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Subject: West Flemish Pass Drill cutting Modeling comments and questions

Hi Kristy,

Thank you for the meeting this morning. As discussed, below is the compilation of a number of comments we received from DFO on the drill cutting modeling for West Flemish Pass Exploration Project. If possible, please provide the information as indicated in the far right hand column for our use in the development of the draft Environmental Report.

Feel free to call me to discuss any details as well as any concerns.

Originating FA comment	Reference	Context	Request for additional information
DFO-63 DFO-64 DFO-68 DFO-69 DFO-73	Appendix D	<p>Section 3.1 of the EIS Guidelines state that the EIS must describe the nature, composition and fate (e.g. areal extent) of drilling wastes at various water depths and at various stages of drilling using dispersion modelling.</p> <p>Fisheries and Oceans Canada reviewed the modeling completed (Appendix D - Drill Cutting Dispersion Modelling Report) and raised several issues related to the methods and specific inputs used, including:</p> <ul style="list-style-type: none">• The model and forcing have not been validated and the results are based on a single run using HYCOM currents from 2012 (one run for spring and one for summer).• There remains unanswered questions such as a clear indication of the vertical resolution of the HYCOM model and if it adequately resolves the vertical structure and/or is adequate for the ocean conditions (e.g., currents/density fields) within the Project Area.• The choice of daily current output has not been justified, particularly in regions like the Project Area where high frequency motions (e.g. winds, tides, inertial oscillations) are common.• The report does not provide adequate information on the resolution of the model (the grid, time steps) relative to horizontal diffusivity (K_h) and vertical diffusivity (K_z) in highly energetic areas.• Particle size distribution of cuttings are unknown, however, a single distribution (rather than a range of possibilities) was used in the model without a rationale for using this distribution.• The settling velocities taken from a study in the Gulf of Mexico (Brandsma and Smith 1999), which has a very different density structure than the Project Area, has not been justified.• Figure 1-4 demonstrates that there is a general lack of seasonality of the currents; however, Figure 3-1 indicates that seasonality has an impact on the deposition. As such, it is unclear how the different seasons lead to the noted differences in deposition.	<p>Provide a rationale for how the inputs (horizontal and vertical diffusivity coefficients, mixing parameters, single distribution particle size, and daily current output) using only one year (2012) of the HYCOM currents data are justified and adequate for the Project Area and therefore adequate for predicting drill cutting dispersion.</p> <p>Justify the rationale for applying settling velocities based on data from the Gulf of Mexico and provide reference.</p>

Kind regards,

Brent

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