

## EC Review Comments on Deep Panuke Offshore Production Environmental Effects Monitoring Plan (EEMP)

The comments below are those resulting from the Environment Canada review of the Deep Panuke *Offshore Production Environmental Effects Monitoring Plan (EEMP)*. This report was developed by the proponent, EnCana, and submitted to the CNSOPB/CEAA/DFO/EC EEM Framework Working Group for review and comment.

### General Comments:

- In Section 1, page 7, Introduction and Scope, the requirement for the Environmental Effects Monitoring (EEM) plan is explained. While EEM is the focus of this document, it would be beneficial to identify, in this section, the other key environmental monitoring effort that will be undertaken and how the two intend to work together. The other monitoring effort is the Environmental Protection and Compliance Monitoring (EPCMP).
- It is indicated in several places in the report that since the EEM program is to be an adaptive program, EEM components may be dropped, added or modified following consultation with the CNSOPB EEM TAG. While it is reasonable that an EEM design be adaptive, the elimination of a component completely from an EEM program eliminates the ability to conduct temporal comparisons over the life of a project and defeats one of the purposes of the program as an early warning indicator of undesirable environmental change. Decreasing the frequency of monitoring for a particular component and/or decreasing the level of monitoring speaks to the desired adaptability of an EEM program while retaining the ability to conduct temporal assessments over the entire life of the project.
- In Table 4.2 of the General EEM-related Regulatory Commitments, the following is indicated;

*Encana is committed to making EEM results publically available and supports the archiving of environmental monitoring data in a regional database.*

However, there is no further information provided in the EEM plan on this regulatory commitment. Will Encana develop this database and update it with each subsequent EEM study? To whom will this database be accessible? Clarification is requested when, how and in what format the EEM data will be made publically available.

- Table 4.4, Air Quality Predictions

There should be a similar kind of reference as in Footnote 9 (produced water modeling) that acknowledges the dispersion modeling that was conducted as part of the EA.

- Table 7.2

What is the anticipated timeframe for the assay methodology to research fish egg fertilization?

- There is no information provided on the statistical analyses of the data from the EEM studies. It is expected that each study will also include a quantitative statistical assessment of the results. Additionally, successive studies should also

be statistically analyzed to determine whether there may be temporal differences between studies or any possible trends.

## **Component Specific Comments**

### **Produced Water (PW) Chemistry and Toxicity:**

- In the Goals for PW monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4.4 (e.g. 1<sup>st</sup> item in Table 4.4) should also be included.
- In footnote 24, it is indicated Atlantic cod may be more relevant than the Threespine Stickleback as a test species for the offshore Deep Panuke PFC location. While this is true, until a standard test for cod had been developed, it is recommended that any produced water fish bioassay tests conducted under the OWTG utilize a standard method.
- The sea urchin fertilization test is currently being revised. The updated version should be used in toxicity testing once it becomes available.

### **Marine Water Quality Monitoring**

- In the Goals for Water Quality Monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4-4 should also be included.

### **Sediment Chemistry and Toxicity**

- In the Goals for Sediment Chemistry and Toxicity Monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4-4 should also be included.
- Consideration should be given to adding grain size, ammonia, total organic carbon and total inorganic carbon to the list of parameters for the sediment chemistry analysis.
- As a physical sediment sample will be taken at E-70, consideration should be given to including a quantitative analysis of the benthic invertebrate community on the mud/cuttings pile to determine the extent of marine colonization. This would be in addition to the video assessment,

### **Fish Habitat Alteration**

- In the Goals for Fish Habitat Alteration Monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4-4 should also be included.
- From the SOEP EEM program, poor video quality was an issue in the assessment of the fish habitat alteration. This should be taken into account by Encana to determine whether better technology is now available for this component.

## **Fish Health Assessment**

- In the Goals for Fish Health Assessment Monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4-4 should also be included.
- It is indicated that the fish health will be examined once within 3 years after First Gas. It is indicated that additional testing will be done in the event of increased produced water volumes or if there are evident fish health effects during the first assessment. Fish health should be examined at least every three years during the lifetime of the project, with a possibility of a reduction in frequency if no effects are confirmed in two consecutive studies.
- How many fish species will be collected? Will the fish be analyzed according to sex?
- Taint has been omitted from the analyses of the shellfish component. Was this an oversight?
- Consideration should be given to including metals in the suite of body burden parameters. Barium should be considered at a minimum.
- It is indicated in Footnote 60 that moisture and lipid content and lipid classes may be included in the shellfish analyses. It is recommended that these parameters be included as they will likely be useful in conjunction with the body burden assessment.

