Attachment # 1

Corridor Responses to

Environment Canada

And

Fisheries and Oceans Canada

Comments

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Environment Canada General Comments

Environment Canada General Comments	September 11, 2013 Response
In its reply, the Proponent continues to assert application of best case conditions to an accidental release of hydrocarbons, while EC policy and best practice dictate the application of worst case scenario analysis in preparation for environmental emergencies. As such, our January 25th recommendations remain as stated.	In the modeling conducted by SL Ross, reasonable worst case scenarios were modeled. The oil properties were selected to represent the likely liquid hydrocarbons that could be accidentally released during the Old Harry drilling program and were based on the best available scientific information. The spill rates were based on maximum possible flows determined by Corridor's reservoir experts with knowledge of the reservoir geology. Fate and trajectory runs initiated on every day of the year using 50 years of 6 hourly averaged wind data were modelled to identify the likely possible maximum extent of surface oil from potential spills from the Old Harry location.
The differences between EC and the Proponent's perspectives on this issue are highlighted in three main areas: • Selection of very light Cohasset Crude as surrogate for an unknown reservoir; • Selection of wind speeds; and • The accounting for natural dispersion. Nevertheless, we have addressed several of the Proponent's points below:	A final response is provided below for each individual item.
EC is aware of the geological assumptions regarding the selection of Cohasset crude as surrogate for any hydrocarbons that may be discovered at the Old Harry prospect. Although this selection is based upon reasonable analysis, it is based on limited information including a limited dataset derived from a small number of previously drilled wells, none of which are within proximity of Old Harry. Although the selected surrogate oil may be appropriate it does represent a best case assumption that has powerful influence on the results of the trajectory analysis.	The selection of surrogate is, as EC has stated, based on reasonable analysis. It is also based on the best available scientific information, Corridor's 15 years of study of the geology of the basin and the Old Harry structure and results from source rock studies conducted by a world renowned contractor (Global Geoenergy Research). The selection of surrogate is appropriate and realistic, and as such is the basis for realistic spill modeling.
With respect to wind speeds the revised modelling submitted by the Proponent apparently attempts to capture the full range of wind	There may be some misunderstanding as to what SL Ross did in their revised modeling. Winds averaged over six hour periods for a full 50+ years of MSC50 data were used in the new revised historical spill

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Environment Canada General Comments	September 11, 2013 Response
speeds by applying the average six-hourly wind speed and direction values extracted from the MSC 50 database on a seasonal basis. As such the input values for all seasons are greater than 10 knots (5 m/s) and the Proponent notes in their cover letter that such conditions exist in the vicinity of the Old Harry project for more than 50% of the time. Nevertheless, wind speed is less than 10 knots for significant periods of time. These periods represent a worst case scenario that should reasonably be anticipated, modelled and prepared for.	modelling and not seasonal average wind values. This captured all winds, calm and otherwise, at a 6 hour temporal resolution. Scenarios were run for every day of the year for 50+ years using the MSC50 six hourly averaged data. The oil footprint was not significantly different than the initial modelling results.
EC continues to believe that dispersion is overestimated in the models used but recognizes this is a research gap currently being addressed by NOAA. However, many of the major references on the topic do not appear to have been considered by the proponent. For example, Delvigne, whose work is referenced by SL Ross, clearly states that a companion model is needed to predict resurfacing and furthermore he states possible methods. In the Mackay model this is similarly noted. In the Audunson model, the author himself notes that model is over-stated for the Ekofisk case on which it was based. All these statements on re-surfacing by the authors were ignored in all of the Proponent's modelling work.	Certain aspects of modeling such as resurfacing can be debated by different scientists with different views and it may be difficult get unanimous resolution. For the purpose of the Old Harry EA, the SL Ross revised modelling results provide evidence that the Cohasset oil will not persist on the surface using accepted modelling methods. The mechanisms of oil re-surfacing, oil sheening and re-dispersion or re-coalesence into a slick are not well understood or modelled by anyone with any degree of certainty or validation. NOAA, in its ADIOS documentation, states that “characteristic diffusion times are small compared to rise times” and that “estimates of submerged oil volumes can be made based on experimental results approximating steady conditions”. Both statements minimize the importance of oil re-surfacing once it has been ‘dispersed’ using the model by Delvigne.
The Proponent has cited several cases where they claim oils have seemingly not persisted, as examples of significant natural dispersion. These include the Elgin blowout example off Scotland in 2012 and the Uniacke blowout off Sable Island in 1984, as well as the North Cape barge spill of furnace oil in 1996.	Corridor’s spill modeling consultants have thoroughly reviewed these incidents and believe that they do illustrate that an oil, like the one that could potentially be generated at Old Harry, doesn’t persist. The Uniacke blowout is one the best, real world examples of the type of accidental release that could occur at Old Harry and the oil did not persist by EC’s own observations and records.

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Environment Canada General Comments	September 11, 2013 Response
In the Elgin and Uniacke blowout examples SL Ross indicates the oil dissipates within 24 hours, i.e., "The short surface persistence of this light crude oil is supported by two actual blowout events: the Uniacke blowout off Sable Island in 1984 (Environment Canada, 1984) and the Elgin blowout off Scotland in 2012 (Government of Scotland, 2013). However, they also note that in the Elgin case; "The vast majority of the release was entering the 'atmosphere, but some of the condensate and associated liquid components were impacting the sea surface. This resulted in a silvery sheen with occasional smaller windrow patches of brown weathered material. The brown weathered material also appeared to be dispersing naturally and, during periods when the wind strength and wave height increased, this enhanced dispersion of the condensate and weathered material in the water column, reducing the quantity of material remaining on the sea surface". It could be implied that this oil is not dispersing without this increased wind and wave height. Additionally, if one reviews the remote sensing reports associated with this incident, there is a period of time for many days in late April to early May 2012 where there are slicks from 10 km2 to over 1200 km2 even on days with moderate conditions and winds of 26 knots (Beaufort force 6, larger waves 8-13 feet, whitecaps common, more spray), i.e;, high winds and large slicks still exist on the surface of the ocean (http://www.elgin.total.com/elgin/page.aspx?contentid=721&Ig=en).	
In the case of the North Cape spill, the Proponent has acknowledged that the weather conditions were extreme "the wind and wave action was so intense on the night of the spill, the oil quickly mixed into the water column". In this spill the wind was reported to be as high as 80 km/hr. Even with a light oil, and under these extreme conditions, slicks were observed six days after the initial spill, primarily produced through the resurfacing of oil following the storm. The North Cape spill killed roughly 9 million lobsters, more than 400 loons, and 1600 other marine birds as well as over a million pounds of clams, oysters, amphipods and other species. The spill shut down the lobster industry for five months and reduced the productivity of	EC in earlier responses indicated that **no spills dissipated quickly**. This provided an example of one that did dissipate and SL Ross did note that it was under high winds.

Environment Canada General Comments	September 11, 2013 Response
the area's Piping Plover population.	
There are places in the text of the SL Ross report where sources are misquoted or only partially quoted including Fingas from the 2011 book; "Fingas (2011) notes that "... diesel fuel and even light oil crudes can disperse significantly..."". The actual complete quote from this book provides a clearer and unbiased summary; "Natural dispersion occurs when fine droplets of oil are transferred into the water column by wave action or turbulence. Small oil droplets (less than 2 µm or 0.020 mm) are relatively stable in water and will remain so for long periods of time. Large droplets tend to rise and larger droplets (more than 50 µm) will not stay in the water column for more than a few seconds. Depending on oil conditions and the amount of sea energy available, natural dispersion can be insignificant or it can remove the bulk of the oil. In 1993, the oil from a stricken ship, the Braer, dispersed almost entirely as a result of high seas off Scotland at the time of the spill and the dispersible nature of the oil cargo.11 Natural dispersion is dependent on both the oil properties and the amount of sea energy.12 Heavy oils such as Bunker C or a heavy crude will not disperse naturally to any significant extent, whereas diesel fuel and even light crudes can disperse significantly if the saturate content is high and the asphaltene and resin contents are low. In addition, significant wave action is needed to disperse oil. In 40 years of monitoring spills on the oceans, those spills where oil has dispersed naturally have all occurred in very energetic seas. The long-term fate of dispersed oil is not known, although it may degrade to some extent as it consists primarily of saturate components. Some of the dispersed oil may also rise and form another surface slick or it may become associated with sediment and be precipitated to the bottom." It is interesting to note that the light Gulfaks oil that was spilled in the Braer case was subjected to Beaufort force 8 to 10 winds - very severe weather conditions.	SL Ross has reviewed this comment and maintains that they did not misquote information. The points that SL Ross was illustrating by the reference were as noted by EC in their comments: - *"Depending on oil conditions and the amount of sea energy available, natural dispersion can be insignificant or it can remove the bulk of the oil."* - *"Heavy oils such as Bunker C or a heavy crude will not disperse naturally to any significant extent, whereas diesel fuel and even light crudes can disperse significantly if the saturate content is high and the asphaltene and resin contents are low."* The EC comment below is not supported by any references, but Corridor and its consultants also share the view of EC that there is nothing to be gained from further debating these issues. *"In 40 years of monitoring spills on the oceans, those spills where oil has dispersed naturally have all occurred in very energetic seas."*
It should also be noted that, with respect to emulsification, EC agrees that Cohasset crude does not emulsify and emulsion	No ADIOS modelling results were ever provided to the proponent by EC.

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Environment Canada General Comments	September 11, 2013 Response
formation was removed from the ADIOS modelling we provided and emulsion was never included in the Oilmap modelling.	Detailed model outputs (e.g., oil properties and emulsion water contents) from the original EC modelling were requested during initial conversations with EC in August of 2012 to better determine how the graphs presented by EC were derived, but this data was never provided. The OILMAP results provided by EC did not include water content information. Subsequent modeling by ASA indicated that the long persistence of the oil as identified by EC results was possibly due to emulsification of the oil as discussed in earlier submissions.
Finally, EC wishes to point out that the proponent's modelling was carried out using deterministic trajectories rather than the generally accepted stochastic method. Also, the model used by the Proponent has not been subjected to peer review whereas the models used by EC have been peer reviewed and cited many times in the scientific literature.	The SL Ross modelling that used the entire 50+ years of 6 hourly wind data was more detailed than a conventional stochastic modelling exercise that only runs trajectories using a statistical representation of the historical environmental data set, not all of it.

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Responses to Revised EA Submission

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
Fisheries and Oceans Canada			
The environmental assessment does not indicate what time of year the project will occur. While the duration is identified, the season of activity is not. This information is particularly important in terms of assessing potential impacts on the ecosystem and its components.	The Environmental Assessment included the possibility of drilling in any month of the year that is ice free. The spud date of the well would likely be no earlier than March and no later than November.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment noted.
C-NLOPB			
§2.10.4 Well Testing, pg 18 – "*A Well Data Acquisition Program will be submitted to the C-NLOPB in support of the well approval at least 21 days prior to the anticipated spud date. There is no regulatory requirement to test the exploration well.*" Other than declaring a significant discovery, any testing program that involves flowing the well will require its own approval.	Text updated to include the information provided. Other than declaring a significant discovery, any testing program that involves flowing the well will require its own approval.	Text has been updated as noted. The proponent should remove the words "Other than declaring a significant discovery" from the second sentence of the first paragraph of section 2.10.4. For further clarification, a significant discovery is defined in the Accord Acts as "a discovery indicated by the first well on a geological feature that demonstrates by flow testing the existence of hydrocarbons in that feature and, having regard to geological and engineering factors, suggests the existence of an accumulation of hydrocarbons that has potential for sustained production."[1] In other words, any application for a	The second sentence in the first paragraph of Section 2.10.4 Well Testing should read as follows: "~~Other than declaring a significant discovery, a~~Any testing program that involves flowing the well will require its own approval."

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
		significant discovery would require that a well test had been completed. 1 Excerpted from http://www.cnlopb.nl.ca/land_issuance.shtml	
§2.10.4 Well Testing, pg 18 – "*If produced water occurs, it will either be flared or treated in accordance with the Offshore Waste Treatment Guidelines (OWTG) (National Energy Board (NEB) et al. 2010) prior to ocean discharge.*" Water brought to the surface as part of reservoir fluids during a testing program, and which is not discharged via the flare, is typically transported to shore.	Text has been updated as noted.	Text has been updated as "If produced water occurs, it will either be treated prior to ocean discharge or transported to shore for disposal in accordance with the Offshore Waste Treatment Guidelines (OWTG) (National Energy Board (NEB) et al. 2010)." This response is acceptable; however, response to 2.10.4 and 2.11.3 must be made consistent within EA report.	Relevant text in Section 2.10.4 and 2.11.3 should read as follows: "Water brought to the surface as part of reservoir fluids during a testing program, and which is not discharged via the flare will either be treated prior to ocean disposal or transported to shore for disposal in accordance with the Offshore Waste Treatment Guidelines (OWTG) (National Energy Board (NEB) et al. 2010)."
§2.11.1 Drill Mud and Cuttings, pg 20 – "*Discharged drill cuttings are required to meet the limits outlined in the OWTG for the disposal of drill solids (no limit for WBM cuttings, 6.9 g of mud or less/100 g of cuttings for SBM cuttings overboard discharge).*" See general comment on discharge	"Corridor will use best available technology to meet the requirements of the OWTG. Corridor will follow the practices established by other operators within the jurisdiction of the CNLOPB if the conditions of the OWTG cannot be met	There is no comment on this within the revised EA Report. This response is not acceptable.	All drilling fluid and solid discharges will be in accordance with the OWTG and subject to approval by C-NLOPB. As per the OWTG, Corridor's EPP will describe the manner in which drilling solids will be managed and discharged to the marine environment.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
limits. A discussion by Corridor regarding their plans if they cannot achieve this concentration of synthetic-on-cuttings is warranted.			
§2.11.1.2 Synthetic-based Muds, pg 22 - "*SBM cuttings may be discharged provided they do not exceed 6.9 g/100 g time weighted average of oil on wet solids (see Section 2.4 of the OWTG)*". See general comment on discharge limits. A discussion by Corridor regarding their plans if they cannot achieve this concentration of synthetic-on-cuttings is warranted.	Corridor will use best available technology to meet the requirements of the OWTG. Corridor will follow the practices established by other operators within the jurisdiction of the CNLOPB if the conditions of the OWTG cannot be met.	There is no comment on this within the revised EA Report. This response is not acceptable.	All drilling fluid and solid discharges will be in accordance with the OWTG and subject to approval by C-NLOPB. As per the OWTG, Corridor's EPP will describe the manner in which drilling solids will be managed and discharged to the marine environment.
§2.11.3 Produced Water, pg 23 –Water brought to the surface as part of reservoir fluids during a testing program, and which is not discharged via the flare, is typically transported to shore.	Text has been updated to remove the reference to ocean disposal.		Refer above to response provided for 2.10.4.
§8.4.5 Calculated Blowout Frequencies for the Old Harry Project, pg 392 – This should probably be reworded. The impression that the reader is left with is that an extremely large spill probably won't occur for 25,000 years. The	Report has since been revised to address this concern.	Report has not been revised. Corridor should review the bulleted list from page 8.6 to 8.7 and then reread the comments already provided.	The bullets in Section 8.4.5 should read as follows: • The likelihood of an extremely large oil spill (>150,000 barrel) from a blowout during drilling of an exploration well, may

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
following wording should be considered. • The likelihood of an extremely large oil spill (>150,000 barrel) from a blowout during drilling of an exploration well, may be calculated as (1 well drilled) x (3.97 x 10^{-5} spills/well drilled) = 3.97 x 10^{-5}. • The likelihood of a very large oil spill (>10,000 barrel) from a blowout during drilling of an exploration well is 7.93 x 10^{-5}. • The likelihood of a large oil spill (>1,000 barrel) from a blowout during drilling of an exploration well is 9.91 x 10^{-5}.			be calculated as (1 well drilled) x (3.97 x 10^{-5} spills/well drilled) = 3.97 x 10^{-5}. • The likelihood of a very large oil spill (>10,000 barrel) from a blowout during drilling of an exploration well is 7.93 x 10^{-5}. • The likelihood of a large oil spill (>1,000 barrel) from a blowout during drilling of an exploration well is 9.91 x 10^{-5}.
§8.7.1.2 Marine Bird Species at Risk, pg 402 - Assuming that the risk of spills from supply vessels is consistent with other shipping, it is still an incremental increase in risk. In addition, since no risk statistics have been provided for marine shipping activity in the Gulf, this statement cannot	Although an incremental risk is acknowledged, it remains a low risk and a quantitative analysis is not considered necessary for this discussion.	no change The EA report does not acknowledge an incremental risk and provides no context in which to assess such an incremental change. The proponent should refer to Alexander et al.[2] and Pelot & Wootton[3] for a quantitative description of commercial vessel transits in the Gulf of St. Lawrence. 2 Alexander, D.W., Sooley, D.R., Mullins,	The following discussion can be used to supplement the last paragraph in Section 8.7.1.2, Marine Bird Species at Risk, p. 8.18. It is anticipated that the Project will involve two to three support vessels trips per week during the

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
be assessed in a quantitative manner.		C.C., Chiasson, M.I., Cabana, A.M., Klvana, I., and J.A. Brennan 2010. Gulf of St. Lawrence: Human Systems Overview Report. Oceans, Habitat and Species at Risk Publication Series, Newfoundland and Labrador Region. Pages v and 60. Available at www.dfo-mpo.gc.ca/Library/340113.pdf 3 Pelot, Ronald & Wootton, David, Merchant traffic through Eastern Canadian waters: Canadian port of call versus transient shipping traffic, MARIN Report # 2004-09, available at http://www.marin-research.ca/english/research/publications/reports.php	proposed drilling program (20 to 50 days). It is recognized that an accidental spill could occur from a supply vessel and that the mortality of an individual bird species at risk would be significant. However, given the high vessel volume occurring in the region, risk of a spill from a Project support vessel is considered to be incidental. To put the volume of Project vessel traffic in perspective, it is helpful to review traffic volume data in the Gulf of St. Lawrence. Pelot and Wootton (2004) analyzed vessel traffic through Eastern Canada using 2001 for merchant shipping and cruise ship traffic and 1999 for fishing traffic for various regions in Eastern Canada. Including cruise ship traffic, fishing vessels and merchant shipping, monthly traffic volumes in the Gulf of St. Lawrence ranged from a minimum of 376 (February) to a maximum of

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
			59,897 (May) with fishing vessels making up the majority of these volumes (Pelot and Wootton 2004). Annual volumes of fishing vessels amounted to 190,024 (96.5% of annual totals), (Pelot and Wootton 2004). This is consistent with data on commercial vessel transits through the Cabot Strait, the major point of entry to the Gulf of St. Lawrence, which is reported to accommodate approximately 6,400 commercial vessel transits annually (Coffen-Smout et al. 2001, cited in Alexander et al. 2010). Given this context, the Project vessel traffic and potential risk of spills to marine bird species at risk is considered minimally incremental to the risk that exists from other non-Project related traffic.
§8.7.2 Marine Ecosystems, pg 405 - Since no risk	Corridor refers to the previous comment in its response	no change This comment was made in reference	Refer to the response provided immediately above

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
statistics have been provided for marine shipping activity in the Gulf, this statement cannot be assessed in a quantitative manner. Also, "low" has not been defined.		to the proponent's statement, in the last paragraph of section 8.7.2, now on page 8.22, that "The risk of any diesel spill in association with this Project is low and no greater than from any other marine shipping activity in this region." The proponent should refer to Alexander et al. and Pelot & Wootton for a quantitative description of commercial vessel transits in the Gulf of St. Lawrence. In addition the word "low" is used as a qualifier of risk and has not been defined. The proponent must define what is meant by low.	which puts Project related vessel traffic in context with other marine vessel traffic in the Gulf of St. Lawrence. Low would be considered to be within natural variation of existing activities.
§8.7.7 Commercial Fisheries and Other Users, pg 410 - "low" has not been defined.	"Low" in this case is referring to the low level of commercial harvesting activities within the Project Area which was defined in Section 5.8.1 by the following text - "there is minimal fishing effort within and surrounding the Project. No harvesting locations were recorded within EL 1105. The closest harvest location to the Project is located just less than 10 km to the southwest of EL 1105, and was recorded for redfish. Between 10 and 12 km from the EL 1105, a couple of harvest locations were recorded for redfish and one for each cod and white hake. However, in general,	no change. This comment was in reference to the sentence "However, the likelihood of such an event is extremely low" on what is now page 8.26. The proponent must define what is meant by low or extremely low.	"Low" refers to the low likelihood of an accidental spill occurring as per the calculated frequencies presented in Section 8.4.9 in combination with the understanding that there is minimal fishing effort within 10 km of the Project.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
	the fishing effort can be summarized in the immediate vicinity of the Project as low".		
§12.1 Potential Effects of the Physical Environment on the Project, para. 1, pg 422 – "These effects will be mitigated by using… state-of-the-art forecasting." Details should be provided on the "state-of-the-art" forecasting.	Text has been revised to "monitoring government and industry24-hour forecasts".	revised as indicated Grand Banks operators are required to provide site specific forecasts and this requirement will likely extend to this Gulf of St. Lawrence location.	Comment noted.
§13.0 Environmental Management, 7th Bullet, pg 425 - The *Drilling and Production Regulations* require an Operator to submit a Safety Plan and an Environmental Protection Plan with the application for an authorization. One document may be used to satisfy the requirements if it meets the requirements laid out in Sections 8 and 9, of the regulation.	Comment noted.	This section has been edited but not in relation to the comment. This comment required acknowledgement but no particular action as the proponent's proposed document will be acceptable if it meets the requirements for an EPP as described in the regulations.	Comment noted.
Environment Canada			
§ 4.1.10, Storm Tracks in the Gulf of St. Lawrence - This section contains 3 figures that inadequately describe the intended subject. Figures 4.21 and 4.22 barely cover the Gulf of St Lawrence and thus	Tropical cyclones/transitioning tropical cyclones need to be considered (ref. below) Figures 4.21 and 4.22 were replaced with 4 figures more relevant to storm tracks in the Gulf of St. Lawrence. Figure 4.23 was separated into	This section shows confusion between tropical and extratropical cyclones. It seems the text was not updated when the figures from extratropical storm tracks in the previous EA Report were replaced. The captions for Figures 4.21 and 4.24 are incorrect: they say	Figures 4.21 to 4.24 should be labelled as "Tropical Storm Tracks" instead of "Extratropical Storm Tracks". Section 4.2.5 should read as follows:

