Identifier	Topic	Reference to EIS/EA Report	Summary of Previous Comment	Proponent's Response to Previous Comment	Follow-up comment/ Request for Information	New Proponent Response	Subsequent Comment
			Date: August 2015 MOE-Air 2	Date: November 2015	Date: January 2016	Date: August 2016	
MOE-Air 2B	Air quality	EIS/EA § 6.1.2, Atmospheric Environment TSD Version 1 & 2 and Appendix 3.IV.	The modelling results show concentrations of some compounds are predicted to exceed applicable ambient criteria. Update Tables MOE Air-2-1 and MOE Air-2-2 to include TSP background concentration, and also provide information on cumulative effects (modelled plus background concentrations) at the known and possible receptors.

The Proponent provided the information regarding frequency above the applicable criteria for $PM_{2.5}$. The frequency analysis should include any compounds that have potential exceedances of applicable criteria. In addition, the frequency analysis should also be presented graphically (isopleths) to understand the geographic extent of the frequency above the applicable criteria in addition to the Table MOE AIR-2-3. | Ambient monitoring data for the SPM (i.e. TSP) size fraction is not readily available for the monitoring stations that were used to quantify representative background air quality concentrations; however, an estimate of the background SPM concentration can be estimated from the available PM_{10} and $PM_{2.5}$ monitoring results. Fine particulate matter (i.e., $PM_{2.5}$) is a subset of the PM_{10}, and PM_{10} is a subset of SPM, as shown in the following Figure 1. Therefore, it is reasonable to assume that the ambient concentrations of SPM will be greater than corresponding PM_{10} levels, and PM_{10} concentrations will be greater than the corresponding levels of $PM_{2.5}$. The overall levels of $PM_{2.5}$ in Canada were found to be about 50% of the PM_{10} concentrations and so on (CEPA/FPAC 1998). This estimate is conservative since the only sources of particulate matter in the study are from long range transportation and the larger particle size fraction would be subject to deposition. By applying this ratio it would be possible to estimate the background SPM concentration for the region to be two times the PM_{10} concentration. Tables MOE Air-2-1 and MOE Air-2-2 have been updated to include the background concentration for TSP.

Figure 1:Relationship between Suspended Particulate Matter, PM_{10} and $PM_{2.5}$

Appendix 3.IV of the Atmospheric TSD contains tables of air concentrations as a result of the Project. The background concentrations can be added to these values at each receptor location to display the cumulative air concentrations. Table MOE AIR 2-4 summarizes the cumulative concentrations (Project + | 1-hr AAQC for SO2 is 690 µg/m3 and the maximum 1-hr SO2 concentration (modelled plus baseline) is 871 µg/m3 as shown in Table MOE Air-2-2, above the AAQC for SO2. Also, the modelled 24-hr acrolein concentrations are well above the AAQC based on the data presented in Figure T-12-1. Update Table MOE Air-2-2 to include 1-hr and 24-hr SO2 AAQC, and maximum 24-hr concentrations for acrolein. Also update Table MOE Air-2-3 to include SO2 and acrolein.

The proponent indicated that frequency analysis considered only the receptors at which the maximum concentrations provided in Table MOE-Air-2-2 occurred. Provide frequency of exceedances above applicable criteria at known or possible receptors to understand the geographic extent of the frequency of exceedances above applicable criteria.

EMBR:
While it is understood that a maximum, worst case emission scenario is typically required to ensure compliance during worst case conditions, this type of approach is only applicable if compliance is achieved or can likely be achieved through mitigation. Since the maximum predicted concentrations are significantly above the AAQCs, achievement of compliance is through mitigation is far from certain. Also, as noted by CMC, this scenario is unlikely to occur in actuality, and therefore frequency of exceedances that were presented are excessive and unrealistic. As such, a more reasonable modelling scenario (based on average daily production and activity rates) is required | The emission predictions have been revised based on the maximum annual average production rate and the results of the updated dispersion modelling are summarized in the attached memorandum. Table 3 provides the concentrations resulting from the Project alone and Table 4 includes the contribution from the baseline concentrations.

