduction - Miscellaneous figures throughout the document - Section 3.0, Section 4.0, Section 5.0, Section 6.0, and Section 8.0 - Conclusion

		approval of the Board, including any additional mitigation measures.	29-Apr-19	DFO	Comments on the Environmental Risk Assessment for EL 1165B received. Incorporated the comments into the plan which included updates to the following sections: - Executive Summary - Survey Results - Miscellaneous figures throughout the document - Risk Assessment Summary - Conclusion
			9-Aug-19	C-NLOPB, DFO	Draft Phase Two - Marine Environmental Risk Assessment EL 1165B re-submitted (combined 2018 and 2019 results) Updates included the following: - Executive summary - Section 3.2 - Section 4.0 to 4.2 - Section 4.4 - General (update to overall document to include 2019 information as required) - Miscellaneous figures throughout the document
3	3.9	The Proponent shall develop, in consultation with Fisheries and Oceans Canada and the Board, a marine mammal monitoring plan that shall be submitted to the Board at least 30 days prior to the commencement of any vertical seismic survey. The Proponent shall implement the plan during the conduct of vertical seismic surveys.	11-Oct-19	C-NLOPB, DFO	After consultation with the required regulatory bodies a Marine Mammal Monitoring Plan was developed and submitted to the C-NLOPB on October 7, 2019. This plan was developed 30 days prior to any potential VSP Survey. The C-NLOPB's comments were addressed to its satisfaction and included: - Confirm # marine mammal observers onboard - Confirm deployment location of crane (rig or vessel) - Revisions to Sections 2.0, 3.0, 3.1, 5.2.1, 5.2.2, 8.2 The C-NLOPB sent the MMMP to DFO for comments on October 11, 2019. DFO's comments were addressed and included: - Include list of marine mammal and sea turtle species

					- Include a QA/QC section - Revisions to Sections 3.1, 4.0, 4.1, 4.2, 5.2.2, 8.2
4	3.12.2	For the first well in each exploration licence, and for any well where drilling is undertaken in an area determined by coral and sponge surveys to be sensitive benthic habitat, and for any well located within a special area designated as such due to the presence of sensitive coral and sponge species, or a location near a special area where drill cuttings dispersion modelling predicts that drill cuttings deposition may have adverse effects, develop and implement, in consultation with Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment and effectiveness of mitigation measures as they pertain to the effects of cuttings discharges on benthic habitat. Follow-up shall include: 3.12.2.1 measurement of sediment deposition extent and thickness post drilling to verify the drill waste deposition modeling predictions; 3.12.2.2 benthic fauna surveys to verify the effectiveness of mitigation measures; and 3.12.2.3 The Proponent shall report the information collected, as identified in conditions 3.12.2.1 and 3.12.2.2, including a comparison of modelling results to in situ results, to the Board within 60 days following the drilling of the first well in each exploration licence; and	Ongoing	C-NLOPB, DFO	The benthic and drill cuttings monitoring plan was submitted to the C-NLOPB for review Nov 1 2019. C-NLOPB comments were received Nov 14 2019: Revisions to sections: - Section 1.0 - Program title and description revised per 3.12 of the Decision Statement - C-NLOPB submitted plan to DFO Dec 2019 Received DFO comments Jan 2020: - Sections 4.1,4.2 - Revised relavent modelling results and sampling overlay - Section 5.2 - Revised full coverage text within 200x200m grid. - Revised text for clarity on core location and collection. - Revised “Condition Indices” to included potential for smothering - Submitted revised plan Feb 2020 Submitted as final March 2020 Received approval March 2020
5	3.12.3	For the first well in each exploration licence, develop and implement, in consultation with Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment as it pertains to underwater noise levels. As part of the development of these follow-up requirements, the Proponent shall determine how underwater noise levels	31-Jul-19	C-NLOPB, DFO	Sent draft plan of the proposed Acoustic Monitoring - Follow-up Plan

		shall be monitored through field measurement by the Proponent during the drilling program and shall provide that information to the Board prior to the start of the drilling program.	13-Aug-19	DFO	Comments received back on the plan: Incorporated the comments into the plan as relevant. Incorporated the comments into the plan which included updates to the following sections: - Section 1.1 - Section 2.2 - Section 2.4 - General comments
			14-Aug-19	C-NLOPB	Comments received back on the plan. Incorporated the comments into the plan which included updates to the following sections: - Section 1.1 - Section 2.2 - General comments - no information within plan on how condition 2.4.3 and 2.4.4 is being met.
			13-Aug-19 to 15-Aug-19	DFO	Meeting with DFO to discuss the current follow-up program and receive feedback on proposed monitoring and mitigations. Incorporated the comments into the plan which included updates to the following sections: - Section 1.1 - Section 2.2 - Section 2.4 - General comments
			28-Aug-19	C-NLOPB, DFO	Additional comments received back on the plan. Incorporated the comments into the plan which included updates to the following sections: - Section 3.0
6	4.3	The Proponent shall develop, prior to the start of the drilling program and in consultation with Environment and Climate Change Canada, and the Board, follow-up requirements, pursuant to condition 2.4, to verify the accuracy of the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures	1-Apr-19	ECCC-CWS	EMCL initiated contact with ECCC-CWS to determine the process for capturing and handling of stranded migratory birds.
			17-Apr-19	ECCC-CWS	ECCC-CWS provided the permit application as needed.
			3-May-19	ECCC-CWS	A CWS Scientific Permit was issued to EMCL.