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
cannot show. Figure 4.23 is very hard to read. It is missing the panel for the winter season (DJF); the summer panel (JJA) is repeated twice. Major storm tracks for both extra-tropical and tropical cyclones that approach from the south or southwest and track northeastwards over the Gulf of St Lawrence and the Atlantic Provinces.	four figures for readability with the winter panel being corrected to show the proper season.	extratropical instead of tropical storm tracks. EC recommends revision of this section to correct errors.	Weather systems tend to move along preferred paths over Canadian waters. Major tracks pass through the St. Lawrence Lowlands, with storms developing and moving out to sea in a northeasterly direction over the Grand Banks of Newfoundland and the Labrador Sea. In the Gulf of St. Lawrence, a cyclone season occurs from June to November, peaking in August through September. ~~Major polar storm tracks during the summer months from 2008 to 2011 are shown in Figure 4.21 to 4.24.~~ Figures 4.21 to 4.24 show tracks of tropical storms in Atlantic Canada waters between 2008 and 2011. The frequency of extratropical storm tracks during 1998 are illustrated in Figures 4.25 to 4.28.
§ 4.2.2, Wind Climate - The wind climate was described solely from the MSC50 dataset for a single point in the Project area. This is insufficient to	The MSC50 Data point gives a central data point with regards to unimpeded wind conditions. As such this point was chosen to give an overall picture of the wind	This section only uses hindcast (modelled) mean winds at a single point in the open Gulf of St. Lawrence. Additional data that would help to describe the hazardous local effects are	Table 4.6 should be updated as per Attachment 4.2.2 which includes normal and extremes for wind at Port-aux-Basques.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
give a full picture of the conditions over the entire Project and Study Area. The analysis should include hourly mean and gust wind speeds from land/island stations in the surrounding area. Local effects and elevation differences need to be considered.	characteristics in the Project and Study Area.	readily available from EC archives by request. EC recommends that the EA includes analysis of measured hourly sustained and gust wind speeds from exposed stations including Wreckhouse and St. Paul Island (Auto). EC recommends that Table 4.6 for Port-aux-Basques include climate normals and extremes for wind (available from EC online).	
§ 4.3 Climate Change: This section includes discussion only of sea-level change. This section should describe changes in ice frequency that have occurred over the last few decades, and the effect of reductions in ice cover (longer fetch allowing higher waves to build, and more frequent occurrence of adverse weather)	Observations over the last few decades show an increase in ice cover in the Gulf, and has not supported predictions that the area will be ice free year round. "Observations of the past decades do not support this prediction, with sea ice getting more severe in the Gulf" (Dufour and Ouelette 2007). As a result, it would not be justified to say that the Gulf has seen reductions in ice cover, allowing for increased fetch for wave propagation.	The response cited a paper by Dufour and Ouellet (2007) that said that ice cover was increasing. However that paper refers to a study by Parkinson (2000) based on 1979 to 1996 data only. The Historical Total Accumulated Ice Cover (TAC) for the Gulf of St Lawrence for 1968/69 to 2012113 shows an overall decreasing trend as well as considerable interdecadal variability. [This plot can be generated online at the Canadian Ice Service website http://www.ec.gc.ca/glacesice/default.asp?lang=En&n=7E34FF80-1 using IceGraph Tool 2.0). The revised section on ice, 4.2.6, also mentions a reduction in ice cover in the last few decades. Variability and trend in ice cover (while related to temporal variability on a larger scale) would contribute to variations in climate elements such as wave height and	Comment noted.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
		visibility. Statistics based on low ice cover years would be expected to differ from those based on the long term record. This could be of interest for future studies, if recent trends in ice cover continue.	
§ 4.1.11 Ice, Page 103, 1st paragraph, sentence 6: *"All sea ice in EL 1105 is first-year ice, ranging in its un-deformed thickness from 30 to 120 cm (SLGO 2011; Figure 4.20*). Not all sea ice in EL1105 is greater than 30cm (first-year ice), especially at the start of the winter season. Also, your reference to Figure 4.20 is in error … Figure 4.20 in the EA report is a tide map. Rephrase this sentence. Say something like "All sea ice in EL 1105 is seasonal ice, with un-deformed thicknesses normally not reaching the thin first-year ice category (30-70cm) until March. Predominant ice thicknesses greater than 70cm are generally not observed until mid-April, towards the very end of the ice season in the Gulf." Also – cite the 1981-2010 CIS Atlas for the	The paragraph was updated to reflect the updated Figure 4.24 (now Figure 4.29) with information from the 1981-2010 CIS Atlas and referenced accordingly.	The description of the sea ice in the text has been adequately corrected. However; the incorrect tide map has been replaced with an ice chart, but the chosen ice chart is just a random example from a single date in a single year towards the beginning of the ice season (at a time when the ice extent has not even reached the Old Harry area yet). It is not a climatological chart representative of the median conditions throughout the past 30 years for the peak of the ice season when sea ice is most likely to affect the Old Harry area. *Recommendation:* This chart should be replaced with a median predominant ice type chart from the CIS Atlas for the time of peak ice extent in the Gulf (mid-February to mid-March), and the requested citation for the information given (CIS 1981-2010 Atlas) has NOT been added. *Recommendation:* Add a reference to the CIS 1981-2010 Atlas for the sea ice information.	Figure 4.29 should be replaced with Attachment 4.1.11 which represents the Median of Predominant Ice Type When Ice is Present from the CIS Atlas (Environment Canada 2011). It is acknowledged that the CIS Atlas is the source of ice data in Section 4.2.6 of the EA Report, referenced therein as Environment Canada 2011.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
information. See your own description at the bottom of p.108, where this is correctly described.			
§ 4.1.11 Ice: Insert a new figure to replace the erroneous reference to Figure 4.20. Use a figure from the CIS online atlas, for example: http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=AE4A459A-1&wsdoc=C3DAE7C6-0C7E-11E0-9694-185EF62D62D6	The Figure 4.20 reference now refers to Figure 4.24 (now Figure 4.29) as intended which has been updated in accordance with EC-367.	The Figure was replaced as requested, but not with a Figure from the CIS Atlas. *Recommendation:* Add a reference to the CIS 1981-2010 Atlas for the sea ice information.	Refer to response provided above and Attachment 4.1.11.
§ 4.1.11 Ice, Page 103, 1st paragraph, sentence 7 - "*Daily graphs such as depicted in Figure 4.24 are available as a seasonal service from http://slgo.ca/en/ocean/data/ice-concentration.html, starting in December / January through May / June."Comment: The charts (not graphs, unless you meant to say graphics) published on the SLGO website are forecasts produced by a computer model. This computer model uses CIS analysis data for input. Real CIS analysis charts, NOT*	Figure 4.24 (now Figure 4.29) has been changed to the Ice Stage chart for 31 Jan 2011 from the CIS Online Atlas. References have been updated to reflect this.	Here, the figure was replaced correctly with one for 31 Jan 2011 as requested and the correct source was added. However, the sentence originally associated with this figure appears to have been removed from the present version of the text. Additionally, an attempt was made to now use this figure to address the comment above, which is not appropriate. The requested citation for the information given (CIS 1981-2010 Atlas) has NOT been added. *Recommendation:* Add a reference to the CIS 1981-2010 Atlas for the sea ice information.	Note that the citation "Environment Canada 2011" which is used throughout the text and accompanies figures, refers to the CIS 1981-2010 Atlas. The full citation for Environment Canada 2011 as written in Section 15 is: Environment Canada. 2011. Sea Ice Climatic Atlas for the East Coast 1981-2010: The Ice Regime. Available at: http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=AE4A459A-1&offset=2&toc=show.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
model forecast graphics, should be used here, where describing climatological sea ice conditions in the Gulf of St. Lawrence *• Replace Figure 4.24. Use either the corresponding Ice Stage chart for 31 Jan 2011, found on the CIS web site archive:* *http://ice-glaces.ec.gc.ca/www_archive/AOI_12/Charts/sc_a12_20110131_WIS57SD.gif* *Or the one for 07 Feb 2011:* *http://ice-glaces.ec.gc.ca/www_archive/AOI_12/Charts/sc_a12_20110207_WIS57SD.gif* *• In these charts, note that ice stage relates to ice thickness according to last (bottom) table on the following webpage:* *http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=4FF82CBD-1&wsdoc=19CDA64E-10E4-4BFFB188-D69A612A0322* *• Also - Replace the reference to SLGO with the appropriate reference to the CIS web page.*			
§ 4.1.11 Ice - Comment: The	Paragraphs have been paraphrased	Most of the paragraphs have been	The last paragraph on p.

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
paragraphs on these pages were copied nearly verbatim from the CIS 1971-2000 sea ice climatic Atlas. Passages and phrases copied word-for-word should be in quotation marks, followed by the appropriate reference. No quotation marks are used and no references are given for the copied sentences until the end of each paragraph, making it appear that the information was paraphrased from this source or that only the last sentence is from this source. The above is plagiarism and needs to be corrected. Simply changing a word in the copied sentence (e.g. replacing significant with substantive so that the sentence has not been copied verbatim in its entirety) is not sufficient.	where necessary and referenced correctly.	paraphrased and correctly referenced. However, the bulk of the last paragraph on page 4.39 is still nearly verbatim from the CIS Atlas, except for a few words changed here and there to keep the text from being exactly word-for-word. A reference to the Atlas is only given in two places, after the second sentence and after the last sentence. *Recommendation:* • The Atlas reference, in brackets, should be given after each of the first 6 sentences of this paragraph to clearly indicate where the information came from. No quotation marks are necessary since a few of the words were changed, but the text is still nearly identical to that of the source; • The last 3 sentences should be separated into a new paragraph. • Rephrase the first two of the last 3 sentences as: "Based on the Canadian Ice Service's Sea Ice Climatic Atlas for the East Coast 1981-2010 (Environment Canada, 2011), for the period 1981 to 2010, the most ice encountered in a single season in the Gulf occurred in 1989/1990 with the least amount of ice occurred in 2009/2010. Time series of	4.39 should read as follows: At the beginning of February, grey-white and grey ice predominates with thin first year ice gradually developing over the course of the month (Environment Canada 2011). By the end of the third week of February, thin first year ice is found in Northumberland Strait, along the northwest coast of Cape Breton, along the north coast of the Magdalen Islands, along the west coast of Newfoundland as well as along the south shores of Chaleur Bay and the Estuary (Environment Canada 2011). Over the northern portions of the St. Lawrence Estuary and Gulf, the predominant ice type remains new and grey because offshore winds push the ice southward (Environment Canada 2011). From the later part of February until the middle of March, the ice in the Gulf will have reached its maximum extent and much of the ice continues to grow to the first-year stage of

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
		Historical Total Accumulated Ice Coverage found in this Atlas indicate that the ice coverage varies considerably from year to year but, in general, there were *above* normal conditions from 1980/1981 to 1994/1995 and then below normal conditions from 1995/1996 to 2009/2010." • In the last sentence, indicate that the charts shown are for **mid**-February, **mid**-March and **mid**-April, since no dates for the charts are given in the Figure captions.	development (Environment Canada 2011). As a result of the continuous southward drift of the pack ice in the Gulf, the ice remains at the grey-white stage over the northwestern portions of the Gulf. The lead along the Western Newfoundland coast, particularly north of the Port-au-Port Peninsula, is closed and there can be ice drifting into the Cabot Strait. Based on the Canadian Ice Service's Sea Ice Climatic Atlas for the East Coast 1981-2010 (Environment Canada, 2011), for the period 1981 to 2010, the most ice encountered in a single season in the Gulf occurred in 1989/1990 with the least amount of ice occurred in 2009/2010. Time series of Historical Total Accumulated Ice Coverage found in this Atlas indicate that the ice coverage varies considerably from year to year but, in general, there were *above* normal

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
			conditions from 1980/1981 to 1994/1995 and then below normal conditions from 1995/1996 to 2009/2010. The maximum pack ice extent in the Gulf in mid-February, mid-March and mid-April, based on a 30-year median of ice concentration, is displayed in Figures 4.30, 4.31 and 4.32, respectively (Environment Canada 2011).
Original Comment: § 4.1.11 Ice P.108, 1st paragraph, sentence 5 reads*: "EL 1105 is located in the area that has an average ice freeze up date of January 29 (Figure 4.31)." Comment: From the Freeze-up chart, the average freeze-up date is February 12, not January 29. Correct the date given in sentence 5 from January 29 to February 12.*	The sentence was updated to include the correct February 12th date.	The table of concordance indicates that the date of freeze-up was corrected from Jan 29 to Feb 12, but inspection of the text shows that this correction was NOT made.	Text in Section 4.2.6, p. 4.41 should read as follows: "EL 1105 is located in the area that has an average ice freeze up date of February 12th (Figure 4.35)".
New CIS Comments			
		As a result of the EA authors having to paraphrase the information they had originally copied verbatim from the CIS Atlas (to avoid plagiarism), some errors in interpretation were noted.	
		§ 4.2.6 Ice, Page 4.38, paragraph 2,	4.2.6 Ice, Page 4.38,

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
		sentence 2 - The text in the Atlas clearly states that tidal influences LIMIT fast ice formation, they do not enhance it. *Recommendation:* Revise this sentence to read "As a result of the shallowness of these areas, large areas of fast ice can form. However, tidal influences in certain locations can also limit the fast ice formation (Environment Canada 2011)."	paragraph 2, sentence 2 should read as follows: "As a result of the shallowness of these areas, large areas of fast ice can form. However, tidal influences in certain locations can also limit the fast ice formation (Environment Canada 2011)."
		§ 4.2.6 Ice, Page 4.39, paragraph 1, sentence 1 - The directions given in the second half of the sentence are incorrect. *Please correct to:* "Winter winds from the west to north directions are generally cold and dry while those from the southwest to northeast are mild and moist (Environment Canada 2011)."	4.2.6 Ice, Page 4.39, paragraph 1, sentence 1 should read as follows: "Winter winds from the west to north directions are generally cold and dry while those from the southwest to northeast are mild and moist (Environment Canada 2011)."
Fisheries and Oceans			
§ 2.6 - While the anticipated duration of work is indicated (20-50 days) the season is not. This is information is particularly important in terms of assessing potential impacts on the ecosystem and its components (i.e. fish, marine mammals etc…).	The Environmental Assessment included the possibility of drilling in any month of the year that is ice free. The spud date of the well would likely be no earlier than March and no later than November.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment noted.

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
§ 2.6 - It is advised that the proponent should plan the activity around important and sensitive time periods for fish, marine mammals and species at risk.	Drilling will not occur earlier than March or later than November. Specific timing will depend on a variety of variables including but not limited to rig availability and regulatory approvals. Mitigation measures, including wildlife observers and adherence to regulatory guidelines (e.g., Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, Offshore Waste Treatment Guidelines) will reduce effects on marine species.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment noted.
§ 5.2.1.10 - The paragraph on Striped bass should be re-edited to reduce confusion. It starts by speaking about extirpated estuary population, and then it states the harvest restrictions put in place in 2000 seem to have assisted in recovery. Confusion exists between Estuary and Gulf populations. Please consult the recovery strategy on the SARA public registry. COSEWIC's (2004) assessment for striped bass is not a good reference nor is it used properly.	The Striped Bass section has been reworded to reduce confusion and update its relevance with the Project area.	Adequate - However the paragraph now conflicts with Table 5.2	Both Section 5.2.10 and Table 5.2 indicate a low potential for occurrence in relation to EL 1105. However, Table 5.2 and Section 5.2.1.10 should be updated to acknowledge that the Southern Gulf of St. Lawrence population has been downgraded from "Threatened" to "Special Concern" by COSEWIC. The St. Lawrence Estuary Population (also referred to as the St. Lawrence River population) is designated as "Endangered" by COSEWIC (COSEWIC

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
			designation not previously noted in the EA Report for this population) and "Extirpated" by SARA.
§ 7.1.5.3 - Ketten and Bartol (2005) and other more recent references included in the topic of sea turtle hearing would be useful inclusions in this assessment.	Ketten and Bartol 2005 has been added to the EA Report to provide a reference on the hearing range of sea turtles.	Adequate response however the reference could not be found in the EA Report.	The first sentence in the second paragraph under the Sea Turtles heading (Section 7.1.5.3, p. 7.47) should read as follows: "Available information indicates that turtles hear at low frequency range similarly to seals (e.g., 100-900 Hz (Office of Naval Research website 2002; Environment Australia 2003; Ketton and Bartol 2005), with measureable age and species variations in response to underwater sound (Ketton and Bartol 2005). Ketton and Bartol (2005) observed a size/age difference in hearing range for loggerhead and green sea turtles, with smaller younger individuals having a greater hearing range than larger, older individuals. Kemp's Ridleys had a more restricted hearing range

Original Comment	Proponent Response	Revised EA Report Check	September 11, 2013 Response
			(100-500 Hz).“
§ 7.2.4 - Table 7.8 – Suggests that mortality resulting in collision with vessel is reversible? Please be advised that it is unlawful to kill harm, harass, capture or take an individual of a species that is listed as Endangered or Threatened under SARA unless permitted. This measure assists in protecting species, as the loss of an individual could be significant for a certain species (e.g. blue whale).	The results of mortality from a vessel collision have been changed to irreversible due to the fact that the loss of an individual from certain species could lead to negative population level effects.	Adequate response, however Section 7.2.2.4 or Table 7.8 was not updated in the EA Report.	Table 7.8 Potential Environmental Effects Summary - Species at Risk should read “I” for irreversible in the Reversibility column to indicate a potential irreversible effect of mortality of species at risk from a collision with a vessel. However, text in Section 7.2.4 Residual Environmental Effects remains unchanged as the predicted residual adverse environmental effects of the Project on Species at Risk remains not significant as defined by significance criteria in Section 7.2.1.

References Cited

Alexander, D.W., Sooley, D.R., Mullins, C.C., Chiasson, M.I., Cabana, A.M., Klvana, I., and J.A. Brennan 2010. Gulf of St. Lawrence: Human Systems Overview Report. Oceans, Habitat and Species at Risk Publication Series, Newfoundland and Labrador Region. Pages v and 60. Available at www.dfo-mpo.gc.ca/Library/340113.pdf

Environment Australia. 2003. Recovery Plan for Marine Turtles in Australia. Prepared by the Marine Species Section Approvals and Wildlife Division, Environment Australia in consultation with the Marine Turtle Recovery Team Canberra, viewed 7 March 2011, Available at: www.environment.gov.au/coasts/publications/turtle-recovery/index.html

Environment Canada. 2010a. 1971-2000 Climate Normals and Averages. Available at: http://www.climate.weatheroffice.gc.ca/climate_normals/stnselect_e.html

Environment Canada. 2011. Sea Ice Climatic Atlas for the East Coast 1981-2010: The Ice Regime. Available at: http://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=AE4A459A-1&offset=1&toc=show

Ketten, D.R. and Bartol, S.M. 2005. Functional Measures of Sea Turtle Hearing. Woods Hole Oceanographic Institution: ONR Award No: N00014-02-1-0510.

Office of Naval Research. 2002. Science and Technology Focus, Oceanography, Ocean Life: Green Sea Turtle – Current Research. http://www.onr.navy.mil/focus/ocean/life/turtle4.htm. Last update not indicated. Accessed 3 March 2009.

Pelot, Ronald & Wootton, David, Merchant traffic through Eastern Canadian waters: Canadian port of call versus transient shipping traffic, MARIN Report # 2004-09, available at http://www.marin-research.ca/english/research/publications/reports.php.

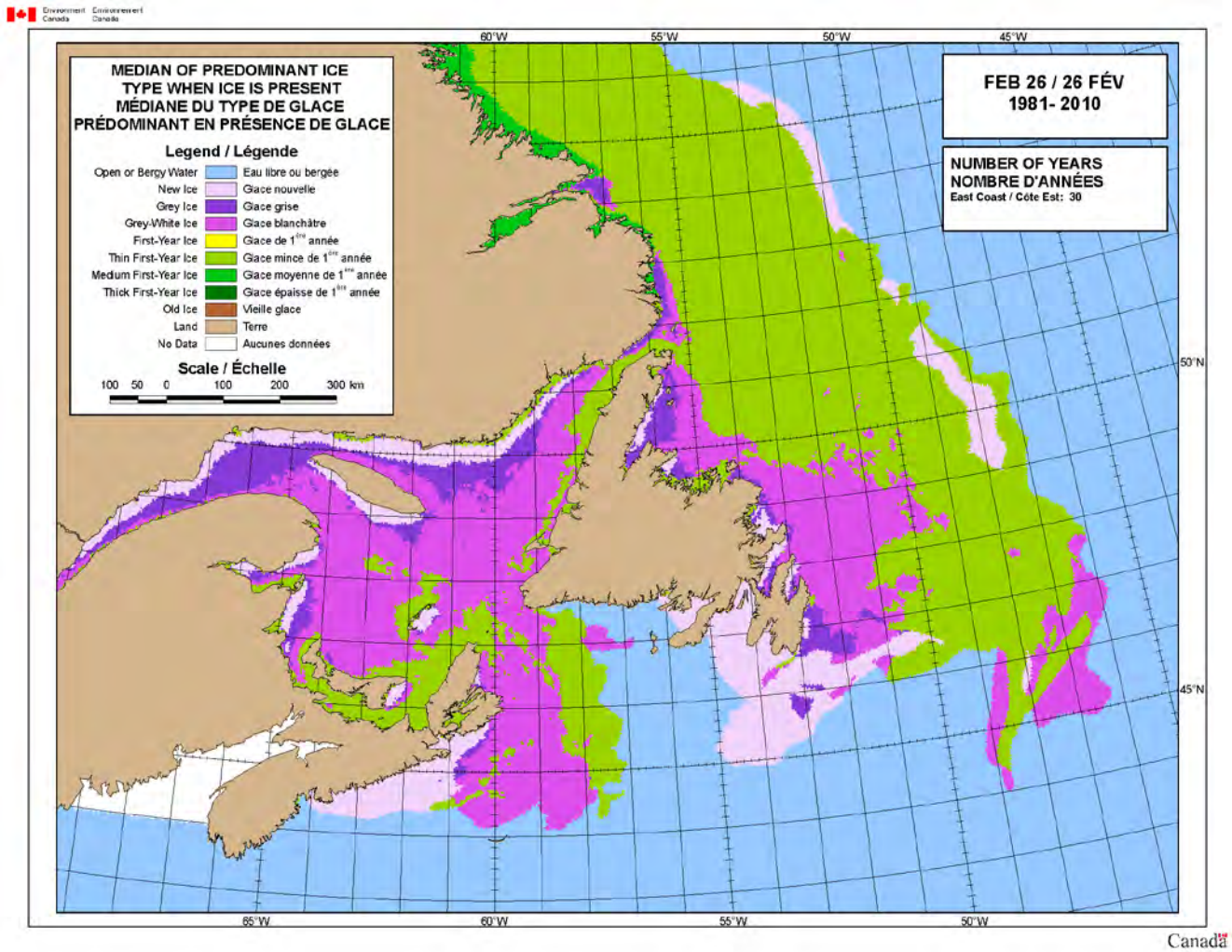
Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Attachment 4.2.2 (Revised Table 4.6)

Table 1 Temperature and Precipitation Climate Data, 1971 to 2000, Port Aux Basques, Newfoundland

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°C)												
Daily Average	-5.2	-6.4	-3.5	1	5.2	9.5	13.7	15	11.6	7	2.6	-2.2
Daily Maximum	-1.9	-3	-0.4	3.7	8.3	12.8	16.7	18.3	15	10	5.2	0.8
Daily Minimum	-8.4	-9.8	-6.6	-1.7	2.1	6.2	10.6	11.7	8.2	3.9	-0.1	-5.1
Extreme Maximum	9.9	8.9	11.2	18.2	22.2	25.3	27.8	27.2	30	25	15	10.7
Extreme Minimum	-23.3	-26.1	-24.1	-13.3	-6.7	-1.1	3.5	2.8	0	-4	-11.3	-21.2
Precipitation (mm)												
Rainfall	52.8	39.2	61	101.8	124.2	114.1	115.3	114.1	123.1	147	126.2	97
Snowfall (cm)	93.5	75	51.7	21.5	3.4	0	0	0	0	3.4	19.6	75.3
Precipitation	146.4	115.1	113.9	126.5	128.2	114.1	115.3	114.2	123.1	150.5	147.6	174.7
Extreme Daily Rainfall	74.2	67.3	60	89.9	85.9	66.8	111.4	83.8	96.6	65.3	101.1	88.9
Extreme Daily Snowfall (cm)	57.4	45.7	36.8	31	11.4	0.5	0	0	2.8	14.7	30.5	43
Days with Precipitation												
>= 0.2 mm	24.9	20.8	18.9	16.1	15.4	15	15.8	14.7	16.2	17.7	19.5	8.6
>= 5 mm	8.9	6.5	6.6	6.7	6.7	6.3	6.2	6	7.1	8.3	8.6	4.7
>= 10 mm	4.6	3.7	3.7	4	4.4	4	3.6	3.7	4	4.8	4.9	3.3
>= 25 mm	0.96	0.74	0.78	1.1	1.2	1.1	1.1	1.1	1.2	1.6	1.4	0.92
Wind												
Speed (km/h)	32.3	29.6	26.7	24.5	21.3	20.2	18.5	17.5	19.7	23.6	27.4	31.5
Most frequent direction	W	W	E	E	E	E	E	E	W	W	W	W
Maximum hourly speed (km/h)	116	120	109	100	87	74	74	74	106	115	106	115
Date (yyyy/dd)	1968/05	1995/13	1992/22	2001/03	2002/04	1993/07	1979/05	1986/25	1999/23	1999/15	1998/16	2000/10
Maximum gust speed (km/h)	152	161	148	141	126	104	111	111	120	153	151	157
Date (yyyy/dd)	1982/18	1967/22	1976/17	1988/20	1988/03	1986/10	1979/05	1986/25	1986/27	1974/20	1976/06	1985/19
Source: Environment Canada 2010a.												

Attachment 4.1.11 Median of Predominant Ice Type when Ice is Present (replaces Figure 4.29)



Source: Canadian Ice Services 1981-2010 Atlas (http://dynaweb.cis.ec.gc.ca/30Atlas10/page1.xhtml?region=ec&lang=en)

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
41	3	DFO	General	The environmental assessment does not indicate what time of year the project will occur. While the duration is identified, the season of activity is not. This information is particularly important in terms of assessing potential impacts on the ecosystem and its components.	The Environmental Assessment included the possibility of drilling in any month of the year that is ice free. The spud date of the well would likely be no earlier than March and no later than November.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment acknowledged
46	8	DFO	2.6	While the anticipated duration of work is indicated (20-50 days) the season is not. This is information is particularly important in terms of assessing potential impacts on the ecosystem and its components (i.e. fish, marine mammals etc…).	The Environmental Assessment included the possibility of drilling in any month of the year that is ice free. The spud date of the well would likely be no earlier than March and no later than November.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment acknowledged
47	9	DFO	Section 2.6	It is advised that the proponent should plan the activity around important and sensitive time periods for fish, marine mammals and species at risk.	Drilling will not occur earlier than March or later than November. Specific timing will depend on a variety of variables including but not limited to rig availability and regulatory approvals. Mitigation measures, including wildlife observers and adherence to regulatory guidelines (e.g., Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, Offshore Waste Treatment Guidelines) will reduce effects on marine species.	Adequate - However DFO would like to advise that in order to minimize potential impacts, activities should be timed to avoid sensitive periods for fish and marine mammals and species at risk.	Comment Acknowledged
53	15	DFO	4.1.7	While the EA acknowledges that “Knowledge of ocean currents is essential to the planning of oil and gas related operations in any area”, the section on ocean currents simply states broad facts and shows maps from different sources without any proper interpretation or comparison. The currents that the EA uses in the report are cited but are never shown (i.e. Surface water current fields developed by the Ocean Sciences Division, Maritimes Region of DFO (Tang et al. 2008) were used in the spill trajectory modeling).	The section on ocean currents properly describes the currents of the Gulf. The currents are shown in Figures 4.13, 4.14, and 4.16-4.19 with citations (SLGO 2011; Galbraith et al. 2011; LGL 2005b). Tang et al. 2008 was not referenced in Section 4.1.7. For more information on oil spill modeling, trajectories and the currents used to create these, please refer to the stand alone report conducted by SL Ross.	The section on ocean currents adequately describes long-term averages, but not sporadic wind-driven currents that can be much larger. The point was that the report acknowledges this by using a completely different source of currents in the modelling section, yet it is not presented.	The water currents used in the modelling (Tang et al. 2008) were not presented in hardcopy in the spill document. Detailed digital data was provided to SL Ross by DFO scientists for use in the project. The Tang et al 2008 report “atlas Of Ocean Currents Eastern Canada.pdf “referenced in the report shows only a coarse representation of these currents. The report can be provided if required.
58	20	DFO	4.1.8	It is not evident that tides were used in spill trajectory modeling within the EA. If this is the case, why not?	Tides were not used in the modelling because their inclusion would not have significantly altered the overall spatial footprint of the oil from the spill scenarios modelled.	The authors could have compared the predicted tidal displacement in the area to the modelled results. The very small footprint of 6 km (Fig 2.12-2.15) is based on the assumption that only 6 hours are required to completely disperse or evaporate the oil, otherwise	The model predicts the survival time of the oil slick based on the prevailing environmental conditions and does not assume that the oil will be completely dispersed or evaporated in 6 hours. As per table 2.25 in the EA, oil slicks survived for up to 56 hours under some

