GENERAL COMMENTS

Environment Canada – CWS

EC's previous comments on the scoping document and project description (submitted on 29 October 2013) are still applicable to the EA report.

Fisheries and Oceans Canada (DFO)

Section 1.1 Relevant legislation and Regulatory Approvals, pg 2 - The proponent states in the environmental assessment report that the project will be guided by the "Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment" (SOCP). The requirements in the SOCP are minimum standards to be implemented during the planning and conduct of seismic programs. The proponent should be required to adhere to all relevant minimum mitigations outlined in the SOCP including the Planning Seismic Surveys, Safety Zone and Start-up, Shut-down of Air Source Array(s), Line Changes and Maintenance Shut-downs, Operations in Low Visibility and Additional Mitigative Measures and Modifications sections of the SOCP.

Section 4.3 Fisheries, pg 51 - The environmental assessment report quantifies the average landings of commercial species in the Project and Study Area in Newfoundland and Labrador from 2005 -2010. Please note that some of the fisheries in the study area are managed by the Northwest Atlantic Fisheries Organization (NAFO) with landings in countries other than Canada that should be included in this report.

Section 4.3 Fisheries pg 51 - Updated catch information since 2010, for all species is available from the DFO NL Commercial Fishery Landings Database and should be included in the environmental assessment report.

Section 4.3 Fisheries, pg 51 - There have been significant changes in a number of fisheries in recent years including:

- A decline in the landings of shrimp in recent years. Page 63 refers to a possible future decline in TAC for Northern shrimp which has now occurred. The TAC for 3L shrimp has declined from 30,000t in 2010 to 19,200 in 2011, to 12,000 in 2012 to 8600 in 2013 and to 4300t in 2014;
- The TAC for 3M Cod, primarily fished by other NAFO Contracting Parties and re-opened in 2010 and has increased to ~15,000t.; and
- 3LN Redfish re-opened in 2010 with a TAC of 3500t and is now at 7000t.

Section 4.3 Fisheries, pg 51 - A description of Bluefin Tuna fishery should be included. Historically, there has been significant catch of Bluefin tuna in portions of 3L (r).

Section 4.7 Sensitive Areas, pg 124 - The boundaries of several areas closed to fishing for the protection of Vulnerable Marine Ecosystems were changed by NAFO in September 2013. The current boundaries of these areas should be reflected in the report.

The NAFO website http://www.nafo.int/data/frames/data.html provides maps and the boundaries of closed areas.

FFAW

The spatial coverage that this Environmental Assessment involves prime harvesting areas for three major species of the Newfoundland and Labrador fishing industry. It is important that full consideration of potential impacts on other ocean users is given by the Canada-Newfoundland and Labrador Offshore Petroleum Board.

In the context of avoidance of fishing grounds and areas in which the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab, the FFAW would reiterate as we have done with other projects, there should be no seismic activity in vicinity of either active fishing grounds or survey locations. With the lack of scientific evidence showing that seismic activity does not have an impact on the biological strata.

SPECIFIC COMMENTS

Canada – Newfoundland and Labrador Offshore Petroleum Board

Section 2.2 Spatial and Temporal Boundaries, pg 5 – Please confirm that equipment deployment and data acquisition will only occur within the Project Area and not the Study Area.

Section 2.2 Spatial and Temporal Boundaries, pg 5 – Only four coordinates are provided for a five-sided Study Area. The fifth coordinate is required.

Section 2.2 Spatial and Temporal Boundaries, pg 5 – The coordinates for the Project Area should be provided.

Section 2.2 Spatial and Temporal Boundaries, pg 5 – Details on the 2014 program should be provided if the decision is made to proceed with a seismic survey in 2014.

Section 3.0 Physical Environment, pg 13 – The Oceans (2012) report should be provided.

Section 4.3.1.1 Data Sets, pg 52 – Unit Areas 3Kgk, 3Ldehirt, 3Mac and 3Nab? It appears to the reader that this is an attempt to contract multiple Unit Areas. It is awkward and requires expansion, if this is the case.

Section 4.7.1 Integrated Management Areas, Figure 4.43, pg 125 – The "Southeast Shoal and Tail of the Banks EBSA" has not been included on the figure although included in the list below the figure.

Section 5.6.1.1 Underwater Sound, subsection Invertebrate Fisheries, 1st para, pg 146 – Anecdotal information requires multiple observations (in these cases it would require multiple fish harvesters observing the same events). If it is only a single report from a fish harvester, which it appears to be, then the "anecdotal" needs to be removed and the observation by each fish harvester needs to be properly described as a single observation.

Section 5.6.2 Fisheries VEC, pg 154 – VSP Programs and Wellsite Surveys d). Section 5.2 of the Guidelines state that "Guidance on the reporting and investigation of incidents is provided in the *C-NLOPB/CNSOPB Guideline for the Reporting and Investigation of Incidents*".

Section 5.6.2.1 Sound, Fisheries Liaison Officer (FLO), line 2, pg 156 – "*when necessary Suncor will have an on-board fisheries industry liaison officer*". The commitment is made in Section 2.3.5 to have a FLO onboard the seismic vessel.

