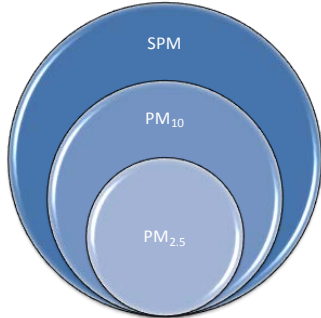


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| | | | <i>Date: March 2014 MOE</i> | <i>Date: June 2015</i> | <i>Date: August 2015</i> | <i>Date: November 2015</i> | |
| MOE Air-2B | Air quality | EIS/EA § 6.1.2, Atmospheric Environment TSD Version 1 & 2 and Appendix 3.IV. | The air quality assessment was conducted based on the provincial compliance assessment as indicated in the report, which only considers the emissions from selected stationary sources, and only pollutants with POI limits were included in the discussion. The report also indicates that all the sources emissions from the operation phases were included in the modelling for the human health and environmental assessment. It should be noted that this is an environmental assessment. | <p>Table MOE Air-2-1 (attached) displays the existing ambient air quality concentrations within the Project study area as well as the maximum predicted air concentration that resulted from modelling emissions from all sources for the Project during the Operations Phase (including mobile sources). Predicted air concentrations are provided in each of the study areas, as shown in Figure 1 (attached). As noted in the response to comment MOE Air-1, there is no baseline concentration available for TSP.</p> <p>The baseline values were then added to the model predictions to yield predicted maximum ambient air concentrations. These concentrations and the relevant criteria are displayed in table MOE-Air-2-2 (attached).</p> <p>The air quality LSA that was defined in the Final EIS/EA Report was conservative as it did not include any buffer area around the Mine Site Area. It is also noted that Canadian Malartic Corporation's mining rights extend beyond the LSA. Subsequently, the Project was modelled with a 500 m buffer around the LSA. For PM_{2.5}, the 98th percentile of the modelled concentrations falls below the criteria with the 500 m buffer.</p> <p>Air quality in the LSA is predicted to exceed ambient criteria 21% of the time however this value drops to 2% when the 500 m buffer is considered. It's important to note that the ambient criteria are not meant to be a pass/fail test. Due to industrial activities,</p> | <p>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.</p> <p>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 as provided in the Addendum Attachment 5.</p> | <p>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 PM₁₀ and PM_{2.5} monitoring results. Fine particulate matter (i.e., PM_{2.5}) is a subset of the PM₁₀, and PM₁₀ 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 PM₁₀ levels, and PM₁₀ 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 PM₁₀ 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 PM₁₀ concentration. Tables MOE Air-2-1 and MOE Air-2-2 have been updated to include the background concentration for TSP.</p> <div style="text-align: center;">  </div> <p>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 + background) for the criteria air contaminants for the 24-hr averaging period.</p> | |

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| | | | | <p>transportation and human population, there are many regions in Canada that exceed the ambient criteria. The purpose of the criteria is to provide a basis for the assessment of potential effects. For this Project, the HHERA assessed potential health effects as a result of the Project emissions and air quality was not identified as a significant risk at the human health receptors.</p> <p>Attachments: Tables MOE Air 2-1: Existing and Predicted Ambient Air Concentrations Tables MOE Air 2-2: Maximum Ambient Air Concentrations for the Project Tables MOE Air 2-3: PM_{2.5} Concentrations and Frequency Above Criteria Figure MOE Air 2-1: Air Quality Study Areas</p> | | <p>These values were assessed in the Human Health and Ecological Risk Assessment.</p> <p>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 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.</p> <p>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.</p> <p>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</p> | |

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

1656263

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|------------|-------|----------------------------|---------------------------------|--|--|--|--------------------|
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| | | | | | | <p>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.</p> <p>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.</p> <p>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</p> | |