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NRCan File # NL-054

Elizabeth Young  
Environmental Analyst  
Canada-Newfoundland and Labrador Offshore Petroleum Board  
5th Floor, TD Place, 140 Water Street  
St. John's NL  
A1C 6H6

**Subject:** NRCan's review comments of ConocoPhillips Canada's (CPC) responses - provided in their May 28, 2007 Environmental Assessment Addendum Document - to NRCan's marine geology and seismic hazard technical review comments on the Laurentian Sub-basin Exploration and Drilling Program Project EA.

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Dear Ms. Young:

The following is in response to your correspondence dated May 30<sup>th</sup>, 2007, requesting NRCan review and provide comments on the "Laurentian Sub-basin Exploration Drilling Program Environmental Assessment Addendum" in Newfoundland and Labrador by ConocoPhillips.

NRCan had experts with the Geological Survey of Canada (GSC) review the addendum dated May 28<sup>th</sup>, 2007 and have provided comments relating to the marine geology/hazards assessments of the exploration and drilling program of the project.

NRCan experts have identified how some of NRCan's concerns have been dealt with. NRCan still has remaining concerns and has identified deficiencies; these are outlined in the detailed comments attached below.

Please do not hesitate to contact me if you have any questions.

Thank you,

Kathryn Cooper  
Environmental Assessment Officer  
Science and Policy Integration

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## **1. ESS Review of Marine Environmental Geology Aspects of CPC Responses**

LGL and CPC have done a good job of dealing with most of the specific comments that were concerned with the lack of information on the continental slope.

Some concerns have been dealt with by pointing out that the Board requires a detailed geohazard survey and risk assessment prior to a well being drilled. Of course, the specific risk at a well site may have regional environmental consequences, but with the new material added in response to comments 12-17 the scope of that risk is now identified, with possible exceptions in regard to deep-water benthos noted below.

NRCan still has concerns that the Valued Ecosystem Component (VEC) approach deals with known ecosystems on the continental shelf but does not adequately treat the deep-water ecosystems that are poorly known at present and thus not presently valued. This was the purpose of NRCan's original comment 38 and was also an issue that NRCan raised with regard to the Orphan Basin Environmental Assessment. The CPC response to comment 70 and 71 addresses these concerns, perhaps as best as can be done with present published literature, but highlights the great lack of knowledge on the fate of deep-water discharges and the response times of deep-water benthos. The fact that the accidental discharge at Marathon's well on the Scotian Slope was restricted to narrow pathways emphasizes the fact that such discharges may flow into much deeper water, where the benthos are more fragile. For this reason, NRCan does not think that the response to comment 77 is adequate, but the issue is covered in the response to comment 71. In comment 70, the issue of long recovery times for deep-water benthos is avoided by focusing on corals, which occupy a particular ecological niche and are not representative of deep-water benthos generally, and by the first paragraph to the response which deals with wells in < 600 m water depth. These wells certainly provide useful information that suggests that discharges are not a problem, but its applicability to a 1500 m water depth well is not assessed. NRCan agrees to the response to comment 76 that the scale of a single well is small compared with the scale of the Western Boundary Undercurrent or the Sohm Abyssal Plain and thus dilution will be very effective.

In summary, NRCan still has scientific concerns about the effect of well discharges on deep-water benthos, but this is not NRCan's area of expertise. The proponents have done a good job of summarizing the available literature and have made valid arguments that the footprint of such discharges is usually small and dilution will occur if the footprint is larger.

## **2. ESS Review of Seismic Hazard Aspects of CPC Responses**

The Proponent's responses to a large extent avoid the issue that NRCan had raised in its seismic hazard review, i.e. Comment number 1 in the CPC response document.

Comments on each CPC response to NRCan's seismic hazard comments are provided in the table below, along with suggested actions for resolution.



Comment	Subject	Comment on proponent's response
1 (first part)	Should the project go ahead?	<p>The response is comprehensible, but addresses only the risk for the drilling phase. The issue as to whether the project should go ahead at all is not addressed.</p> <p>NRCan leaves up to the RAs to take a decision on its comment 1, if the response is sufficient basis for allowing the drilling to proceed.</p>
1 (second part)	60% is on the stable continental shelf	What about the remaining 40%?
11	Mitigation of earthquake-initiated accidents	<p>Proponent says "See responses 12-17".</p> <p>Responses 12-16 do not address the subject, being mainly descriptive geology.</p> <p>Response 17 indicates "CPC will conduct a detailed geohazard survey and risk assessment to be reviewed by the Board."</p> <p>Will the survey address exploration drilling or be adequate for both the exploration drilling and development?</p> <p><b>NRCan is willing to review the future geohazard survey and risk assessment document if requested by the RA.</b></p>
62	Risk mitigation due to earthquake associated slope failures	<p>"Should it be necessary..." suggests that there might not be a risk assessment after all.</p> <p>Seems to contradict response 17. Responses should be consistent.</p>
64	Earthquake risk to floating rigs	<p>Response is "see section 2.4".</p> <p>If this is the EA section "multiple ocean uses", the reference makes no sense.</p> <p>Clarification is needed.</p>