		implemented by the Proponent to avoid harm to migratory birds, their eggs and nests, including the mitigation measures used to comply with conditions 4.1 to 4.3. The Proponent shall implement these follow-up requirements for the duration of the drilling program.	12-Aug-19	C-NLOPB	Sent draft plan of the proposed Migratory Birds - Follow-up Plan.
			14-Aug-19	C-NLOPB	Comments on the Migratory Birds - Follow-up Plan received. Incorporated the comments into the plan which included updates to the following sections: - General comments - Section 4.0 - Section 5.0 and Section 5.1 - Section 6 - Miscellaneous items
			20-Aug-19	ECCC-CWS	Sent draft plan of the proposed Migratory Birds - Follow-up Plan.
			4-Sep-19	C-NLOPB	Comments on the Migratory Birds - Follow-up Plan received. Incorporated the comments into the plan which included updates to the following sections: - General comments in section 4.0, 5.0 and 6.3 - Section 7 - removed summary table as all info was more accurately described above.
			4-Sep-19	ECCC-CWS	Comments on the Migratory Birds - Follow-up Plan received. Incorporated the comments into the plan which included updates to the following sections: - Section 6.4 Reporting - Section 6 - overall plan organization and monitoring requirements - Section 7 removal of table above addresses confusion regarding table - Updating references - Inserted revised bird permit (addresses vessel addition)
7	5.1	The Proponent shall develop and implement a Fisheries Communication Plan in consultation with the Board, Indigenous groups and commercial fishers. The Proponent shall develop the Fisheries Communication Plan prior to drilling and implement it for the duration of the drilling program. *EMCL prepared and submitted two	16-Apr-19 to 23-Apr-19	Indigenous Groups (41 groups)	Emailed draft Indigenous Fisheries Communication Plan for review and comment
			17-Apr-19	C-NLOPB, CEAA	Emailed draft Indigenous Fisheries Communication Plan for review and comment (Agency for information only)
			23-Apr-19 to 4-Jun-19	Indigenous Groups (41 groups), C-NLOPB	Feedback provided to EMCL from Indigenous groups and C-NLOPB on draft plan.

		separate plans to meet this commitment: an Indigenous Fisheries Communication Plan and a Fisheries Communication Plan.	7-Jun-19	Indigenous Groups (41), C-NLOPB, CEAA	Provided Indigenous Feedback Report on draft plan.
			28-Jun-19	Indigenous Groups (41 groups), C-NLOPB, CEAA	Incorporated feedback into plan as relevant: Provided final Indigenous Fisheries Communication Plan to the groups. Incorporated comments into the plan which included updates to the following sections: Section 1: timing, frequency, content Section 2: added (ref. to Condition 2.8) Section 3: added (ESRF reporting) Section 4: added (one point of contact) Emergency Communication: revised
			9-Aug-19	C-NLOPB, DFO	Sent draft plan of the proposed Fisheries Communication Plan
			13-Aug-19	FFAW, One Ocean	Sent draft plan of the proposed Fisheries Communication Plan
			14-Aug-19	One Ocean	Comments received back from One Ocean on the plan: Incorporated the comments into the plan. Incorporated the comments into the plan which included updates to the following sections: - Section 4.0 - Section 5.2 - Section 6.0 - Section 7.0 - Table 1.0
			15-Aug-19	Commercial Fisher Groups (OCI, AGC, ASP)	Sent draft plan of the proposed Fisheries Communication Plan

			27-Aug-19	FFAW	Comments received back from FFAW on the plan. Incorporated the comments into the plan which include updates to the following sections: - Section 6.0 - Section 7.0
8	6.2	The Proponent shall develop, in consultation with the Board and Environment and Climate Change Canada, and implement for the duration of the drilling program, a physical environment monitoring program, in accordance with the Newfoundland Offshore Petroleum Drilling and Production Regulations that meets or exceeds the requirements of the Offshore Physical Environmental Guidelines (September 2008). The physical environment monitoring program shall be submitted to the Board for approval prior to commencing drilling.	2-Dec-18	C-NLOPB, ECCC	Details on the physical monitoring program are included in the EMCL Environmental Protection Plan and the Collision Avoidance Plan which was submitted to the C-NLOPB as part of the Operations Authorization.
9	6.6	After considering the views of Indigenous groups, the Proponent shall prepare and submit a Spill Response Plan to the Board for acceptance prior to drilling.	2-Dec-18	C-NLOPB	The OSRP was submitted to the C-NLOPB part of the Operations Authorization.
			7-Aug-19	C-NLOPB	The OSRP was revised to include an updated consultation section within the plan that outlines how the views of Indigenous groups were considered and re-submitted.
			Sept 2017, April 2018, Oct 2018	Indigenous Groups	EMCL met with Indigenous Groups to focus specifically on issues related to emergency preparedness and response during a series of workshops.
10	IR-41-2	Develop the compensation program in consultation with Indigenous groups with communal-commercial licenses that overlap with the Project Area prior to commencing the first exploration drilling program.	09-Aug-19	Indigenous Groups (14 groups)	Sent draft Fisheries Compensation Program to 14 Indigenous groups that currently hold commercial communal licence that overlap with the proposed project areas for exploration drilling.
			13-Aug-19	Sipekne’katik First Nation	Indicated they were unable to respond to request at this time.
			21-Aug-19	Qalipu Fist Nation	Received email correspondence back acknowledging review of the plan, but with no specific comments.
			30-Aug-19	Mi'gmawe'l Tplu'taqnn Incorporated	Provided comments on will compensation be considered: - Given lack of information on

				(MTI)	presence of Atlantic salmon and other species of importance; - For spiritual and cultural loss.
			September 3, 2019	Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO)	Received a letter outlining the Assembly of Nova Scotia Chief's concerns: - Impediments to access require compensation - Section 1.1 should refer to Aboriginal fisheries, in addition to commercial fish harvesters and processors. - Eligibility requirements to make claims should not be limited to licensed or registered commercial fish harvesters and processors. A rights-based fishery does not require a fishing licence.