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
						they would have to factor in accumulation over longer times. At that point precise maximal instantaneous currents would be important to know. As it is, Figs. 2.12-2.15 do not show a month-long release (as stated), but a series of independent 6-hour releases, with no accumulation between them (resetting conditions to pristine after each one).	conditions. Maximum tidal currents at the drill site are about 0.3 m/s (see section 4.2.3 page 4.29 of submission). Over a 6 hour tidal cycle, this could possibly result in a maximum additional translation of oil of approximately 3 km if the tidal current direction were aligned with the wind driven and residual current vector and an average speed of 0.15 m/s is used over the 6 hours. The direction of the tidal current also varies during the 6 hour period so this will not be the case over the full 6 hour cycle. The surface oil movement identified in Figures 2.12 and 2.15 show maximum travels on the order of 10 km. The addition of tidal currents could possibly increase this travel distance to 13 km.
91	61	DFO	5.2.1.2	The seasonal distributions and migrations need to be described for Atlantic Cod. This should use distribution information from summer surveys in both the southern and northern Gulf (i.e., September survey of the southern Gulf and August survey of the northern Gulf; Summer sentinel trawl surveys in both areas). Migration routes and timing and overwintering distributions should also be described.	Seasonal movements and migrations of each of the Atlantic Cod populations has now been described and incorporated into the EA.	See general comment #1	Comment acknowledged
92	62	DFO	5.2.1.2	An increasing proportion of the southern Gulf stock occurs on summer grounds in the region between the Magdalen Islands and northwestern Cape Breton, including waters along the southern slope of the Laurentian Channel. The entire stock migrates through the Cape Breton Trough or along the southern slope of the Laurentian Channel (past EL1105) each spring and fall. The entire stock overwinters in dense aggregations along the south side of the Laurentian Channel, in particular north of St. Paul Island.	Information on the Laurentian South Cod migration movements has been updated.	See general comment #1	Comment acknowledged
96	66	DFO	5.2.1.2	Some key sources of information include: Swain et al. (1998); Chouinard & Hurlbut (2011); Comeau et al. (2002); Benoît et al. (2003); Darbyson & Benoît (2003); and recent CSAS Science Advisory Reports and Research Documents coming from stock assessments.	Up to date Canadian Science Advisory Reports and research documents coming from stock assessments have been reviewed and incorporated into the EA where deemed appropriate.	See general comment #1	Comment acknowledged
98	68	DFO	5.2.1.3	Only general information is presented in this section; not information focused on winter skate in the Gulf. Information is available from Swain et al. (1998); Chouinard & Hurlbut (2011); Comeau et al. (2002); Benoît	Up to date Canadian Science Advisory Reports and research documents coming from stock assessments have been reviewed and incorporated into the EA where deemed	See general comment #1	Comment acknowledged

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				et al. (2003); Darbyson & Benoît (2003); and recent CSAS Science Advisory Reports and Research Documents coming from stock assessments, as well as CSAS Res Docs 2006/003; 2006/004; Swain et al. 2009 (and the associated supplementary material).	appropriate.		
110	80	DFO	5.2.1.9	Information on seasonal distributions is lacking (see sources listed under cod for information). Winter distribution for plaice that spend the summer on the Magdalen Shallows and move into deep water in the Laurentian Channel is particularly relevant, and is not mentioned within the EA.	The seasonal distribution of American plaice has been added to the EA.	See general comment #1	Comment acknowledged
111	81	DFO	5.2.1.10	The paragraph on Striped bass should be re-edited to reduce confusion. It starts by speaking about extirpated estuary population, and then it states the harvest restrictions put in place in 2000 seem to have assisted in recovery. Confusion exists between Estuary and Gulf populations. Please consult the recovery strategy on the SARA public registry. COSEWIC's (2004) assessment for striped bass is not a good reference nor is it used properly.	The Striped Bass section has been reworded to reduce confusion and update its relevance with the Project area.	Adequate - However the paragraph now conflicts with Table 5.2	Both Section 5.2.10 and Table 5.2 indicate a low potential for occurrence in relation to EL 1105. However, Table 5.2 and Section 5.2.1.10 should be updated to acknowledge that the Southern Gulf of St. Lawrence population has been downgraded from "Threatened" to "Special Concern" by COSEWIC. The St. Lawrence Estuary Population (also referred to as the St. Lawrence River population) is designated as "Endangered" by COSEWIC (COSEWIC designation not previously noted in the EA Report for this population) and "Extirpated" by SARA.
348	284	DFO	7.1.5.3	Ketten and Bartol (2005) and other more recent references included in the topic of sea turtle hearing would be useful inclusions in this assessment.	Ketten and Bartol 2005 has been added to the EA Report to provide a reference on the hearing range of sea turtles.	The reference could not be found	The first sentence in the second paragraph under the Sea Turtles heading (Section 7.1.5.3, p. 7.47) should read as follows: "Available information indicates that turtles hear at low frequency range similarly to seals (e.g., 100-900 Hz (Office of Naval Research website 2002; Environment Australia 2003; Ketton and Bartol 2005), with measureable age and species variations in response to underwater sound (Ketton and Bartol 2005). Ketton and Bartol (2005) observed a size/age difference in hearing range for loggerhead and green sea turtles, with smaller younger individuals having a greater hearing

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
							range than larger, older individuals. Kemp's Ridleys had a more restricted hearing range (100-500 Hz)." Environment Australia. 2003. Recovery Plan for Marine Turtles in Australia. Prepared by the Marine Species Section Approvals and Wildlife Division, Environment Australia in consultation with the Marine Turtle Recovery Team Canberra, viewed 7 March 2011, Available at: www.environment.gov.au/coasts/publications/turtle-recovery/index.html Ketten, D.R. and Bartol, S.M. 2005. Functional Measures of Sea Turtle Hearing. Woods Hole Oceanographic Institution: ONR Award No: N00014-02-1-0510. Office of Naval Research. 2002. Science and Technology Focus, Oceanography, Ocean Life: Green Sea Turtle – Current Research. http://www.onr.navy.mil/focus/ocean/life/turtle4.htm. Last update not indicated. Accessed 3 March 2009.
351	288	DFO	7.2.4	Table 7.8 – Suggests that mortality resulting in collision with vessel is reversible? Please be advised that it is unlawful to kill harm, harass, capture or take an individual of a species that is listed as Endangered or Threatened under SARA unless permitted. This measure assists in protecting species, as the loss of an individual could be significant for a certain species (e.g. blue whale).	The results of mortality from a vessel collision have been changed to irreversible due to the fact that the loss of an individual from certain species could lead to negative population level effects.	Section 7.2.2.4 was not updated. Neither was Table 7.8	Table 7.8 Potential Environmental Effects Summary - Species at Risk should read "I" for irreversible in the Reversibility column to indicate a potential irreversible effect of mortality of species at risk from a collision with a vessel. However, text in Section 7.2.4 Residual Environmental Effects remains unchanged as the predicted residual adverse environmental effects of the Project on Species at Risk remains not significant as defined by significance criteria in Section 7.2.1.
362	301	DFO	8.7.1.1	The EA states (p.402) "…Perhaps the species of greatest concern would be redfish as the Project Area overlaps a potential redfish mating area. Redfish typically mate in the fall; however, eggs are hatched within the female and are not extruded until the following April to July (Section 5.2.1.7). An oil spill would not affect redfish larvae, as the potential larvae extrusion area is outside (to the north, in the Cabot Strait) of the Study Area (Figure 5.56)."	A reference has been added to support the redfish larval extrusion area.	Adequate - However the reference provided was from another consultants EA report (i.e., LGL Limited. 2007. Western Newfoundland and Labrador Offshore Area Strategic Environmental Assessment amendment. Prepared for the Canada-Newfoundland and Labrador Offshore Petroleum Board.) This is not	The Old Harry EA (Section 8.7.1.1 and Figure 5.65) references a potential redfish mating area, attributing this information to LGL 2007. LGL (2007) depicts this potential redfish mating area on Figure 3.1 indicating "likely areas of redfish mating and larval extrusion within the Amendment Area based on

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				However, this paragraph suggests the project area overlaps a potential redfish mating area, then goes on to suggest a potential larval extrusion area is outside the Study area. Is this speculation or is there a publication to reference for these claims? It is also possible that the project area is also a potential larval extrusion area.		an original citation; it is the original citation that should have been provided.	published DFO documents" (Section 3.3.1.1 p. 9). No specific reference is provided. A review of relevant references listed in the LGL (2007) text (e.g., Ollerhead et al. 2004; Sevigny et al. 2007) did not reveal any documentation of a specific mating area, hence LGL 2007 is cited in the Old Harry EA as the source. Ollerhead, L.M.N., M.J. Morgan, D.A. Scruton, and B. Marrie. 2004. Mapping spawning times and locations for 10 commercially important fish species found on the Grand Banks of Newfoundland. Canadian Technical Report of Fisheries and Aquatic Sciences 2522:iv + 45 p. Sévigny, J.-M., R. Méthot, H. Bourdages, D. Power, and P. Comeau, 2007. Review of the structure, the abundance and distribution of Sebastes mentella and S. fasciatus in Atlantic Canada in a species-at-risk context: an update. Canadian Science Advisory Secretariat Research Document 2007/085.
371	309	DFO	Supporting Document - Modeling in Support of Corridor Resources Old Harry Exploratory Drilling Environmental Assessment	In general, the scenarios in this document were not clearly described. The subsurface transport of dispersed oil (majority of the total oil) was not sufficiently modeled. The model only considered the re-entrained oil from surface in a 30m layer and did not consider the dispersion into water column during the rise of oil while oil was released from 470m. Overall, the results were not clearly presented. Notably, the document did not take the expertise gained from the oil spill in the Gulf of Mexico into consideration for the Gulf of St. Lawrence which shares a good deal of similarities. We do not have the specific oil category that is to be extracted in the Gulf of St. Lawrence. However, the indications show that we expect it to be on the lighter side of the crude, close to the category of the one in the Gulf of Mexico. In short, the nature of the crude and the physical setting of both areas, a semi-enclosed sea, make it appropriate to use the expertise gained in the Gulf of Mexico to project the potential risks in the Gulf of St.	See Section 2.1.2 in the SL Ross report (SL Ross 2011a, updated 2012) for a description of the behaviour of the oil and gas from a shallow water subsea blowout. In general, significant entrainment of oil in the water column is unlikely during its rise to the surface in the gas bubble driven plume. The behaviour of a shallow water blowout (minimal hydrate formation) will be different from a deep water event (extensive hydrate formation) such as the Deep Water Horizon event in the Gulf of Mexico. The formation of gas hydrates depletes the hydrocarbon plume of the high energy natural gas and the driving buoyancy of the plume is essentially lost. In the case of a shallow water blowout, the gas is preserved in the plume and the high	The use of the top 30 meters of the surface waters to dilute the oil is not warranted by observations: 1. Based on a report from United States Coast Guard (2005) fact sheet on small diesel fuel spills, the authors extended the conclusions to open ocean crude oil spill conditions (see Sec. 8.5 of revised EA); 2. The authors used the mixed layer of the surface waters in the Gulf of St. Lawrence to conclude that the oil would mix over the whole mixing layer. It is true that the surface mixed layer is 30 meters (Drinkwater and Gilbert 2004), but there are two conditions that are not met in case of oil spill. The difference of density of the observed waters over 30 meters is very small. It ranges typically	Oil spill model dispersion algorithms have been developed based on field and laboratory collected data to identify the quantity of oil that would be held in the water column by turbulent mixing caused by breaking waves and other oceanographic processes. The small oil drops that are generated by breaking waves remain in the water column once dispersed and oil concentrations are diluted as they mix with additional water at depth and laterally. Density is an important factor in this process but once the droplets become small enough the buoyant force on them is reduced due to the small oil volume. Ocean turbulence then dominates and the oil is more readily mixed to depth. Choice of

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				Lawrence. As such, it is recommended to project the potential risks in the Gulf of St. Lawrence using the results of the oil spill in the Gulf of Mexico.	energy bouyancy effect is maintained. The overall impact is that the hydrocarbon plume travels very rapidly to the sea surface with little or no oil dispersed into the water column during its rise to the surface. The expected oil to be encountered at Old Harry is a very light 45-56 degree API oil/condensate (see response for DFO-06), in contrast to the much heavier oil encountered at Macondo (~35 degree API oil). The Old Harry site is located in 470 m water depth, which is much shallower that the 1520 m of water depth at the Macondo site. A subsea blowout at the Old Harry site is expected to behave like a shallow water event with minimal hydrate formation whereas hydrate formation at Macondo was likely extensive.	from 1.023 to 1.025 (g/cm3) (SGDO), while the density of oil ranges from 0.790 to 0.837 (g/cm3) (Table 2.14 of revised EA). It is much more difficult to mix a larger difference in density. Mixing oil of density 0.8 (g/cm3) with water of density of 1.023 (g/cm3) would not occur under a typical storm and the oil would reach a shoreline before it would mix thoroughly over 30 meters; 3. The second condition that is not met is that the mixed layer is the result of a number of storms over a season. It is not instantaneous. The top layer of the waters stays on the top until a storm mixes the waters.	the 30 m mixing depth used in the modelling was based on published reports. The oil cloud was tracked until the concentration reached 0.1 ppm over this depth. If a 10 m mixing depth is assumed, the oil cloud footprints identified in the report would represent the extent of 0.3 ppm oil concentrations. Most offshore resources are not impacted by dispersed oil concentrations less than a few ppm so the cloud dimensions are appropriate for EA purposes. The modelling does not include any biodegradation component so loss of oil concentration through this potential sink is not included in the analysis of oil concentration and cloud size. Within Section 8.5 of the Old Harry EA document, on p. 8.13, to avoid any confusion, the following statement should be considered removed: “The oil from Old Harry is anticipated to be light (45 to 56 API)”. The rest of the section focuses on diesel so the reference to Old Harry light oil is irrelevant.
372	310	DFO	2. OIL SPILL SCENARIOS AND MODELING INPUTS	Regarding the trajectories of the oil spill, the trajectories presented in the document are unrealistic and do not serve the purpose. They should be redone with realistic winds and surface currents.The model used to generate the surface current fields (Tang et al. 2008) is a good one. However, the oil-spill trajectories are calculated using seasonal mean surface water velocities (2.3.3. Water Currents on page 16). This choice of currents is completely unrealistic. There are no tides, no wind induced currents, and no influence of the surface outflow from fresh water runoff. The latter part is surprising given that the seasonal mean surface currents were used. Since in a typical oil spill, all of these components are present, the trajectories should be calculated with the hourly outputs of the model driven with realistic winds from Meteorological Service of Canada outputs. Within this section, a blow out from the surface is illustrated. However, a blowout from the bottom is not illustrated. The Gulf of Mexico spill did not behave as a text book spill as the blow out was from the bottom; it was	The surface water current data utilized provides the seasonal average trends in water movement in the region. When this is combined with the 52 years of MSC50 wind data used in the trajectory assessments the variation in trajectories possible from the drilling location are well represented for the purposes of environmental impact assessment, especially for a spill of non-persistent light oil/condensate. Tidal variations would also not significantly alter the probable footprint of the oil spills. With respect to the wind data used, the MSC50 hind cast wind set used in the modeling is a long term data set with good spatial resolution over the entire Atlantic region. The data was developed by the Climate Research Division of Environment Canada and the Federal Program of Energy	The trajectories of the oil spill are not calculated under realistic conditions. The main forces are tidal currents and hourly observed winds. Neither was used - only Seasonal mean surface water velocity and climate averaged surface winds (Sec. 2.3.3 (Water Current) and Sec. 2.3.5 (Wind) of Oil Spill Fate Report Update). The assessment that: Tidal currents were not considered in the assessment since their oscillatory movement results in little long-term net movement of surface oil is unrealistic. It is the interaction of hourly winds and tidal currents on the surface oil that provides a realistic trajectory.	See comments on significance of tidal currents in response to item 58. The MSC50 wind data set used in the modelling is not a seasonal averaged wind data set and provides an accurate representation of spatially varying hourly offshore winds. See the March 3013 response to this concern in column 6 of this table to the left.

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				not at the surface. Some of the oil did not reach the surface, and a good portion of it stayed near the bottom. There is a need to determine where that oil would go using the hourly bottom currents of the ocean model. The document should therefore track the oil spills using near bottom currents.	Research and Development. In the research paper describing the data set, the authors state that "The wind and wave data are considered to be of sufficiently high quality to be used in the analysis of long return period statistics, and other engineering applications". As such, we contend that this data set is the best available for offshore spill trajectory and behavior modeling. The use of land-based weather data from a single weather station, suggested by the reviewer, does not necessarily accurately portray the winds offshore. Sub-surface water currents were not considered in the subsea oil release because the strong, buoyant gas-bubble plume that would result from a shallow subsea release (see response to DFO-309) would overwhelm such currents and result in minimal deflection of the developed plume (see page 8 and 9 of full spill modeling report for additional description of the models used). For example, a sea bottom current of 3 kts (~0.15 m/s) is significantly weaker than the vertical velocities that can be acheived in a gas bubble plume (2-10 m/s).A description of the likely behaviour of the oil and gas from a subsea blowout from this project is provided in section 2.1.2 of the SL Ross oil fate modelling report ((SL Ross 2011a, updated 2012) (see also response to Comment #371). A shallow water blowout from the seabed is illustrated in Figure 3 of the report. Due to the strong buoyancy effect of the natural gas in the hydrocarbon plume for a shallow water subsea blowout, all of the oil is predicted to reach the surface.		
373	311	DFO	2.12 Subsea Blowouts 5	The name of the model for this study is given here, but a description of the formulation, capability, and limitation of the model is not provided. It is unclear if the processes described in section 2.1.2 have been fully or partially included in SLROSM. Justifications need to be provided on why this model (SLROSM) was used instead of other models (published and probably more advanced models, such as Deep Blow by SINTEF, OILMAPDEEP by ASA, or CDOG by Clarkson University). It is important to	SLROSM utilizes the algorithms developed by Fannelop and Sjoen for shallow subsea blowouts as identified in the report on page 10. These are the same algorithms used by SINTEF in their shallow water discharge model and this approach has been validated against the IXTOC blowout event, a more representative blowout for this spill scenario than the Deep Water Horizon	While the Table provides a brief description of the oil spill model (SLROSM), the related content was not included in the revised document. Regarding the justification for selecting the SLROSM model instead of SINTEF, OILMAPDEEP, and CDOG it is noted that the other models were used for deep waters, whereas the SLROSM is	The development of subsea blowouts models is an ongoing process that has seen a resurgence of interest since the BP Macondo spill. Most of this effort is being expended to study the fate of releases in deep water environments where gas loss through hydrate formation is an issue and a bubble plume does not form. The shallow water

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				demonstrate that the selected model is technically sound for the proposed modeling work. Figure 3 – the illustration of vertical profile is inaccurate. With the presence of currents, the plume will be deflected rather than straight upwards.	event. Supplementary modelling completed by ASA (submitted to C-NLOPB on September 21, 2012) to compare the oil mass balance for surface, evaporated and entrained oil for two different oil specifications (Cohasset crude and diesel) shows that oils with similar properties have similar on-water persistence predictions when using SLROSM and OILMAP. With respect to Figure 3, because of the strong gas bubble plume, the oil would rise to the surface very quickly, and there would be minimal deflection of the plume by subsea cross-currents. Any potential minimal deflection would not result in a significant change in the surface oil footprint (a few hundreds of metres at most).	validated in shallow water cases. The authors should point out any limits of the model due to water depth as the water depth at the area is 400-500 m.	conditions (with respect to hydrate formation.. see discussion in section 2.12.2.1) present in this drilling location are more similar to the Ixtoc blowout as described previously in column 6 of this table. The algorithm used by SLROSM (developed by Fannelop and Sjoen) is the same algorithm used by SINTEF and others for shallow gas releases. This algorithm was validated using IXTOC data (approximately 50m water depth) and various other small scale gas release experiments. Additional validation of this or other models at greater depths has not been completed to our knowledge.
375	313	DFO	2.3.3 Water Currents	It was stated that surface water current was used in the modeling. The surface only case is fine for the surface spill scenarios, but it is insufficient in modeling subsurface blowout. Although the 470m depth was classified as shallow in terms of hydrate formation it is deep enough that the subsurface current can play an important role to deflect and affect the plume behaviors. The deep/subsurface currents are particularly important for the study of dispersed oil transport process in the water column. The deep current is important considering the drill site is in a channel.	The extensive experience of SL Ross with oil spill modelling over 25 years indicates that the strong gas bubble plume will bring oil to the surface quickly and there would be minimal deflection of the plume by subsea cross-currents (a few hundreds of metres at most). Any minor deflection of the gas bubble plume by cross-currents will result in only minor changes in the surface foot print of oil. Because of the strong gas bubble plume, the oil would rise to the surface very quickly and there would be little loss of oil to the surrounding waters.	The original comment was that using only the surface current is not sufficient to describe the spill behavior in the water column. The deep current is important as well especially considering the drill site is in a channel. The model calculation should include the current in the subsurface layer. The authors responded that the gas bubble would rise to surface very quickly and there would be little loss of oil to the surrounding waters according to 25-year modelling experience. The response did not answer the velocity, magnitude and implications of ignoring the subsurface current at this study site. The subsurface current may be important because the direction of the surface current is opposite to that at the deep layer at the study site of the report according to numerical results of Wu and Tang (2011). It is recommended that the authors recalculate the model using the deep layer current field.	We reiterate that the presence of a strong gas bubble plume will generate a hydraulic condition that will override the influence of relatively small subsurface water currents. Please refer to the descriptions in the EA on the bottom of page 2.34 and page 2.35. Oil will be brought to the surface quickly with minimal shedding of droplets in the water column on the rise to the surface. To illustrate the impact of subsurface currents on the distribution of surface slicks from a subsea bow-out, the figures attached to this table show two subsea blow-out scenarios: Figure (a) shows a subsea blow-out where the upward velocity of fluids (gas, oil and water) in the center of the plume is 5 m/s; and Figure (b) shows the upward velocity of fluids in the center of the plume is 1 m/s. The magnitude of subsea currents was estimated from Figures 4.18 and 4.19 of Corridor's EA document. These figures show the subsurface currents in the vicinity of

Attachment #1: Corridor Response to Consolidated Comments – September 11, 2013

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
							Old Harry are variable, but the strongest subsurface currents are in the order of 25 cm/s along the southern edge of the Laurentian Channel. For the purposes of discussion, Corridor has selected a subsurface current of 50 cm/s (0.5 m/s), which is double the strongest subsurface current in the area. That water depth in both examples is assumed to be 450 m. The time for the fluids in the plume to rise from the seabed to the surface at a velocity of 5 m/s for the example in Figure (a) is 90 seconds. During that time, a single droplet of oil rising from the seabed to the surface would experience a horizontal movement of 45 m. The rise time for a drop of oil at a velocity of 1 m/s is 450 s (about 7 minutes). During that time, a single droplet of oil rising from the seabed to the surface as shown in figure (b) would experience a horizontal movement of 225 m. Given that distance from the source where the modeled dispersed oil plumes from a subsurface blow-out drops to 0.1 ppm varies from approximately 5 to 8 km, it is Corridor's view that a horizontal translation of the surface slick / plume by subsea currents of a few hundred meters is immaterial for the purposes of environmental assessment. See figures at the end of this document that accompany Corridor's response.
376	314	DFO	3. Modeling Results	The duration of the trajectories presented in the document is unrealistic. The choice to stop the trajectories at a given level of ppm concentration is not documented. It is implied that all oil spills will be dispersed and absorbed in the environment at that level. In fact, a greater spill would make the oil go further and eventually reach a coastline. The document did not consider this issue which is a serious flaw. It is recommended to use the results from the ocean model under the proper conditions and ensure that the duration is long enough to show the coastline potentially at risk.	The reviewers indicated that the choice to stop the trajectories at a given level of concentration in the water column was not documented. The extent of the sub-surface dispersed oil plumes was stopped at 0.1 ppm (the concentration considered no longer harmful to marine life) as indicated on page 24 along with references for justification. For the batch diesel spills of fixed volume (1000 and 10,000 litres), the dispersed oil in the upper 30 m of the water column was	See previous comment #371 re: Supporting Document - Modeling in Support of Corridor Resources Old Harry Exploratory Drilling Environmental Assessment	See response to 371

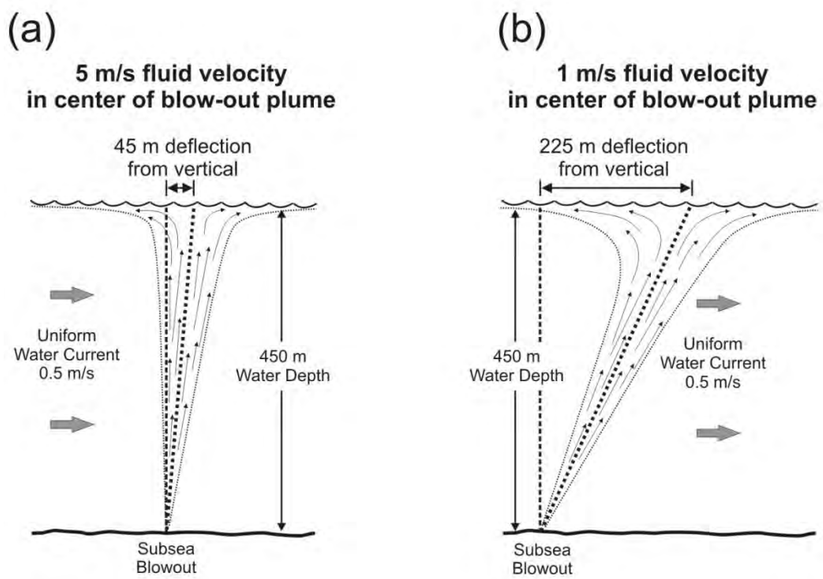
Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
					tracked until the oil concentration dropped to 0.1 ppm. For the subsea and surface blowouts, the models were run for one month (30 days) and the dispersed oil in the upper 30 m of the water column was tracked until the oil concentration dropped to 0.1 ppm. The light Cohasset crude oil/condensate will evaporate or disperse to a concentration of 0.1 ppm before impacting any coastline no matter how long the models are run.		
377	315	DFO	3.1 Batch Diesel Spill Fate Modeling	The modeling was conducted in average wind conditions, what about under worst case scenarios without wind? This scenario is missing. It is stated that "The subsurface oil also diffuses laterally as it is moved away from the spill site by the prevailing surface water currents". Again, this is very confusing that subsurface oil is dispersed by surface current. It is stated that "It has been assumed that the oil will mix in the upper 30 m of water as this is the minimum surface water mixing depth reported in the literature for the region (Drinkwater & Gilbert 2004)". Why assume the mixing depth while there are models available to simulate the 3D (including vertical) transport behaviors? This simplification (30m mixing) may cause overestimate of concentration in some areas and underestimations in other areas.	Statistical wind data was used for Environmental Assessment purposes. Average weather conditions were modelled to provide the most likely behavior of these small diesel spills to meet the requirements of the EA. As the dispersed oil cloud moves with the prevailing currents, it also diffuses and dilutes as it moves with the water body. The 30 m mixing depth provides a reasonable estimate of in-water oil concentration for Environmental Assessment purposes.	See previous comment #372 re: Oil Spill Scenarios and Modelling Inputs	See response to comment 372.
381	319	DFO	5.1 Introduction	The title is "dispersed oil plume trajectories", however, this section only covers the re-entrained oil from above surface release as mentioned in page 33 "In these simulations, the quantity of oil that would be released from six hours of a continuous above sea blowout has been introduced on the surface at the exploration site as a batch spill every six hours over month-long periods" The behaviour of near bottom release and mass in the water column will be entirely different and are not covered here.	As described in the response to DFO-311, all oil released at the seabed for a shallow water, subsea blowout will travel quickly to the surface with the strong gas/water/oil plume (that is driven by the rising gas bubbles) to the surface (i.e. it is likely that no oil would trapped near the bottom or in the water column). All of the oil would rise to the surface and either evaporate or disperse. The dispersed plume trajectories were tracked until the concentration dropped to 0.1 ppm.	The behaviours of the spill near the bottom and even over the whole water column has not been addressed.	See response to comment #375. Also refer to Figure 2.9 of EA and supporting text on the bottom of page 2.34 and page 2.35 of the EA.
382	320	DFO	5.2 Typical Monthly Dispersed Oil Plume Trajectories	The document states, "The initial movement of the dispersed oil plume is assumed to be due to a combination of winds and surface water currents. The prevailing surface water currents alone are assumed to drive the dispersed oil plume once the surface slick is depleted." As discussed before, once the oil is entrained into water column, surface current should not be used, as the high amplitude of surface current may cause over flushing/dilution and underestimate	Oil concentration estimates based on a completely mixed, upper ocean mixing region provide adequate estimates of in-water oil concentration for Environmental Assessment purposes. Any additional resolution, either temporally or spatially, would be of limited use given the spatial and temporal knowledge of the resources	Information to support using surface water currents to represent the whole water column was not included.	The surface water currents were used to translate the location of the dispersed oil cloud in the upper mixed water layer only. Oil is not likely to be present in the water column at greater depths.

