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FOR THE MARATHON PALLADIUM PROJECT

TRANSCRIPT OF PROCEEDINGS
held virtually at Toronto
on Monday, March 28, 2022, at 9:00 a.m.

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REVISED TRANSCRIPT

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Virtual proceedings

--- Upon resuming on Monday, March 28, 2022,
at 9:00 a.m.

PANEL CHAIR: Thank you. Good morning, everyone, and welcome to day 10 of the public hearings for the Marathon Palladium Project.

My name is Debra Sikora, and I'm the chair of the joint review panel. My colleagues on the panel are Gay Drescher on my left, Laurie Bruce on my right. For the next two days we plan on covering topics related to the human environment. I won't repeat my full opening remarks from day 1 of the hearings as they can be found in the transcripts and on YouTube. But I will cover some housekeeping items as we begin this week.

Just a reminder that live audio and video streams and recordings of this hearing are available to the public through YouTube. Anyone in the virtual hearing room with their camera or microphone turned on will be captured, and images and recordings of you and your surroundings will be broadcast to a publicly available YouTube video. If you have

any concerns about this, please contact the secretariat and we'll do our best to accommodate while considering the need to conduct an open and transparent public process.

The secretariat has been assisting with logistical and process-related questions throughout this hearing, and they will continue to do so. They can be reached by writing to the project e-mail address found on the public registry.

In the event of an emergency where you are please always consider your safety first and exit your location if needed. When it's safe to do so, please let us know how we may assist, and we'll find time to reschedule your presentation if needed.

For today we do plan on taking a 15-minute break mid-morning and mid-afternoon with a one-hour break for lunch.

While there was an updated hearing schedule posted, I'll just do a quick review so we'll clear -- we're all clear how the day is currently structured. We'll first hear from Generation PGM followed by Health

Canada and the Ontario Ministry of the Environment, Conservation and Parks. We'll then proceed with the first segment of questions for these presenters related to air quality, greenhouse gas emissions and noise.

For the second segment of the day we will hear presentations from Generation PGM, the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries and the Town of Marathon. Following these presenters we'll proceed with questions related to socioeconomic effects and land and resource use.

We will continue to provide an opportunity for Generation PGM to respond to any of the information presented for each topic session with remarks for the human environment currently scheduled for tomorrow.

So before we begin with our presentations for today, are there any questions or procedural matters that participants would like to raise.

Okay. Well, thank you again for joining today, and I will turn it over to Generation PGM who is our first presenter for

the day. Mr. Anwyll, good morning.

MR. ANWYLL: Good morning everyone. I hope everybody enjoyed their long-ish weekend.

Can I get the AV tech to pull up the presentation, please. Thank you very much. Next slide, please.

So today we'll be presenting air quality, greenhouse gas emissions and our noise segment as was introduced earlier. Next slide, please. And we can go through most of this presentation. So next slide, please.

I'll introduce the presenters today. Again, myself being Drew Anwyll with Jeremy Dart, Cathryn Moffett and Tabatha LeBlanc. All from Generation PGM. And our technical witnesses we'll have today as usual is Mr. Brian Fraser, and I've got a few other folks that we wouldn't have met so far. That will be Gregory Crooks from Stantec doing air quality. Sean Capstick from Golders doing climate change and greenhouse gas, and Frank Babic from Stantec as well.

Next slide, please. And we can continue through these to the start of

air. Next slide. Next slide, please. And next slide, please. And next slide. One more. We'll be getting to the end of this soon. Next one. There we go. I'll hand over to our next presenter. Thank you very much.

PRESENTATION BY GREG CROOKS:

MR. CROOKS: Okay. Thank you, Madam Chair. Greg Crooks for the record. I'm going to be giving a brief overview of the air quality assessments that was done for the project.

The assessment approach that we took was to first look at traditional knowledge and incorporate it into the assessment wherever available. In the case of Generation PGM this included looking at locations of traditional land use and resource use and assessing their quality effects at those locations.

We would next go ahead and define the air quality study areas that we would be examining. And for that we would look at a local study area which would be the region in which air quality would be expected to be affected by project, and a regional

study area which would be looked at in terms of the potential for the project to interact with other existing or planned projects in the region.

We then established baseline or existing air quality conditions, so looking at would currently -- the air quality levels currently would be in the local study area.

We then moved ahead to develop an emissions inventory of sources and based on those sources determined a list of contaminants of potential concern to evaluate in the air quality assessment. These included contaminants such as particulates, nitrogen dioxide, metals and so on. We then used computer-based dispersion models to predict ambient air quality due to the project emissions.

And the methodology that we used for doing emissions inventory can also -- the dispersion modelling that was conducted all followed guidelines that are set out by the Ministry of Environment, Conservation and Parks, MECP.

We then used the model

predictions and the baseline levels of each COPC to assess the cumulative effects on ambient air quality. So in effect what we do is we take the predictions air quality effects due to the project and add them on to the baseline or existing air quality to look at cumulatively what would be occurring in the local study area. And then based on those model predictions we would assess the significance of those.

Next slide, please.

And these are the two study areas that we looked at. So we defined a local study area which was a region which extends about 10 kilometres around the site study area boundary, and that's shown in the larger picture on the left. And then we also chose the regional study area which is an area that extends 50 kilometres around the site study area, and that's shown on the inset picture on the bottom right of this figure.

Next slide.

When we did the air quality assessment, we looked at a number of locations of specific interest which we refer to as

special receptors, and for this study we identified 97 special receptors. And these receptors are location of particular interest such as residences, hospitals, schools, areas of traditional land use, as well as locations that are identified by the terrestrial and human health team as being of interest for their studies as well.

In addition to the 97 special receptors in order to define impacts of the project over the local study area we used a gridded set of receptors that had over a 11,000 receptors in it to define the air quality in the local study area.

Next slide.

For the baseline air quality we updated the assessment that was done in 2012 to utilize the most recent monitoring data available. The project is located on a remote area of northern Ontario. Air quality is primarily influenced by traffic on Highway 17, and we would expect background levels to be low relative to other areas.

The available monitoring data in northern Ontario is national air pollution

surveillance stations or the NAPS stations, and those are typically located in larger urban residential, commercial or industrial areas, and these locations are expected to have a higher background concentration relative to local study area. So the use of this data in defining the background air quality level for the local study area is expected to be conservative. So this approach limits the contribution the project makes to air quality and can result in the recommendation where stringent mitigation measures to limit project emissions than would otherwise be required if lower baseline air quality data -- if it were available and could be used.

Next slide.

The results of studies were that 77 of the 83 contaminants of potential concern that were identified for the project and that were assessed for project construction and operations are predicted to result in an increase above baseline conditions but remain below relevant air quality criteria.

Now, there were exceedances predicted of benzene and benzo(a)pyrene, but these exceedances are primarily due to background levels which are conservative as well as existing traffic on the local roads with the project only contributing a small amount predicted to the predicted exceedances.

There were also exceedances predicted of crystalline silica, dustfallen nickel, but they were infrequent or limited in spatial extent. And with additional migration measures applied it is expected that concentrations of these COPCs can be reduced to the below criteria.

There were exceedances predicted of the Ontario NO2 criteria, but they were infrequent, limited in spatial extent. Exceedances of the federal NO2 Canadian Ambient Air Quality Standards which is referred to as the CAAQS in the industry were also predicted and -- but limited in spatial extent as well.

Now, the NO2 predictions in particular are expected to be conservative as they have done several conservative

assumptions inherent in the emissions estimation methodology and so were expected to overestimate potential changes in air quality.

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During detailed design the migration measures will be incorporated to address predicted COPC exceedances ensure the product applies with applicable provincial and federal regulatory requirements.

Now, PGM's actions with respect to NO2 measures will be dependent on how the CAAQS criteria are applied by the government of Ontario. The NO2 CAAQS came into effect in 2020, but they actually haven't been adopted by Ontario as a standard or criteria, and therefore there's some uncertainty in terms of how they will be applied in the future by the province.