4.5 Other Stakeholder Engagement and Research

Engagement in case of Material Changes to Project: Conditions 2.9 – 2.12 of the Decision Statement require that EMCL notify and/or consult with Indigenous groups on any material changes to the Project that may have adverse environmental effects. No material changes to the Project with potential for adverse environmental effects occurred during this exploration program.

Atlantic Salmon Research and Engagement: Per Condition 3.13 of the Decision Statement, a letter was sent to the C-NLOPB on August 9, 2019 regarding EMCLs intent to participate in and current status of Atlantic salmon research being conducted through the Environmental Studies Research Fund (ESRF). EMCL provided the C-NLOPB with a diagram of current metre mooring configuration including location of Vemco fish tag receivers. As part of this condition EMCL is also required to update Indigenous groups on salmon research annually. During the week of September 23, 2019 updates on the ESRF salmon research program were provided to Indigenous groups as part of Stakeholder Workshop Sessions held between Industry and Indigenous groups.

ExxonMobil Canada Ltd. also participated in joint initiatives with Indigenous groups during the lead up to, and during the operation of its exploration drilling program. These initiatives were outside of the federal environmental assessment process. EMCL attended Miawpukek First Nation's annual powwows in 2018 and 2019; a series of Indigenous Safety Training sessions (delivered by an Indigenous company in 2018 and 2020); and, participated in an all-day Indigenous Procurement Workshop (March 2020) to encourage increased participation of Indigenous people and companies in the oil and gas industry. EMCL also supported an industry-wide proposal to the ESRF to undertake a series of Atlantic-wide Indigenous Knowledge Studies – this initiative is still in development.

5 FISH AND FISH HABITAT

5.1 Pre-Drilling and Post Drilling Surveys

In preparation for regulatory approval for drilling at EL 1165B, a pre-drill survey program to evaluate the presence and distribution of corals and sponges was undertaken. This survey consisted of the collection of high resolution video of the seabed at the drill site, using an ROV for the purposes of identifying cold water corals and sponges. As the MODU would be fully moored during drilling activities at EL1165B, anchor and chain locations were also surveyed. The survey was conducted by Oceaneering Ltd, aboard the Paul.A.Sacuta, a support vessel owned and operated by Atlantic Towing, with support from marine biologists, contracted through RPS Canada Ltd and Wood. The 2018 survey examined a 200 m by 200 m boundary around the proposed drill center, transects within the predicted drill cutting footprint, and three anchor points to 750 m from drill center (RPS 2018). A follow up pre-drilling survey was completed in 2019 to survey eight proposed anchor chain locations out to 1,750 m. The objectives of these previous surveys were to monitor the existing environment at the Harp L-42 wellsite for fish and fish habitat, in addition to the C-NLOPB's guidance for coral colonies. To mitigate potential harm from drilling activities to cold-water corals, the guidance indicates that drilling activities shall not occur within 100 m of a coral colony as defined by C-NLOPB as either:

- Lophelia pertusa reef complex; or
- Five or more large corals (larger than 30 centimeters in height or width) within a 100 square metre area.

From these pre-drill surveys, it was determined that no L. pertusa complexes or coral colonies as defined by the C-NLOPB were observed within the surveyed area at the Harp L-42 wellsite therefore, drilling preceeded at the site.

The objective of the follow-up survey program was to meet conditions 3.12.1, 3.12.2, 3.12.2.1, 3.12.2.2, and 3.12.2.3 of the Decision Statement and verify the accuracy of the predictions made during the environmental assessment as it pertains to marine fish and fish habitat and determine the effectiveness of the mitigation measures (CEA Agency 2019).

5.2 Coral and Sponge Survey

5.2.1 Corals

Three coral functional groups (soft corals, sea pens, and hard corals) were observed within the survey area. As in the pre-drilling survey, soft corals (Nephtheids) were the most commonly observed functional group and mainly observed to the southwest of the well head outside of the 200 x 200 m survey grid. A majority of the soft corals were observed along transect T-700, T-1000, and T-1200 in 2020. This is consistent with observations reported in the pre-drilling survey (RPS 2018, EMCL 2018). The sea pens and cup coral were observed to the northwest of the well head within the 200 x 200 m survey grid (Figure 3-4B and C, Figure 3-6). A solitary cup coral (hard coral, Figure 3-4C) was observed along G-3 and a total of three sea pens were observed along G-13 and G-14. No sea pens or cup corals were noted in the 2018 survey.

In addition to abundance and distribution, the condition of the soft corals was also noted. Soft corals mainly appeared upright with polyps extended (one soft coral on a bolder was extended to the side) with no visible sedimentation on them. Soft corals inhabiting sediments did not appear to be on visibly distinct drill cuttings and were only observed on natural sediments. The hard coral and sea pens observed during the survey were harder to visually assess due to the presence of cod that both obscured the field of view of the coral as well as stirred up bottom sediment further reducing the visibility. However, although assessments of these taxa are limited some observations could be made with reduced visibility taken into account. Both the sea pens and hard coral were observed to the north of the drill center outside of the visible drill cuttings pile. The sea pens were 10s of centimeters in height and the hard coral was visible above the sediment. Though no sea pens or hard coral were noted in 2018, soft coral condition was similar to 2020 with all appearing upright and with polyps extended.