Response to DFO Comments

Total Comment #	Agency / Company Comment #	Government Department / Company	Section of EIS	DFO Comment /Information Request (March 2012)	Corridor Resources Response (March 2013)	DFO Response August 2013	Corridor Response September 11, 2013
				oil concentration.	that the dispersed oil could impact.		

Response to Total Comment #375 Agency/Company Comment # 313 - DFO 2.3.3. Water currents



Attachment # 2

Corridor Responses to

Ecojustice Comments

Attachment #2: Corridor Response to the Ecojustice Comments

Introduction

Corridor Resources Inc. (Corridor) has included in the table below the science-based issues raised in the Ecojustice letter to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) and a summary response to these issues for the C-NLOPB consideration. It is important to note that all of these issues have been addressed in either the updated Environmental Assessment (EA) document or Corridor's responses to regulatory agency comments. Several of the issues identified are typically addressed, as is appropriate through other aspects of the C-NLOPB regulatory approval process and Corridor will make submissions to the C-NLOPB to meet the other aspects of the approval process once a determination on the EA is made. The EA is one of many rigorous requirements that must be met before operators receive the regulatory authorization to drill an offshore exploration well.

Corridor is confident that it has filed a thorough EA with the C-NLOPB, and that the EA, together with the other aspects of the regulatory application, will demonstrate that the Old Harry exploration well can be drilled in a safe and environmentally-responsible manner.

No.	Comments from Ecojustice	Corridor Response September 11, 2013
1	The model's parameters regarding the type and behaviour of the oil that would be encountered, the weather and the likely dispersion and extent of oil in case of a spill are unrealistic.	Corridor has included the scientific basis for the oil that could potentially be generated from the Oil Harry structure in Appendix A to the original oil spill report document that was prepared by SL Ross Environmental Research Ltd. (SL Ross) and submitted by Corridor to the C-NLOPB. It is based on the best available scientific information, Corridor's 15 years of study of the geology of the basin and the Old Harry structure and results from source rock studies conducted by a world renowned contractor (Global Geoenergy Research). Due to the present stage of thermal maturation of the source rocks, the hydrocarbons with the Old Harry structure, if present, are likely to be a very light, 45^{o} to 56^{o} API gravity oil. The selection of surrogate is appropriate and realistic, and as such is the basis for realistic spill modeling. With respect to the weather inputs, the SL Ross oil spill model used 50 years of historical wind data developed by the Meteorological Service of Canada (MSC 50 database), which is recognized as the best available spatial and temporal wind data set for offshore engineering project evaluation. This database takes into account all winds recorded over the past 50 years, including periods when the winds are less than 10 knots. The database includes wind information specific for the Old Harry site, and as such, it is the most appropriate source of wind information for environmental assessment purposes. The water current data used was the most up-to-date product developed by the Department of Fisheries and Oceans. With respect to oil dispersion, SL Ross re-evaluated their modeling using the Delvigne dispersion algorithm and the results were found to be not significantly different from the initial modeling results. The Delvigne algorithm does not allow for oil dispersion for wind speeds of 10 knots or less which, in our consultant's view, is not appropriate based on observation of actual oils spills documented in the scientific literature. A full discussion is presented in Corridor's September 21, 2012 response to the C-NLOPB.
2	Further, the spill scenarios that are modelled are too modest to allow for appropriate precautionary decision-making and planning.	SL Ross modeled reasonable worst case scenarios. The oil properties selected represent the likely liquid hydrocarbons that could be discovered in the Old Harry prospect. As noted above, the selection of oil type and properties was based on the best available scientific information. The spill rates were based on maximum possible flows determined by Corridor's reservoir experts with knowledge of the reservoir geology. This information was included in Appendix B of the SL Ross original modeling report. The fate and trajectory runs initiated on every day of the year using 50 years of 6 hourly averaged wind data were modelled to identify

No.	Comments from Ecojustice	Corridor Response September 11, 2013
		the likely possible maximum extent of surface oil from potential spills from the Old Harry location.
3	As a result of the modelling, risk assessment and mitigation options are presented too optimistically as a result: the options discussed are based in the very limited risks that Corridor believes to be possible.	As is standard practice, the Old Harry EA is based on the spill risk and trajectory modeling conducted for the Project. Modeling is conducted to inform Project planning and assessment and proposed mitigation. The EA is only one of the ways in which risk is assessed early in project planning. Risk assessment continues throughout project planning, the regulatory application phase, and throughout the operations period on a daily basis. See response #30.
4	The most recent Draft EA still contains serious flaws related to the assessment of the biological environment and the potential impacts of exploration. These flaws include the omission of some VECs that would likely be affected by any serious spill, particularly coastal environments.	The Old Harry EA was prepared in accordance with the Scoping Document (August 2011) released by the C-NLOPB. This Scoping Document, which was finalized following a 30-day public review and comment period, outlines the scope of the Project, factors to be considered, and scope of the factors to be considered in the EA. The Scoping Document provided guidance on defining appropriate spatial boundaries which included consideration of potential areas of effects as determined by modeling (spill trajectory and cuttings dispersion), scientific literature, and project-environment interactions (e.g., transportation corridors). The Study Area used in the EA was defined using spill trajectory modeling results and transportation corridors to identify an appropriate area within which potential environmental effects could be realized ("Affected Area" as specified in the Scoping Document). The assessment of environmental effects of a spill is based on the spill trajectory modeling which predicts that the spilled product would not reach any coastlines. Given this finding, a detailed assessment of effects on coastal features and species is not warranted. However, the Marine Environment VEC does consider coastal features (e.g., eel grass) and an assessment of diesel spills from vessels is presented in Section 8.7.2. The Scoping Document outlined potential issues to be addressed which formed the basis for the selection of Valued Environmental Components (VECs) for the EA, and encouraged use of existing environmental assessment reports and the updating of new information where available (e.g., fisheries data). The Old Harry EA relied heavily, although not exclusively, on the Western NL SEA (LGL 2005) and the 2007 Amendment (LGL 2007). The current Western NL SEA Update (AMEC 2013), for which a draft document was released in June 2013 for public review, was not available for reference during the preparation of the Old Harry EA. However, a review of the current draft Western NL SEA Update (AMEC 2013) indicates, in the view of Corridor, that there is nothing presented in the current Western NL SEA Update (AMEC 2013) that would suggest any material changes should be made to the findings of the

No.	Comments from Ecojustice	Corridor Response September 11, 2013
		Old Harry EA.
5	The Draft EA also contains an occasionally misleading or outdated presentation of biological information, which does not fully respond to reviewers' concerns.	The Old Harry EA has been updated, based on two technical reviews by the expert regulatory authorities. Any additional comments from the technical review will be incorporated as appropriate. As noted above in response to 4, a review of the current draft Western NL SEA Update indicates, in the opinion of Corridor and its consultants, that there is nothing presented in the 2013 Western NL SEA Update that would suggest any material changes should be made to the findings of the Old Harry EA.
6	It is essential that the time and effort be invested to conduct a truly comprehensive and independent assessment based on the best scientific information and modelling. Corridor's submissions to date do not meet this standard.	Corridor and its consultants are currently into year 3 of this EA process. The Project Description for the Old Harry exploration well was filed in February 2011. Since the filing of the Project Description, Corridor and its consultants have worked diligently to develop a thorough EA document. The draft EA has been reviewed by the expert regulatory agencies twice with Corridor making updates and modifications to the EA document. Corridor's response to the latest round of comments includes a review of the SEA draft document and modifications to the EA document have been made where appropriate. Corridor and its consultants are of the view that this EA document for a single well at Old Harry is one of the most comprehensive EA documents put together for a single exploration well offshore Newfoundland.
7	The extent of consultations is overstated in the Draft EA – while there were open houses, insufficient information was provided regarding the scope of the project and the broader issues of Gulf oil and gas development. No further information on these "open house" sessions is presented for the C-NLOPB to consider, and certainly there is no evidence to suggest that high levels of public concern have been attenuated.	Consultation activities undertaken for the Old Harry EA were undertaken prior to consultation sessions for the Western NL SEA Update. Consultation for the Old Harry EA consisted of: open houses in Port aux Basques, Stephenville, and Corner Brook; meetings with local municipal governments and economic development agencies on the west coast of Newfoundland and on the Magdalen Islands; meetings with various fisheries groups in Newfoundland and the Magadalen Islands; meetings with provincial (NL and Québec) and federal government agencies and departments; and media communication and a project website. A sample of presentation materials is included as an attachment to this table. The scope of Corridor's project involves the drilling of a single exploration well at the Old Harry structure to determine its hydrocarbon production potential. This is a short term, temporary activity for which the potential environmental impacts are largely understood. As of July 2013, there have been 389 wells drilled offshore Newfoundland. If a successful well at Old Harry lead to a development project, further public consultation will be required to support the EA of the development project. Furthermore, the broader issues of oil and gas development in the Gulf of St. Lawrence are beyond the scope of the Old Harry EA.
8	Corridor should account for this discrepancy by providing details on the consultations, including: the identity of any institutional representatives	See Response to #7. Copies of communication materials are attached to this table.

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	consulted (e.g. representatives of First Nations groups), the nature of participants' opinions and concerns, and the nature of the contact (via telephone, in person, letter, etc.). The information that was made available to consultation participants should also be attached to the EA documentation, to demonstrate that Corridor disclosed all of the relevant details of the project and provided unbiased information.	
9	The Old Harry EA must respond to the priorities identified in the final Strategic Environmental Assessment report.	A review of the current draft Western NL SEA Update by Corridor and its consultants indicates that there is nothing presented in the 2013 Western NL SEA Update that would suggest any material changes should be made to the findings of the Old Harry EA. As with all regulatory approval processes, Corridor will comply with its authorizations from the C-NLOPB and any associated conditions.
10	While Corridor has made certain revisions to its original EA submission, its updated Draft EA documents still do not meet an acceptable standard in terms of accurately modelling potential oil spills, planning appropriate disaster response, and discussing the potential impacts of the project on species in the region.	Corridor is of the view that it has provided sufficient information in this response and previous submissions to the C-NLOPB to demonstrate that the Old Harry EA is thorough, based on best available science and acceptable for the application to drill a single exploratory well. Corridor appreciates all of the comments received to date that have resulted in an enhanced EA document. With regard to response planning, detailed plans will be presented to the C-NLOPB for approval. In the offshore jurisdiction in Eastern Canada, the legislation governing the oil and gas industry establishes a comprehensive and rigorous set of requirements that an operator must meet to obtain an Operations Authorization (OA) and an Approval to Drill a Well (ADW) within the C-NLOPB regulatory framework. Although a project-specific EA like the one developed for Old Harry includes reference to some of these other requirements, an EA document cannot possibly include all of the detailed plans that govern offshore operations. It is part of the normal regulatory process to submit these detailed plans, including comprehensive contingency and response plans in order to obtain an OA and ADW.
11	The EA Scoping Document for Old Harry states that "defining the spatial boundaries should take into consideration the potential for project activities, including accidental hydrocarbon spill events, which could affect sensitive areas, including coastlines".	See Response #4. Section 5.1 of the Scoping Document explains how temporal and spatial boundaries should be defined. Corridor and its consultants have taken this into account.

No.	Comments from Ecojustice	Corridor Response September 11, 2013
12	The oil spill dispersion model provided in an acceptable EA must be based on realistic inputs and on conservative assumptions about the kinds of incidents that could take place. Relying on an artificially optimistic model will negatively affect the capacity of the environmental assessment exercise to account for and plan for responses to potential incidents.	See Response #1. Corridor maintains that realistic inputs were used in the oil spill modeling and that the science-based modeling work completed by Corridor and its consultants is appropriate for the EA application. Recognizing the importance of spill modeling early in the planning process, Corridor spent considerable time and effort on: determining the type of hydrocarbon likely to be encountered; reservoir studies to estimate potential hydrocarbon flow rates; and the spill modeling work, where Corridor hired two professional modeling companies to conduct the spill modeling.
13	Corridor's research suggests that the oil discovered will be between 45 and 56 degrees API gravity. The same estimate appears in the company's project description to investors. However, there is no way of knowing for certain what quality of oil would be found. Executing modelling for a heavier grade of oil would be an appropriate precaution to take in the face of this uncertainty. While we do not have the resources to engage our own independent petroleum geology expertise, we submit that it is Corridor's responsibility to subject to independent scrutiny the research backing their assessment of the grade of the oil that may be found at Old Harry.	See Response # 1. Corridor hired an independent expert, Global Geoenergy Research, who is world renowned, to study the type of oil that could be generated from Old Harry. The work of Global Geoenergy Research is highly respected in the scientific community. The research backing Corridor's assessment of the grade of oil that may be found at Old Harry is presented in Section 2.3 of the EA report and is available for public scrutiny. Corridor applied a sequential scientific approach to identify the grade of potential hydrocarbon. First, Corridor undertook geochemical studies to identify the types and relative abundance of organic material that is preserved in the shale source rocks in the vicinity of Old Harry. This work revealed that the organic material is fluvial-deltaic in origin with type II to III kerogen, which generally produces natural gas or light oil. Second, petroleum systems modelling was completed to simulate the burial, maturation and generation of hydrocarbons from the organic material and migration and trapping of hydrocarbons at Old Harry. This work shows that a light oil between 45 and 56 degrees API gravity is likely.
14	While the Draft EA mentions the potential impact of sea ice, the model runs do not appear to account for the potential for sea ice to affect the spread of oil in case of a spill or blowout.	SL Ross, in Section 2.2 of its original report, did examine the general influence of ice on oil fate and behaviour. It is important to note that Corridor intends to drill the well within an ice-free period, as stated in the EA and in other responses to the regulatory authorities' technical review of the EA.
15	The model also fails to account for the possibility and impact of a sub-surface plume of oil, such as that which developed during the Deepwater Horizon blowout.	Based on SL Ross's 30 years of experience with oil spill fate and behaviour and their experience with the Deep Water Horizon incident, it is their expert opinion that a subsea blowout in water at the depth encountered at Old Harry will not behave in the same way as the Deep Water Horizon incident. Instead, in the unlikely event of a release at the Old Harry site, oil would be carried to the surface in a gas bubble driven plume more similar to the Ixtoc blowout.
16	The SL Ross model for being unrealistic in its assumption that oil will dissipate throughout the	The 30 m mixing depth is based on a reference (Drinkwater and Gilbert 2004) that identified the upper mixing zone to be on the order of 30+ m. A conservative estimate of in-water oil

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	first 30 m of the water column.	concentration has been made based on this mixing depth and is, in SL Ross's opinion, a reasonable approach for the purposes of an EA.
17	Further, they criticize the simulation's use of mean currents rather than instantaneous currents.	See Response #1 relating to currents used by SL Ross in its modeling.
18	The comparison of the SL Ross and ASA models does not include winds below 10 knots, though these are possible in the area, especially in summer when the proposed drilling would take place. For instance, in June, the weather data set Corridor used shows that 46.3% of the time, winds will be between 0 and 10 knots, hampering the natural dispersion that Corridor believes would occur.	The model outputs from the two models (SL Ross and ASA) were compared at wind speeds other than 10 knots and found to be in agreement. Since the same Delvigne algorithms for natural dispersion were used in both models, the results at the lower winds speeds will also be the same. The SL Ross model was then used with the 50 year MSC data set (that includes the calm winds noted by the Ecojustice reviewers) in the revised modelling with results not significantly different from the original modelling, as previous described.
19	While Cohassett-type crude may have a limited life at the sea's surface, Corridor's assertion that it will evaporate rapidly is based on the density of this oil at 15°C, apparently unadjusted for the likely water temperature it would encounter in the Gulf. Depending on the temperature of the water and air around the oil at the time of release, the oil's fresh and weathered density could be affected. The average air temperature in vicinity, during the warmest month of the year, is 15°C. The sea temperature is much cooler, apparently dropping to 1°C 50 m below the surface.	The spill modelling accounts for oil property change with water temperature variation so this comment is incorrect.
20	SL Ross' description of their model states that the behaviour of each "slicklet" is modelled separately as if the slick were composed of batch releases at six-hour intervals. It is unclear how this affects the amount and fate of oil accumulating in the water surrounding the modelled spill or blowout.	The original modelling was done using initial oil volumes equivalent to 6 hour accumulations of oil from the blowout to provide a conservative estimate of oil persistence. The full quantity of oil from the blowout was accounted for in the modelling.
21	While SL Ross has introduced a new dispersion algorithm for the purposes of comparison, the model still does not provide a realistic worst-case scenario.	See Response #2 with respect to realistic worst case scenarios.
22	The size, duration, and origin of the spill should be	SL Ross did take these items into account in their spill modeling. See Responses #1 and 2 and

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	planned to provide a realistic appraisal of the potential area affected by a worst-case incident.	note that the fate and trajectory runs initiated on every day of the year using 50 years of 6 hourly averaged wind data were modelled to identify the likely possible maximum extent of surface oil from potential spills from the Old Harry location.
23	Currently, the flow rate of the spill is too small compared to some other blowouts (only 13,225 bpd compared to 53,000 to 62,000 in the Deepwater Horizon spill).	Corridor's reservoir engineer studied the potential flow rates that could be generated from Old Harry and the potential flow rates from the Old Harry structure are very different from the flow rates from the Deepwater Horizon. Flow rates are controlled by pressure, permeability, viscosity and density, with the largest differences usually being pressure and permeability. A calculation of the predicted hydrocarbon flow from the Old Harry structure was included in Appendix B of the SL Ross original modeling report. The depth of the Deepwater Horizon Miocene M56 reservoir is approximately 5,500 m (18,000 feet) below sea level (BSL) with a reservoir pressure 11,850 psi. Permeabilities are typically in the hundreds of milliDarcys (mD) for the very young (5 to 25 million year old) Miocene sandstones. The Deepwater Horizon well encountered some of the highest productivity reservoirs ever encountered in the Gulf of Mexico. In contrast, Old Harry is drilling into much older Carboniferous (300 million years old) potential reservoirs. Older reservoirs are more cemented and thus have less porosity and permeability (flow capacity) is at best in the 10s of mD. In addition, the depth of the Old Harry reservoir is expected to be about 2,000 m (6,500 feet) BSF. At this shallow depth, the pressure of formation is expected to be approximately 2350 psi (normally pressured), based on the numerous normal or near-normally pressured wells drilled in the Maritimes Basin. The highest rate modeled was based upon an average 50 mD sandstone. There are two wells in the northern part of the basin where Old Harry is being drilled. Both wells show sandstones with an average of 30 mD in the best intervals. A 50 mD sandstone is considered in the high range of expected permeabilities.
24	The spill modelled is also not lengthy enough, only 30 days, when it took nearly three times that long to kill the Deepwater Horizon blowout and there is no reason to believe the conditions or emergency response capabilities in the Gulf would enable a	Corridor asserts that SL Ross used an appropriate duration for spill modeling.

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	faster response to any similar incident.	
25	Some statements by Corridor suggest the company may be less interested than the public is in gaining a complete picture of the potential magnitude of damage resulting from a spill: "Which model is best for a specific application can only be determined after a spill has occurred and if sufficient data is collected on the oil properties, weather conditions and ultimate fate of the oil to permit a detailed modelling of the event. Such data is rare." Waiting until after a spill to respond to the issues about the spill modelling is not an approach that permits appropriate scenario planning, nor does it live up to *CEAA*'s precautionary approach.	The main point being made in the statement in quotations at left is that models are only an estimate of what may happen based on predictive models that have been based on testing or experience with a limited number of oils under a limited number of conditions. What model best simulates what has happened in a specific spill can only be determined after the event. This is just stating an obvious fact. Corridor is committed to safe and responsible offshore exploration in the Gulf of St. Lawrence and is in no way less interested than the public in gaining a complete picture of a potential spill for EA purposes. Corridor, in collaboration with its expert consultants, has completed a thorough and reasonably conservative evaluation of realistic spill scenarios based on scientifically defensible arguments.
26	Corridor cites the Uniacke and Elgin blowouts as examples of oil evaporating rapidly after a blowout. This is an untrue description of these spills. The Uniacke blowout released approximately "two million cubic meters/day of gas and upwards of 48 cubic meters/day of condensate", and apparently little to no crude oil. The Elgin blowout released mainly "methane gas, with associated higher alkane gases (e.g., ethane, propane and butane), natural gas liquids, condensate, and small quantities of waxes", according to the document referred to by Corridor. Neither was a major oil spill. SL Ross's own description of its model refers to the Uniacke incident as a "condensate blowout".	Corridor and its consultants maintain that these two blowouts are relevant comparable incidents. SL Ross has studied both incidents in detail. The Uniacke release, in particular, provides an example of the fate of a blowout release of a very similar oil to that expected from Old Harry. The short persistence of the oil on the surface from the Uniacke blowout, as documented by Environment Canada, validates the persistence results from the spill modeling conducted by SL Ross for Old Harry. From item 6 in the conclusions on page 49 of the EC report EPS-8-AR-84-1… "as a rule slicks dissipated within 5 n.mi. (approximately 9 km) of the Vinland rig." From page 75 of EPS-8-AR-84-2 the REET account for March 5 at 8:10 states "Environmental monitoring indicated no visible condensate slick in the area and no evidence of impact to Sable Island." The well flow was stopped at about 17:00 hours on March 3rd.
27	Dispersion of oil through the water column has deleterious effects as well. It is toxic to many organisms, and the longitudinal marine biological studies being conducted in the wake of the Deepwater Horizon disaster will provide ample	Effects of spilled oil on fish, birds, mammals, and sea turtles (including species at risk) as well as effects on the marine ecosystem, sensitive areas, and fisheries were considered. Existing literature was cited to characterize predicted effects on these VECs, with the conclusion that with the exception of marine birds (as a result of an accidental spill), there are not predicted to be significant adverse residual effects on any other VECs. Data presented to reach these

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	evidence in support of this assertion, in the course of time.	conclusions are compatible with those presented in other exploration drilling EAs in the NL offshore, including the SEA and subsequent updates for the Western NL Offshore Area (LGL 2005, 2007; AMEC 2013).
28	According to the Draft EA, "[t]he estimated project time is from 20 to 50 days. The 20 days refers to drilling time for a 2000 m well. The 20 days does not include rig mobilization and demobilization, non-productive time or any time associated with waiting on weather. The time for well testing has not been included in the 20 to 50 day time period. Currently, testing is not planned to be completed during the drilling of the well; however, depending on approval times and rig availability, testing may be completed immediately after drilling or at a later date." This timeframe is very optimistic, as it does not explicitly exclude the sea ice season or specify that enough time would be built in to allow the drilling of a relief well even under poor weather conditions or with other setbacks**.**	With respect to the timeframe required for drilling operations, Corridor's technical team composed of experienced drilling engineers, geologists and reservoir specialists have identified the amount of time needed to conduct the drilling program and this timeframe was outlined in the EA document and reinforced in Corridor's responses to regulatory agency comments. Of course, the timeframe will be refined as detailed planning continues and the spud date for the well approaches. Drilling is expected to proceed quickly, given the nature of the rocks. The Old Harry well is a shallow well (2,000 to 2,200m below sea floor) with carboniferous age sandstone, siltstone and shale rocks. Corridor and others have drilled a number of wells in the Upper Carboniferous rock of the Maritimes Basin and can use the drilling rates from these wells to provide a very good estimation of the time required to drill the 2000 to 2,200 m of Carboniferous rock in the Old Harry well. As noted in the EA document, Corridor intends to drill the well during an ice-free period.
29	Again, Corridor must provide assurances that its drilling operation would not take place during that portion of the year when conditions are not optimal. The Board should not approve the project if this basic assurance is not supplied.	See Response #28. It is stated in the EA document that Corridor intends to drill during an ice-free period.
30	The Coalition believes that risk mitigation as that are currently planned for this project is not adequate to reduce the risk and potential impact of accidents and malfunctions to a level consistent with the C-NLOPB's environmental and safety responsibilities.	In the offshore in Eastern Canada, the legislation governing the oil and gas industry establishes a comprehensive and rigorous set of requirements that an operator must meet to obtain an Operations Authorization and an Approval to Drill a Well within the C-NLOPB regulatory framework. Although a project-specific EA like the one developed for Old Harry includes reference to some of these other requirements, an EA document cannot possibly include all of the detailed plans that govern offshore operations and support risk identification and mitigation. These detailed plans will be presented to the regulator for approval subsequent to an EA determination. In addition, exploration and development companies as a matter of course and following best