## **Marine Wildlife Observations**

- With regard to the following regulatory commitments:

*Encana will consult with the Canadian Wildlife Service (CWS) in regard to an appropriate follow-up program for identification and verification of predicted impacts on marine birds including provisions of appropriate mitigation measures. Encana's commitments to conduct marine bird surveys, and to develop and implement mitigation and follow-up programs (e.g., interactions of birds with lights, flares and spills) will include consultation with the CWS in regard to the specific design elements set out in Environment Canada's October 9, 2002 review of the Addendum (Volume 1) (see Appendix 2, Issues 4, 5 and 6).*

and

*The issues to be addressed by Encana [Note: Relevant to Offshore Production Operations] include but are not limited to:*

- *refining the EEM with updated information on marine birds;*
- *management of spills and effects on marine birds;*
- *influence of lighting and flaring on birds;*
- *verification of the absence of species of special concern;*

CWS has not been contacted regarding, nor does the EEMP address, certain elements of the follow-up program that were included as regulatory commitments in the comprehensive study reports for the project. For instance, while a study will be conducted by Acadia University, to verify interaction of birds with lights and flares, it is not clear how the proponent proposes to develop mitigation for

interactions with lights, flares, and spills, in the event that these should occur. It is also not clear how would the efficacy of mitigation be monitored?

How does the proponent propose to manage spills and their effects on marine birds? When will a spill response plan for birds be submitted to us for review?

How does the proponent propose to verify the absence of species at risk?

Should a large number of stranded birds be detected during a daily deck sweep, would information about the event be submitted to CWS in a timely manner, or would that data only be transmitted to CWS when the yearly bird salvage report is sent in.

It should be noted that it is not the responsibility of CWS to prepare follow-up plans for project proponents. It is up to the proponent to prepare the draft plan and to provide it to CWS for review.

- In Section 6.6.1, the following statements are made:

*“...wildlife observers have noted no apparent attraction of seabirds to manned offshore platforms during drilling or production activities.”*

*“Based on the limited transect data collected to date, there is insufficient information to state conclusively whether the platforms serve to attract seabirds.”*

CWS is not aware of any study designed specifically to quantify avoidance/attraction to offshore platforms in the region, nor of an analysis of the data described here been done to specifically address avoidance/attraction. Unless adequate supporting data and analysis is provided, these statements should be removed from the EEM Plan.

- In Section 6.6.2, page 47, the following statement is made:

*“There have been no obvious behavioural effects on marine wildlife due to noise, lights and/or flare on manned platforms during drilling or production activities.”*

Again, CWS is not aware of any studies that have tested the effects of lights and flares on manned platforms. If no studies have been done, there is no basis to say that there is no effect. This is not a “lesson learned” from the SOEP EEM Program.

- In Section 6.6.4, page 47, the following objective is listed:

*“Identify the oil type/source on feathers of beached seabirds found on Sable Island.”*

Who would be doing the analysis to determine the source and type of oil?

In addition, the value of beached bird surveys exceeds the ability of typing oil found on birds. An additional objective should state that trends in oiling rates will be monitored through the current beached bird survey program underway on Sable Island.

- Section 6.6.4, page 47

In the Objectives subsection, the last bullet indicates that measures will be developed to mitigate risks to “wildlife”. As the integrated bird management research study is only relevant to seabirds and not whales or turtles, “wildlife” in this sentence should be replaced by “seabirds”.

- Section 6.6.6, page 48

An additional bullet should be included to state that beached bird survey data collected on Sable Island will be analyzed using a standardized approach, including:

- 1) only birds with > than 50% of body remaining to be included in oiling rate analyses,
- 2) presentation of the number of unoiled birds per km of beach searched to accompany each of the oiling rates presented;
- 3) alcid oiling rates presented separately for murre and dovekeys as murre oiling rates can differ than those of dovekeys,
- 4) winter and summer oiling rates and deposition rates to be presented separately, and
- 5) statistical trend analyses using logistic regression models to be conducted to properly infer conclusions on trends in oiling rates.

### **Air Quality Monitoring**

- In the Goals for Air Quality Monitoring, the verification (or perhaps contribution to the verification) of relevant predictions in Table 4-4 should also be included.
- Information on the dispersion modeling and estimates conducted as part of the EA should be included in the Background for this EEM component.
- There are other reporting requirements from the Deep Panuke Project with respect to air emissions. These include reporting requirements for GHGs, VOCs and to the NPRI. The information reported for these other requirements may also be useful in terms of verifying emission estimates and investigating air quality anomalies on Sable Island.

### **Edits and typographic errors**

#### **Abbreviations, page 5**

COOGER = Canada Offshore Oil and Gas ~~Environmental~~ Energy Research

#### **Section 6.3.5, page 35**

In the list of sampling locations, sample site D-70 is indicated. Should this read E-70 instead?

**Section 6.7.1, page 49**

Sable Island is located in the Atlantic Ocean off the east coast of ~~North America~~  
Nova Scotia.

Environment Canada EEM Framework Working Group  
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