5.2.2 Sponges

Sponges were abundant and observed throughout the 200 x 200 m survey grid and the predicted cuttings transects. All sponge morphological groups were observed at least once. The most commonly observed sponge morphological groups were solid / massive, round with projections, and other (e.g., encrusting, finger sponges). Leaf / vase shaped sponges, thin-walled complex sponges, and stalked sponges were uncommonly observed throughout the survey area. Of the sponges observed, many appeared to have some sedimentation coverage in 2020, however it was not conclusive if this

accumulation was from drill cuttings or natural occurrence. Sponges were also found in trenches possibly created by the anchor chains and did not appear to be detached or damaged in any way - though it can be difficult to see the point of attachment for finger sponges.

Sponge data from 2018 was similar to 2020, with solid / massive as the most common group followed by other and round with projection sponges. Overall, average density for most sponge groups was lower in 2020 compared to 2018, with the exception of round with projection sponges. This may be partially caused by the different field of views between the two surveys, with 2018 generally having flown further up from the seabed. At a distance, round with projection sponges may appear to be solid / massive. Sponge condition was better in 2018 as well, with some sponges having sediment present on their surface, but the majority were in good condition.

5.2.3 Invertebrates

Invertebrates were abundant throughout the 200 x 200 m survey grid and drill cuttings transect area in both 2018 and 2020. Cnidarians (excluding corals) were the most abundant animal taxa overall, with sea anemones as the dominant cnidarian group. Echinoderms and arthropods were common throughout the area, with sea cucumbers and shrimp as the dominant groups, respectively. Other invertebrate groups, including ctenophores, annelids, and molluscs, were less common overall, with bivalve molluscs as the dominant group. Similar results were noted in 2018, with cnidarians (sea anemones) as the dominant invertebrate group overall, followed by arthropods (shrimp) and echinoderms (sea stars). Echinoderms and cnidarians had higher average densities in 2020 compared to 2018, while arthropods and other invertebrates were higher in 2018, though the standard deviations generally overlap for both averages.

5.2.4 Fish

Fish species, especially Atlantic cod, were found throughout the grid line and cuttings transects areas. Atlantic cod (a piscivore) were counted as the maximum number visible on a given line to avoid over-counting the same fish and were the most abundant fish species overall with up to 73 cod visible at once. Plank-piscivores were the second most abundant group, with redfish species as the only identified group. Benthivores were the next most common group, with rockling species as the most abundant taxa. Low numbers of piscivores (aside from Atlantic cod) such as Greenland halibut, and planktivores (only lanternfish) were observed. Unknown fish were those unable to be assigned to a functional group, such as poorly seen fish or small juveniles. Only one Species at Risk Act (SARA) listed species, the Atlantic wolffish, was observed at Harp L-42, with two individuals noted within the grid line box. Similar results were noted in 2018, with Atlantic cod as the most abundant group overall, followed by plank-piscivores and benthivores.

5.3 Drill Cuttings Monitoring

5.3.1 Synthetic-Based Fluid on Cuttings

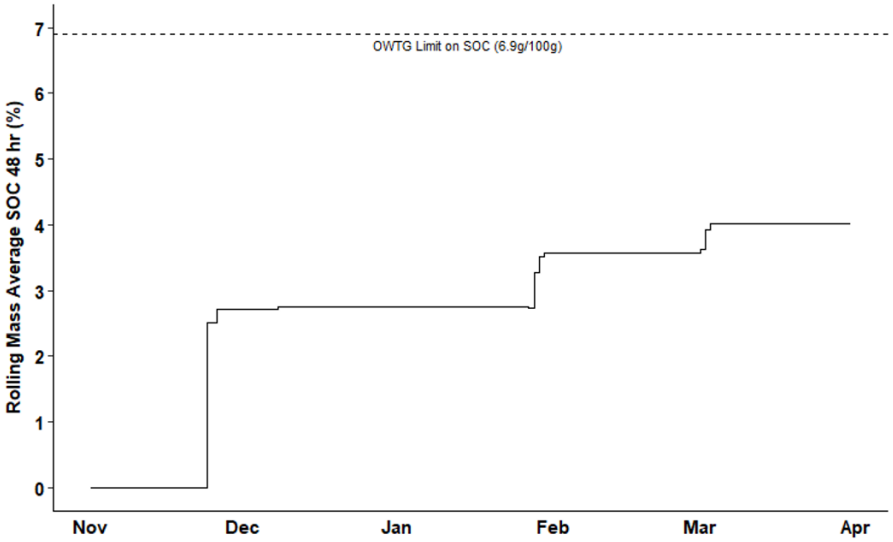
As outlined in the Decision Statement, EMCL was required to measure the concentration of synthetic-based drilling fluids retained on discharged drill cuttings. The Environmental Compliance Monitoring Plan outlined the monitoring and reporting actions that EMCL put in place to meet this requirement. As outlined in the plan, the SOC and mass of cuttings drilled and released were collected and recorded. The MI Swaco Environmental Services Specalist, located onboard the rig, was responsible for monitoring the synthetic based cuttings discharges. If any excursions of regulatory requirements occurred the Seadrill Drilling Section Leader and EMCL Drilling Supervisor were notified and required notifications to the C-NLOPB were made.

In addition to monitoring SOC when discharging drill cuttings, during mud tank cleaning when changing from Synthetic Based Mud (SBM) to Water Based Mud (WBM), the synthetic oil mass of the remaining material in the tank bottom was included in the SOC calculations.

EMCL had a performance target for SOC discharged to sea based on the Offshore Waste Treatment Guidelines of not exceeding 6.9g/100g oil on wet solid. This target was maintained for the duration of the campaign with 4.02g/100g of wet solids being the highest level reached. EMCL reported the discharged SOC results to the C-NLOPB on a monthly basis.