But in the interim Generation PGM is going to be implementing several migration measures to reduce NO2 emissions and these include using only on-site equipment that meets tier 4 emission standards, and this is an emission standard which is the most stringent currently available for mobile

equipment, also to implement effective and timely vehicle maintenance to maintain the mining equipment in good working condition and apply no idle -- no idling policy to reduce emission of the mobile equipment and other vehicles during their use.

So the overall conclusions of the air quality study was that with mitigation and environmental protection measures implemented the project is not predicted to result in any significant adverse environmental effects or significant adverse cumulative effects.

Next slide.

As follow-up Generation has committed to developing an air quality monitoring program during construction and operations that will measure ambient levels of particulates, criteria air contaminants, dustfall, operations haul road silt content, and other parameters of potential concern, and the results of the monitoring will inform adaptive management measures.

Depending on if -- how the NO2 CAAQS were applied by Ontario the need for

NO2 monitoring to evaluate actual levels relative to the CAAQS will also be assessed. Now, the ambient monitoring program will be developed in consultation with applicable regulatory agencies, communities, including Indigenous communities and stakeholders. And during this consultation and development process the final list of contaminants to be monitored, you know, will be discussed and finalized at that time.

Thank you. Next slide, please, and I'll now turn the presentation over to Sean Capstick.

PRESENTATION BY SEAN CAPSTICK:

MR. CAPSTICK: Thanks, Greg. So thank you, Chair Sikora. Sean Capstick for the record.

I would like to talk about greenhouse gas emissions or GHGs, specifically the effect of the project on natural environment, the emission of the greenhouse gas emissions and how it could affect radiated forcing, and the impact of the project on Canada's ability to meet our ambitious net zero goals. But first, let me start with some

definitions.

Could I have the next slide, please.

So greenhouse gas accounting has been developed over practice, and it's divided into three classes of greenhouse gas emissions or referred to as scopes.

There's scope 1 emissions which are direct emissions from a project, these include stationary combustion, energy use to the facility, mobile combustion at the project. Scope 2 emissions which are indirect emissions typically associated with electricity or with the purchase of heat, those are necessary for the project operate, electricity being the prime example and then everything else. This other class of emissions, the scope 3 emissions are not directly emitted by the project but can be influenced by the project. There are upstream activities that the project could influence, and then downstream emissions that also can be influenced by the project.

I'll come back to these types of definitions in the past, but I will draw

your attention to the one class that has been developed by the greenhouse gas protocol. That's the use of the sold products because we'll come back to that in terms of the -- qualitatively looking at the assessment of the project.

And then there are a number of greenhouse gases. They are typically referred to as CO2 equivalents, so CO2 being the most prominent greenhouse gas, but there are other compounds that also would cause this radiated forcing dealing with product combustion or refrigerants or other compounds. So if we can go to the next slide, let me talk about the approach that we followed when we were looking at greenhouse gas emissions.

So the first thing was to develop a emissions inventor based on the expected operations. And this evolved as the project was further defined, and there were a number of inventories developed over time to estimate the greenhouse gas emission during construction, operations and closure.

This -- in my opinion this is a typical approach and typically overestimates

the emissions from a project because it's based on a maximum production capacity and unitization of the haul trucks which are the greatest source of greenhouse gas emissions, and when companies are in operations those efficiencies are not typically maintained year over year. There was a significance assessment, and this was primarily based on magnitude; the total amount of greenhouse gas emissions compared to Canada and Ontario's emissions.

An emission reduction plan was developed and that was part of the ongoing operations. This ties into the environmental monitoring plan that is part of the EIS and part of the project. And then I would like to come back to the scope 3 emissions that I introduced before.

So let's talk more about the effects. We can go to the next slide.

So the inventory of greenhouse gas emissions primarily were from combustion and primarily from the mobile equipment at the site. So this is the trucks used to extract, haul the ore to the

processing facilitate. The other -- these are primarily greenhouse -- it's primarily CO2 with some nitrous oxide and some natural gas, CH4. The other greenhouse gases are not expected to be emitted in significant quantities from the project.

In comparison to the project Canada's greenhouse gas emissions are approximately 730 megatons per year, and Ontario's is approximately 160 megatons for year. So in terms of magnitude comparison the emissions from the project are small compared to the overall -- Canada's overall and Ontario's overall impacts, and the updates through the most recent greenhouse gas inventory, IR 6.4 does not change that assessment.

There are a number of greenhouse gas mitigation options that are proposed for the project. The mine efficiency measures that Mr. Anwyll described as part of the overall project overview and some of the air quality mitigation measures described by Mr. Crooks will also reduce the greenhouse gas emissions in addition to the greenhouse gas

specific measures outlined in EIS which again are primarily around efficiency around the mobile fleet and minimizing energy use by that fleet.

There is another important reinforcing measure to maintain that energy efficiency and that is the federal and provincial greenhouse gas reporting programs. The site will be required to report to both of those programs. It's over the threshold for reporting, so there will be regular annual emission inventories that have to be prepared based on the actual emissions. They will be third party verified as part of the reporting programs, and the site will be subject to a price on carbon.

Currently in Ontario under the Pan-Canadian framework for greenhouse gas reduction, Ontario has an emissions performance standards program or EPS program that puts a price on carbon based on how efficient the operations are in terms of an emission intensity. That emission intensity is based on piers that was calculated by the federal and the provincial governments and

that price -- the ultimate amount of money that the operations will have to pay each year will be dependent on how well they meet that emission performance standard, and whether they are above or below.

So finally let's return to the scope 3 emissions. If we can go to the next slide.

So as we've heard through -- in the introductions the project will provide critical minerals that are necessary for the transition to a low carbon economy and allow Canada to meet our nationally determined contributions. That nationally determined contribution is the amount -- the reduction that Canada has put in place in terms of the Paris Accord and the commitment to below 2 degrees change or 1.5 degree change and will reduce the global emissions.

So it's looking at that -- if you recall the definitions, it's the use of the sold products. So by copper being used in electrification by palladium and metals group used in batteries, that will help that transition to a low carbon economy and can

help not just Canada but the globe. And greenhouse gas emissions are a global issue. It doesn't matter. Climate change is not affected in Canada by Canadian operations. It's a global emission, so by producing these minerals it will help reduce.

The other scope emissions are controlled. They are not reported by the project, but they are controlled by the Pan-Canadian Framework on Clean Growth, and that price on carbon will influence other scope 3 emissions like transportation and the materials that are upstream of the process.

And then finally Generation PGM did conduct an independent benchmarking of their operations. This was done by a third party consultant that provides this benchmarking internationally to look at all copper producers globally, and the results of this assessment show that that carbon intensity -- different calculation to what -- the EPS, but carbon intensity calculation that includes some of those scope 3 emissions are low in the top quartile compared to their international peers.

And with that I'll turn it over to Mr. Babic to talk about noise, thank you.

PRESENTATION BY FRANK BABIC:

MR. BABIC: Thank you very much, and good morning, Madam Chair and panel. My name is Frank Babic for the record. I'll be discussing the noise impacts for the project.

Next slide. And next slide.

So to begin we'll look at the local and regional study areas that were considered for noise. We looked at the two main areas, that being the project area as well as the Town of Marathon. We also looked at the connecting highway between the two as there are haul traffic between the main project area to the haul -- to the rail loadout facility. We looked at a 1 kilometre local study area in a 5 kilometre regional study area with respect to noise.

Next slide.

So to begin we looked at the -- what we call the sensitive receptors, the points of impact for noise. We begin with the traditional considerations of residences,

campgrounds, daycares, schools, places of worship and hospitals. These are identified on the map here within the local study area. In addition with respect to IR responses we also looked at representative Indigenous traditional uses. We looked at two of the closest ones, specifically the Bamoos Lake and Pic River area.

Next slide.

With respect to the noise baseline, baseline noise measurements were conducted in August 2009. Additional measurements were taken in September 2013 at four locations considered to be most representative for the project in coordination with the Ministry of Environment and Conservation and Parks.

We looked at those 2013 measurements and considered them to be representative of the existing baseline as of 2021 as there were no changes to the study area that would have anticipated changes to baseline.