No.	Comments from Ecojustice	Corridor Response September 11, 2013
		industry practice develop their own internal planning process before operations are undertaken. Corridor has in place a Management System that governs how the company conducts its business and associated operations. Risk assessment and mitigation is the fundamental component of the management system and is central to the planning of all operations. A detailed risk assessment is conducted in advance of operations to ensure that any potential risks are appropriately mitigated. Other plans or procedures that will be in place in advance of operations (either due to requirements of Corridor's own internal management system or the detailed regulatory approval process) include, but are not limited to, the following: hazard identification and risk management processes; training and competency assessment of all involved personnel and contractors; audit process; integrity management procedure for all facilities (rig, support craft and equipment necessary to ensure safety, environmental protection and waste prevention); environmental protection plan; contingency plans to prevent, mitigate and respond to emergencies including detailed emergency response plans, spill response plans, search and rescue arrangements, resources sharing and mutual aid agreements, relief well drilling and subsea control arrangements; safety plan; waste management plan; and many more. The regulatory requirements are outlined in Acts, Regulations and Guidelines on the C-NLOPB website www.cnlopb.nl.ca. In addition, the major contractors (drilling, supply vessels, helicopters) are required to maintain updated and current health, safety, environmental plans including emergency response and other contingency plans. All of this information is submitted to the C-NLOPB for review and approval prior to any offshore operations as part of the regulatory approval process.
31	The disaster response section of Corridor's Draft EA document lists methods for cleanup and recovery, including mechanical recovery, in situ burning, mechanical dispersion, chemical dispersants, and natural dispersion. However, this section discussing spill response technologies does not discuss the magnitude of response gaps in actual conditions, due to weather, visibility, darkness, or equipment or personnel availability that can restrict the usefulness of these technologies and techniques.	See Response #30. The EA contains a high level summary, but the detailed contingency plans will be submitted to the C-NLOPB for approval once an EA determination is made as part of the Operations Authorization application.
32	In the same vein, chemical dispersants are	See Response #30, 31. As noted in our EA and in this Ecojustice comment, Corridor would

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	mentioned as an appropriate response technique, and Corridor proposes that they may only be used when authorized by the C-NLOPB. As a result, it is not clear whether all of the chemical components of dispersants anticipated by Corridor for effective spill response have been approved for use in Canada. Furthermore, recent research shows that a combination of oil and dispersants can be more toxic, to a variety of species, than oil alone.	only use chemicals approved by the C-NLOPB.
33	The 2013 Draft EA simply promises that a more detailed Oil Spill Response Plan (OSRP) will be worked out later on, when an Operation Authorization is being sought. Ironically, Corridor's Draft EA subsequently cites this as-yet-unprepared Spill Response Plan as a mitigation measure against damage to the VECs assessed for the exploration program. This is simply unacceptable.	Corridor is following the regulatory approval process for obtaining authorizations for drilling offshore Newfoundland. Corridor will not receive an authorization to drill a well from the C-NLOPB, unless the C-NLOPB deems the contingency plans acceptable. There is sufficient experience with the development of oil spill response, emergency response and other contingency plans in the Newfoundland offshore that Corridor is confident its detailed plans will meet or exceed regulatory requirements.
34	Corridor's Draft EA assures readers that the company will have access to the same quality of well caps and other equipment to control a blowout as the rest of the industry operating in the Grand Banks. This is a manifestly insufficient response to concerns about the adequacy of even the industry's best efforts at responding to spills and blowouts. There are ongoing and high-profile technical challenges in the application of these devices (e.g. Shell's containment dome being "crushed like a beer can" in 2012 testing in Bellingham, WA), so Corridor must be prepared to demonstrate that the project is very likely to be successful in the use of well capping technologies should the need arise.	With respect to blowout prevention and well capping, Corridor is committed to continuous improvement that builds upon lessons learned from industry wide experience. It is important to note that wells are designed with multiple barriers and are capable of being shut-in with a full column of hydrocarbons. During the drilling phase, the primary well control barrier is typically provided by the overbalance of the drilling fluid. Blowout preventers (BOPs) would be used for controlling pressure in the well only if required due to the loss of a primary barrier. Redundant systems are also in place to activate the subsea BOPs. BOPs are monitored during operations, inspected and tested at regular intervals. Personnel are trained in well control and exercises are conducted. Corridor is a member of the Canadian Association of Petroleum Producers (CAPP), an organization that is participating in the evaluation of global capping and containment solutions. The global efforts by the oil and gas industry on well capping and containment and the resultant technology that is available for worldwide use is mainly being developed by the Subsea Well Response Project and is accessible to companies like Corridor through membership in Oil Spill Response Ltd. (OSRL) and a supplementary agreement. As noted in previous submissions, Corridor will have the same access to capping devices and deployment

No.	Comments from Ecojustice	Corridor Response September 11, 2013
		capacity as the other Newfoundland and Labrador offshore operators. Of course, the key focus for Corridor and other operators is prevention.
35	Although the 2013 Draft EA contains more information on the anticipated amount of vessel traffic that would result from exploration at Old Harry, the risk of spills from supply vessels is not presented quantitatively. The discussion of shipping does not address the incremental increase in risk or in cumulative impacts that may result from the combination of Old Harry-related vessel traffic and existing marine transport in the Gulf.	The assessment of cumulative effects in the EA considered environmental effects of the Project in combination with other projects or activities that have been or will be carried out (including fishing activities), as outlined in the Scoping Document. With specific regard to the comment that the cumulative effects assessment did not consider the incremental risk that may result from the combination of Old Harry-related vessel traffic and existing marine transport in the Gulf, it is helpful to put the incremental risk in context. It is anticipated that the Project will involve two to three support vessels trips per week during the proposed drilling program (20 to 50 days). Monthly vessel traffic volumes (including merchant traffic, cruise ships, and fishing vessels) in the Gulf of St. Lawrence vary throughout the year from less than 400 vessels per month to nearly 60,000 vessels per month (Pelot and Wootton 2004). Given this context, a detailed quantitative analysis is not required to determine that vessel traffic from the Project is minimal and would not result in a measureable cumulative environmental effect.
36	Further, determinations about the full cumulative impact of Old Harry should reflect the findings of the Western Newfoundland SEA.	The Western NL SEA was not publicly available at the time of writing the Old Harry EA. However, a review of the SEA was undertaken prior to submission of the latest comments to the C-NLOPB and there are no findings reported in the SEA that would affect the conclusions of the cumulative effects assessment of the Old Harry EA. It is recognized in the various cumulative effects sections (throughout Section 5) in the Western NL SEA that overlap between offshore petroleum projects and/or unrelated activities in the Gulf would be considered in planning and review of applications and that spatial and temporal overlap of petroleum exploration activities would be limited in the Western NL Offshore Area given the anticipated level of exploration in the region and the limited spatial and temporal extents of most programs.
37	Corridor should not downplay the importance of the Old Harry study area, or the possibility of species' occurrence nearby.	The Old Harry EA recognizes the ecological and socio-economic value of the Gulf of St. Lawrence and includes exhaustive descriptions of relevant biophysical and socio-economic features, which in many cases, extend beyond the predicted "affected area". This includes descriptions of species and important habitats which occur in the Gulf region but may or may not be predicted to interact with the Project.
38	As stated above, although Corridor's model treats dissipated oil as a problem that has been solved, oil dispersed into the water column can still have significant adverse effects on biota. The dispersed oil becomes available to phytoplankton, and through this pathway can contaminate species that	Due to the present stage of thermal maturation of the source rocks, the hydrocarbons with the Old Harry structure, if present, are likely to be a very light, 45^{o} to 56^{o} API gravity oil. The selection of surrogate is appropriate and realistic, and as such is the basis for realistic spill modeling. The effects assessment is based on the predicted characteristics and behavior of the hydrocarbons expected to be encountered in the well. Spill modelling results indicate a short-term exposure of dispersed oil and therefore bioaccumulation is not considered to be an issue

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	use the phytoplankton as a food source. The discussion should reflect these effects, particularly as a new oil spill model could demonstrate that the effects of a spill could expose phytoplankton to "chronic" levels of oil which may then make their way up the food chain. Corridor erroneously asserts that the shorter-term exposure it has modelled will not bioaccumulate.	of concern for this Project. See also Response to #16.
39	In some places, outdated information persists in the EA's discussion of the effects of the operation on marine life. Where more recent scientific information is available, it should be incorporated.	The updating of information in the EA document has been addressed through the revised EA document and Corridor's responses to the technical review conducted by the C-NLOPB and other federal agencies. The latest 2013 Western NL SEA document was also reviewed prior to submitting this response to the C-NLOPB. Data presented to reach the conclusions in the Old Harry EA are compatible with those presented in other exploration drilling EAs in the NL offshore, including the SEA and subsequent updates for the Western NL Offshore Area (LGL 2005, 2007; AMEC 2013).
40	For example, a 1990 study is cited to demonstrate that no significant whale and dolphin mortality results from oil spills. This discussion should be updated with more recent information based on mortality from other major spills, as (unfortunately) there have been several large oil spills that have provided opportunities for further scientific research in this area since 1990.	See Response #39.
41	In addition, more complete information should be provided regarding the effects of seismic noise.	As indicated in Section 2.10.3 of the Old Harry EA, vertical seismic profiling may be conducted as part of the exploration drilling program. This involves placing a string of geophones down the drilled well with an air-source array suspended from the drilling unit. Peak output pressure is usually in the range of 240 to 250 dB and the duration of the survey would be in the order of hours to days. A separate EA conducted for Corridor's geohazard program (Stantec 2010) assessed effects of seismic noise from these types of activities on EL 1105 and predicted no significant adverse environmental effects would occur.
42	Corridor's assessment also does not extensively discuss the potential for damage to sensitive and productive eelgrass beds and salt marshes, either resulting from small spills from vessels, or more	Section 8.7.2 of the Old Harry EA assesses effects of spills on coastal environments. Although spill modelling did not indicate any interaction with coastline, Corridor recognizes the potential risk of a diesel spill from supply vessels that could potentially interact with coastal habitats. Section 8.7.2 therefore focuses on effects from diesel spills on sensitive coastal

No.	Comments from Ecojustice	Corridor Response September 11, 2013
	major harm from a large spill or blowout.	habitats including, but not limited to, eelgrass beds.
43	The restrictions on the modelling of the oil spill zone also affect the assessment of spills' effects on species in the Gulf. The use of a very light surrogate crude oil leads Corridor to conclude that impacts on VECs are minimal or reversible. The inadequacies identified in the current model have the effect of artificially restricting the study area and excluding the potential shoreline impacts shown in models that are less favourable to Corridor's proposal. The smaller study area contributes to an impression that there is little likelihood of effects on, for instance, commercial fisheries that are 10 to 12 km outside the project area.	See Response #4. As indicated above, the effects assessment, including delineation of a Study Area, selection of VECs, and identification of potential interactions, and analysis of effects, is based on the predictive spill modeling undertaken by SL Ross. For reasons stated above, Corridor and its consultants stand by the modelling that was undertaken and the outcome of this modelling.
44	The comments document notes that provincial lists of species (e.g., Magdalen Islands seabirds under Québec's legislation) are not included.	The Scoping Document requires the EA to include a description of marine and/or migratory birds using the "Affected Area" (defined by Corridor as the Study Area in the EA) and Species at Risk listed in Schedule 1 of the *Species at Risk Act* (SARA) and those under consideration by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in the "Affected Area". Species of highest conservation concern would fall under either SARA or COSEWIC listings. Although there is no predicted interaction with the Magdalen Islands, data on seabird colonies on the Magdalen Islands, in addition to Western Newfoundland, Southern Newfoundland, Cape Breton Island and the southern portion of Anticosti Island was included in the revised EA in response to comments from Environment Canada. In addition, detailed seasonal distribution data from the Eastern Canadian Seabirds at Sea (ECSAS) and the Programme Intégré de Recherches sur les Oixeaux Pélagiques (PIROP) for the Gulf of St. Lawrence (outside the "affected area") was presented in the February 2013 EA. Magdalen Islands seabirds are therefore given comprehensive treatment in the February 2013 EA.

Supporting Documentation

For

Responses to Questions 7 and 8

Of

Attachment #2

Corridor Response to the Ecojustice Comments

About Corridor Resources Inc.

Bringing energy to *life*

Corridor Resources is an Eastern Canadian energy company that has been engaged in the exploration, development and production of oil and natural gas onshore in New Brunswick, Prince Edward Island, Quebec, and offshore in the Gulf of St. Lawrence in Newfoundland and Labrador and Quebec for more than 14 years. We are dedicated to the discovery of new oil and gas resources, the safety of our employees, the environment and the community around us, as we continue to explore and develop these resources in Eastern Canada.

Established in 1995, Corridor Resources is headquartered in Halifax, Nova Scotia, and has a production office and gas plant in Penobsquis, New Brunswick, near Sussex.

ABOUT OUR COMPANY

PRODUCTION:

- McCully Gas Plant operational – June 2007
- Production of sweet gas (no acid gases, e.g., no hydrogen sulphide or carbon dioxide)
- Gas plant capacity – 50 million cubic feet of gas per day
- Current rate of gas production – 15 million cubic feet of gas per day
- Number of producing wells – 30
- Length of gathering system pipeline – 14.1 km
- Length of transmission pipeline – 48.7 km
- Gas plant designed for low emissions/noise and minimal visual impact
- Fully automated safety systems
- Gas plant remote monitoring capability
- High gas plant reliability (greater than 98%)

Corridor Resources drilled its first onshore natural gas discovery well at the McCully Field in September 2000. Since that time, Corridor has drilled more than 40 wells in the area which have encountered natural gas. In June 2007, the McCully Gas Plant became operational. Corridor currently produces gas from the McCully Field to markets in the Maritimes, and to New England through the Maritimes and Northeast Pipeline. Corridor continues to connect wells to the system as new resources are found.

The oil and natural gas industry is contributing to a strong Eastern Canadian economy. The potential exists for this industry to continue to grow and prosper in the future – creating jobs, opportunities for local people and businesses, and growth in research and development, education, and training. At Corridor Resources, we are passionate about what the future holds and hope to use our expertise to uncover nature's potential in Eastern Canada.

DRILLING & COMPLETIONS:

- Total number of wells drilled – 39 in Penobsquis area (McCully Field) and 3 in Elgin area in New Brunswick
- Deepest well drilled – 4130 m
- Total length of holes drilled in New Brunswick (for all wells) approximately 130 km

SEISMIC:

- Land (2-D) seismic data – 15 programs – 997 km total
- Land (3-D) seismic data coverage – 4 programs – 132 km^2 total
- Marine (2-D) seismic data – 3 programs in the Gulf of St. Lawrence – 1880 km total
- Marine geohazard survey on Old Harry – 1 program –130 km

For further information:
#301-5475 Spring Garden Road, Halifax, NS, B3J 3T2
Telephone: 1-888-429-4511 / Facsimile: 1-902-429-0209
Email: info@corridor.ca
www.corridor.ca

March 2011

Consultation Meeting Comment Card

Were all of your questions answered during the meeting?

□ Yes □ Most were answered □ Some were answered □ No questions were answered

If no, what additional questions about the information Corridor Resources presented do you feel still need to be addressed?

What is your main concern with regard to Corridor Resources' proposed exploration well offshore Newfoundland and Labrador?

Do you support Corridor Resources' proposed exploration well? Please explain your position.

Other comments:

Optional: If you wish to be contacted directly, please complete the section below.

Name: _____

Email:_____ Phone number: ( ) _____ - _____

May we contact you with information? □ Yes □ No

Please leave this at the front table, fax to (902) 429-0209, email to HSE@corridor.ca
Or mail to: #301-5475 Spring Garden Road, Halifax, NS B3J 3T2
Thank You. We appreciate your feedback.

This is an example of presentations given as part of our public engagement strategy.

Proposed Drilling of an Exploration Well on the Old Harry Prospect within Exploration Licence 1105

March 2011

Disclaimer

Forward Looking Statements

This presentation contains certain forward-looking statements and forward-looking information (collectively referred to herein as "forward-looking statements"). All statements other than statements of historical fact are forward-looking statements. Forward-looking information typically contains statements with words such as "anticipate", "believe", "plan", "continuous", "estimate", "expect", "may", "will", "project", "should", or similar words suggesting future outcomes. In particular, this presentation contains forward-looking statements pertaining to the following: characteristics and potential of Old Harry; next steps to be undertaken by Corridor, including holding public consultations, preparing and filing with C-NLOPB an environmental assessment, timing of the assessment; regulatory approval of the exploration program; and the proposed exploration program at Old Harry, including well location, well design, type of drilling rigs to be used, logistical support, timing of drilling, practices to be followed, and potential issues associated with the program and potential mitigation of such issues. Forward-looking statements are based on Corridor's current beliefs as well as assumptions made by, and information currently available to, Corridor concerning business prospects, strategies, regulatory developments, future natural gas and oil commodity prices, exchange rates, the ability to obtain equipment in a timely manner to carry out development activities, the impact of increasing competition, the ability to obtain financing on acceptable terms. Although management considers these assumptions to be reasonable based on information currently available to it, they may prove to be incorrect. Undue reliance should not be placed on forward-looking statements, which are inherently uncertain, are based on estimates and assumptions, and are subject to known and unknown risks and uncertainties (both general and specific) that contribute to the possibility that the future events or circumstances contemplated by the forward-looking statements will not occur. There can be no assurance that the plans, intentions or expectations upon which forward-looking statements are based will in fact be realized. Actual results will differ, and the difference may be material and adverse to Corridor and its shareholders. These factors include, but are not limited to risks associated with oil and gas exploration, financial risks, substantial capital requirements, bank financing, government regulation, environmental, prices, risks may not be insurable and reserves estimates. Further information regarding these factors and additional factors may be found under the heading "Risk Factors" in Corridor's Annual Information Form for the year ended December 31, 2009 and its most recent management's discussion and analysis*, copies of which is available at www.sedar.com. The forward-looking statements contained in this presentation are made as of the date hereof and Corridor does not undertake any obligation to update publicly or to revise any of the included forward-looking statements, except as required by applicable law. The forward-looking statements contained herein are expressly qualified by this cautionary statement.*

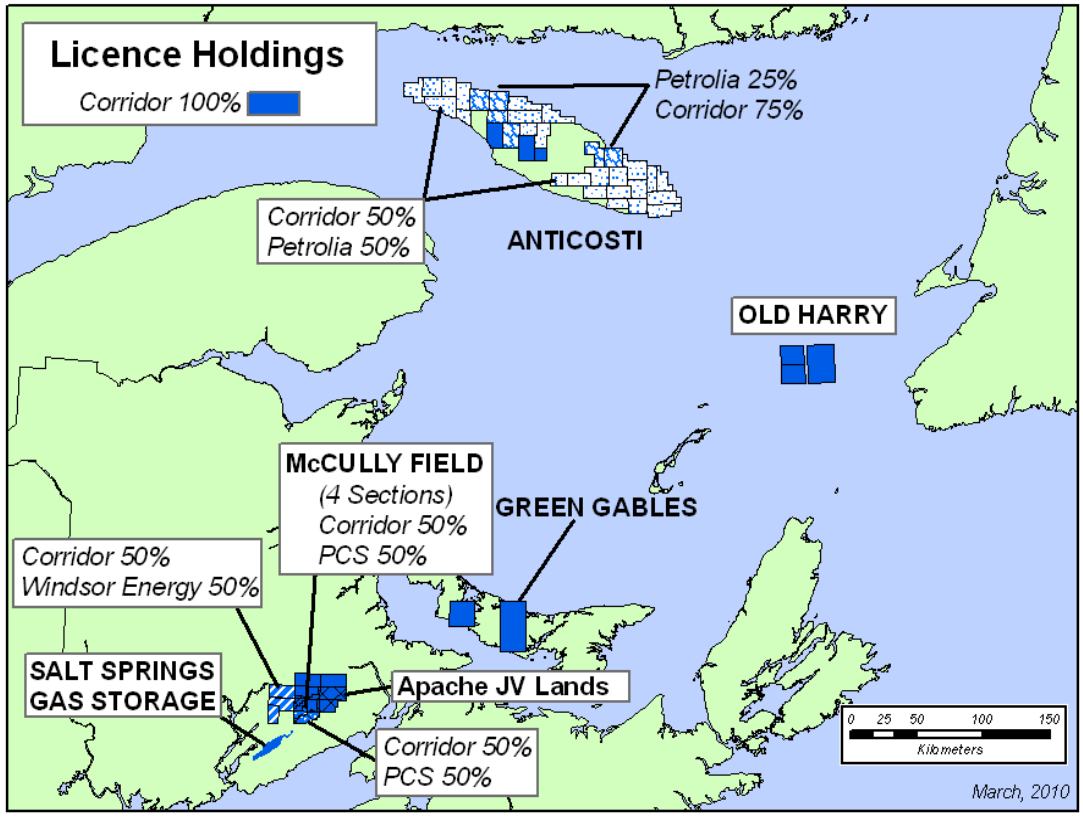
Presentation Outline

- Meeting goals and objectives.
- Who is Corridor Resources.
- Long history of oil and gas exploration in the Gulf of St. Lawrence.
- Update on Corridor's 2010 Geohazard Site Survey.
- Overview of Corridor's proposed exploration well within EL1105.
- C-NLOPB regulatory process to obtain approval to drill a well.
- Next steps.

Meeting Goals and Objectives

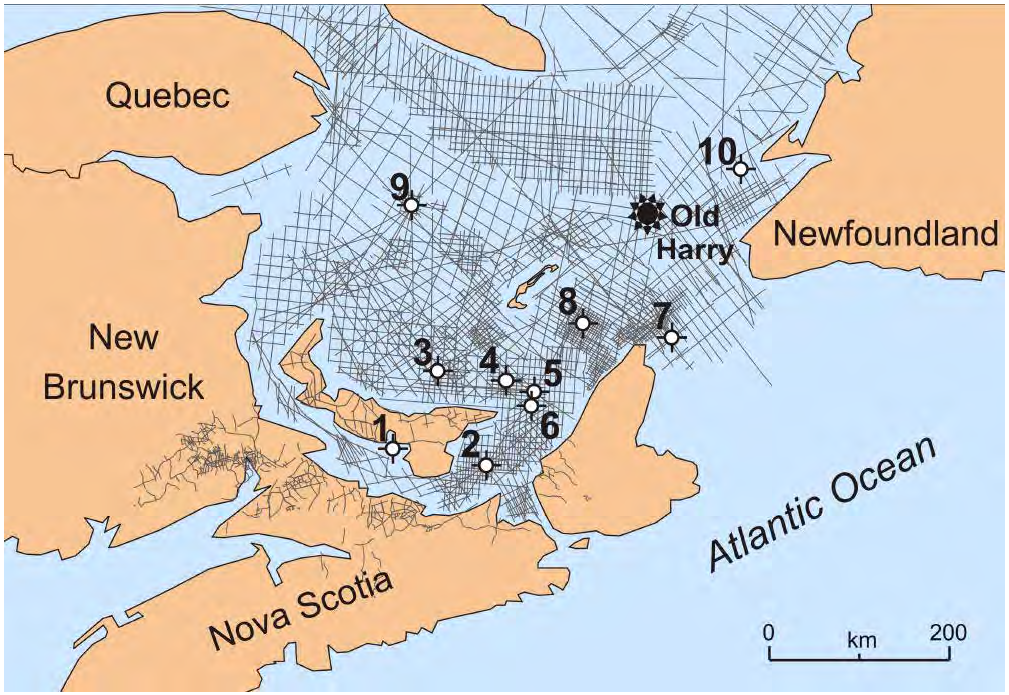
- We are here to listen to your questions, record your issues and describe the project – a proposed well within EL 1105.
- Responses to questions and concerns will be addressed scientifically through the Environmental Assessment and regulatory process.
- We want to design the best possible exploration project with input from stakeholders.
- This information will be incorporated into the Environmental Assessment that is underway.
- We are confident the proposed well can be drilled in a safe and environmentally responsible manner.
- The Environmental Assessment will be available for review on the C-NLOPB website.

Who is Corridor Resources?



- Leading independent natural gas producer in Eastern Canada.
- Main Project Areas
  - Natural gas production, New Brunswick
  - Petroleum exploration, New Brunswick
  - Oil exploration, Anticosti Island, Quebec
  - Natural gas potential, Prince Edward island
  - Old Harry exploration, Gulf of St. Lawrence
- Strong team with onshore and offshore experience.

Long History of Exploration in the Gulf of St. Lawrence

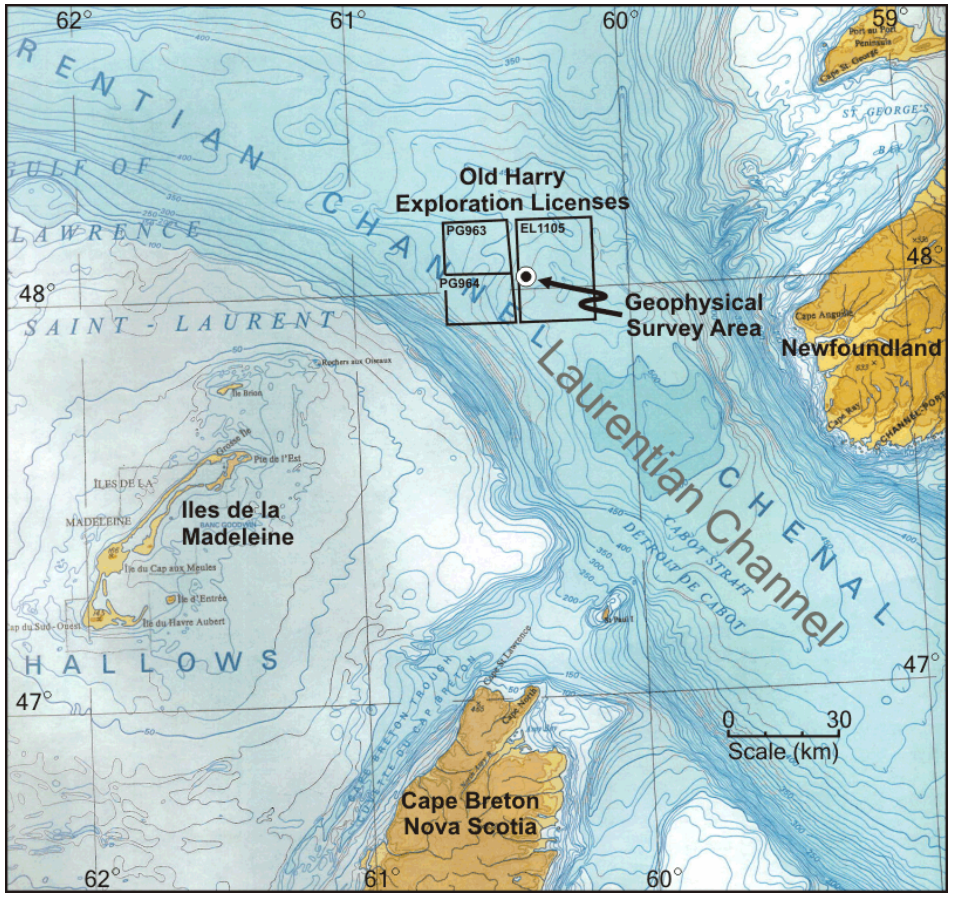


#	Well	Year Drilled	Total Depth (m)
1	Hillsborough No.1	1944	4479
2	Northumberland Strait F-25	1970	3001
3	Cable Head E-95	1983	3235
4	Beaton Point F-70	1980	1734
5	East Point E-49	1974	3526
6	East Point E-47	1980	2662
7	St. Paul P-91	1983	2885
8	Cap Rouge F-52	1973	5059
9	Bradelle L-49	1973	4421
10	St. George's Bay A-36	1996	3240

- 10 offshore wells drilled and many kilometers of seismic collected by other operators.
- Most wells drilled in 1970-80's were looking for oil
  - 5 - no hydrocarbon shows
  - 4 - minor shows
  - 1 - significant gas discovery.
- Old Harry was first identified in the early 1970s
- Corridor Old Harry activities
  - 1996 - acquired Old Harry exploration licences
  - 1998 / 2002 - new seismic
  - 2010 - geohazard survey.