Figure 2 (below) illustrates the SOC concentration (g/100 g wet solids, or %) discharged to sea after treatment aboard the MODU from November 1, 2019, to March 31, 2020. Specific follow-up survey results for Benthics and Drill Cuttings surveys will be submitted to the C-NLOPB and DFO and posted to the internet in a separate report.

Figure 2: Synthetic on Cuttings Concentration Discharged to Sea



5.3.2 Drill Cutting Modeling

A drill cuttings model was used to predict the extent of released water-based muds (WBM) and synthetic-based muds (SBM) using four seasonal scenarios, to account for variable environmental conditions throughout the year. A numerical computer model was used that employs a transport computation to simulate the advection of dispersed drill cuttings materials in three dimensions through the water column, following release into the sea, until the particles come to rest on the sea bottom.

Drilling operations took place from November to April and both WBM and SBM were used during the drilling at Harp L-42. The predicted dispersion of the drill cuttings in all seasonal scenarios was mainly to the south / south west of the wellsite, with the majority of the cuttings deposited within 1 km of the drilled well. A majority of drill cutting thickness beyond 1 km were predicted to have average depths of 0.01 mm or less, with maximum thicknesses ranging from0.03-0.06 mm. The largest thicknesses were predicted to settle within 500 m from the wellsite, with a predicted thickness of 5.7 to 8.0 cm

5.3.3 Findings

For the post-drilling survey, fine (sand, mud, or drill cuttings) was the dominant surficial substrate class observed. Other substrate present throughout the Harp L-42 area were predominantly coarse (boulders and rubble) with lesser amounts of medium (cobble and gravel) substrate. Similar substrates were present during the 2018 pre-drilling survey, with small variations for each substrate type (Wood 2020).

Exploration drilling occurred between November and April, therefore, drill cuttings model scenarios for December and March were compared to the survey results. Visually distinct drill cuttings were mainly observed within 25 m of the wellhead with deposition areas extending to the south and southeast 50-100 m from the wellhead. Drill cuttings were visibly mounded adjacent to the wellhead and were approximately 1.4-1.6 m high. Although depth penetration measurements did not allow for distinguishing the top layer of drill cuttings against natural seafloor, combined measurements in areas of visible cuttings 4-37 m from the wellhead indicated maximum thicknesses 0.35-0.85 m. Further from the wellhead, drill cuttings observations were patchy and discontinuous in nature. Based on visual observations and penetration measurements, the observed deposition was higher than modelled values with the modeled average thickness ranging from 0.4-3.0 mm and maximum modeled thickness ranging from 7-12 mm in areas <100 from the wellhead.

The highest concentrations of barium (51,000 mg/kg and 1,100 mg/kg) were in sediments collected at HRP-10 in visibly distinguishable drill cuttings approximately 10 m from the wellhead. Barium levels decreased rapidly in sediment samples >10 m from the wellhead to 420-700 mg/kg. Similar trends were observed with weak acid leachable barium as well. This is consistent with studies of offshore platforms that show steep gradients of decreasing barium concentrations with

distance from the wellhead as the barite in WBMs are deposited rapidly to the sediment (Neff 2002). Although background barium levels were not established for the area, global average concentrations for soils and sediments are generally about 400 mg/kg and may range from 1-2,000 mg/kg (Neff 2002). Background barium levels of Grand Banks sediments have been described in baseline surveys for other drill centers (e.g., Terra Nova, Hibernia) and reported barium concentrations of 70 to 280 mg/kg for the Terra Nova baseline survey (DeBlois et al. 2014) and 0 to 299 mg/kg in sediments from the Hibernia baseline survey (Stantec 2014). However, barium in marine sediments is generally elevated in deep-water sediments and may vary with sediment composition and depth. For example, Neff (2002) indicates that coarse grained carbonate and silicate marine sediments generally contain barium levels that are <100 mg/kg, whereas fine-grained sediments that are rich in clay minerals may have barium concentrations of >1000 mg/kg. Therefore, background barium levels would be higher for the survey area relative to the drill centres on the Grand Banks that occur at shallower depths (<100 m) with coarser-grained sandier sediments.

Coarse- grained carbonate and silicate sediments, such as those on Georges Bank, a fishing bank off the U.S. New England coast, often contain less than 100 µg/g barium, whereas, fine grained sediments, rich in clay minerals, may contain more than 1,000 µg/g barium

Minimal drill cuttings deposition was predicted between 100-200 m from the wellhead (average thickness 0.0-0.003 m) in December and March scenarios. This is consistent with survey results that indicated no visible drill cuttings along transects beyond 100 m from the wellhead.

In areas 200-500 m from the wellhead, the drill cuttings modelling predicted higher average thicknesses of 2.4 3.0 mm. Areas of higher deposition 320-340 m away south of the wellhead were also predicted for December and March scenarios with maximum thicknesses of 77-80 mm. Barium levels were relatively elevated in samples collected along T200 (700 mg/kg) that was 217 m from the wellhead. Therefore, drill cuttings may have drifted to this area resulting in slightly higher barium levels. However, the drill cuttings deposition was limited relative to the model as quantities were not sufficient to form visible patches of appreciable thicknesses.

The model predicted drill cuttings deposition >500 m from the wellhead ranging in average thickness from 1 4 mm with maximum thicknesses of 10-20 mm. In transects >500 m from the wellhead, drill cuttings were lower than predicted with no visible areas of drill cuttings, no observations of drill cuttings in core samples, and relatively low barium values.

5.4 Summary and Conclusions

Based on the results from the pre- and post-surveys, some general conclusions can be drawn related to the Conditions 3.12.1, 3.12.2.2, and 3.12.2.3 of the Decision Statement. The specific conditions and the determination are provided below.