Table 4 of the attached memorandum includes the AAQCs for SO2 and acrolein and Figures 4-5 provide the FAAAC isopleths for SO2 and acrolein.

Figures 1-5 provide isopleths of parameters that were modelled to have concentrations above the ambient air criteria in the LSA and the receptor locations.

Attachment: Technical Memorandum: Revised Emission Rate Assumptions and Dispersion Modelling Results – Hammond Reef Gold Project | |

Identifier	Topic	Reference to EIS/EA Report	Summary of Previous Comment	Proponent's Response to Previous Comment	Follow-up comment/ Request for Information	New Proponent Response	Subsequent Comment
			Date: August 2015 *MOE-Air 2*	*Date: November 2015*	*Date: January 2016*	*Date: August 2016*	
				background) for the criteria air contaminants for the 24-hr averaging period. These values were assessed in the Human Health and Ecological Risk Assessment. It is important to recognize that the original Air Quality Assessment was completed with the intent to assess O.Reg.419/05 compliance and compare against the health based PM2.5 CAAQS. As described in Section 3.1.4 of the Atmospheric Environment TSD, the assessment focused on a conservative "worst case" operating scenario resulting in conservative emission rates and dispersion modelling. These results were passed on to other technical disciplines for assessment (e.g., terrestrial ecology, human health). Since the results of the these assessments, did not predict any adverse effects, no refinement of the operating scenario or emission rates were completed even though refinements may reduce the modelled concentrations significantly and further reduce the following Frequency above Applicable Criteria Analyses. Frequency above Applicable Criteria Analyses were completed for all compounds for which maximum ambient air concentrations were predicted in Table MOE-Air2-2 to be above the applicable criteria. The assessment used a maximum emission rate scenario that assumes the maximum road distance and the maximum production rate. This scenario may never occur in actuality however it was chosen in order to capture the maximum scenario for multiple activities without having to assess multiple operating years. The Frequency above Applicable Criteria Analyses assumed that this maximum emission rate occurs for every day over the 5 years meteorological data set which will not occur during the actual operation phase. For this reason this Analysis significantly overestimates the actual concentrations once the mine is in operation. If a Frequency above Applicable Criteria Analyses was planned for PM10 and SPM as part of the EA, then a different operating condition would have been selected.	to ascertain the expected "typical" 24-hour maximum concentrations. Similar to previous requests, the results should be presented in both graphical and tabular formats.		

Version 3 Hammond Reef Gold Project EIS/EA – Addendum (Part B)
Responses to Provincial Information Requests   1656263

Identifier	Topic	Reference to EIS/EA Report	Summary of Previous Comment	Proponent's Response to Previous Comment	Follow-up comment/ Request for Information	New Proponent Response	Subsequent Comment
			Date: August 2015 MOE-Air 2	*Date: November 2015*	*Date: January 2016*	*Date: August 2016*	
				The Frequency above Applicable Criteria Analysis exercise that has been completed considered only the receptors at which the maximum concentrations provided in Table MOE-Air-2-2 occurred, and assessed the frequency of above-criteria estimates at those receptors. The results of the Frequency above Applicable Criteria Analyses for each relevant compound and averaging time are provided in Table MOE-Air-2-3. Figures T-12-1 through T-12-8 have been provided as a response to comment T(2)-02 and provide concentration isopleths and indicate the maximum concentration locations for each substance in each study area and averaging time. In addition, the receptors at which Frequency above Applicable Criteria Analyses have been completed for each compound, study area and averaging time are indicated in the tables in the legends of these figures. The Figures also show the locations of sensitive receptors. **Relevant Attachments:** Updated Tables MOE Air-2-1, MOE Air-2-2 and MOE Air 2-3 Table MOE Air 2-4 Figures T-12-1 through T-12-8			