



Submission to the Regional Assessment (RA) Committee

April 4, 2020

Comments and Recommendations on Select Modules in the GIS Tool

In this submission, SCCF provides brief comments and recommendations on three of the modules contained in the GIS tool:

- Module 1: Regulatory Context for Offshore Exploratory Drilling in the Study Area
- Module 14: Overview of Potential Effects: Atmospheric Emissions
- Module 15: Future Offshore Exploratory Drilling Scenarios

We also discuss, within the comments on Module 15, the need for a dedicated, separate module on cumulative effects.

Module 1: Regulatory Context for Offshore Exploratory Drilling in the Study Area

No mention of the *Impact Assessment Act*

Surprisingly, Module 1 contains no mention of the *Impact Assessment Act* (IAA) as part of the regulatory context for offshore exploratory drilling in the Study Area. SCCF presumes this is an oversight, since, as the Final Report notes, while begun under previous federal assessment legislation, “the Regional Assessment was planned and carried out with a view to its completion, submission and eventual use under the relevant provisions of the new federal Impact Assessment Act (Sections 92-103), which eventually came into force on August 28, 2019”.¹ The absence of any mention of the IAA, which creates important provisions requiring consideration of climate change impacts and the ability of the government to meet its GHG emissions reduction obligations, is a serious lacuna in Module 1 that must be addressed.

No mention of the new federal regulations on reducing methane emissions in the oil and gas sector

Module 1 makes no reference to Canada’s new methane regulations and this is an omission that SCCF believes must be corrected. According to a Factsheet published by Environment and Climate Change Canada, the first requirements under the *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)*² “came into force on January 1, 2020, in order to fulfill Canada’s commitment to reduce emissions of methane from the oil and gas

¹ Final Report, p. 4.

² SOR/2018-66, <https://laws-lois.justice.gc.ca/PDF/SOR-2018-66.pdf>.

sector by 40% to 45% below 2012 levels by 2025.”³ The Factsheet further states that the “regulations are an important element of Canada’s climate plan and contribute to Canada’s GHG emissions reduction target under the Paris Agreement.”⁴ Part 2 of the new regulations (sections 46 – 53) concern “Offshore Upstream Oil and Gas Facilities,” and came into force along with other provisions in the Regulation on January 1, 2020. While the Regulation is oriented toward production facilities, it does not expressly distinguish between exploration facilities and production facilities. Rather, it applies to “upstream oil and gas facilities”, which are facilities involved in “the extraction of hydrocarbons from an underground geological deposit or reservoir”. The key criterion is that the regulations apply to upstream oil and gas facilities that produce and/or receive more than 60,000 m³ of hydrocarbon gas per year. SCCF believes that the onus is on offshore oil and gas exploration facilities to show that they fall under this threshold if they assert that the new Regulations do not apply to them. In any case, these new Regulations play an important part of the general regulatory context for oil and gas development and should therefore be discussed in Module 1.

One other point on application of the new Regulation must be made. As the federal government’s Guidance Document on the new regulations explains, Part 2 (offshore) does not apply to a facility if a regulation under the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* (“Accord Act”) “imposes requirements that are at least as stringent as these Regulations”.⁵ The *Newfoundland Offshore Petroleum Drilling and Production Regulations*,⁶ made under the Accord Act, however, do not seem to qualify for that exception because they do not address methane releases or emissions. There is no mention of methane anywhere in the NL regulation. As such, the new federal methane regulation *does* appear to apply to oil and gas exploration projects in the Study Area and thus comprises a critical piece of the regulatory context for the RA and should be referenced in Module 1.

Module 14: Overview of Potential Effects: Atmospheric Emissions

SCCF’S comments on Module 14 in the GIS tool are largely the same as the comments we submitted in November 2019 on the Draft Literature Review for Module 14 in that this Module still pays insufficient attention to the issue of GHG emissions and the impact on Canada’s domestic and international GHG reduction targets. For purposes of the present comments on Module 14, we will not reiterate all the points made in our November 2019 submission, nor those we made on this topic in our February 2020

³ Environment and Climate Change Canada, *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)*, Factsheet: General Information, 2019, <https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/MethaneRegsGeneralFactsheet-eng.pdf>.

⁴ Ibid.

⁵ Environment and Climate Change Canada [Oil, Gas, & Alternative Energy Division], “Guidance Document on the *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector) SOR-2018-6*”, Government of Canada, November 2019, p.1, <https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/MethaneRegGuidanceDocument-eng.pdf>. It should be noted that the exception also applies to regulations made under the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*.