Next slide, please.

With respect to noise impacts

and limits, we looked at both provincial and federal guidelines. For the provincial we looked at the Ministry of Environment, Conservation and Parks. Their guideline NPC-300 assesses stationary noise, and we assessed them to the exclusionary limits, and these were adopted for both construction and operational noise at the mine site and the rail loadout. In addition we also looked at the rail loadout operations and assessed impulsive noise, this is known as coupling, in terms of the number of impulses per hour.

The NPC-300 land-use portion of the guideline in addition to the MTO guideline for road traffic was adopted for haul traffic between the two sites.

We also looked at blasting as an operational condition and construction condition and assessed that in accordance with their NPC-119 guideline for what is called overpressure and vibration. And with respect to that all of the provincial noise criteria have been met for the project without additional mitigation identified other than some operational restrictions.

Next slide, please.

We looked at the federal guidance, specifically the Health Canada noise guidance. This has two criteria or two areas it looks at, the first one being community and noise. The Health Canada guidance uses a percent highly annoyed, called percent HA criteria. This is the percentage of the community that would be highly annoyed by noise. Health Canada recommends that this not exceed a change of more than 6.5 percent over the existing background. We did this analysis for construction, facility operations, including the mine and rail loadout and noted they are all below the 6.5 percent change with most impacts below 2 percent. This included for adjustments -- for sources, including tonal and impulsive characteristics. Therefore on this basis we suspected no significant impacts to community annoyance.

In addition, sleep disturbance is identified within the Health Canada federal guideline. The Health Canada sleep disturbance guidance is that noise -- nighttime noise impacts are not to exceed a

maximum of 60 decibels outside the building. This analysis was conducted for the construction and facility operations noted to be below the 60 guideline. We note that the rail loadout, it does not operate at night, so therefore it did not include a sleep disturbance criteria. However on this basis no impacts to sleep disturbance are expected.

Next slide.

Now, specifically with respect to construction noise at the mine site we were looking at sources such as excavators, dozers, loaders, drills. Construction noise impact at the side was modelled with computer modelling to determine the noise impact at the nearest sensitive receptors, and we also produced noise contours to assess the general impact.

Our assessment noted some restrictions that were confirmed with Generation PGM on construction. For example, that grading compacting would be done between daytime hours are not -- are excluded from 11:00 p.m. to 7:00 a.m., and these are identified in the assessment. The noise

modelling of the construction impacts with these restrictions show compliance with the MECP and Health Canada guidelines.

Next slide, please.

The operational notice impact mine site also considered. Again this has a number of sources that we looked like crushers, conveyors, exhaust fans, dust collectors. We also looked at the year 2 operations as this was considered a worse-case impact given that it would -- the open pit extraction volumes would be at or near capacity. The south pit which is closest to the receptors would be extracted near the surface, and the PSMF construction and earthwork location is closest to the sensitive receptors. Again, those restrictions were considered as noted previously, and the noise guidelines show compliance.

Next slide.

We also looked at the operational impact of the rail loadout facility. We note that this would operate between the daytime hours 7:00 a.m. to 11:00 p.m., and we note that of impact sources that,

although it's noted average, it should be stated that we assessed it on a basis of a maximum three rail couples per hour. Where typically we might expect one or two we assessed it up to three. And on that basis we noted that rail loadout facility for both steady-state and impulsive noises is compliant with the applicable guidelines.

Next slide, please.

Now, with respect to blasting we looked at both construction blasting and operational blasting. We looked at the construction blasting for short term in very specific locations required for construction purposes; whereas operational blasting would be ongoing within the open mine area. We identified setback distances for both of these blasting conditions, and the blasting impacts for both construction operations are expected to be below the applicable criteria; although blast monitoring was identified for construction and near surface operations.

Next slide.

And that concludes the noise discussion, and I'll turn it over. Thank you

very much.

MR. ANWYLL: Thank you. Sorry about that. IT problems on my side.

So as you see we've done an exhaustive and multi-disciplinarian -- no, multi-disciplinary assessment of the atmospheric environment, and we believe it was comprehensive and robust. With the planned mitigations no significant adverse effects have been identified during the different phases of the mine life. And follow-up monitoring will continue with the operation and will certainly include adaptive management for these three key areas.

Thank you very much.

PANEL CHAIR: Thank you very much Mr. Anwyll and to your presenters, Mr. Babic, Mr. Capstick and Mr. Crooks. Appreciate the presentation and information this morning.

I will next turn it over to presenters from Health Canada. Do we have Health Canada on the line?

PRESENTATION BY KITTY MA:

MS. MA: Good morning, Madam Chair.

PANEL CHAIR: Good morning. We can put up a presentation for you, and you can let us know when to advance your slides, and I'll turn it over to you.

MS. MA: That's great. Thank you. Good morning, Madam Chair, members of the panel, members in-chief, Indigenous members and all other hearing participants. Thank you for the opportunity to present Health Canada's review and recommendations on the environmental assessment for the proposed Marathon Palladium Project.

My name is Kitty Ma, and I'm the regional manager for Health Canada's environmental health program in Ontario.

I'd like to begin with a land acknowledgement. I acknowledge that we're all on the land that was and is the traditional territory of many of diverse Indigenous people, including First Nations, Inuit and Métis. I'm joining you today from Toronto, Ontario, which is the traditional territory of many nations, including the Mississauga of the Credit, the Anishnabeg, the Chippawa, the Haudenosaunee and the Wendat peoples are now

home to many diverse First Nation, Inuit and Métis.

I also acknowledge that Treaty 13 with the Mississauga of the Credit covers Toronto. I am mindful of and respect the important connections with the past, present and future in our ongoing relationship with Indigenous people, and I am grateful to have the opportunity to live and work on this territory. The proposed project is located within the unceded and unsurrendered territory of Biigtigong Nishnaabeg First Nation.

I encourage everyone to take a moment to reflect on the land that they are on and to be mindful of the opportunity to foster reconciliation. It is my hope that this acknowledgement starts us in a good way.

And for this virtual hearing I am responsible for the overall coordination of Health Canada's expert witnesses and will be receiving questions from the panel members on behalf of the team.

And now I would like to introduce my colleagues from Health Canada who will be joining me today. Dr. Umme Akhar, the

lead environmental assessment specialist will speak to the general aspect of Health Canada's review of the project; Dr. Dae Young Lee supporting environmental assessment specialist on this project file; Aurelia Thevenot, acting senior environmental health assessment specialist; Frédéric Valcin, scientific evaluator with Health Canada's water and air quality bureau, air quality assessment section will provide expertise on the assessment of human health risks resulting from exposure to air contaminants, and Dr. Stephen Keith and Dr. David Michaud, research scientists with Health Canada's consumer and clinical radiation protection bureau will provide expertise on Health Canada's health effects on noise.

Expert summary of qualifications and experience have been provided as part have of Health Canada's written submission to the panel and Canadian impact assessment registry number 1077.

Next slide, please.

To begin here is the outline of Health Canada's presentation today. This

presentation provides a summary of Health Canada's mandates in environmental assessment, a brief description of Health Canada's scope of review and limitations and recommendations that Health Canada submitted in a final written submission.

Health Canada will be presenting on the subjects of air quality and noise health affects today, and Health Canada will provide a separate presentation to the panel on water quality, traditional foods and human health risk assessment on March 29 as part of the topic-specific section on human health and human health risk assessment.

Next slide, please.

Health Canada is participating as a federal authority in the review of this project in accordance with section 20 of the *Canadian Environment Assessment Act* 2012. As a federal authority Health Canada's role is to provide information and knowledge from our experts to the panel on the potential impacts of the project on the health of Indigenous people under subsection 5(1)(c)(i) of the Act. Health Canada's

expertise relates to the potential impacts of this project resulting from changes to air quality, noise, water quality, the potential contamination of traditional foods and the human health risk assessment.

Next slide, please.

In general Health Canada provides comments on the accuracy, scientific validity and the completeness of conclusion concerning potential human health effects, actions that may be taken to reduce potential health impacts of the project and the appropriateness of the proposed follow-up actions and programs to reduce human health risks. Health Canada promotes a precautionary approach when assessing risk to human health, including the design of follow-up monitoring and adaptive management initiatives.