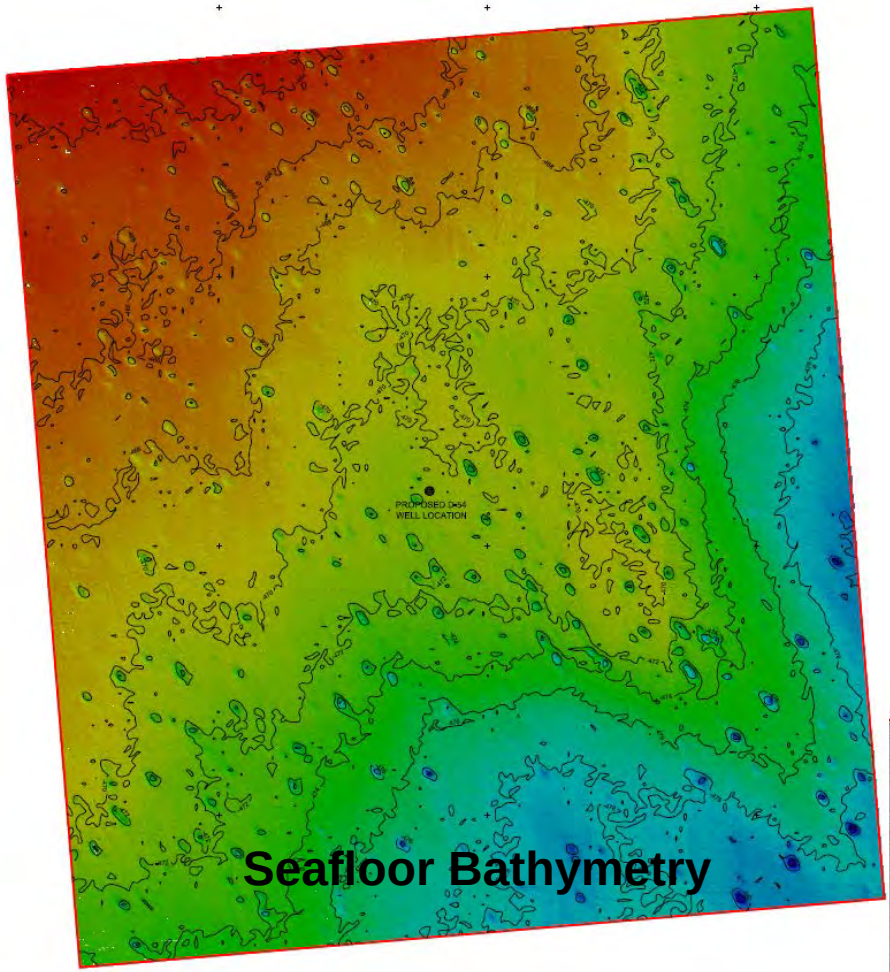
Update on Corridor's 2010 Geohazard Site Survey

Geohazard Survey Conducted Safely



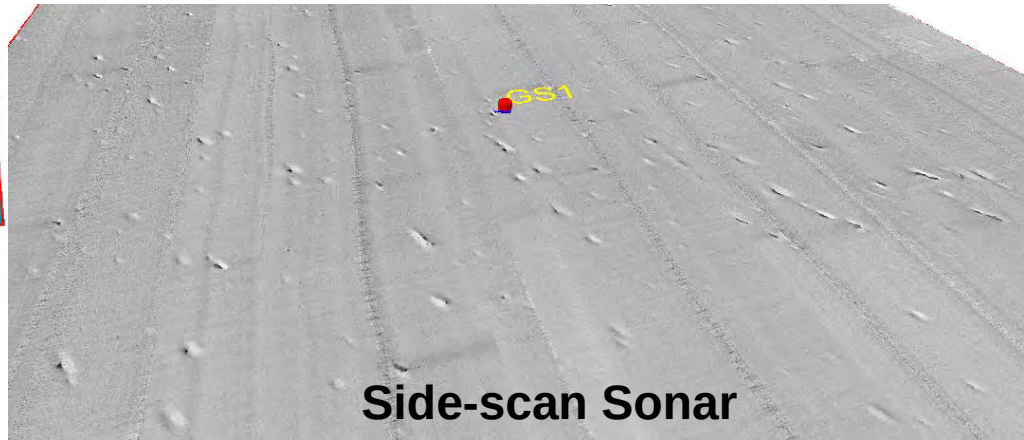
- Conducted October 12-15, 2010.
- Employed a marine mammal observer and a fisheries observer.
- No fishing activity was observed.
- No marine mammals or sea turtles were observed in the 500 m safety zone. Some observed at a distance.
- Collected 63 hours of geophysical data, including low intensity seismic.
- Collected side-scan sonar data.
- Seabed photography at 5 sites.
- Sediment samples at 3 sites.

Seafloor Characteristics at Old Harry



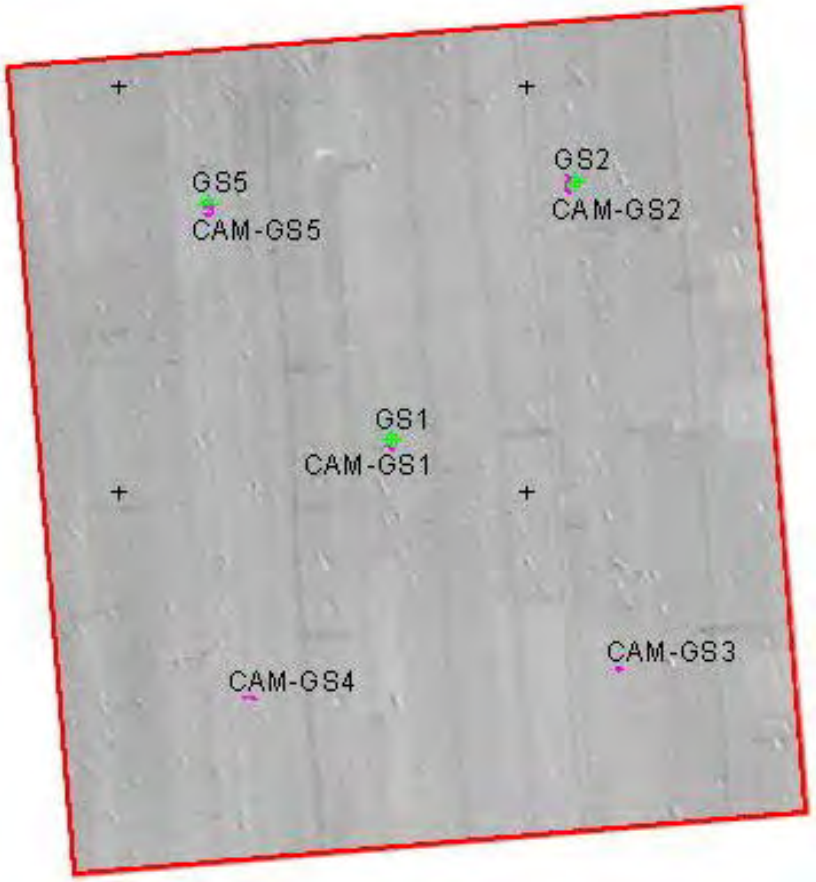
Seafloor Bathymetry

- Water depth is 464 m in the northwest and 478 m in the southeast.
- The small depressions in seafloor are interpreted as pockmarks.
  - 1-3 m deep; 15-20 m across; 30-40 m in length.
  - The well will be located to avoid pockmarks.



Side-scan Sonar

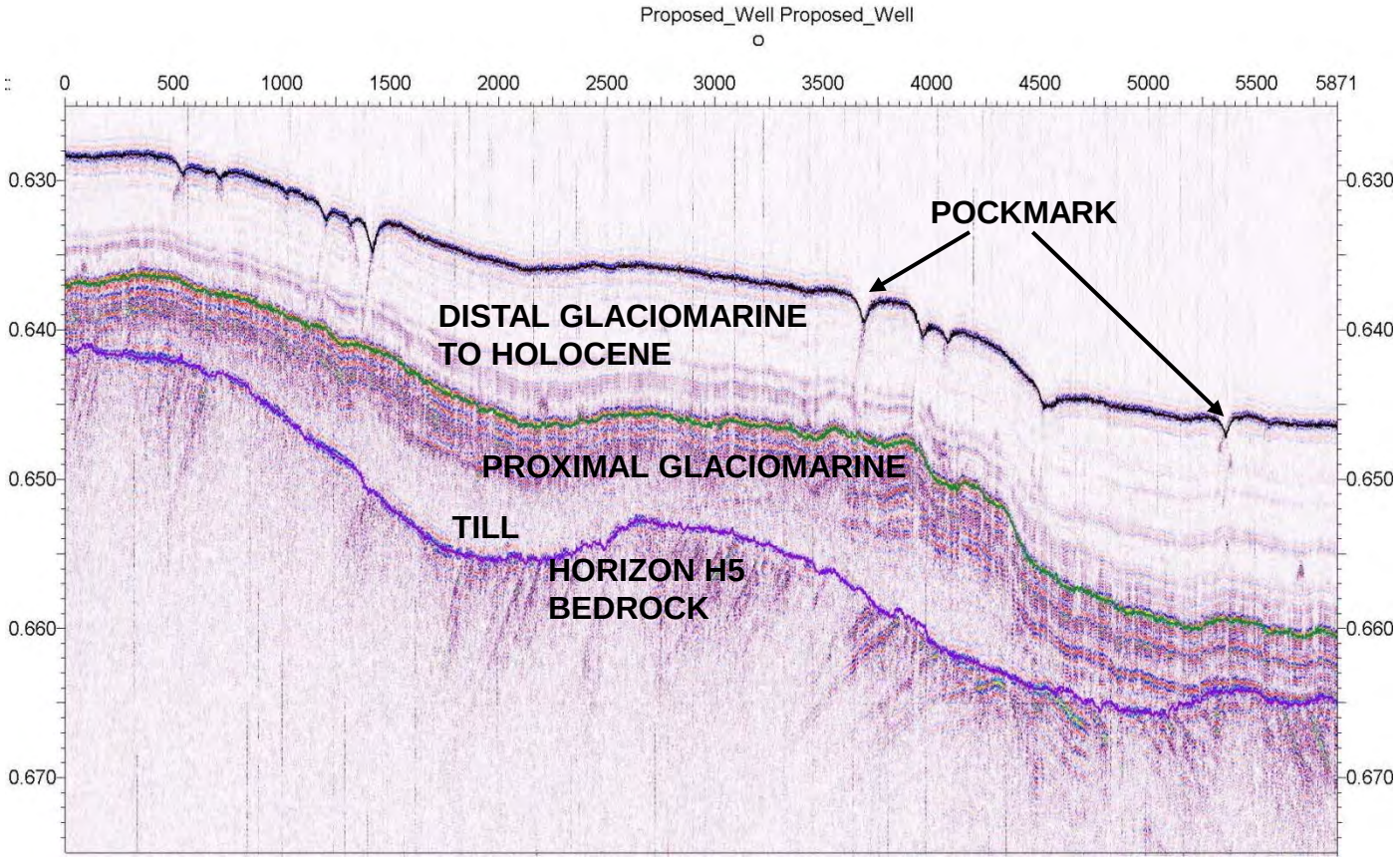
Sediment Samples and Photos Show a Soft Muddy Sea Bottom

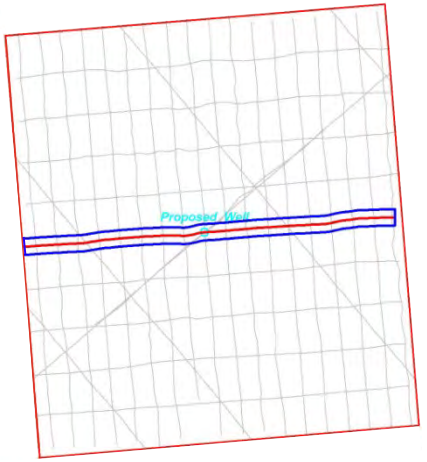


- 5 Camera stations.
- 3 Sediment sample stations.

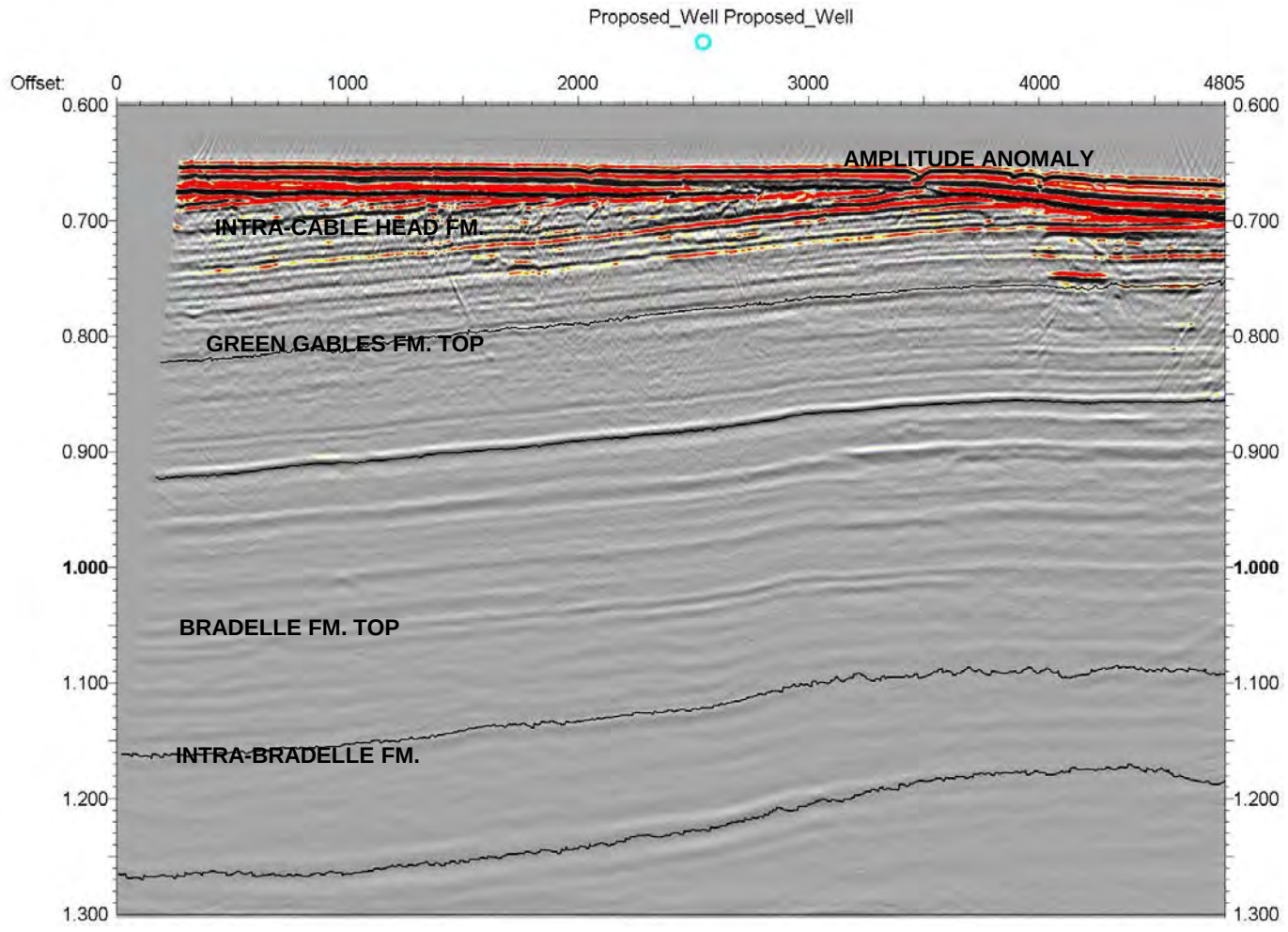
Seabed Photograph – GS4

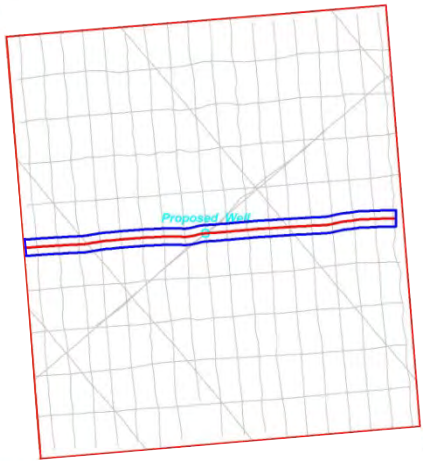
Sub-bottom Profile: Characteristics of Seabed Sediments



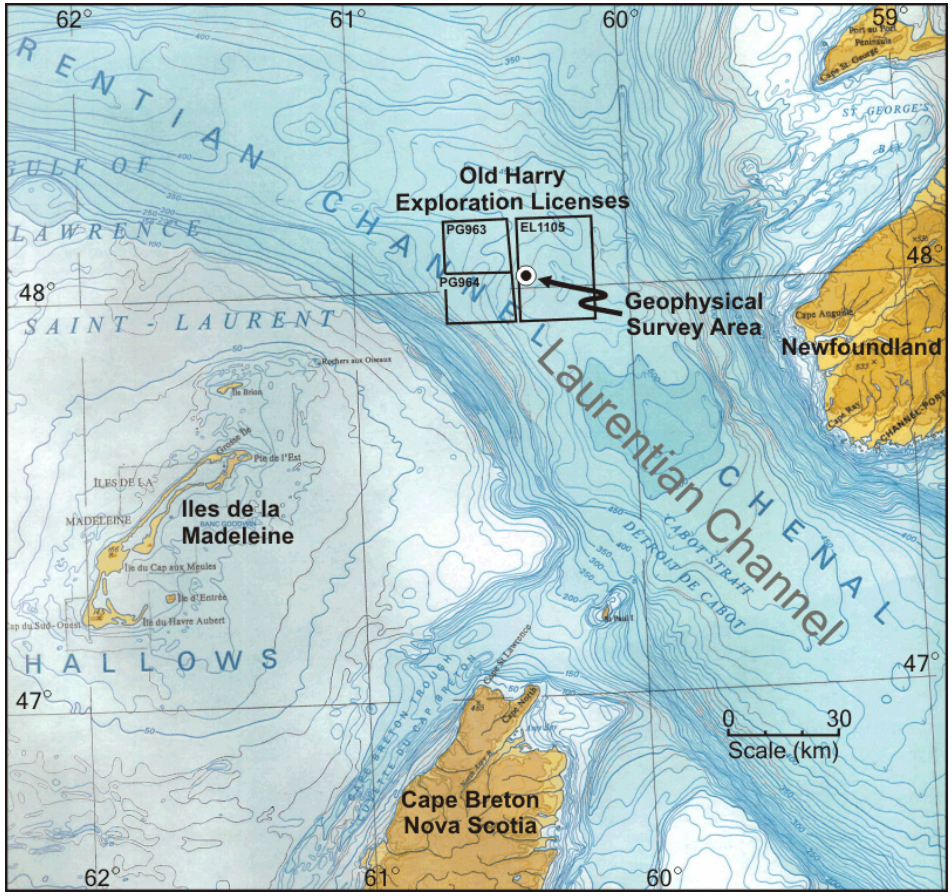


Seismic Line:
Well Location avoids Potential Drilling Hazards





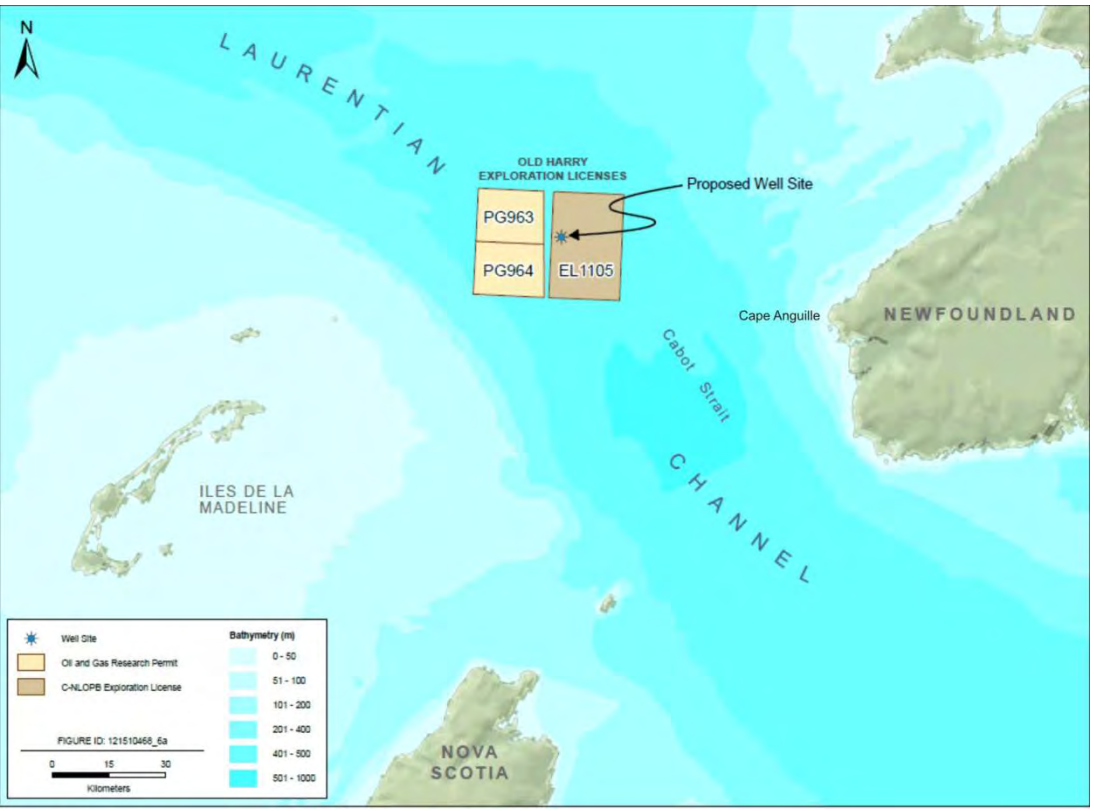
Geohazard Survey Indicates Safe Location for Drilling



- Bathymetry, sidescan sonar, and sub-bottom profiler results were delivered in December 2010.
- Seismic data and sea bottom photography were delivered on February 4, 2011.
- Geohazard survey results showed:
  - Good quality data were collected;
  - The seafloor was free of shipwrecks or hazardous debris; and
  - A potential well location that is safe for drilling could be identified.
- A decision was made to submit a Project Description to start the regulatory approval process for an exploration well.