⁶ *Newfoundland Offshore Petroleum Drilling and Production Regulations (SOR/2009-316)*, <https://laws-lois.justice.gc.ca/PDF/SOR-2009-316.pdf>.

comments on the Draft RA Report. We must, however, underscore – again – that the information provided in Module 14 on GHG emissions from exploration and production drilling and the relationship to GHG reduction targets is insufficient. (We include production because, as we have stated previously in our submissions, we believe that the exclusion of GHGs from production improperly captures the full and cumulative GHG emissions that may flow from exploratory drilling programs).

Beyond this general point, SCCF offers several additional comments on the current Module 14 text.

Physical Activities / Components (in Table 2, Module 14)

While SCCF has previously addressed, in its February comments on the Draft RA Report, our concerns about basing GHG emissions estimates primarily on combustion (via emissions factors), we must underscore our similar concerns with the text in Module 14, in the section on Physical Activities, at the beginning of Table 2. While the discussion in this section of the table does mention fugitive emissions, and states that they “can include hydrocarbon gases....”, there is no specific mention of methane at all.

Given our comments, above, on the new federal methane regulations and their apparent application to offshore drilling (including exploration drilling activities), SCCF sees it as imperative that fugitive emissions of methane be addressed specifically in Module 14 in the initial section and elsewhere as appropriate. As such, SCCF strongly recommends that the text in Table 2 – and in fact throughout Module 14 – be revised to reflect the fact that fugitive emissions from methane are, indeed, a serious issue of concern in the offshore context. Finally, and in light of the foregoing, the concluding sentence in this part of Table 2, which implies that there are often fewer fugitive emissions from offshore than onshore facilities, should be modified, particularly since the conclusion cites only one source.

Well Abandonment and Suspensions (in Table 2, Module 14)

First, while SCCF is encouraged to see that the Module now mentions that research exists pertaining to methane emissions from abandoned wells (Module 14, Table 2, row on “Well Abandonment and Suspensions”), we must point out that two of the studies cited are improperly described and that this can lead to an incorrect conclusion about the atmospheric emissions that may occur from well abandonment and decommissioning activities.

Specifically, part of Table 2 on well abandonment and suspensions states:

However, one area of research which is gaining recent attention in the context of climate change is the potential release of fugitive methane emissions from shallow gas accumulations in the seafloor, migrating to the seabed surface along abandoned wells (Zhang and Zhai 2015; Vielstadte et al. 2017). (underlining added).

These two studies are mainly concerned with migration of methane to the *atmosphere*, not to the “seabed surface” as the text states. A key concern of these two studies (in addition to others we have reviewed), is that drilling activities, including well abandonment, can create methane pathways to

release in the atmosphere at the ocean's surface. Even the title of the research article by Zhang and Zhai, "Shallow-ocean methane leakage and degassing to the atmosphere"⁷, makes clear that the concern is specifically with release of methane to the atmosphere. A subsequent paragraph in Table 2 referring to these same two studies fails to clarify this point and is similarly in need of correction:

Some studies (e.g., Vielstädte et al. 2017; Zhang and Zhai 2015) suggest that exploration drilling and abandoned wells provide a potential methane emission pathway for fugitive methane releases from shallow gas accumulations in the overburden of deep reservoirs. (underlining added).

Again, the description of the studies, while identifying the location of the source of the fugitive emissions, does not explain that the releases of these emissions are to the atmosphere."

The research on this topic generally, – contrary to its characterization in Table 2 as an area "gaining recent attention"– represents a well-established body of studies pointing strongly toward the fact that methane emissions to the surface can and do occur in shallow-ocean drilling contexts. The Zhang and Zhai article discussed in Table 2, for example, was published in 2015 and by its own description provides a "mini review" of "the CH₄ leakage from seafloor caused by offshore oil-gas and marine methane hydrate explorations and its degassing to the atmosphere"⁸. It cites over 85 studies on this topic.

With these points in mind, SCCF strongly recommends that these excerpts, as well as the introductory sentence in Table 2, "Well Abandonment and Suspensions" be corrected. When the research cited is properly understood and described, it becomes clear that the current text's statement in Table 2 that "[N]o additional atmospheric emissions would be expected to occur as a result of well abandonment and decommissioning activities...." is inaccurate and in need of correction.

SCCF believes such emissions must be monitored, measured and included in any accounting of GHG emissions anticipated from offshore wells – whether for exploration or production.