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Health Canada does not make decisions or issue licences, permits or authorizations in relation to this project. Additionally when reviewing environmental assessment, Health Canada does not evaluate the proponent's modelling and assumes that

correct results have been obtained.

Next slide, please.

Health Canada has reviewed the project documentation, including the environmental impact statement, addendums and responses to information request that are relevant to Health Canada's role as federal authority. Health Canada provided recommendations for the panel's consideration in the department's final submission. The objective of these recommendation is to help the panel to better understand and to minimize the potential human health risks associated with the project.

The remainder of Health Canada's presentation today will focus on key deficiencies and recommendations included in Health Canada's written submission on the following two topics.

First is a air quality which covers the potential contaminants in outdoor air and potential risk to human health. And second will be noise which will cover the description of noise, exposure and health effects, including impacts on sleep and

annoyance.

Next slide, please.

So we will start with the topic of air quality and health effects. The air quality assessment for all phases of this project predicted the release of various contaminants into the air. Potential sources from the project that can release these contaminants include material handling, drilling, blasting, tailpipes from mobile equipment, diesel exhaust generators and et cetera.

Next slide, please.

Before discussing the proponent's approach to assessing the potential of diesel exhaust to cause cancer, referring to as their carcinogenicity, Health Canada will provide a brief background on this contaminant. Diesel exhaust is classified by the International Agency For Research on Cancer as carcinogenic, and in other words cancer causing to humans as well as being linked to many other health effects such as are respiratory, cardiovascular and immunological effects.

Diesel exhaust is made up of a mixture of contaminants, including diesel particulate matter to which benzo(a)pyrene attaches, nitrogen dioxide, benzene, formaldehyde and 1, 3-Butadiene. Diesel particulate matter if a non-threshold contaminant which means that health effect may occur at any level of exposure. Diesel particulate matter can also be used to represent toxicity of the full diesel exhaust mixture. Some epidemiological studies of workers exposed to the full mixture are available.

The human health risk assessment calculated incremental lifetime cancer risk of benzene and benzo(a)pyrene from this project. However, the approach used does not address the potential of the full diesel exhaust mixture to cause cancer and could lead to an underestimation of the cancer risk.

Next slide, please.

Health Canada does not derive safe exposure limits for diesel exhaust or diesel particulate matter for cancer risk. So for assessing the cancer risk for -- from

diesel exhaust Health Canada recommends using the California Environmental Protection Agency unit risk which is a number estimating the lifetime cancer risk from exposure to diesel exhaust. The unit risk uses diesel particulate matter to represent diesel exhaust, and it is derived from a combination of multiple results from different human studies and from analysis of railroad workers exposed to the full diesel exhaust mixture.

Health Canada noted that a review of the uncertainties associated with this approach should be explored. Health Canada also recommends and alternative approach consistent of in-depth qualitative assessment. A qualitative assessment which is a descriptive estimate of risk should include a clear and referenced argument to acknowledge and reflect conclusion of a number of credible government or scientific organizations on the cancer risk from exposure to diesel exhaust and associated uncertainties. In the assessment neither of the approaches recommended by Health Canada were used.

Next slide, please.

To better describe the cancer risk from exposure to diesel exhaust and inform medication measures, Health Canada is suggesting the panel to recommend the proponent to describe the carcinogenicity of diesel exhaust releases from the project using one of Health Canada's recommended approach and use the results from the above assessment to inform additional mitigations or adaptive management measures that may have benefits for reducing diesel exhaust releases from the project. For example, mitigation measures aimed at reducing truck or locomotive idling may result in other benefits, including reducing releases of diesel exhaust.

Next slide, please.

Aside from the diesel exhaust issue there is international consensus that air pollution in general negatively affects public health. The human health risk assessment predicted that the project will not negatively affect human health due to changes in air quality.

Health Canada's final written submission expresses concern about the

uncertainties around this conclusion. First, the air quality and a human health risk assessment were not updated to consider that the predicted nitrogen dioxide concentration exceeded or greater than the 2025 Canadian Ambient Air Quality Standards at both the project property boundary and some receptors located within or outside the project property boundary. Second, the proponent states that conclusion of the human health risk assessment would not change the predictions excluded the management of fugitive dust from mining activities. However, information was not provided to support this conclusion.

Next slide, please.

Furthermore, cancer risks for benzene and benzo(a)pyrene were calculated only for an outdoor exposure of three hours per day. Infiltration of these contaminants indoor was not considered. The levels of contaminant in outdoor air can affect the levels of contaminant in indoor air, and this could lead to this risk being underestimated.

Finally the atmospheric environmental monitoring program does not

specify which contaminants will be monitored and if ambient air quality will be monitored at receptor's locations where predicted concentrations are greater than or nearly greater than air quality criteria, standards and our guidance values. For example, it is unclear whether monitoring will include benzene and benzo(a)pyrene.

Health Canada noted that baseline benzene and benzo(a)pyrene concentrations are based on urban or industrial areas such as Thunder Bay and Winnipeg, and they are greater than Ontario's ambient air quality criteria. So therefore if benzene and benzo(a)pyrene are to be monitored, it is unclear how the monitoring results will be compared to the predictions.

Next slide, please.

Health Canada suggests the panel recommend the proponent to acknowledge the limitations and uncertainties associated with baseline levels and the project's contribution to air pollution levels and revise the conclusion on health risks. Develop an input in place, a comprehensive air quality

monitoring program that includes monitoring of contaminants of potential concerns that are predicted to be greater than, or (indiscernible) greater than the air quality criteria, standards and our guidance values at locations where populations and individuals are likely to be exposed to the contaminants of potential concern. Monitoring should start prior to construction where uncertainties remain in the monitoring assumptions, for example, baseline concentrations of benzene and benzo(a)pyrene.

Define action levels at which additional mitigations and adaptive management measures should be considered. Example of action levels include applicable criteria for the protection of human health or the changes in contaminant levels relative to baseline levels where such criteria do not exist. Also identify potential mitigation measures if monitoring results show contaminant's levels greater than the action levels.

This concludes Health Canada's presentation on air quality assessment.

Next slide, please.

Now, we will move on to today's next topic area, noise health effects.

Next slide, please.

The change in percent highly annoyed, percent HA, is an indicator of noise-induced human health effects from exposure to project-related operational and long-term construction noise. In the noise assessment several noise sources and their adjustment factors were not included in the percent highly annoyed calculation. For example, the calculated highly -- percent highly annoyed did not include backup alarms and coupling noise and their applicable adjustment factors. Therefore the assessment may underestimate the total effects from noise exposure that sensitive receptors such as elderly and children may expose (ph).

It is also possible that sleep-related noise complaints will be received related to rail loadout activities near the Town of Marathon outside the typical sleep time period used in the assessment like from 11 o'clock at night until 7 o'clock in

the morning and if locomotive idling occurs overnight.

Health Canada acknowledges that the proponent plans to develop a formal complaint procedure for public concerns raised over nuisance noise level; however, not enough detail is provided as to how complaints will be received and addressed. It is also unclear whether the proponent intends to proactively communicate with the community about noisy project activities. Please note that Health Canada does not enforce noise thresholds or standards but can recommend that mitigation measures if international noise standard or thresholds are exceeded.

Next slide, please.

Health Canada suggests the panel recommend the proponent to recalculate the change in the noise indicator to percent highly annoyed for each phase of the project at representative sensitive receptors. This should include all applicable noise sources and adjustment factors to account for project-related noises that was not included in the original assessment, including

intermittent sources.

Then the findings -- use the finding from the assessment to inform follow-up monitoring and additional mitigation measures. This should be applied to all sensitive receptors locations where combined noise impact from all project-related activities exceed noise levels associated with the 6.5 percent in -- percent highly annoyed.

Provide a more detailed description of the proposed complaint response plan, including any plan to consult with Indigenous groups and community members during its development. In addition, no the local community and potentially impacted Indigenous groups about any potentially noisy activities before they begin.

