

110823_Comments on EMCP Response to Additional Review Comments Part 1 - 11.txt
From: McCracken, Ian [Dartmouth] [Ian.McCracken@EC.GC.CA]
Sent: Tuesday, August 23, 2011 3:59 PM
To: Young, Elizabeth
Cc: Corkum, Jeffrey [Dartmouth]; Troke, Glenn [St. John's]; Hicks, Darren
Subject: Hebron Oil Development

Elizabeth,

EC has reviewed the proponent's responses to review comments which were attached to your letter of August 19, 2011, as well as the Revised Draft CSR in Track Change mode sent from your office on August 8, 2011. The following comments concerning your letter of August 19, 2011 are offered for your consideration.

EMCP Comment 129: EC 46 Attraction of Seabirds to Platforms

EC is satisfied with the changes made by the proponent. It was noted that the wording in the response was correctly modified from "Environment Canada Canadian Wildlife Service" to "Environment Canada's Canadian Wildlife Service". This change should also be reflected in the Draft CSR.

EMCP Comment 28: EC 14 Offshore Wind Climate and Offshore Extremal Wave Analysis

The proponent's responses were satisfactory. However, clarification is needed regarding the adjustment of peak values of sustained winds from one sampling period to another (mentioned in July 29 comments and August 4 responses).

With regard to section 3.2.1.2, sustained winds are averaged over some period, such as one hour or 10 minutes. The adjustment is applied to peak or extreme values from one averaging interval to another, not to all values. This adjustment (reference US Geological Survey 1979) is applied in sections 3.1.3.1 (Nearshore Environment, Wind and Wave Extremes, Wind), 3.2.1.2 (Offshore, Wind Climatology), and 3.2.2.6 (Offshore, Wind and Wave Extremes). It appears that the adjustment was used incorrectly for part of section 3.2.1.2. Regrettably, this was not noticed earlier. The text in section 3.2.1.2 states that the "MSC50 one-hour average wind speeds have been adjusted to 10-minute mean wind speeds, for consistency with the observations from the platforms". It was assumed that the statement was applied only to the monthly maxima in Table 3-21 (and to the Extreme Value Estimates (sections 3.1.3.1 and 3.2.2.6)). However, it appears that the adjustment was inappropriately applied to the individual values used to calculate the MSC50 monthly means in Table 3-20 and the distributions in Figures 3-18 and 3-19. Revision of the table and figures may be required. In section 3.2.1.2, the phrase "to convert from 1-hour mean values to 10-minute mean values" should be corrected to read "to convert from peak 1-hour mean values to peak 10-minute mean values".

The following additional comments apply to the Revised Draft CSR. Most indicate minor corrections or suggestions.

Chapter 3 Physical Environment Setting

Note on Data Sources: Description of the nearshore and offshore environment used the MSC50 1954-2005 wind and wave dataset. The MSC50 now extends another 4 years, to 2009. For future analyses, it would be advisable to use the most up-to-date set available.

3.1 Nearshore Environment

3.1.1.1 Wind Climatology

Please clarify in the text use of the terms Mosquito Cove and Bull Arm as

110823_Comments on EMCP Response to Additional Review Comments Part 1 - 11.txt related to the Oceans wind measurements. While in the Revised Draft CSR, the Oceans Ltd. Weather Station is now referred to as the Oceans Bull Arm station, there is still text that refers to winds measured within Mosquito Cove (p3-2).

It was noted in the document "Spill Trajectory Modelling for the Hebron Project" by AMEC (2010), section 3.3.2 states that the Oceans Bull Arm (OBA) winds were from an RM Young anemometer on a floating dock at the Hibernia GBS deepwater site in Bull Arm. If applicable, it would be relevant to include this information here.

Figure 3-1 MSC Climatology Grid Point (M6012874)

It would be helpful to include on this map the locations of the other data sources listed in Table 3-1. If the map was shifted 0.1° longitude further to the west, it would include the locations of Argentia and Arnold's Cove, without losing the location of any data sources to the east.

Table 3-1 Data Sources for Grid Point M12874 and other Observation Points

- * Title could just be Data Sources.
- * Suggest column header "Depth", could be "Water Depth" for clarity.
- * Request: Please clarify in the table/text the information concerning elevation – does this refer to station elevation ASL or instrument elevation? If instrument elevation, is this ASL or AGL? It would be useful to include both station elevation and anemometer height (above ground level). The elevation for the Bull Arm Environment Canada weather station (climate ID 8400755) was 119 m (ASL), but the table shows 13.7 m.
- * The longitudes for the Oceans Bull Arm wind and waves contain a typo: -51°, should that be -53°?

P 3-6:

The highest wind speed of 27.8 m/s recorded at Bull Arm – need to specify that this is the Environment Canada station. The date was February 13, 1995, not the 14th as in the Revised Draft CSR.

3.1.1.2 Temperature

It should be clarified whether EC or Oceans was the source of the temperatures (text and table 3-4) (or add "s" to station).

3.1.1.3 Tropical Systems

The values in the text need to be updated (including the number of storms) to correspond to the updated values in Figure 3-5 and Table 3-5.

3.1.3 Wind and Wave Extremes, 3.1.3.2 Waves

The text incorrectly says that the MSC50 grid point used was "outside of the nearshore environment". Although it was outside Bull Arm, it was still near shore, well inside Trinity Bay.

The text refers to results in Table 3-18 – should that be Table 3-13?

3.2 Offshore

3.2.1.2 Wind Climatology

- * P3-37: Table 3-20. The text or a note in the table could indicate that Glomar Grand Banks and GSF Grand Banks (not GFS as in the note) were the same platform, reporting at different periods under different names. The text

110823_Comments on EMCP Response to Additional Review Comments Part 1 - 11.txt refers to Table 3-25 twice (should it be 3-20?)

* Note: The text says that "methods to reduce wind speeds from anemometer level to 10 m have proven ineffective due to atmospheric stability issues". It is interesting to note that the report by AMEC (2010) with regard to winds input to the oil spill trajectory modeling (Section 4.3) does describe use of a height dependent scaling factor that is reasonable to use over the open ocean to adjust sustained winds from platforms to 10 m. In future analyses, it may be helpful to use platform air and sea temperature measurements to include stability in height adjustment of wind speeds.

* Table 3-27. The wind speed units were changed from m/s to knots, but the values are in m/s.

3.2.2.1 Waves and 3.2.2.6 Wind and Waves Extremes

There are two different sections numbers 3.2.2.1: Bathymetry and Waves. 3.2.2.1 Waves includes results of an extremal wave analysis (Table 3-20 Extreme Wave Statistics, p. 3-57), which is separate from the results of a different extremal wave analysis presented in Section 3.2.2.6 Wind and Waves Extremes (Table 3-51 Extreme Significant Wave Estimates..., p 3-74).

It is requested that the information on two different extremal wave analysis results for the offshore (part of 3.2.2.1 and 3.2.2.6) be adjacent and appropriately titled, rather than separated.

If you have any questions, please contact me at the coordinates below.

Regards,

Ian

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