Condition 3.12.1 *– for every well, measure the concentration of synthetic-based drilling fluids retained on discharged drilling cuttings as described in the Offshore Waste Treatment Guidelines (OWTG) to verify that the discharge meets the minimum limits set out in the Guidelines (and any applicable legislative requirements) and report the results to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB);*

- The OWTG specifies that SOC levels should not exceed 6.9 g/100 g oil on wet solids. The highest reported levels from the drilling unit was 4.02 g/100 g oil on wet solids. Therefore, the discharges meet the performance targets set out in the OWTG and addresses Condition 3.12.1 of the decision statement.

Condition 3.12.2.1 *- measurement of sediment deposition extent and thickness post-drilling to verify the drill waste deposition modeling predictions;*

- Drill cuttings were predicted to be distributed to the south, south west from the wellhead with the majority of cuttings deposited within 1 km. Sediment deposition extent and thickness was evaluated through a combination of visual assessments, depth penetration measurements, and sediment chemistry. Based on these combined survey methodologies, the observed drill cuttings footprint was limited to within 100 m from the wellhead with potential drift of low quantities of drill cuttings approximately 200 m from the wellhead (T200 line) based on sediment chemistry. Overall, the observed drill cuttings deposition had a lower extent but higher thickness relative to model predictions.

  The EA predictions indicated that the physical and chemical effects of drill cuttings was anticipated to have localized habitat disturbances less than two km from the well site. As the primary mechanism for environmental effects on benthic organisms is burial and smothering (EMCL 2017) and visible drill cuttings deposition was limited to within 100 m of the wellhead, the potential effects are within what was assessed for the Eastern Newfoundland Offshore Exploration Drilling Program.

Condition 3.12.2.2 *- Benthic fauna surveys to verify the effectiveness of mitigation measures;*

- Mitigations in place to reduce the potential harm from drilling activities to deep-sea corals included the drill center be offset 100-m from any coral colony defined by the C-NLOPB coral guidance. The pre-drilling survey implemented this mitigation and did not find any C-NLOPB defined coral colonies (RPS 2018). Other mitigations include assessing the presence and condition of corals within the survey area post-drilling and assess whether these results change the conclusion of the original environmental assessment. Coral abundances and distributions were similar to those observed in the pre-drilling survey with a majority of the corals occurring outside of the 200 x 200 m survey grid. Coral condition was assessed and appeared to be in good condition (e.g., upright and without visible sedimentation). Sponges had a similar distribution in the post-drilling survey as in the pre-drilling with similar species present. Sponges with veneers present or covered sponges had a higher incidence in the 2020 survey compared to the 2018. Within the 200 x 200 m grid box, the higher incidence may be due to drill cuttings as the majority of affected sponges are to the south and east which coincides with the cuttings noted (see Wood 2020a). In the predicted cuttings transects, this may be natural sediment stirred up by the setting and removing of the anchor chains. No distinction was made between natural sedimentation and drill cuttings due to difficulty in identification (see Wood 2020a). Epibenthic megafauna were observed throughout the survey area including several species of fish and invertebrates. With the similarity in coral and sponge abundances and distributions in the pre- and post- drilling surveys, it is therefore concluded that the drilling activities observed (with mitigation measures in place) were within what was predicted by the model and the EIS.

Condition 3.12.2.3 *– Report the information collected as identified in conditions 3.12.2.1 and 3.12.2.2, including a comparison of modelling results to in situ results, to the C-NLOPB within 60 days following the drilling of the first well in each exploration licence.*

- As identified directly above and in the preceding sections of this report, pre-drilling survey results were compared to in situ results and found that effects to corals and sponges from drilling activities were as predicted.

5.5 Discharges

The Environmental Compliance Monitoring Plan (ECMP) was submitted as a part of the the EMCL OA application and was approved by the C-NLOPB as a part of the OA application approval. The plan identified the waste streams and sampling, analysis and reporting requirements for regulated waste streams that were discharged during routine operation. The requirements outlined in the plan were aligned with the Offshore Waste Treatment Guidelines (OWTG) as set out by the National Energy Board (NEB), the C-NLOPB and the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB).

Drilling Discharges

The ECMP outlined the monitoring and discharge requirements for drilling related discharges. It identified the effluents and activity that required compliance monitoring and those that did not. Discharges included:

- Drilling solids
- Drains system
- NAF Cuttings
- Bilge Water
- Enviro-unit Treatment

Synthetic Based Drilling Muds

Any SBM that was not reused was removed from the mud tanks and sent onshore, via supply vessel, for disposal. Once onshore, a third party waste hauler, Terrapure Environmental, was contracted for proper disposal.

Chemical Selection

During the exploration program, all chemicals onboard the MODU were managed through Seadrill's chemical management system. However, prior to initial receipt of the chemical onboard it was reviewed by EMCL as a part of the EMCL chemical screening process. This process included an environmental review to ensure the chemical met the requirements for use in a Canadian jurisdiction. The following are the environmental requirements used in the screening:

- Domestic Substance List
    - To ensure that the components in the proposed chemical were listed on the Canadian Environmental Protection Act (CEPA) domestic substance list.
- Consideration for potential air and water emissions and eventual disposal at sea
- Screening through the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) process
    - Followed when there was a potential for a substance to be release to sea and is aligned with the C-NLOPB Chemical Selection Guidelines
- Provisions for spill clean-up

Suppy Vessel Discharge

All supply vessels operating for EMCL were required to follow the requirements outlined in the International Convention for the Prevention of Pollution from Ships (MARPOL). Their adherence to MARPOL requirements was captured within the vessels Safety Management System (SMS) and various procedures. Also, all discharges from the vessels, either through the Oily Water Separator (OWS) or reception facilities, were tracked in the vessels Oil Record Book and Garbage Record Book. Prior to awarding a contract EMCL reviews the vessel operators SMS as part of the contractor screening process to ensure it meets EMCL requirements and it contains the required components. In addition to the initial screening, prior to awarding the contract, EMCL iniated an Offshore Vessel Inspection Database (OVID) inspection on the three vessels used for the exploration program. As a part of this, MARPOL requirements were reviewed to ensure the vessels were in compliance. There were no non-conformities identified during these inspections.