Next slide, please.

More information on Health Canada's submission can be found on the Canadian Impact Assessment Registry. These includes the documents listed here, and our final written submissions can also be found on the Canadian Impact Assessment Registry Document 1077.

Next slide, please.

This concludes Health Canada's presentation on air quality and noise health effects. Thank you once again for the opportunity present. We will be happy to take questions now or later, and we would appreciate a few minutes to caucus before answering each question. Thank you.

PANEL CHAIR: Thank you, Ms. Ma, for your presentation. Very much appreciated.

We will continue with a couple more presentations before questioning. So just so you know how that will unfold.

Thank you once again. We'll now turn to the Ontario Ministry of Environment, Conservation and Parks for their first presentation on air quality.

PRESENTATION BY GUOWANG QIU:

MR. QIU: Good morning, Madam Chair.

PANEL CHAIR: We can put up your presentation, and you can let us know when you want the slides advanced.

MR. QIU: Okay. Thanks.

PANEL CHAIR: Okay.

MR. QIU: Good morning. My name is Guowang Qiu. I'm an air quality analyst with the Ministry of Environment, Conservation and Parks.

We acknowledge that we on the traditional territory of Anishnabeg people, and I wish to recognize the long history of First Nations and the Métis peoples in Ontario and to show respect to them today.

Thanks for the opportunity to give a presentation joint review panel for the Marathon Palladium Project. The topic of my presentation is air quality.

Next slide, please.

My presentation will cover the following items. MECP's role on the environmental assessment, technical review and analysis and MECP's recommendations based on the review.

Next slide, please.

MECP has the mandate to regulate the potential air quality impacts of the project under the *Environmental Protection Act*, EPA, and the *Environmental Assessment*

Act, EAA. The purpose of the *Environmental Protection Act* is to provide for the protection and the conservation of the natural environment, including air. The *Environmental Protection Act* grants the Ministry broad powers to deal with the discharge of the contaminants causing the worse effects. MECP participated in and undertook a technical review of the potential air quality impacts from the Marathon Palladium Project based on the MECP's mandate.

Next slide, please.

Below are the criteria, standards, guidelines and the screen levels developed and the published by the MECP, including Ontario ambient air quality criteria, Ontario regulation 419/05 standards, jurisdictional screening levels and -- jurisdictional screening levels and upper risk thresholds. Ontario ambient air criteria are used to assess general ambient air quality results from all source of contaminant to air which are commonly used in the environmental assessment, ambient air quality monitoring in studies, assessment of general air quality in

the community and annual recording of air quality across the province.

Regulation 419/05 standards are used for compliance such as environmental compliance approvals. Jurisdictional screening levels may be used for assessing contaminants with no MECP standards or guidelines in the context of obtaining a provincial compliance approval. An upper risk threshold for contaminants is set by the Ministry (indiscernible) it is a corresponding air standard. Upper risk thresholds are used by the Ministry to manage risks in addition to the criteria, standards and the guidelines developed by the MECP as I mentioned before.

The Canadian Council of Ministry of the Environment also develop the Canadian ambient air quality standard for fine particulate matter, PM 2.5, (indiscernible), sulphur dioxide and nitrogen dioxide.

Next slide, please.

MECP conduct their technical review of the potential air quality impacts from the project, including baseline air quality. Sources of air emissions and the

emissions estimates impact prediction, indicating measures and the fall out of air quality monitoring.

Below is a summary of MECP's review and analysis. MECP is of the view that the established background concentrations are consider to be conservative and they may overestimate the actual background concentration for the local study area. The description of air emission sources and estimation of emissions of contaminants from these sources were carried out in accordance with established industry norms and the published MECP guidance documents except for low silt content, 5.8 percent used for the unpaved roads.

Next slide, please.

MECP approved the air dispersion model. The AERMOD was used to predict the potential air quality of the effects of the project. The proponent provided conservative worse case scenario air quality predictions for comparison to applicable criteria except for particulate matter due to the omission of fugitive particulate matter

emissions from haul roads and stockpiles when comparing the particulate concentrations with applicable criteria and low silt content assumption used in emission calculations without site-specific silt content as mentioned above.

Next slide, please.

This table shows the predictive results of contaminants above the applicable criteria for the construction phase, including cumulative concentrations. These contaminants include benzene, benzo(a)pyrene, nitrogen dioxide, total suspended particulate matter, the inhalable particulate matter, PM10, fine particulate matter, PM2.5, crystalline silica and dustfall.

The numbers in brackets are the comparison between concentrations and applicable criteria. And the numbers in red indicate the comparison above the applicable provincial criteria. For example, to predict the maximum 24 hour and annual benzo(a)pyrene concentrations at special receptors, I expect to be above the provincial criteria. The

environmental impact statement addendum indicates that the benzo(a)pyrene exceedances are due to the emissions from local traffic on the roads, and the project would contribute to only a small amount of the total benzo(a)pyrene emissions from the roads.

It is recommended that monitoring of benzo(a)pyrene be conducted before the construction phase to obtain the real background benzo(a)pyrene concentrations for the local study area.

Particulate matter concentrations are predict to be well above the applicable criteria if the emissions from haul roads and stockpiles are included in that assessment.

Next slide, please.

This table shows the predictive results of the contaminants above the applicable criteria for operations phase. In addition to the contaminants mentioned above for the construction phase that predict the maximum lethal concentrations on the model that properly boundary also expect to be above the applicable criteria.

For nitrogen dioxide the predicted maximum concentrations are well below the Ontario ambient air quality criteria but above the Canadian ambient air quality standards.

Next slide, please.

This is an example of control (indiscernible) of the 24-hour crystalline silica concentrations for the operations phase. The lighter blue lines have the predicted concentration of 6 microgram per cubic metre, and the lighter pink and the pink lines show higher concentrations, and the lighter green lines indicated the predicted concentration for microgram per cubic metre.

The Ministry has the criteria of 5 microgram per cubic metre for crystalline silica based on a 24-hour averaging period. You can see that the predicted 24-hour crystalline silica concentrations are expected to be above the provincial criteria for some special receptors close to the (indiscernible) boundary during the operations phase.

Next slide, please.

The proponent has proposed

some mitigation measures to reduce the emissions of fugitive dust and criteria air contaminants from various activities of the project.

The effective of the proposed mitigation measures is depend on how these measures are implemented. Therefore it is important to develop the best management and practice plan with details. Also the proponent has made a commitment to implement an air quality monitoring program. It is unclear what contaminants will be included in the follow-up air quality monitoring program. It seems that only particulate matter and the dustfall will be monitor based on the sampling information from the proposed follow-up and monitoring programs.

Next slide, please.

To manage and mitigate the effects of project on air quality. Below is a summary of MECP's recommendation for the Marathon Palladium Project should the project be given approval.

Conduct polycyclic aromatic hydrocarbons monitoring before construction

for one year to establish accurate background concentrations and to confirm the modelling results of benzo(a)pyrene emissions due to emissions from local traffic on the Peninsula Road. Total suspended particulate matter, including metals, PM10, PM2.5, crystalline silica, nitrogen dioxide, and the dustfall should be included in the follow-up air monitoring program during construction and population phases. PH may also needed to measured during construction and the operations phase depending on the measurements of background benzo(a)pyrene concentrations.

Continuous PM10 or PM2.5 monitoring is recommended for -- to facilitate that implementation of adaptive dust management. Conduct load dust sampling to verify the silt content used in the modelling for unpaved roads. Develop an air quality management program with details to manage and mitigate the effects of the project on air quality.

Next slide, please.

That's brings to the end of my presentation. Thank you.

PANEL CHAIR: Thank you very much for your presentation, very much appreciate it this morning.

I think we'll move to the next presentation for the same ministry, Ministry of Environment, Conservation and Parks. This presentation is related to noise.

Good morning.

MR. SMITH: Good morning.

PANEL CHAIR: We can put up your presentation, and you can let us know when you would like your slides advanced. Over to you.