Fugitive methane emissions from the platforms and rigs themselves: Missing from Module 14

As noted above, methane emissions related to well abandonment and flaring are discussed to some extent in Module 14, Table 2. They are also touched on very briefly in Table 2 in the section on "Well Drilling and Associated Marine Discharges" in connection with flaring, as well as mentioned in passing in Table 3 in the "Oil Spills (Batch Spills and Blowouts" section. Still missing, however, from Module 14 is information on other potential sources of emissions – particularly fugitive emissions – from oil and gas exploration operations. In both SCCF's November 2019 and February 2020 submissions to the RA Committee, we discussed a recent (August 2019) study by a large, Princeton University-led team of

⁷ Zhang, Y., and W-D Zhai (2015). Shallow-ocean methane leakage and degassing to the atmosphere: triggered by offshore oil-gas and methane hydrate explorations. *Frontiers in Marine Science* 2: 34, <https://www.frontiersin.org/articles/10.3389/fmars.2015.00034/full>.

⁸ Ibid, p. 2.

researchers, showing that offshore oil and gas rigs leak substantially more GHGs than expected.⁹ While the study was conducted looking at offshore oil and gas production platforms, it must be emphasized that methane measurements were obtained at the surface, downwind of platforms that were neither flaring gas nor engaged in oil transfer or unloading. Given certain similarities between production and exploration rigs,¹⁰ and the fact that extraction does occur in a limited way during exploration, it is important that issue of fugitive emissions from oil and gas exploratory projects be examined seriously and the studies or analyses included in Module 14. Furthermore, such information should be considered important to add to Module 14 given the new federal methane regulation, discussed above, and its aim to curb methane emissions in the oil and gas sector.

Cumulative air contaminant and GHG emissions – Missing from Module 14

Module 14 contains no information at all on the cumulative effects of various atmospheric emissions, whether across various types of emissions, across time (e.g., lifespan of anticipated projects in the Study Area), or across various sources of atmospheric emissions in the Study Area (i.e., oil and gas drilling as well as activities not related to oil and gas extraction). As such, it completely omits any information on cumulative GHG emissions of various activities in the Study Area over time – much less, the cumulative emissions of specific GHGs, such as methane. Without such information, it is difficult if not impossible to arrive at reasonable estimates of the magnitude of cumulative GHG and air contaminant emissions in the Study Area over time. Consequently, it becomes difficult or impossible to estimate the potential impacts of those cumulative emissions on the health of biological organisms, on climate change indicators, or on NL and Canada's abilities to meet their targets in relation to battling climate change. In light of the serious, urgent issue of climate change and its impacts on biodiversity, human health and well-being, the cumulative impacts of atmospheric emissions, and in particular GHGs, must be studied, enumerated and analyzed and information pertaining to each of these steps should be included in Module 14.

The lack of information on cumulative effects of atmospheric emissions in Module 14 is compounded by the fact that there is no dedicated module in the GIS tool for cumulative effects of any kind, atmospheric or otherwise. SCCF discusses this issue in the context of its comments on Module 15, below.

⁹ Riddick, S. N. et al (2019) "Methane emissions from oil and gas platforms in the North Sea", *Atmos. Chem. Phys.*, 19, 9787–9796, <https://doi.org/10.5194/acp-19-9787-2019>. See also Sullivan, J. (2019) Office of Engineering Communications, Princeton University, "Offshore oil and gas rigs leak more greenhouse gas than expected", Aug. 15, 2019, <https://www.princeton.edu/news/2019/08/15/offshore-oil-and-gas-rigs-leak-more-greenhouse-gas-expected>.

¹⁰ As the Canadian Association of Petroleum Producers states: "The drilling process is the same for all types of wells drilled offshore – exploration wells, delineation wells (used to help determine the size and shape of a reservoir) and production wells (used to actually produce the oil and natural gas from a reservoir." CAPP (undated) "Offshore Oil and Natural Gas Life Cycle", <http://atlanticcanadaoffshore.ca/offshore-oil-gas-lifecycle/>.

Module 15: Future Offshore Exploratory Drilling Scenarios and the need for a dedicated module for cumulative effects

The RA Final Report mentions and/or implies in several places that Module 15 would address the cumulative effects issue, a point made also in certain meetings during the engagement process. The concordance tables in Appendix 1.A (end of Chapter 1 of the report)¹¹ indicate that Module 15 is the module covering the factor described as “any cumulative effects that are likely to result from offshore exploratory drilling in combination with other physical activities that have been or will be carried out” and is one of the modules covering “the result of any interaction between those effects”. Similarly, Table 6.1 of the Final Report, which provides a “road map” for where certain concerns raised by Indigenous groups are addressed in the Final Report, indicates that the issue/theme “Addressing Cumulative Effects” is addressed in Chapters 5 and 8 of the Report as well as “GIS Module 15.”¹²

Module 15, however, does not in any way contain or represent a discussion of the cumulative effects of exploration drilling projects in the Study Area. Rather, Module 15 consists entirely of a report prepared by the C-NLOPB on an assessment it has made of potential exploration oil and gas activity in the RA Study Area for the period 2020 – 2028, which it describes as the “assessment period”. The assessment creates three predictive scenarios of future exploration drilling activity in the Study Area (minimum, medium and maximum) during the assessment period. (SCCF provides brief comments on the content of the report in Module 15 further below in this subsection).