5.6 Underwater Sound Monitoring

As outlined in condition 3.12.3 of the Decision Statement an acoustic monitoring program was conducted to further measure baseline sound levels, marine mammal presence and changes to the baseline resulting from the Harp drilling program. During consultation with DFO it was decided that the acoustic monitoring program would be most effective and provide more valuable information on potential regional impacts if the receivers were deployed to allow simultaneous collection of data from both planned exploration well locations. Four bottom-mounted acoustic recorders were deployed from mid-August 2019 until May 2020. A recorder was deployed 2 km from each of the proposed well sites (Harp and Hampden), and therefore 58 km from the other site. A third recorder is at the midpoint between the two well sites). The fourth recorder was deployed at the previously established ESRF Station 19 and served as a reference location to repeat the ESRF soundscape measurements. In addition to utilizing the ESRF location for background, receivers were positioned such that each well location acted as background location for the other during drilling operations. This combination of recording locations allowed determination of how sound levels and marine mammal presence vary with distance to the drilling operations.

Table 5: Acoustic Monitoring Deployment Locations

Station	Lat (°)	Lon (°W)	Water Depth (m)	Deployment Date	Retrieval Date	Duration (days)	Distance/ Bearing from	Brg	Distance (km)
Station 19	48.381	46.523	1600	29-08-2019	27-05-2020	272	Harp Well Site	33°	114.1
Harp Well Site	47.513	47.357	300	30-08-2019	17-05-2020	261	Harp Well Site	145°	2.1
Hampden Well Site	47.023	46.878	1175	31-08-2019	25-05-2020	268	Hampden Well Site	335°	5.3
Mid Flemish Pass	47.268	47.373	875	30-08-2019	26-05-2020	268	Hampden Well Site	326°	38.1

Acoustic data was collected on a duty cycle of 8 minutes sampling at 32 kHz, 1 minute at 512 kHz, and 11 minutes of sleep (a recording configuration similar to the configuration for the ESRF program). Data was recorded on JASCO's Autonomous Multichannel Acoustic Recorders (AMAR) and a GeoSpectrum M36 hydrophone. The combined response of the M36 and AMAR returned all the data necessary to perform a complete analysis of all radiated sound from the

drilling activity as well as allowing detection of all types of marine mammal vocalizations. The proposed duty cycle allowed for a full drilling program of recording and allowed for an accurate estimation of the daily sound exposure level (SEL) (Martin et al. 2019).

The recorders were calibrated to verify the sensitivity of each system as a whole (i.e., the hydrophone, pre-amplifier, and AMAR) in JASCO's warehouse, prior to deployment, and after retrieval in the field. The calibrations performed prior to the field deployment were verified for consistency (i.e., <0.5 dB difference) with the warehouse measurements before the data analysis was performed. The post-retrieval calibration allowed us to ensure no loss of sensitivity occurred during the deployment.

5.6.1 Findings

There were no exceedances of the threshold for permanent threshold shifts. The threshold for temporary hearing threshold shifts in low-frequency cetaceans (baleen whales) were exceeded on 159 days at Harp, while the high frequency cetacean Temporary Threshold Shift (TTS) was exceeded on 86 days. The high frequency cetacean TTS threshold was exceeded on two days at Hampden. An animal would need to have remained at close radius for an entire day to accumulate sufficient sound exposure to illicit a temporary hearing threshold shift. Rather than incurring an actual threshold shift, animals are expected to avoid the area around the MODU. These exceedances are not un-expected as predictions made for a similar MODU and supply vessel configuration in similar water depth to those encountered at Harp were compariable. A separate report presenting all findings related to the exploration acoustic monitoring program was submitted to the C-NLOPB (Jasco Applied Sciences, 2020).

6 MARINE MAMMALS AND SEA TURTLES

EMCL developed a Marine Mammal Monitoring Plan to address Section 54 of the *Canadian Environmental Assessment Act, 2012*. Section 54 requires a marine mammals and sea turtle monitoring plan to be submitted prior to commencing any VSP operations. The objective of the plan was to minimize any risk to marine mammals and sea turtles as a result of exposure to air gun pulses during VSP activity.

In February 2020 EMCL received a dispensation to not perform VSP at Harp L-42A. This dispensation was granted by the C-NLOPB based on 1) drilled tops at all target intervals were encountered within +/-20m of prognosed depths, and 2) weather / sea state operational limitations prevented safe VSP deployment. Based on this, visual monitoring and passive acoustic monitoring were not required to be performed.

In addition to requirements for monitoring during VSP activities, the Marine Mammal Monitoring Plan also addressed the requirements for reporting injured, dead or stranded species. During the exploration campaign there were no sightings of injured, dead or stranded species.

7 MIGRATORY BIRDS

Chapter 6 of the Eastern Newfoundland Offshore Exploration Drilling Project Environmental Impact Statement (EIS) assessed the potential effects to marine and migratory within the project area and predicted that the project was not likely to result in significant adverse environmental effects on marine and migratory birds, including Species at Risk (SAR); this conclusion was determined with a moderate to high level of certainty based on current understanding of the effects of similar projects on marine and migratory birds.