MR. SMITH: Thank you. Good morning. My name is Kevin Smith. I'm a noise engineer with the Ministry of Environment, Conservation and Parks, and I reviewed the project acoustic assessment related to human effects from noise and vibration based on the Ontario guidelines.

Next slide.

My presentation outline will cover MECP's role in the environmental assessment and the technical review of the proponents and MECP's recommendations.

Next slide.

MECP's role in the environmental assessment is based on the *Environmental Assessment Act* and the *Environmental Protection Act*.

Next slide.

There are three Ontario environmental noise guidelines that were applied. First one is the Environmental Noise Guideline, Stationary and Transportation Sources, Approval and Planning, publication NPC-300. The second one is the Environmental Sound and Vibration Guideline for Blasting, publication NPC-119. And the third one is the Ministry of Transportation, noise guideline for highways which was applied for road traffic noise assessment.

Next slide.

NPC-300 applies to the mining operations and construction, and the one-hour equivalent sound level is applicable to any hour of the day, evening and nighttime at outdoor points of reception and plane of window points reception.

The sound level limits are

based on the background sound or the exclusionary limits shown in table B1 whichever is higher. In the case of a project the background sounds levels are low; therefore the exclusionary limits apply. There are four classes to consider. Class 1 is an urban area. Class 2 is a semi-urban area. Class 3 is rural. Class 4 is urban with high background.

In the case of the project most receptors are located within the Town of Marathon or along Highway 17. Therefore they are class 2, semi-urban. There are some remote receptors; they are class 3 area rural.

Next slide, please.

Table B2 shows the plane of window exclusionary sound level limits for noise sensitive spaces. It also includes the nighttime case for any hour from 11:00 p.m. to 7:00 a.m.; the sound level limits are 5 decibels more restrictive.

Next slide, please.

Blasting sound and vibration is also considered a contaminant under the EPA. There are two blasting metrics to

consider from a blasting event.

First is vibration, ground vibration, and that's measured in peak particle velocity millimetres per second. And the second part of a blast is the sound concussion which is also called air blast or air overpressure, and that's measured in peak sound pressure level dB linear.

The purpose of publication NPC-119 for blasting is to ensure that there is very, very low risk of structural damage to the nearby dwellings from a blast event. If the blastering (ph) charge does not have monitors set up near the nearest dwelling the blastering charge should use the cautionary limit shown in the first row, 120 dB peak sound pressure level and 10-millimetre per sec peak particle velocity ground (indiscernible) limit. If the blastering charge does have monitors set up near the nearest residence, blastering charge can design to the less restrictive limits of 128 and 12.5 millimetres per second peak particle velocity.

Next slide, please.

MECP's technical review

included noise sources for mining extraction or processing, mining impulsive noise events, road traffic noise from mining activities and rail loadout area, as well as blasting sound concussion and blasting vibration.

Next slide.

MECP's analysis conclude that the proponent has used appropriate sound level limits. They included all relevant noise sources. They used valid noise predictions for facility construction noise and vibration, mining extraction and processing, and blasting sound and vibration. MECP is uncertain about the rail loadout facility noise impact and requires further details from the proponent which can be mitigated in our recommendations which will be discussed later.

Next slide, please.

The proponent proposes migration measures and best management practice to reduce noise impact at night by ensuring that mining operations at the process solids management facility at night have restricted equipment operations, including no compactors, no southern bulldozer and only

four haul trucks per hour. They will also ensure that noise impact at the rail loadout facility receptors is mitigated by ensuring that the rail loadout facility building doors are always closed when concentrate delivery trucks are positioning and dumping inside and that the rail loadout facility will have no truck idling outdoors and inside the rail loadout facility building. Blasting sound and vibration will also be mitigated by specifying blasting charge size limits for construction and mining operations to ensure compliance with NPC-119 cautionary limit which is more restrictive.

Next slide, please.

The proponent is proposing to monitor construction blasting sound of vibration by placing monitors near the North Lake Hare Cottage, the Laughing Moose Eatery Restaurant and Residence and the Peninsula Inn and May's Gifts.

Next slide.

MEC (sic) recommends, number one, the proponent should provide more details about the rail loadout facility trucking and

trans-loading operations for the worse case hours 7:00 a.m. to 8:00 a.m. and 7:00 p.m. to 8:00 p.m. when ten trucks arrive at the rail loadout facility. This information can be provided as part of the proponent's application for an environmental compliance approval under EPA should the project be given an approval to proceed under the *Environmental Assessment Act*.

Number two, the proponent should complete an acoustic audit of the rail loadout facility by an independent acoustical consultant after rail loadout facility start up.

Next slide.

Number 3, the proponent should install ambient noise-adjusted backup beepers or broadband backup beepers for all mobile heavy equipment, including loaders, track drills, bulldozers, compactors, excavators, production shovels, graders, pit trucks and shipping trucks.

And lastly we recommend the proponent should routinely monitor blasting vibration and blasting sound concussion at the

nearest blasting sensitive receptor if peak levels are above the MECP cautionary limits specified with NPC-119 or if a blasting sensitive receptor is located within 1 kilometre of a blasting charge. Sensitive receptor means residences or facilities where people sleep, nursing homes, hospitals, trailer parks, campgrounds, schools and child care centres. Thank you.

PANEL CHAIR: Thank you. Thanks so much for your presentation and to all presenters this morning.

I think we'll take a break now. It's exactly 10:15. How about we take 20 minutes. We'll return here at 10:35. Thank you very much.

--- Recess taken at 10:16 a.m.

--- Upon resuming at 10:38 a.m.

PANEL CHAIR: Okay. Welcome back, everyone. We'll now move on the first segment of our questions related to the presentations we heard this morning. So with that, I will ask whether at this time Health Canada has any questions for our presenters this morning related to air quality, GHG

emissions or noise.

MS. MA: Hello, Madam Chair. No, Health Canada does not have any questions for the presenters today. Thank you.

PANEL CHAIR: Thank you. Ministry of Environment, Conservation and Parks, do you have any questions for presenters on those same topics, air quality, GHG emissions and noise?

MR. SMITH: Hello, Madam Chair. We don't have any noise questions.

PANEL CHAIR: Okay. Thank you.

MR. QIU: Okay. Sorry.

PANEL CHAIR: That's okay.

MR. QIU: Yeah, I do have one quick question are to particulate emissions from --

PANEL CHAIR: And who is your question to?

MR. QIU: Question is for the proponent.

PANEL CHAIR: Okay. Go ahead, please.

MR. QIU: Okay. So for the particulate emissions from the roads, when

they used the -- I think when they use the daily traffic, daily vehicle kilometres travelled, the value of that it seems like it's underestimated when they calculated the emission from the road, for some roads in the operations phase. So I don't know the proponent, when they do the calculation, do they confirm all the calculation or not?

PANEL CHAIR: Thank you. Mr. Anwyll.

MR. ANWYLL: If I could indulge, Madam Chair, I would like to caucus quickly, please.

PANEL CHAIR: Thank you. Go ahead.

MR. ANWYLL: Hello, Madam Chair. Drew Anwyll for the record.

PANEL CHAIR: Sorry, go ahead.

MR. ANWYLL: If possible in our caucus we were struggling to clarify specifically what the question was. So we would like additional clarity on the question, whether that's site roads, the TransCanada or some other location. So we weren't certain which numbers were being requested.

PANEL CHAIR: Okay. Just a moment. MECP, would you be able to provide that now or just a bit of clarity based on what Mr. Anwyll was asked?

MR. QIU: Yeah, I think if you pull out the document, you can see that except for a few roads maybe an access road, you did, you know, the calculation for the daily week or kilometres travelled correctly, but for some other roads it seems like you didn't do that correctly. The daily week or kilometres travelled should be the length of the road times the trip of the, you know, the week or travel on that road. But it seems like, you know, you've done some kind of factor for the calculation. So that's my question. So I don't know why you done some kind of factor to calculate, you know, the daily week or kilometres travelled.

PANEL CHAIR: Would you have a reference page or a reference document you could point to at this moment?