While the scenarios in the predictive scenarios report are discussed in the RA Final Report in a way that connects them to cumulative effects issues, it is *not* the case that the report in Module 15 discusses cumulative effects. Rather, the discussion of cumulative effects in relation to the predictive scenarios is made only in the text of the Final Report. As such, the various mentions of Module 15 in the Final Report should be corrected to reflect the fact that this module contains only predictive scenarios – not information on how those scenarios relate to any cumulative effects.

The GIS tool contains no dedicated module on cumulative effects, and SCCF believes this is a serious lacuna that the RA Committee should address. The reason is to be found in the Government of Canada’s own approach to cumulative effects and regional assessment. The federal government has stated, on a web-page focused on understanding cumulative effects and describing approach underlying the then-proposed *Impact Assessment Act*, that: “The cumulative effects of development in a region are changes to the environment caused by a variety of activities over time.”¹³ (emphasis added). The government further indicates that its approach to addressing cumulative effects has four key components, one of which is regional assessments.¹⁴

¹¹ Final Report, p. 14.

¹² Final Report, page 165.

¹³ Government of Canada, “Cumulative Effects”, undated, <https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews/environmental-assessment-processes/cumulative-effects.html>.

¹⁴ Ibid.

Additionally, SCCF and other advocacy groups have stated previously in this process, the identification, enumeration and analysis of cumulative effects is a central feature of the regional analysis approach. Looked at another way, regional analysis is an essential tool that allows governments, the public and stakeholders to pull back from the assessing the impacts of individual projects in the same region, and use a “wide-angle lens” to assess cumulative impacts on ecosystems and human impacts at a regional scale.

With these points in mind, it would seem odd indeed not to include a dedicated module on cumulative effects among the modules available in the GIS tool.

Turning to the report presented in Module 15, SCCF wishes to make several brief comments on its content and suitability as a framework for the analysis of cumulative effects in Chapter 5 of the Final Report, particularly as it relates to GHGs.

First, the report in Module 15 concerns only potential exploratory oil and gas drilling activities and the numbers of exploratory wells potentially drilled under minimum, medium and maximum scenarios. Based as they are only on potential future drilling and is limited to exploration drilling only, the scenarios developed represent a fairly limited framework upon which to base a cumulative effects analysis. While the Final Report does make mention of other activities, such as past and present exploration drilling, existing production drilling and other activities impacting the Study Area such as general vessel traffic and commercial fishing,¹⁵ the approach in Module 15 is limited to future exploration drilling and this is problematic because it provides much too narrow a basis upon which to assess cumulative effects. Yet it appears that the Final Report relies heavily on the assessment presented in Module 15 for the cumulative effects analysis presented in subsection 5.3 of the Final Report.¹⁶

Second, the approach in Module 15 assesses future potential exploration drilling only in the abstract,¹⁷ arriving at minimum, medium and maximum well-drilling scenarios for future exploration drilling based on theoretical assumptions and modelling. SCCF is perplexed that C-NLOPB chose not to utilize actual, known information on exploration drilling projects at various stages (e.g., proposed, under assessment, approved) in order to model various scenarios or event to provide descriptive information for Module 15. This is even more perplexing given that C-NLOPB is the primary regulator and data manager for this type of information.

¹⁵ Final Report, pp. 121 – 124.

¹⁶ Notably, the first topic in ss. 5.3, cumulative effects analysis is ss. 5.3.1, “Future Exploratory Drilling Activity in the Study Area.” Final Report, p. 136.

¹⁷ The report in Module 15 contains the following disclaimer at p. 2: “It should be emphasized that this report is for the sole purpose of assisting the Regional assessment Review. All information and analysis presented in this report is for illustrative purposes only and does not reflect planned, scheduled or approved activities. Other methodologies and future forecasts could result in a variety of outcomes and configurations. There is no assertion that the activities levels modelled during this exercise are a reflection of actual or anticipated exploration programs.”. C-NLOPB, “Regional Assessment Study Area Potential Exploration Oil and Gas Activity 2020-2028, p. 2.