Section 5.6.2.2 Vessel Presence (including towed seismic equipment), line 6, pg 158 – Although specific survey areas have not been identified in the EA Report, it is worth

noting that any future survey areas should be planned to include adequate space within the Project Area to accommodate vessel turning.

Section 5.6.2.2 Vessel Presence (including towed seismic equipment), Avoidance, 2nd para, line4, pg 159 – A copy of this "route analysis" should be provided to the C-NLOPB.

Section 5.6.4.3 Effects of Presence of Vessels, 1st para, pg 179 – Is the reference to "…standby or picket vessel and support vessel." supposed to be a reference to vessels that the Fisheries Liaison Officer (FLO) will be on? If so, then the reference to the vessels "possibly" being present is not correct. The commitment to the use of a FLO in the EA Report, as mitigation, implies that a second vessel will be in the area at all times. This requires clarification.

Section 5.7 Cumulative Effects, pg 185 – "… in the Regional Area (as ~~pre~~ [per] the C-NLOPB public registry…"

Section 5.8 Mitigations and Follow-up, last para, pg 188 – The raw observational data shall also be submitted, in addition to the monitoring report.

Section 6.0 Literature Cited, pg 190 – Personal Communications referenced throughout the report should be included in Section 6.0.

Environment Canada – CWS

EC-01: Section 2.3.8 Seismic Streamers, pg 8 - We recommend that solid streamers be used, in order to eliminate risk of fluids leaking into the environment.

EC-02: Section 2.3.9.2 Helicopter, pg 8 - Helicopters and other aircraft should keep well away from breeding colonies, as aircraft can cause severe disturbance to seabird and waterbird colonies, and there is a serious risk of collision with flying birds. In general, maintain a distance of at least 300 m from seabird and waterbird colonies. See Environment Canada's guidelines to avoid disturbance to seabird and waterbird colonies in Canada for further information, found at http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=E3167D46-1

EC-03: Section 4.4.3 Breeding Seabirds in Eastern Newfoundland, pg 90 - The Terra Nova National Park Important Bird Area (NF017) should be added to this section and to Figure 4.39. See http://ibacanada.com/site.jsp?siteID=NF017&lang=EN for further details.

EC-04: Section 4.4.4 Seasonal Occurrence and Abundance, pg 92 - The latest seabird data cited in this document are from 2009. EC-CWS has data that is more recent than 2009. Please contact EC-CWS Biologist Carina Gjerdrum at carina.gjerdrum@ec.gc.ca for updated information.

EC-05: Section 5.6.3 Seabird VEC, pg 161 - The potential interaction of seabirds with light during times of poor visibility should be discussed in this section. Additionally, the potential for migratory birds to strand on the ship should be discussed.

EC-06: Section 5.6.3.2 Effects of Aircraft Overflights, pg 163 - See EC-02.

EC-07: Section 5.6.3.3 Effects of Accidental Releases, pg 163 - Even a small spill could have significant impacts on migratory bird populations if the spill happened to coincide with a particularly large flock of seabirds or sea ducks during a peak migratory period. The report should include references and a discussion of at least the two following relevant studies:

- O'Hara and Morandin (2010) Effects of sheens associated with offshore oil and gas development on the feather microstructure of pelagic seabirds. Marine Oil Pollution 60: 672-678. This study investigates the effects of very low concentrations of oil-forming sheens affecting the microstructure of feather in seabirds.
- Burger, A. (1993) Estimating the mortality of seabirds following oil spills: effects of spill volume. Marine Pollution Bulletin 26:140-143. This study shows that spill size does not necessarily correlate with mortality estimates.

EC-08: Section 5.6.3.4 Effects summary, pg 164 - See EC-05.

EC-09: Section 5.8 Mitigations and Follow-up, pg 188 - The seabird data collection protocols are properly cited as: Gjerdrum, C., D.A. Fifield, and S.I. Wilhelm. 2012. Eastern Canada Seabirds at Sea (ECSAS) standardized protocol for pelagic seabird surveys from moving and stationary platforms. Canadian Wildlife Service Technical Report Series No. 515. Atlantic Region. vi + 37 pp.

Fisheries and Oceans Canada (DFO)

Section 4.6 Table 4.13, pg 117 - It is the "Atlantic and Northern Gulf of St. Lawrence" population or DU of White Hake that is recommended as Threatened.

Section 4.6 p**g 118 -** DFO emphasizes the importance of complying with relevant regulations pertaining to SARA Recovery Strategies and Action Plan including the identification of critical habitat during the life of the project.

Section 4.6.1 Fishes, Subsection White Shark, pg 118 - For White Shark, the second sentence should read *"captured in inshore waters as well as offshore waters over the continental shelves…"*. Reference to offshore waters is missing.

Section 4.6.1 Fishes, Subsections Northern and Spotted Wolffish, pg 119-120 - Future EA updates should include recently published papers on Northern Wolffish and Spotted Wolffish (see Simpson *et al.* 2011, 2013).