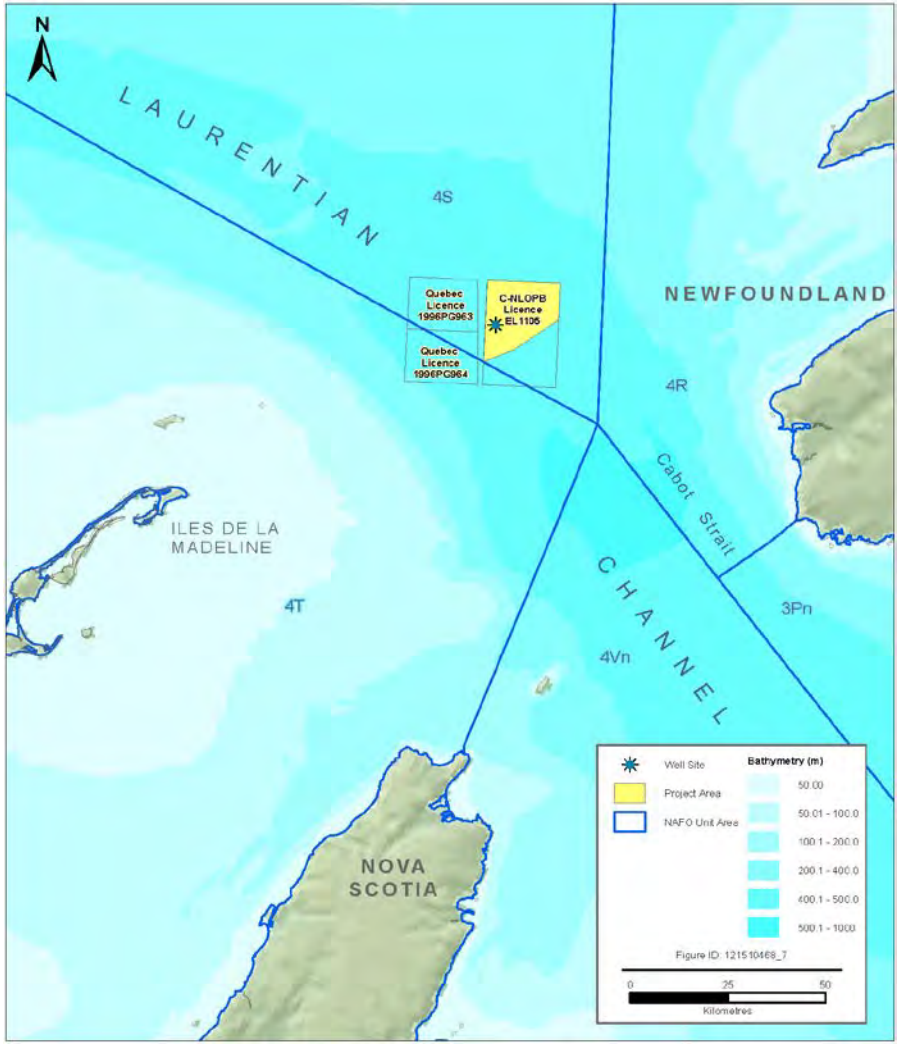
Overview of Corridor's Proposed Exploration Well within EL 1105

Planning for a Safe and Environmentally Responsible Drilling Program



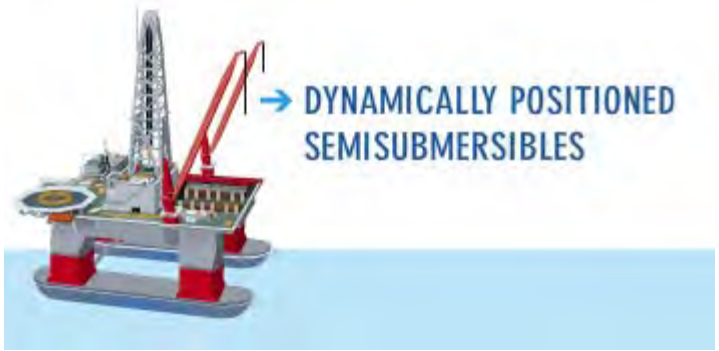
- Project Description filed with the C-NLOPB on February 21, outlining Corridor's intention to drill 1 well within EL 1105.
- Next Steps
  - Complete a thorough Environmental Assessment (EA)
  - Conduct Public Consultation
  - Incorporate science-based issues in EA
  - File EA with C-NLOPB in June, 2011.
- Details of potential impacts and associated mitigation cannot be provided until EA is complete.

Project Area for the Exploration Well



- The proposed Project is for the drilling of one well solely within EL 1105.
- The Project area is approximately 304 km^2, located within the Laurentian Channel about 80 km WNW from Cape Anguille, NL.
- The approximate water depth is 470m.
- The proposed well coordinates are in the vicinity of Latitude 48°03’05.294” and Longitude 60°23’39.385” (NAD83 datum, geographic coordinates).
- Drilling is anticipated to take place between mid-2012 and early 2014, depending on rig availability and regulatory approvals.

Drill Rig Options for Proposed Exploratory Well



Mobile Offshore Drilling Unit

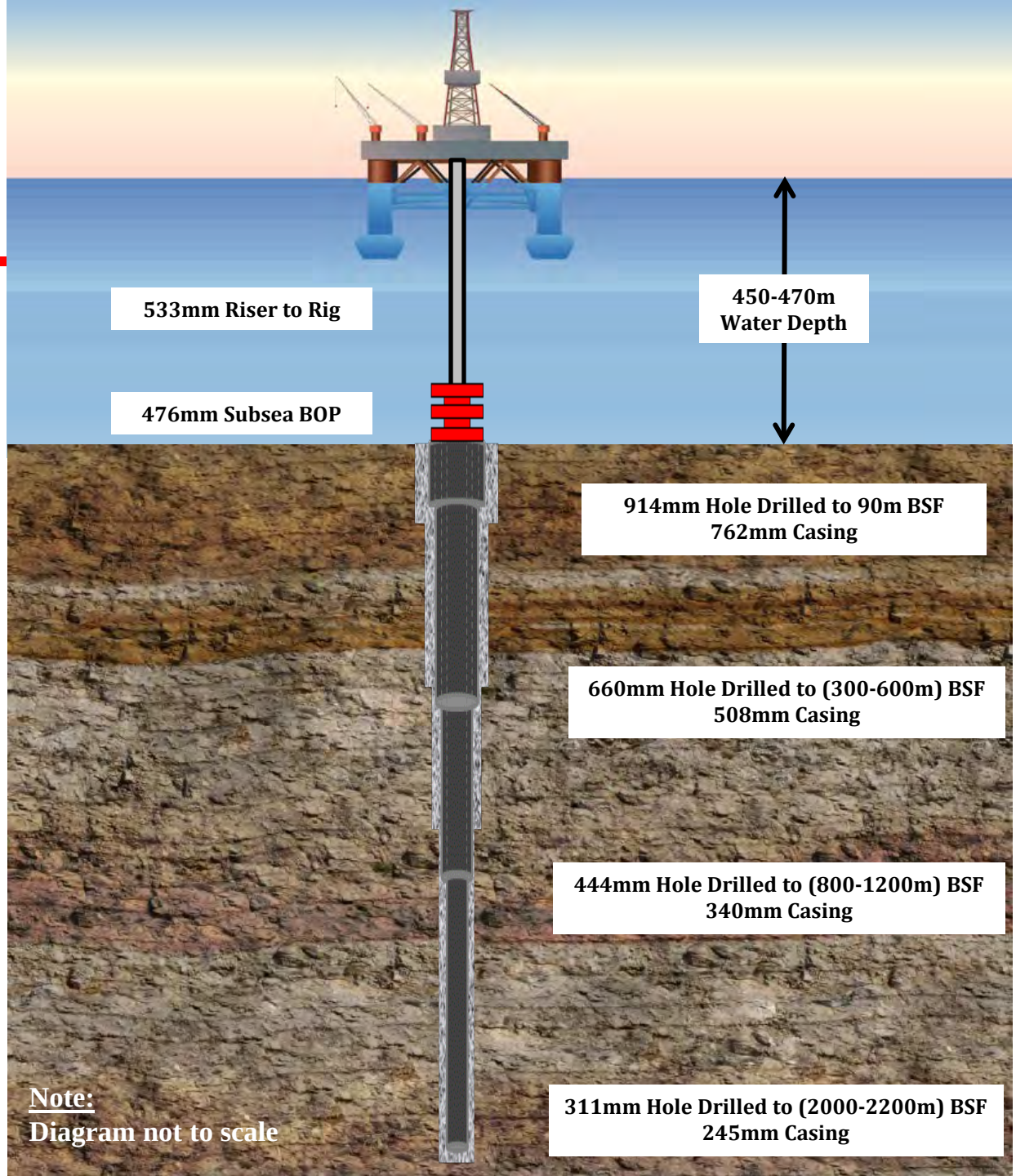
- Three possible options:
  - Semisubmersible (moored) such as Henry Goodrich.
  - Semisubmersible (Dynamically Positioned) such as Eirik Raude.
  - Drill ship (Dynamically Positioned) such as the Stena Carron.

Logistical Support for Drill Rig

- 2-3 Supply Vessels
  - 1 at the rig at all times.
- Several helicopter flights to the rig each week.
- Search and rescue helicopter on standby.

Example of Well Design

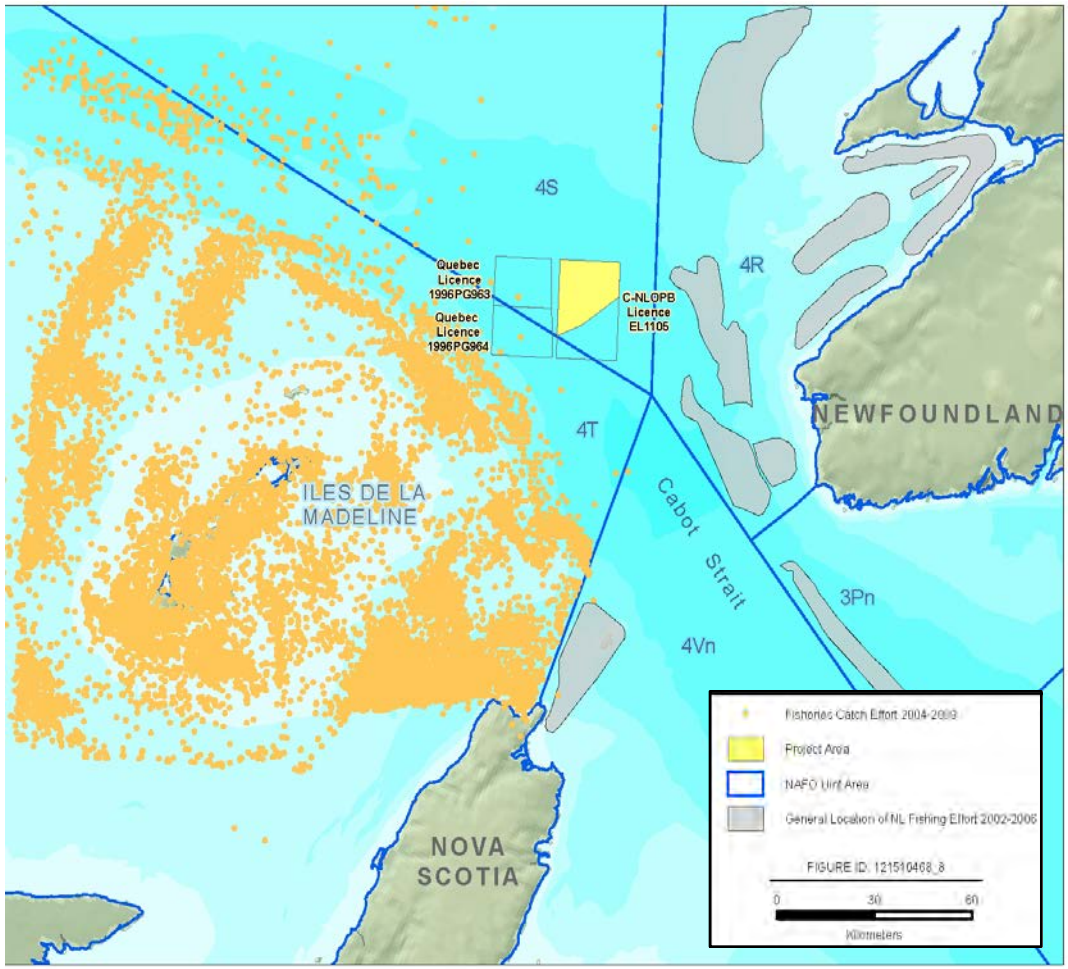
- Diagram is not to scale.
- Similar well design to wells currently drilled on Grand Banks.
- Shallow vertical well with a total depth planned of approximately 2570m RKB.



Examples of Issues Assessed for Exploratory Drilling Projects

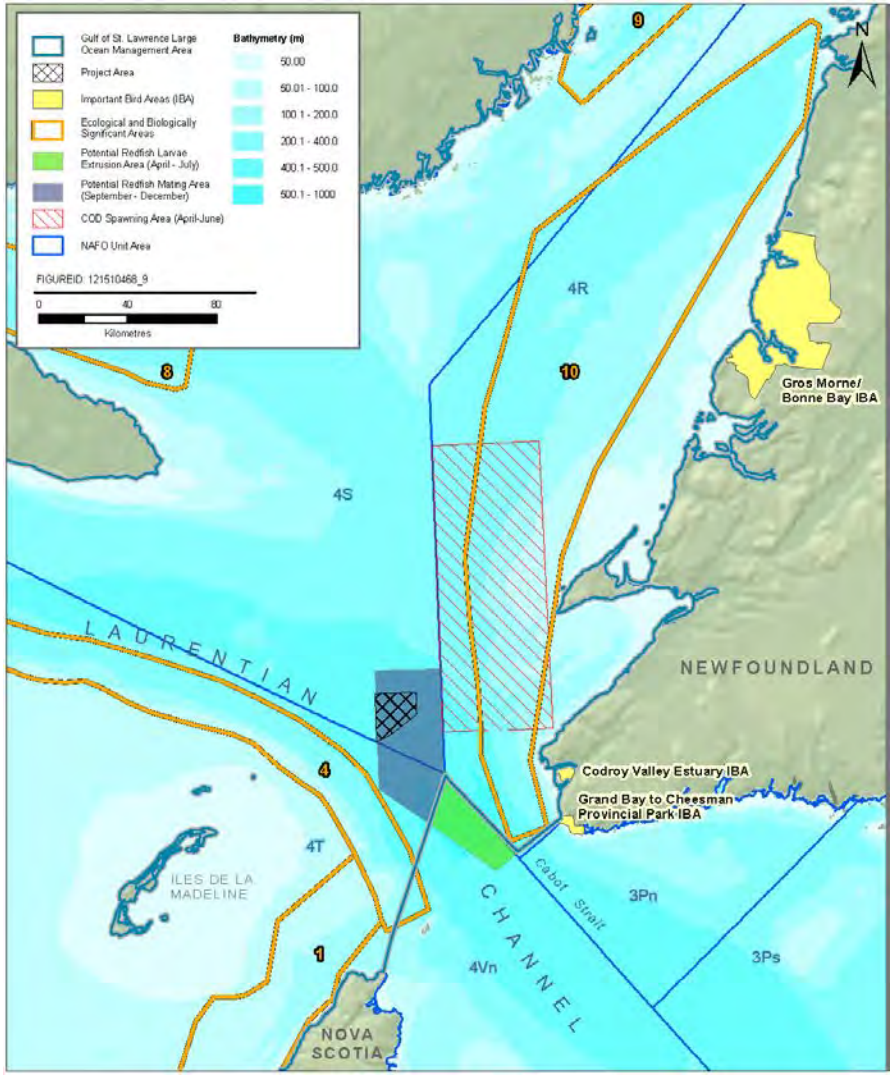
Project Activities	Issues	Potential Mitigation
Presence of Drill Rig	Navigation interference; attraction of birds and mammals; acoustic disturbance	Safety zones; communication; release of stranded birds; bird and mammal monitoring
Drill Muds and Cuttings	Sediment and water quality	Nontoxic muds; maximize use of WBMs; fluid treatment and management; adhere to Offshore Waste Treatment Guidelines; minimize discharge
Flaring	Air emissions; attraction of birds and mammals	Release of stranded birds; investigate use of reduced emission technology
Lights	Attraction of birds and mammals	Release of stranded birds
Vessel and Helicopter Traffic	Air emissions; navigation interference; collisions with mammals; disturbance	Equipment design and maintenance; minimize number of trips; damage compensation programs; release of stranded birds; bird and mammal monitoring; avoidance
Well Testing	Acoustic and sea bottom disturbance	Equipment design and maintenance; minimize activity time; temporal and spatial avoidance; communication
Well Abandonment	Acoustic and sea bottom disturbance	Equipment design and maintenance; minimize time; communication
Accidental Events	Seafood tainting, health effects of fish, birds and mammals	Environmental protection planning; spill response protocols; contingency planning

Fishing Effort in the Vicinity of the Project Area



- Data shown are 2004-2009.
- Updated information and more details will be provided in the Environmental Assessment.

Environmentally Sensitive Areas Near the Project Area



- The Project Area is within the Gulf of St. Lawrence Large Ocean Management Area.
- Within the Estuary and Gulf, 10 areas have been designated/nominated as ecologically and biologically significant areas (ESBAs).
- None of the ESBAs are within the Project Area.
- Project Area is within a potential redfish mating area.
- The Environmental Assessment will consider these areas.

Comprehensive Spill Modeling

- Petroleum System modeling has been conducted to determine the composition of hydrocarbons that could be produced from the reservoir
  - Results indicate that the reservoir could generate natural gas and/or a light oil ranging from 45-55 API.
- SL Ross, a specialist spill modeling company, will conduct comprehensive work for this Project
  - Task 1. Spill Risk Assessment
  - Task 2. Spill Behavior and Fate Modeling
  - Task 3. Detailed Trajectory Modeling.

Comprehensive Drill Mud and Cuttings Dispersion Modeling

- AMEC Earth & Environmental, an environmental engineering firm, will conduct comprehensive drill mud and cuttings dispersion modeling for this Project.
- AMEC will draw from several modeling software resources to complete the work.
- Scenario 1: seafloor return of mud and cuttings during open circuit (i.e., riser not yet in place) drilling of the initial conductor and surface well sections.
- Scenario 2: rig or surface release of mud and cuttings from drilling of the remaining well sections.
- Comments received from regulatory agencies on similar modeling work conducted for other operators will be incorporated.

C-NLOPB Regulatory Process to Obtain Approval to Drill a Well

Robust Canadian Regulatory Regime

- More than 350 wells have been drilled under the robust Canadian regulations in Newfoundland, with more than 500 in total in Atlantic Canada.

- Canadian regulators have effectively managed the exploration and development process while protecting the environment and the safety of workers. Three major offshore projects (Hibernia, White Rose and Terra Nova) have moved safely and smoothly into the production phase.

- There is a detailed and involved process that operators must follow to obtain approvals.

Legislative Requirements to Drill a Well

- Acts
  - Canada-Newfoundland Atlantic Accord Implementation Act
  - Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act
  - Canadian Environmental Assessment Act
  - Oceans Act
  - Fisheries Act
  - Navigable Waters Protection Act
  - Canada Shipping Act
  - Species at Risk Act
  - Migratory Birds Convention Act
  - Canadian Environmental Protection Act

Legislative Requirements to Drill a Well

- Key C-NLOPB Regulations
  - Drilling and Production Regulations
  - Certificate of Fitness Regulations
  - Oil and Gas Debris and Spills Liability Regulations
  - Petroleum Installation Regulations
- Key C-NLOPB Guidance Documents
  - Drilling and Production Guidelines
  - Safety Plan Guidelines
  - Environmental Protection Plan Guidelines
  - Selection of Chemicals Guidelines
  - Physical Environmental Program Guidelines
  - Offshore Waste Treatment Guidelines
  - Incident Reporting and Investigation Guidelines
  - Data Acquisition and Reporting Guidelines
  - Financial Responsibility Requirements Guidelines
  - Compensation for Damages Guidelines

Operators Authorization (OA) Requirements

- Information for the C-NLOPB Safety Assessment
  - Operator Safety Management System and Safety Plan
  - Safety reviews of contractors
  - Training and competency information for key individuals and proof that requisite training requirements have been met
  - Risk Assessment
  - Contingency Plans
    - Offshore and Onshore Emergency Response Plans
    - Oil Spill Response Plan
    - Ice Management Plan
    - Relief Wells
  - Drilling Operations Manual
  - Well Control and Blowout Prevention Manual
  - Rig, supply vessel, helicopter and other major contractor Operations and HSE policies, programs, manuals

Operators Authorization (OA) Requirements

- Environmental Assessment
  - Estimates of types and quantities of substances to be discharged and a description of procedures and equipment to treat discharges
  - Arrangements for measurement, observation and forecasting of environmental conditions
  - Spill Response Plan and qualifications of spill response personnel
- Environmental Protection Plan
- Certificate of Fitness
- Operator's Declaration of Fitness
- Letter of Compliance for the MODU and each standby vessel
- Evidence of Financial Responsibility
- Canada - Newfoundland Benefits Plan

Approval to Drill a Well (ADW) Requirements

- Seabed Survey Report
- Detailed geological prognosis
- Detailed drilling program
- Formation pressure and fracture gradient evaluation
- Barrier analysis to confirm two barriers at all times
- Casing Program
- Cementing Program
- Drilling Fluids Program
- Casing and Wellhead Pressure Testing
- Formation Leak-Off Tests
- BOP Configuration
- BOP Pressure and Function Testing

Preparation of a Project Specific Environmental Assessment Document

- Conducted in accordance with Canadian Environmental Assessment Act and the C-NLOPB Scoping Document.
- Documents published on C-NLOPB Website in near-real time.
- Environmental Assessment documents reviewed by C-NLOPB, other regulatory authorities and the public.
- Note: C-NLOPB conducted a Strategic Environmental Assessment (LGL, 2005) and its Amendment (LGL, 2007), prior to issuing EL 1105 to Corridor.

Project Specific Environmental Assessment Timeline

Project Component	Responsibility	Estimated Timeline
Submit Project Description (PD) and initiate Stakeholder consultation	Corridor Resources	Initiated on February 21
Release of draft Scoping Document for Public and Stakeholder review	C-NLOPB	Released February 25 4 weeks for review
Release of Final Scoping Document	C-NLOPB	2 weeks
Preparation of EA (Screening) Document	Corridor Resources	6 – 10 weeks
Submission of Draft EA	Corridor Resources	Target June
Draft EA Review	C-NLOPB, Government Agencies, Public	6 weeks
Compile comments on EA	C-NLOPB	2 weeks
Release of EA review comments	C-NLOPB	-
Respond to comments and submit EA Addendum/Final EA Document	Corridor Resources	4 weeks
Review of EA Addendum/Response Document	C-NLOPB, Government Agencies	3 weeks
Release Screening Report (Determination of significance of Project Effects)	C-NLOPB	4-6 weeks

Examples of Timelines from Exploration to Development

Hibernia

- First exploration well in 1979
- First production occurred in 1997

Terra Nova

- Discovered in 1984
- First production occurred in 2002

White Rose

- First exploration well in mid-80s
- First production occurred in 2005

Newfoundland and Labrador Benefits

- At the end of 2009, more than 3,500 people were working in jobs directly linked to the petroleum sector.
- Total cumulative offshore oil production to the end of 2009 was 1.09 billion barrels with an estimated value of $65.6 billion.
- By 2008, the petroleum sector represented about 40% of the provincial economy or GDP.

Next Steps

- Progress the regulatory application towards achieving approval to drill the well.
- Continue work on the Environmental Assessment and the associated public consultation.
- Detailed well planning, including securing an appropriate rig, supply vessels, helicopters, shorebase, etc.
- Drilling is anticipated to take place between mid-2012 and early 2014, depending on rig availability and regulatory approvals.

Summary and Conclusions

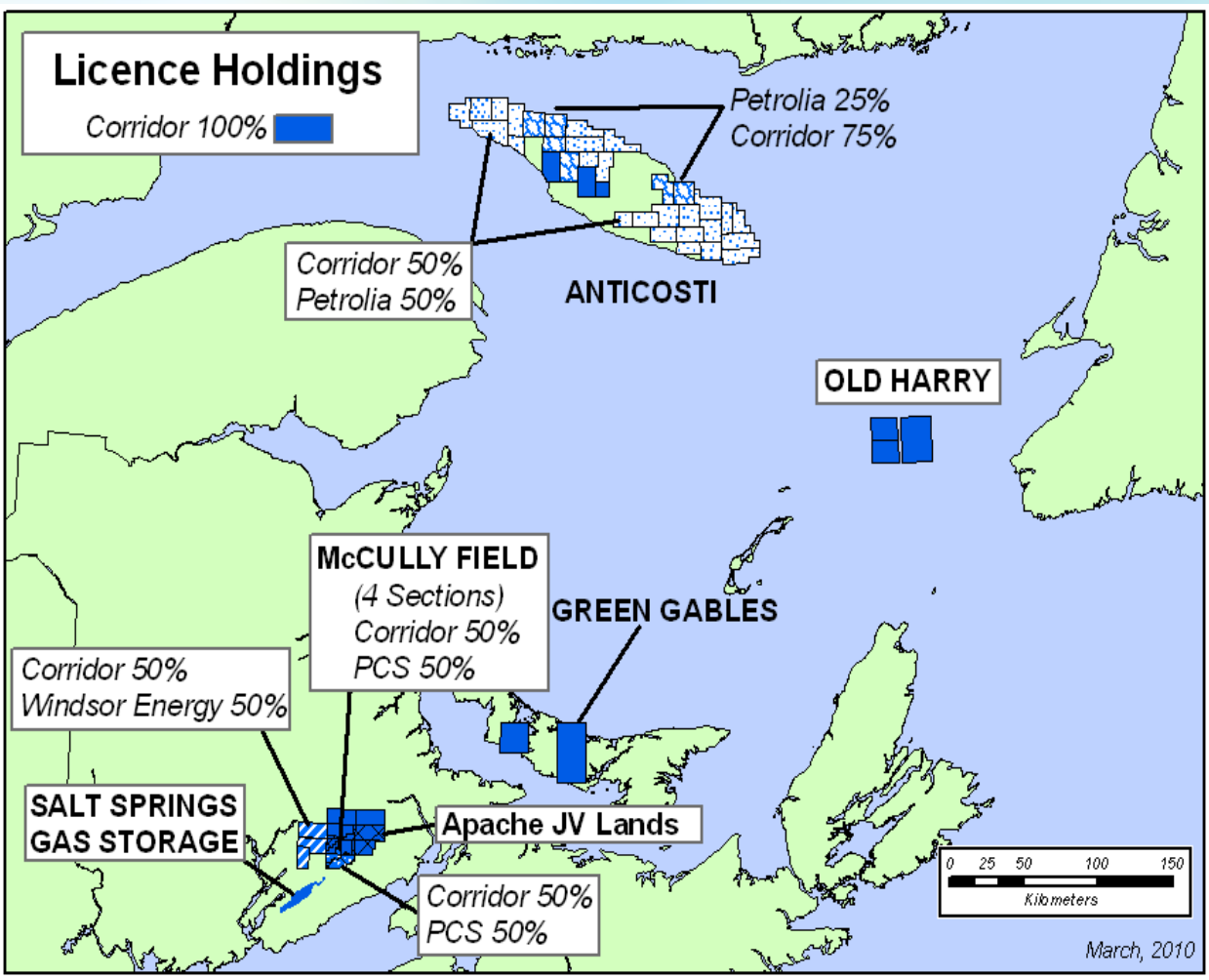
- Corridor has submitted a Project Description to start the regulatory process to drill a proposed well within EL 1105.
- A large number of applications and approvals are required to obtain an approval to drill a well within Canada's rigorous offshore regulatory regime.
- We are confident the proposed well can be drilled in a safe and environmentally responsible manner.
- We want to design the best possible exploration project with input from stakeholders.
- Responses to questions and concerns will be addressed scientifically in the Environmental Assessment and through the regulatory process.
- The Environmental Assessment will be available for review on the C-NLOPB website.

Questions or Comments

Thank You.

Toll Free: 1-888-429-4511
Website: www.corridor.ca

Who is Corridor Resources?