SCCF is concerned that the theoretical approach used in the predictive exercise in Module 15 may undercount the number of potential exploratory wells likely to be drilled in the study area. For example, the model projects that 77¹⁸ wells would be drilled under the maximum scenario, but if we look at the maximum number of wells that the proponents themselves have indicated they would drill across the 10 major exploration drilling projects proposed and/or under assessment or approval, the total is 144 wells.¹⁹ Similarly, it is unclear why the assessment period chosen for the modelling exercise is only eight years in length given that many if not most of the exploration drilling projects currently under active consideration are 10-12 years. Module 15 should include an explanation as to the large discrepancy between the number of wells projected by the model and the total number indicated in the project descriptions and assessment documents for the exploration projects currently under consideration

SCCF recommends that in addition to the model and its outcomes, Module 15 should also include an assessment of well-drilling scenarios based on actual information on exploration projects that have been proposed, are under assessment and have been approved (listed in footnote 19), as well as production projects at various stages (including likely extensions expansions, and any possible new approvals). Module 15 should include clear, regularly updated tables of exploration projects and production projects identified by project status (e.g., proposed, under assessment, approved, etc.) as well as the number of wells (sometimes expressed as a range) that proponents expect to drill on under specific exploration licences under the projects in question.

SCCF believes that a broader analysis based on a careful review of exploratory drilling projects actually proposed, under assessment and approved, as well as production projects and expansions, is essential for the development of an accurate and comprehensive approach to developing accurate estimates of the number of wells to be drilled in the Study Area in the next 10-12 years. A careful and comprehensive counting of the total number of exploratory and production wells likely to be drilled based on current plans is important for developing a more accurate picture of the GHG emissions anticipated from oil and gas activities in the Study Area.

¹⁸ C-NLOPB, "Regional Assessment Study Area Potential Exploration Oil and Gas Activity 2020-2028, p. 10; See also Final Report, p. 136.

¹⁹ BHP Canada Exploration Drilling Project (ELs 1157 & 1158); BP's Newfoundland Orphan Basin Exploration Drilling Project (ELs 1145, 1146, 1148, 1149); Chevron's West Flemish Pass Exploration Drilling Project (EL 1138); CNOOC International Flemish Pass Exploration Drilling Project (ELs 1144 & 1150); ExxonMobil Canada's Southeastern Newfoundland offshore Exploration Drilling Project (EL 1136); Husky Energy Exploration Drilling Project (ELs 1151, 1152 & 1155); Suncor's Tilt Cove Exploration Drilling Project (EL 1161); Exxon Mobil Canada's Eastern Newfoundland Offshore Exploration Drilling Project (ELs 1135 & 1137); Equinor's Flemish Pass Exploration Drilling Project (ELs 1139, 1140, 1141, 1142); and Equinor's Central Ridge Exploration Drilling Program (ELs 1159 and 1160).

Summary of Recommendations

Recommendations re Module 1

- Reference to the *Impact Assessment Act* must be added to Module 1 because, currently, it is not and this module is supposed to cover the regulatory context for Offshore Exploratory Drilling in the Study Area.
- Reference to the new federal methane regulations must be added to Module 1, for the reasons provided in the first section of these comments.

Recommendations re Module 14

- To reflect the importance seen in both the new federal methane regulations as well as research, Module 14 should include information specific to the monitoring, measuring and mitigation of fugitive methane emissions in the Study Area.
- Module 14 should include information and estimates of the fugitive methane emissions not only from well abandonment and flaring, but also those emanating from the entire platforms and drill ships. (Existing research on fugitive emissions from production platforms should be assessed for applicability to the exploration context).
- Corrections should be made to the text of Table 2 on Well abandonment and Suspensions concerning findings of two published research studies (see details in text, above), and the conclusion concerning atmospheric emissions from well abandonment and decommissioning should be adjusted accordingly.
- Module 14 should include information on the cumulative effects of various atmospheric emissions, across types of emissions, across time and across various sources of atmospheric emissions in the Study Area (i.e., oil and gas drilling as well as activities not related to oil and gas extraction).

Recommendations re Module 15; and the need for a dedicated module for cumulative effects

- Correct all characterizations of Module 15 in the Final Report indicating that the module contains information on cumulative effects, because it simply does not do so.
- Add a new module dedicated specifically to background information and analyses pertinent to the issue of cumulative effects.
- Provide a full, detailed list in Module 15 of all oil and gas projects – exploratory and production – currently under consideration in the Study Area that indicates the stage of each project and the range or maximum number of wells anticipated by the proponents of each project as represented in project documents.