To comply with the mitigation measures described in the Decision Statement, monitoring measures were implemented in order to reduce potential environmental effects as they pertain to migratory birds. These consisted of daily surveys of the MODU by a trained individual to determine the presence of stranded birds, with checks being logged and any encounter of a stranded bird, live or dead, documented on a Stranded Bird Encounter datasheet. This datasheet was sent weekly to the onshore Environmental Advisor onshore. At the conclusion of the Project, it was submitted to the C-NLOPB and posted to the exploration website. As required by seabird handling permit SC4039 all original data was submitted to the Canadian Wildlife Services within the specified reporting timeline. Daily seabird monitoring during the Harp (EL 1165B) exploration program was limited to stranded seabird searches and did not include daily live bird monitoring.

Although no specific follow-up related to marine and migratory birds was considered necessary in relation to this project, in addition to the implementation of the various mitigation measures outlined in the EIS, a monitoring and observation

program was developed by EMCL, primarily to fulfill Condition 4.3 and verify the accuracy of EIS effects predictions. With the implementation of the various mitigation measures outlined in the EIS, the impact to marine and migratory birds was avoided or reduced through various mitigation measures, and no population-level effects were observed during the duration of the drilling program.

Section 4.2 of the Decision Statement described mitigation measures necessary to reduce the potential impact of well testing and flaring operations on marine and migratory birds. Because there were no flaring operations during the drilling program, these mitigation measures were not necessary.

A report, titled Seabird Monitoring Results, detailing the results of the daily stranded bird surveys can be found at the following domain: *https://exploration.exxonmobilcanada.ca/.*

8 ADDITIONAL MITIGATIONS

8.1 Emergency/Spill Response

The EMCL MODU Well Intervention Plan and MODU Well Control Bridging Plan, along with a relief well plan, were submitted to the C-NLOPB as part of the OA package on December 2, 2018. These documents, in conjunction with Seadrill documents, included strategies for maintaining well control on the MODU, disconnect strategies in the event of weather or an emergency, as well as details on how a relief well would be drilled in the unlikely event a loss of well control is encountered.

A SIMA was conducted by EMCL as part of the contingency planning process for exploratory drilling in the Flemish Pass. The SIMA is a tool to help evaluate scientific, policy, and stakeholder inputs to arrive at reasoned decisions as to which response tool(s) should be used under a particular set of circumstances, with the goal of minimizing overall harm once a spill has occurred. A draft SIMA was submitted to the C-NLOPB on April 30, 2019 and a meeting was held with the C-NLOPB and the National Environmental Emergencies Centre's Environmental Emergencies Science Table (the "Science Table") to review, with participants including representatives from Fisheries and Oceans Canada, Environment and Climate Change Canada, Canadian Wildlife Service, Canadian Coast Guard, Transport Canada, and Natural Resources Canada. The final SIMA was submitted to the C-NLOPB August 19, 2019 and is available on the EMCL Exploration website.

An OSRP was also included in this OA package, with an updated OSRP submitted to the C-NLOPB on August 9, 2019. Following consultation with Indigenous groups, this plan was developed to provide guidance to EMCL personnel who may be involved in the response to an oil spill during drilling operations within the Harp prospect. EMCL recognizes that prevention is the most effective way to avoid damage to the environment due to oil spills. Thus, the MODU program was designed to prevent the occurrence of spills through use of policies, procedures, equipment and trained personnel to reduce the probability of a spill and to minimize the consequences, should one occur. Accordingly, this OSRP was used to identify the boundary of responsibility and key interfaces for oil spill response while the MODU was on hire to EMCL. It included response measures to mitigate the effects of a spill, including spill containment and recovery, and wildlife preservation and rehabilitation procedures, as well as criteria and thresholds for reporting such events.

On July 16th, 2019, a tabletop oil spill response exercise was conducted. The objectives of this exercise were to:

- Understand potential limitations with responding to spills in far reach regions
- Create plans to mitigate spread of oil in water
- Understand how to use current contractors for inside and outside 200 NM line
- Understand time lines of responding to spills.
- Identify potential areas of improvement and create actions to close.

The results of this exercise and associated actions were provided to the C-NLOPB on July 31,' 2019 and Indigenous groups on August 16, 2019. The Spill Response Plan was posted to the Internet with a link shared to groups the week of September 3, 2019.

Throughout drilling at EL 1165B, there were no accidents or malfunctions that required activation of the Spill Response Plan. There were, however, two instances where regulatory notification was required.

On December 28, 2019, while functioning the Direct Action Tensioner (DAT) arrestor hydraulic locking pin, a spray of hydraulic oil was observed. Approximately 0.5 L of hydraulic oil was released to the sea. The DAT arrestor lever, which operates the locking pin, was placed in the neutral position to eliminate any potential for further release and to allow safe inspection of the equipment by a rope access team, who inspected the DAT arrestor and observed and repaired a cracked hydraulic line fitting. The C-NLOPB was notified via the written notification process and no further follow-up actions were required.

On February 5, 2020, during routine ROV diving operations, a loss of fluid was noted of approximately 400 mL of Envirologic HF 22 HP readily biodegradable fluid. The ROV was recovered to deck and inspected, where a loose O-Ring Boss (ORB) fitting was found. This ORB was removed, inspected, refitted and tightened per OEM specifications with thread lock compound applied. The C-NLOPB was notified via the written notification process and no further follow-up actions were required.

8.2 Ice Management

An Ice Management Plan was prepared by Provincial Aerospace Limited (PAL) Ice and Environmental Services for EMCL. The intent of the plan was to outline procedures that prevent hazardous ice from reaching the MODU and address both iceberg and sea ice. EMCL submitted an Ice Management Plan as a part of the OA submission that was approved to the C-NLOPB.

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