MR. QIU: Let me see. Then I will be -- okay. Let me see, I can find the document and open it, appendix D1. Okay. Page

300 -- just a second. Okay. Can you open the appendix D1 and at page 399. So this just one of examples. You look the table for the (indiscernible) load. You look in the haul trucks.

PANEL CHAIR: We're going to put that up on the screen for everyone to see the reference at this point, just be a minute or two.

MR. QIU: Okay.

PANEL CHAIR: Thank you.

MR. QIU: 99.

PANEL CHAIR: Is this the right table at this point?

MR. QIU: No, this is 399. 299.

PANEL CHAIR: Oh, we need 399, please.

MR. QIU: 299.

PANEL CHAIR: 299. Sorry.

MR. QIU: Yes.

PANEL CHAIR: 299.

MR. QIU: Yes, this page. Just one example, look at the, you know, the last table. So for the haul trucks look at the, you

know, the number of trucks, the trips and also the length of the load and look they know the total VKT.

PANEL CHAIR: And your question is -- so if we look at those three sections of the table.

MR. QIU: Yeah, it should be like 60 times the length is 0.6 kilometres, so you should be 3.6 -- let me see, 6 times -- 36, should be like 36-something.

PANEL CHAIR: So you're questioning -- we're just trying to enhance the view of this a little bit more. It's very difficult to see. So you're on the right side of the screen. Is it highlighted in yellow? Is that what you're referring to or not?

MR. QIU: No, the last table.

PANEL CHAIR: Okay. The table on the bottom?

MR. QIU: Yes.

PANEL CHAIR: Okay.

MR. QIU: And the low of the haul truck.

PANEL CHAIR: Okay. We're getting there.

MR. QIU: It's okay. Yes. Look at the -- you know, number of trucks is 30. So the trip is 60. So the length of the load is 0.6 kilometres, so the total VKT. Go a little bit to the right. So it shows 1.08.

PANEL CHAIR: So you've got the number of trucks at 30. This is the line you're looking at?

MR. QIU: Yes.

PANEL CHAIR: Number trucks at 30. The number of trucks in an hour at 1.88 or --

MR. QIU: It shows 1.08 for the VKT, the last column.

PANEL CHAIR: Right. Yes, I got it. And your question is?

MR. QIU: Yeah, this number, it seems like was underestimated.

PANEL CHAIR: Okay. Mr. Anwyll, is that helping with clarity?

MR. ANWYLL: Excuse me for a second. Yes, I'll confirm with my technical colleagues and come back.

PANEL CHAIR: Okay, thank you.

MR. ANWYLL: If I could, thank

you.

PANEL CHAIR: Yes.

MR. ANWYLL: Thank you, Madam Chair, for the time to caucus.

So the -- our Gregory Crooks will be opening the spreadsheet itself, so if we can potentially let him -- give him a bit of time to go through the math on that one and later on in the session if possible we can come back and clarify the answer to this.

PANEL CHAIR: That's fine. Thank you.

MR. ANWYLL: Okay. Excellent. Thank you for your time.

PANEL CHAIR: We'll make sure to come back on that.

Okay. Are there other participants who have questions for the presenters this morning on air quality, GHG emissions or noise? Okay. And Generation PGM, do you have any questions for our presenters this morning?

MR. BARRETTO: Good morning, Madam Chair, Jeremy Barretto for the record.

No, Generation Mining does

not have questions for the presenters this morning. Thank you.

PANEL CHAIR: Thank you very much. So at this time I will turn it over to our panel for the questions we will have.

Ms. Bruce will begin questioning for air and greenhouse gas emissions. Thank you.

QUESTIONS SESSION:

PANEL MEMBER BRUCE: Thank you.

So just as a way of an opening comment, the questions with respect to atmospheric environment in some cases crossover the human health, so there are some questions that we'll ask today, but there will also be some questions that will be asked tomorrow that are a little bit more in the context of human health.

So to start with there are several non-industrial emission sources within the local study area and the regional study area, including the Marathon municipal landfill, Marathon airport and Highway 17. It was acknowledged in fact that the primary

influencer of air quality is the traffic that's on Highway 17.

The NAPS' background data from faraway stations may not adequately capture the specific emission sources even if it is considered to be generally conservative. In other cases the NAPS data may overestimate concentrations of certain contaminants such as benzene and benzo(a)pyrene. So this question is to Generation PGM.

This morning Health Canada noted that given baseline data is from urban areas where baseline numbers for some contaminants, again as example, benzene and benzo(a)pyrene, will be higher. In light of this during monitoring what relevant baseline data will the results be compared to?

MR. ANWYLL: Thank you for the question, Panel Member Bruce. I'll caucus for one second if I could, please.

PANEL MEMBER BRUCE: Thank you.

MR. ANWYLL: Thank you for the allowance for the time to caucus. I will hand over the technical answer to Gregory Crooks.

MR. CROOKS: Madam Chair, Gregory Crooks for the record.

Panel Member Bruce, thank your for the question. In terms of ambient monitoring, moving forward that data that is collected would be compared to the levels that were assumed in the environmental impact assessments and used to confirm those numbers and confirm that they are in fact conservative.

PANEL MEMBER BRUCE: Okay. Just before you go, a follow-up question then.

So the ambient monitoring would occur before construction begins?

MR. CROOKS: The monitoring plan is still under consideration and that would be looked at in terms of the overall scope of the ambient monitoring -- would also -- we would also assess monitoring prior to construction.

PANEL MEMBER BRUCE: Sorry, I'm not sure if that was a yes or no. Ambient monitoring would be carried out in advance of construction in order to establish baseline data?

MR. CROOKS: Could I have a moment to caucus with my colleagues, please.

PANEL MEMBER BRUCE: Certainly.

MR. CROOKS: Okay. Thank you for that moment. Greg Crooks for the record.

Yes, Generation PGM is committing to doing background ambient monitoring prior to construction.

PANEL MEMBER BRUCE: Thank you for your answer. Okay. Just give me a sec please to finish my notes.

My next question is also for Generation PGM. The air quality effects and GHG emissions assessment -- sorry, I'm going to start over again.

The air quality affects -- and I'm not sure about the GHG emissions assessment -- do not consider emissions from idling train engines which would be sources diesel emissions and are incidental to the project. However, we've heard today and in IR 6-6 that noise from where railcar activity was included in the updated noise modelling.

So question for Generation

PGM. Could you please explain why environmental effects from railcars operating within the rail loadout facility were considered for noise but not for other VECs, specifically air quality?

MR. CROOKS: I would like too caucus quickly, if I could, Panel Member Bruce.

PANEL MEMBER BRUCE: Thank you.

MR. CROOKS: Thank you for that moment, Madam Chair. Greg Crooks for the record.

No, we didn't include locomotive emissions at the rail facility because the locomotives, they may in fact be electric; they may not be diesel in which case they would not have any emissions. And also the emissions are -- from those are very short term, and they only come from -- as the cars are actually moved around, so they are not actually within the rail facility itself but on the occasional movements on the track outside. So they were deemed minor compared to the other emission sources that were assessed.

PANEL MEMBER BRUCE: So I just want to make sure I understand, Mr. Crooks. You did not include or GenPGM did not include the locomotive facilities; they may be electric. I'm not sure I'm understanding that.

MR. CROOKS: What we -- our understanding is that the locomotives that may be used for moving the cars around at the rail loadout may in fact be electric as opposed to diesel locomotives, and if they are electric locomotives that are used, then there wouldn't be any emissions associated with them.

PANEL MEMBER BRUCE: Okay. Thank you.

Okay. My next question is with respect to mine sequencing. Three open pits are proposed to be mined over the project lifecycle. The north pit is to be mined throughout the life of the project with mining of the central and south pits to occur at various times to supplement ore production from the north pit. Year 2 was selected as a worst-case scenario for air dispersion modelling and only one open pit operation and that is the north pit was included in the

modelling.

We heard in the noise assessment today that the year 2 north pit -- or the assumption associated with the noise assessment was that the year 2 north pit would be at maximum capacity and the southern open pit extraction would be near surface.

So we're looking for clarification in terms of the air quality modelling. Was it just the north pit that was assumed, or is there a scenario where with it would not only be the north pit but it would also the south pit being mined concurrently?