- Natural gas production from the McCully Field, Penobsquis, New Brunswick
- Petroleum exploration, New Brunswick
- Oil exploration, Anticosti Island, Quebec
- Natural gas exploration, Prince Edward Island
- Old Harry exploration, Gulf of St. Lawrence

Corridor Resources Operations

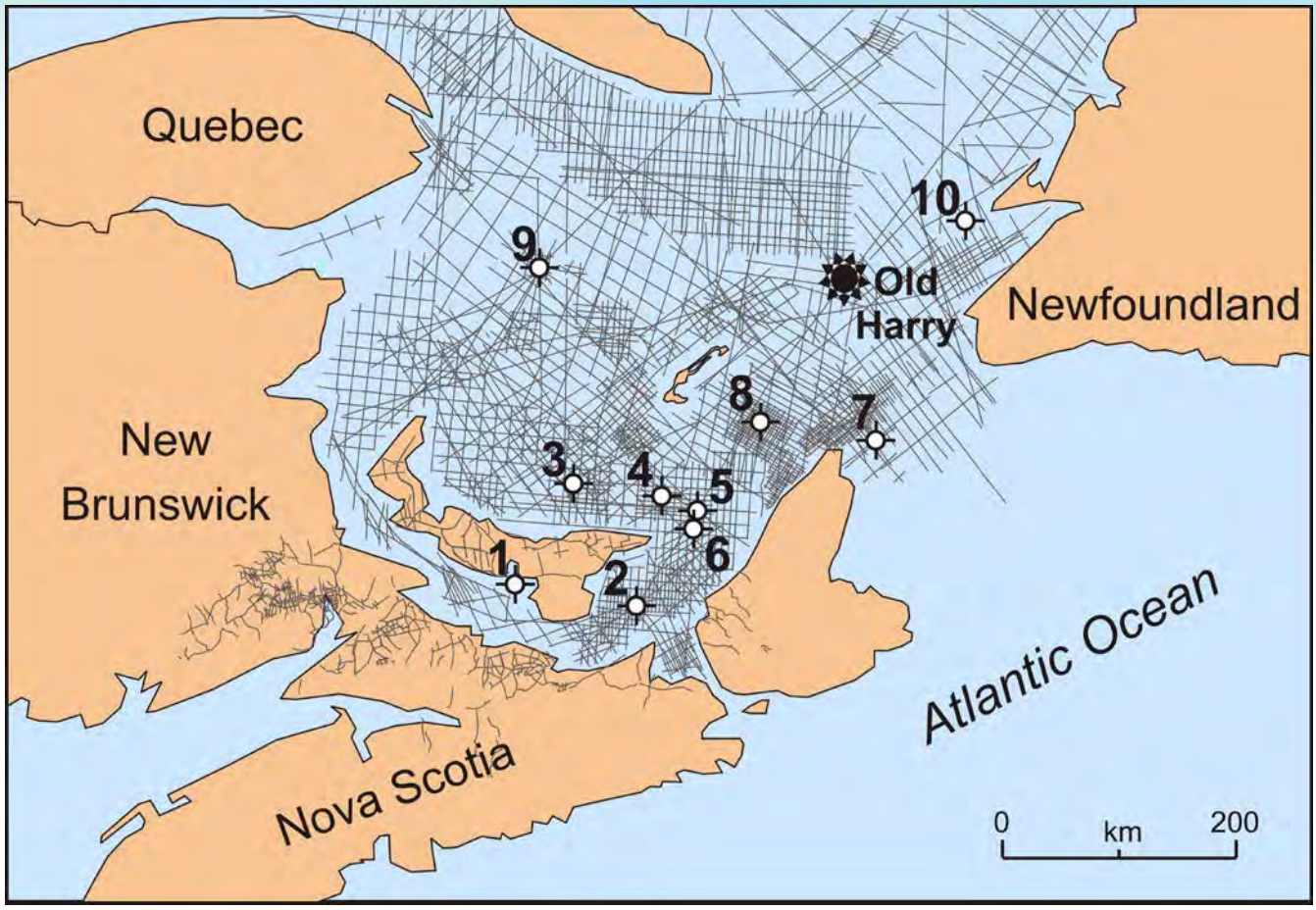
McCully Gas Plant – Penobsquis, New Brunswick

Nabors Drilling Rig 112 - Anticosti Island, Quebec
2010 Drilling Program

MV Anticosti – Geohazard Survey 2010
Newfoundland and Labrador Offshore

Shale Gas Exploration – Elgin, New Brunswick

Long History of Exploration in the Gulf of St. Lawrence



History

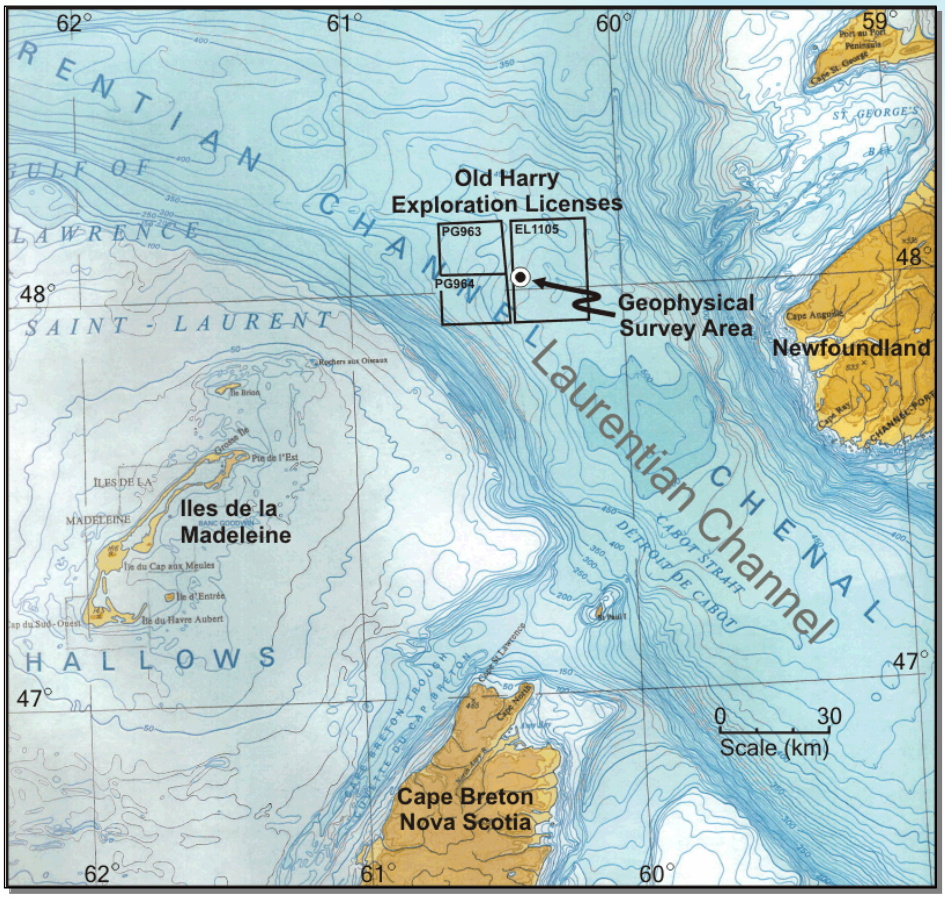
10 offshore wells were drilled and many kilometers of seismic were collected by other operators.

- Most wells drilled in 1970-80's were looking for oil
- 5 - no hydrocarbon shows
- 4 - minor shows
- 1 - significant gas discovery
- Old Harry Prospect first identified in 1970's

Corridor's Old Harry Activities

- **1996** - acquired Old Harry exploration licences
- **1998 / 2002** – collected new seismic data
- **2010** - conducted geohazard site survey

Geohazard Survey Conducted Safely

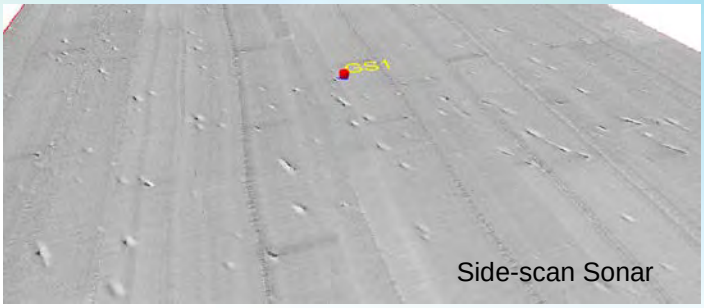


- Geohazard Survey was conducted from October 12 to October 15, 2010.
- Employed a marine mammal observer and a fisheries observer for the duration of the survey.
- 63 hours of geophysical data were collected, including:
  - low intensity seismic
  - side-scan sonar
  - seabed photography
  - sediment samples

Results

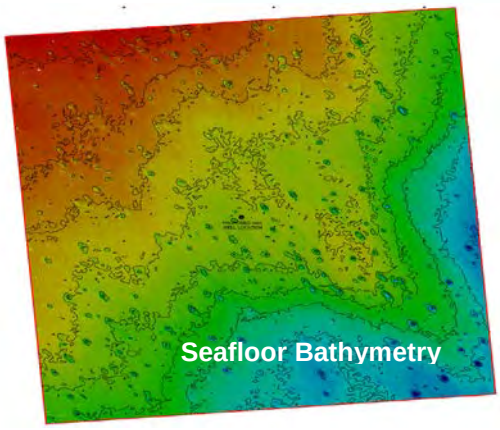
- The geohazard survey results indicated that good quality data were collected.
- The seafloor was determined to be free of shipwrecks or hazardous debris.
- A potential well location that is safe for drilling was identified.
- A decision was made to submit a Project Description to the C-NLOPB to start the regulatory approval process for an exploration well.

Examples of Old Harry Geohazard Survey Data

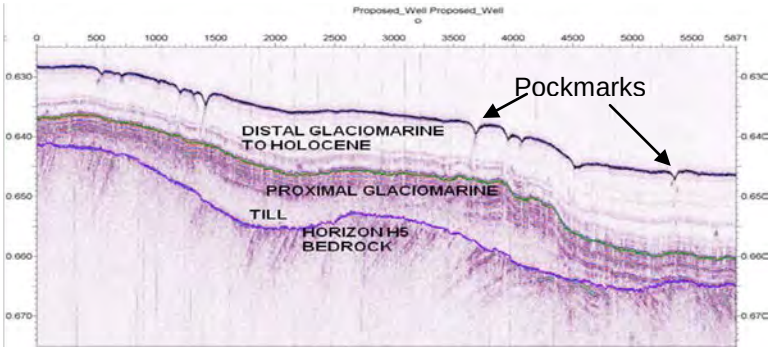


Side-scan Sonar

- The small depressions in seafloor are interpreted as pockmarks
- 1-3 m deep; 15-20 m across; 30-40 m in length
- The well will be located to avoid pockmarks


Seafloor Bathymetry

- Water depth is 464 m in the northwest and 478 m in the southeast

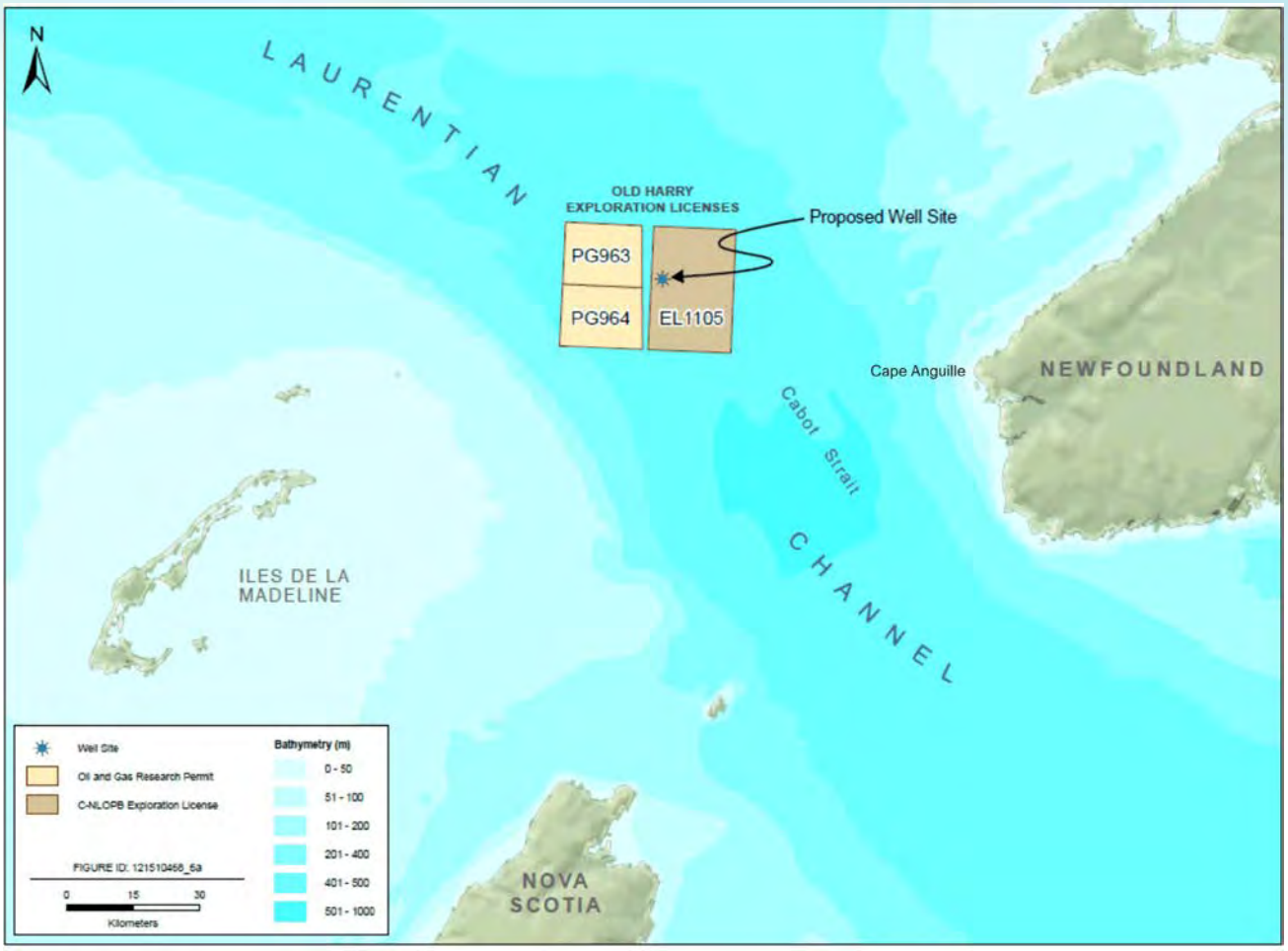


- Seismic data show characteristics of seabed sediments


Seabed Photograph – GS4

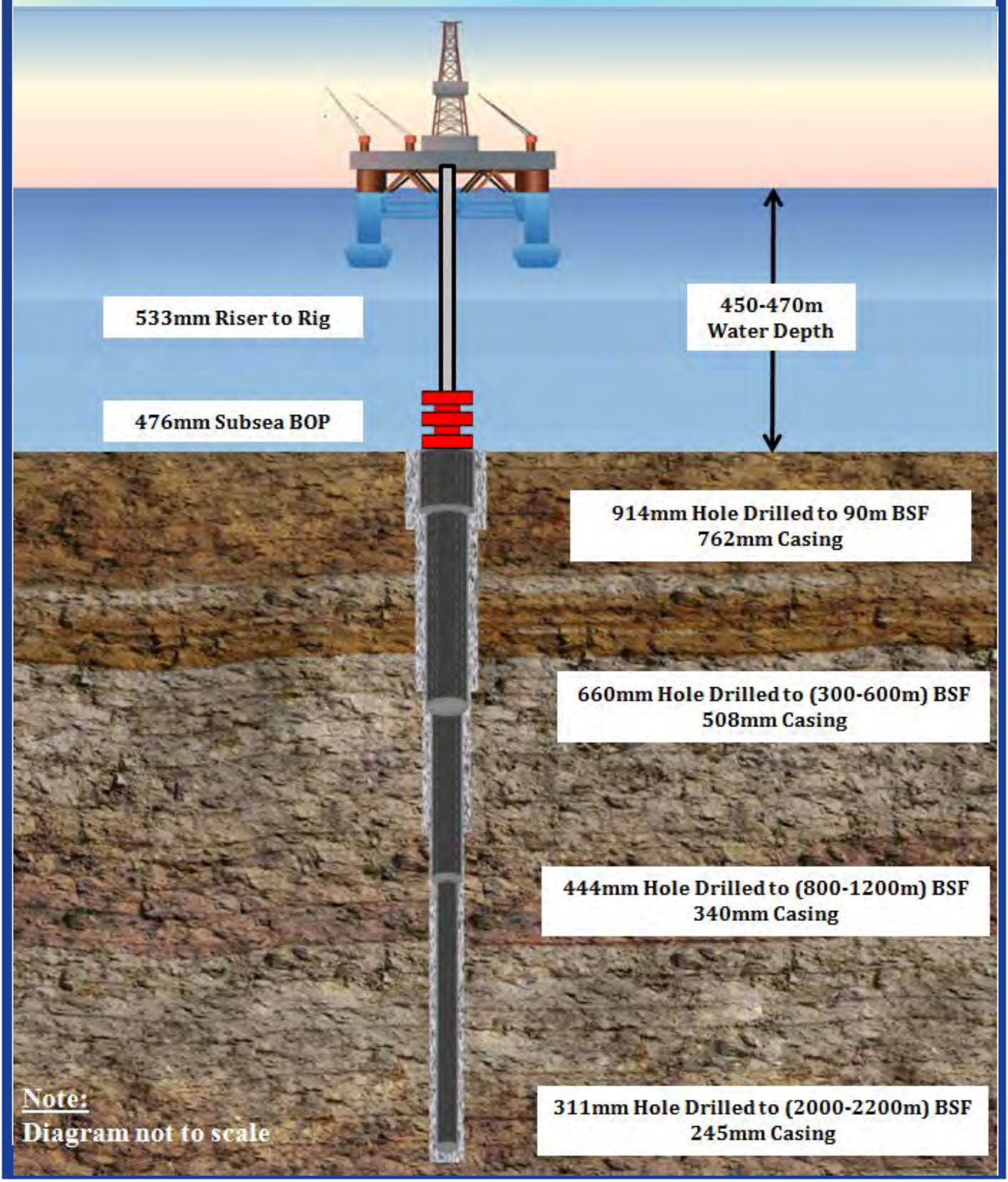
- 5 camera stations
- 3 sediment sample stations

Planning for a Safe and Environmentally Responsible Drilling Program

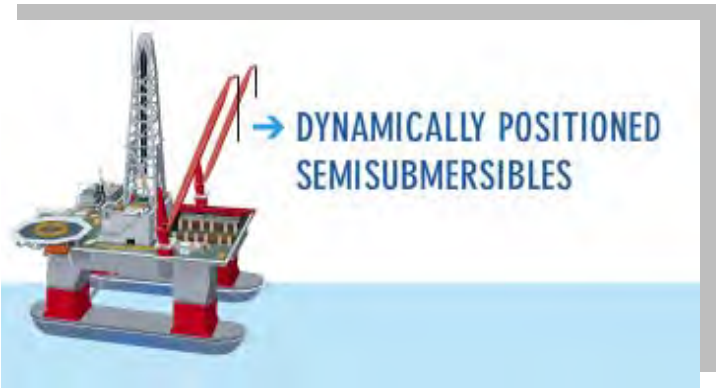


- Project Description filed with C-NLOPB on February 21, 2011
- One exploration well within EL1105 proposed
- Project Area located within the Laurentian Channel approximately 80 km WNW from Cape Anguille, NL
- Approximate water depth is approximately 470 meters
- Next Steps:
  - Complete a thorough Environmental Assessment (EA)
  - Conduct public consultation
  - Incorporate science-based issues in EA
  - File EA with C-NLOPB in June 2011

Well Design Example



Drill Rig Options for Proposed Exploratory Well



Preparation of Project Specific Environmental Assessment Document

Project Component	Responsibility	Estimated Timeline
Submit Project Description (PD) and initiate Stakeholder consultation	Corridor Resources	Initiated on February 21
Release of draft Scoping Document for Public and Stakeholder review	C-NLOPB	Released February 25 4 weeks for review
Release of Final Scoping Document	C-NLOPB	2 weeks
Preparation of EA (Screening) Document	Corridor Resources	6 – 10 weeks
Submission of Draft EA	Corridor Resources	Target June
Draft EA Review	C-NLOPB, Government Agencies, Public	6 weeks
Compile comments on EA	C-NLOPB	2 weeks
Release of EA review comments	C-NLOPB	-
Respond to comments and submit EA Addendum/Final EA Document	Corridor Resources	4 weeks
Review of EA Addendum/Response Document	C-NLOPB, Government Agencies	3 weeks
Release Screening Report (Determination of significance of Project Effects)	C-NLOPB	4-6 weeks

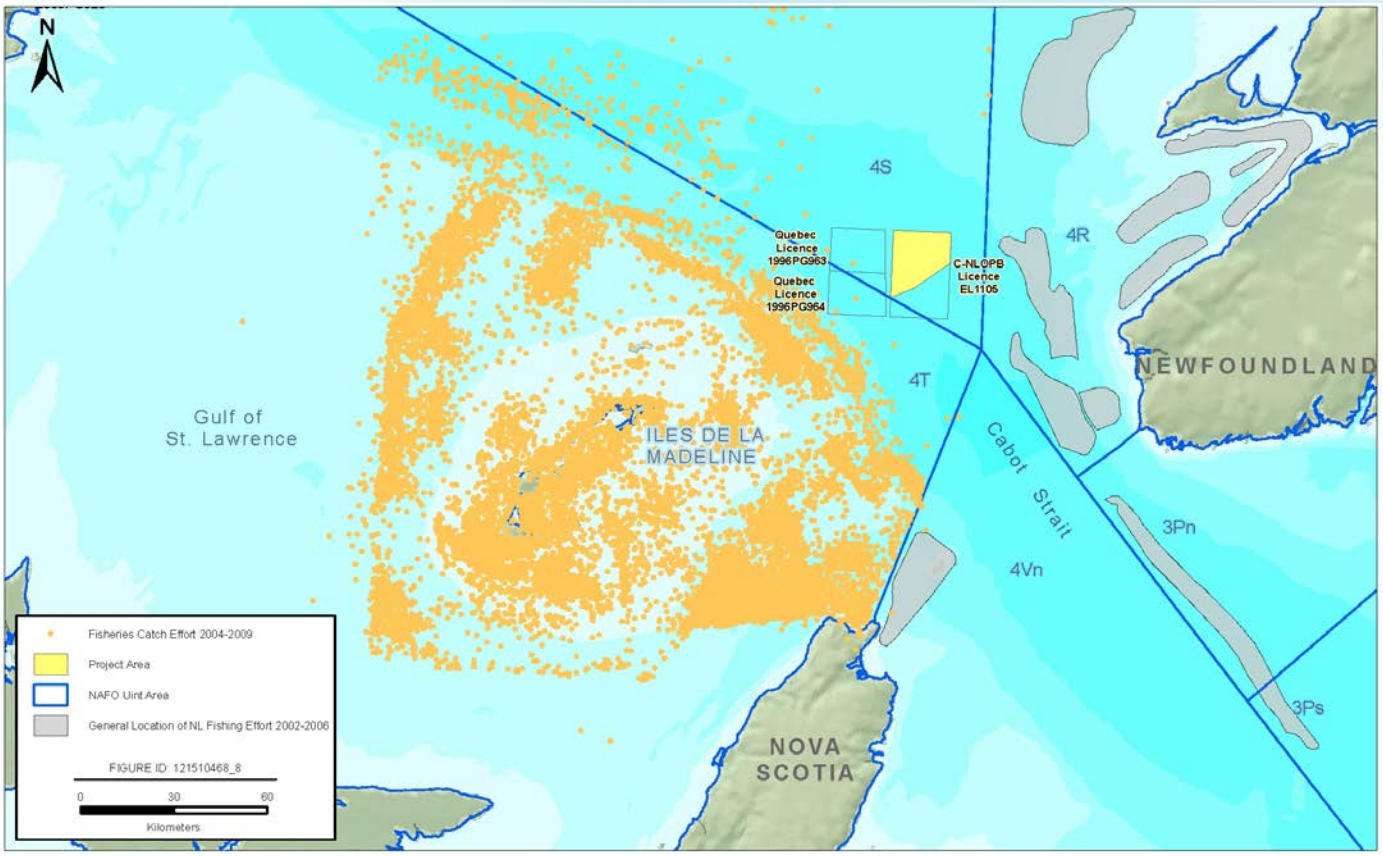
- Conducted in accordance with the Canadian Environmental Assessment Act and the C-NLOPB Scoping Document
- Documents published on C-NLOPB website in near-real time
- Environmental Assessment documents reviewed by C-NLOPB, other regulatory authorities and the public

Robust Canadian Regulatory Regime

- More than 350 wells drilled under robust Canadian regulations in Newfoundland and Labrador, with more than 500 in total in Atlantic Canada.
- Numerous legislative requirements to be met (Acts, Regulations, Guidelines)
- Operations Authorization (OA) and Approval to Drill a Well (ADW) to be obtained from the Canadian-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)

Operations Authorization (OA)	Approval to Drill a Well (ADW)
Safety Management System / Safety Plan	Seabed Survey Report
Safety reviews of contractors	Detailed geological prognosis
Training and Competency information for key individuals	Detailed drilling program
Risk Assessment	Formation pressure and fracture gradient evaluation
Contingency Plans *(Emergency Response Plan, Oil Spill Response Plan, Relief Wells, etc.)*	Barrier analysis to confirm two barriers at all times
Drilling Operations Manual	Casing Program
Well Control and Blowout Prevention Manual	Cementing Program
Contractor operations and HSE policies, programs, manuals	Drilling Fluids Program
Environmental Assessment	Casing and Wellhead Pressure Testing
Environmental Protection Plan	Formation Leak-Off Tests
Certificate of Fitness	BOP Configuration
Operator's Declaration of Fitness	BOP Pressure and Function Testing
Letter of Compliance for the MODU and each standby vessel	
Evidence of Financial Responsibility	
Benefits Plan	

Fishing Effort in the Vicinity of the Project Area



- Data shown are 2004-2009.

- Updated information and more details will be provided in the Environmental Assessment.