Table 4.13, pg 116 - The title of this table should be revised to read "*SARA-listed and COSEWIC-assessed Marine Species that May Occur in the Study Area*" as species are assessed by COSEWIC, not listed. Also, the row containing Atlantic Cod listed on Schedule 3 of SARA should be removed from the table.

Section 5.6.5 Species at Risk (SAR) VEC, pg 180 - The document, "*Recovery Strategy for Northern Wolffish (Anarhichas denticulatus) and Spotted Wolffish (Anarhichas minor), and Management Plan for Atlantic Wolffish (Anarhichas lupus) in Canada*" should have been considered during the effects assessment in this section.

Department of National Defence (DND)

Section 5.6.2, Subsection Communications, pg 156 – On October 28, 2013, DND replied to the draft scoping document with the following:

"A search of the DND unexploded ordinate (UXO) records was conducted to determine the possible presence of UXO within the study area. DND records indicate that there are two wreck sites within the survey area. The sites are two submarines that were sunk during World War II:

- U-658 (46.5333W, 50.0089N); and
- U-520 (49.8333W, 47.7834N)

Given DND's understanding of the survey activities to be conducted, the associated UXO risk is assessed as low. Nonetheless, due to the inherent dangers associated with UXO and the fact that the Atlantic Ocean was exposed to many naval engagements during WWII, should any suspected UXO be encountered during the course of the proponent's operations, the UXO should not be disturbed/manipulated. The proponent should mark the location and immediately inform the Coast Guard. Additional information is available in the Annual Edition - Notices to Mariners. Section F, No.37.

In the event of activities which may have contact with the seabed (such as drilling or mooring), it is strongly advised that operational aids, such as remote operated vehicles, be used to conduct seabed surveys in order to prevent unintentional contact with harmful UXO items that may have gone unreported or undetected.

Further information regarding UXO is available at our website at www.uxocanada.forces.gc.ca.

DND is likely to be operating in the vicinity of the study area in a non-interference manner during the project timeframe; thus, there is potential for interaction with naval operations in areas where seismic activities will occur. DND is to be kept informed of dates and locations of seismic activities."

Information regarding UXO data should have been included in the EA document and Suncor's activities assessed against the data at that time.

Fish, Food and Allied Workers (FFAW)

Section 4.3.3.1 1986 to 2010 Catch Trends, pg 54 – It is suggested that the demise of the groundfish fisheries was purely a result from exhaustive fishing effort. This is not a complete description, as there is strong science suggesting that a significant change of the environmental regime, which substantially impacted the recruitment and survivability of many of the groundfish species.

Section 4.3.7 Industry and DFO Science Surveys, pg 87 - It appears that the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab is a new project with a limited scope. In fact this survey has been ongoing for over a decade and involves the sampling of approximately 1,000 locations by almost 100 fishing vessels. In 2013 the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab, the locations in NAFO region 3L were completed between September 4th and September 25th. This survey provides significant input into the scientific advice of DFO when it comes to the establishment of quotas and recruitment estimates.

Section 5.6.2.2 Vessel Presence, pg 158 - Further in the context of avoidance it is worth to note that the Environmental Assessment suggests that "other vessels must give way" to the seismic vessel, the FFAW is inclined to suggest this to be inappropriate language in this context. In section 5.6.2.1 under *Avoidance* it suggests "potential effects of seismic sound on fishery catch success **can be** mitigated by avoiding heavily fished areas …" (emphasis added), it is the perspective of this reviewer that **should be** mitigated by avoidance.

Section 5.6.2.2 Vessel Presence, pg 159 - It is indicated that for previous Newfoundland & Labrador surveys there has been a temporal and spatial separation plan; the FFAW would feel inclined for the proponent to indicate said occurrences. In the context of the surveys estimating the biological abundance, for the FFAW Science there is no such concept of adequate "quiet time" – the FFAW is unsure what is being implied and would like to reiterate that there be no activity in the areas of the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab.

Section 5.7 Cumulative Effects, pg 184 – The FFAW reviewer is only aware of the implementation of spatial separation of about 20 nautical miles having been discussed in the context of any recent programs in Newfoundland & Labrador. The suggested acceptance of a 7 day window is something that has only been seen in the context of the DFO multi-species trawl survey. The FFAW therefore reiterates the concern that exposure to seismic activity can have an effect on harvested species. Any impact on surveys and/or stock assessments would have a lasting impact for harvesters. Although the proponent suggests that there would be no significant cumulative effects on the commercial fisheries from the seismic program (page 184). The FFAW is obliged to again state that any impact on either harvesting or fisheries science should be recognized as unacceptable in Newfoundland & Labrador waters.

Section 5.7 Cumulative Effects, pg 185 - It would be worthwhile for the proponent to update as questions and comments on the Environmental Assessment are being reviewed.

Section 5.7 Cumulative Effects, **pg 185, second last paragraph** – This may hold true historically, but in recent years there has been an increase in the Seismic Programs operating in Newfoundland and Labrador waters in a given year.