MR. CROOKS: Thank you for the question. I'd like to take a moment to caucus with my colleagues. Thank you for that moment to confer.

When we're doing the air quality assessments, the emission scenario that we determined was to generate a worst-case impact at the receptors, and to do that for the air specifically, we assumed all of the activities that were occurring in year 2 were -- all of mining activities were occurring in the north pit because the north

pit were the closest to the property boundary, and so that would give us our worst-case impacts in terms of the maximum off property concentrations that we would see. And the methodology that we used was somewhat different than what the noise assessment used because they premised their assessment looking at noise sensitive receptors as opposed to the air receptor.

So the -- both air quality and noise assessments utilized scenarios that were conservative, not necessarily corresponding to the mine sequencing but using a conservative variation of that to get the worst-case impacts at receptors that were appropriate for each -- for either air or for noise.

PANEL MEMBER BRUCE: Thank you.

Okay. My next question is seeking clarification on crystalline silica receptors. So there appears to be a conflict between information in the atmospheric environmental appendix, and that would be D1, pages 152 and 187. The map was also shown in I

think your slide 2 or 3, the map showing the receptors. So the atmospheric appendix shows receptor 22 as being located on Highway 17 adjacent to the Travelodge, yet the human health risk assessment suggest the exceedance is associated with the rail loadout facility and that is based on 727 -- CIAR 727, appendix D10, page 77. So we're looking for a comparison between that map that shows the receptors and the location of receptor 22, and the comment that seems to suggest that the exceedance is associated with the rail loadout facility.

So can GenPGM identify exactly which area and receptors are being referenced as having elevated crystalline silica levels?

MR. CROOKS: Thank you for that question. I would like to take a moment to caucus.

PANEL MEMBER BRUCE: Thank you. Are there any references you need me to repeat?

MR. CROOKS: I think we're okay.

PANEL MEMBER BRUCE: Okay. Thank you.

MR. CROOKS: Okay. Thank you. Madam Chair, Greg Crooks for the record. To answer this question, I'm going to turn it over to my colleague Mr. Don Hart.

PANEL MEMBER BRUCE: Thank you. Hello, Mr. Hart.

MR. HART: Yes, Madam Chair, thank you for the question. I believe there was mislabeling in the HHRA. We did in fact assess location R22 as the maximum location, and this is in fact near the airport not near the rail loadout.

PANEL MEMBER BRUCE: Thank you for that clarification. Just before you go off, there -- was I just want to confirm there was not in addition to R22 a location near the rail loadout facility with elevated crystalline silica levels.

MR. HART: If I could have a moment to caucus, please. Thank you for the question. Don Hart for the record.

Yes, location R22 was the maximum location. This can be seen in table

5-nine of the HHRA, and R22 was assessed as the maximum location.

PANEL MEMBER BRUCE: Okay. Thank you.

So I have -- continue to have some questions with respect to crystalline silica. So in the EIS addendum is stated that no background concentrations for crystalline silica were available. Therefore the model predictions for the project alone and the cumulative effect scenarios are the same.

So we have seen there were exceedances predicted for crystalline silica. Since seeing the elevated levels and exceedances of crystalline silica has Generation PGM undertaken any background sampling in the area of the project? I'm not sure who that question should be directed to.

MR. HART: If I could have a moment to caucus, please.

PANEL MEMBER BRUCE: Okay.

MR. HART: Thank you. I would like to turn it back to Mr. Crooks to respond to that question.

PANEL MEMBER BRUCE: Thank

you.

MR. CROOKS: Okay. Thank you, Madam chair. Greg Crooks for the record.

As of this point Generation PGM hasn't conducted any background monitoring for crystalline silica. However it could be included a parameter for pre-construction monitoring.

PANEL MEMBER BRUCE: Okay. Thank you. So just give me a second, please.

I just -- what would be your understanding of other potential sources of crystalline silica in the area?

MR. CROOKS: Thank you for that question. Crystalline silica is a component of most types of rocks, so, you know, essentially anything in the area of that particulate will have some crystalline silica in it at varying percentages.

PANEL MEMBER BRUCE: So would you anticipate that the modelling that's been done when you add the cumulative component of background levels will result in additional exceedances of crystalline silica given its pervasive nature.

MR. CROOKS: Well, certainly, you know, if we had data available for background levels of crystalline silica when they were added to the model predictions, they would increase the cumulative values.

PANEL MEMBER BRUCE: Thank you.

And just for the record I understand you had stated that background monitoring for crystalline silica, there would be a commitment to carrying that out in advance of construction.

MR. CROOKS: I would just like to take a moment to confer on that.

PANEL MEMBER BRUCE: Okay.

MR. CROOKS: Thank you, Madam Chair. Greg Crooks for the record.

Yes, Generation PGM is committing to measuring crystalline silica background levels pre-construction.

PANEL MEMBER BRUCE: Thank you. Could I please ask that MECP and Health Canada come back on for question, please. Thank you both for coming back on.

So I will ask Health Canada

first. Do you have any concerns regarding the predicted crystalline silica results given the absence of background data being added into the modelled concentrations?

MS. MA: Thank you, Madam Chair, for the question. May I take a few moments to caucus with my team?

PANEL MEMBER BRUCE: Thank you. And this is the same question for MECP, so if you need any moment to caucus feel, free to do so.

MR. QIU: Okay. So I can answer this question.

PANEL MEMBER BRUCE: Well, let's just hold up until Ms. Ma is ready so she can hear your answer as well.

MR. QIU: Thank you.

MS. MA: Thanks for waiting everybody. Yes, we can hear MECP's answer first, and then I will invite one of may colleagues to answer on behalf of Health Canada.

PANEL CHAIR: Okay. Thank you. Go ahead, sir.

MR. QIU: Okay. Like, based on

the modelling the predicted maximum 24-hour and the annual benzo(a)pyrene concentration, already I expect to be above the, you know, applicable criteria. So if the -- at the background concentration for the crystalline silica, so the predicted concentration will be higher compared to right now for the (indiscernible) alone, so that means, you know, they are only getting worse. Right now is already, you know, have -- like, you know, for some specialty (indiscernible), receptors will be concede they have, you know, some kind of exceedance.

So they also show, you know, the exceedance frequency. So, like, for the 24-hour (indiscernible) not that frequent, you know, based on that (indiscernible) provided by the proponent. Like, I believe it's less than 10 percent, and that means 100 days they only have less than 10 days. But when you look at the annual result, the maximum annual, you know, concentration (indiscernible) to be above the, you know, applicable criteria that means, you know, there's a concern, so....

PANEL MEMBER BRUCE: Thank

you, sir. Okay, Ms. Ma.

MS. MA: Thank you. I would like to invite Frédéric Valcin to answer the question on behalf of Health Canada.

MR. VALCIN: All right. Thank you, Ms. Ma. Thank you, Madam Chair.

So yes, indeed, we did notice that for crystalline silica only project contributions were modelled. At a property boundary the maximum concentrations are expected to be greater than the criteria for longer periods of time between 80 and 89 percent of the time. So we would agree with the need to measure baseline levels to get a better sense of what they are reviewing the project area. This would obviously -- when you add them to model predicted concentrations, you would have probably presumably more exceedances at more locations. Thank you.

PANEL MEMBER BRUCE: Thank you, Mr. Valcin.

My question now goes back to Generation PGM. Okay. Having heard the concerns, is there anything you would like to add with respect to additional migration

measures if the exceedances are notably more than what is predicted?

MR. ANWYLL: If I could caucus quickly, Panel Member Bruce.

PANEL MEMBER BRUCE: Thank you.

MR. CROOKS: Thank you, Madam Chair. Gregory Crooks for the record.

In terms of the crystalline silica exceedances, certainly Generation PGM, you know, is aware, you know, based on the project alone, modelling predictions that show exceedances that those exceedances would have to be addressed during the design of the facility in any event and -- because at the permitting stage Generation PGM is going to be have to demonstrate compliance with the crystalline silica criteria.

PANEL MEMBER BRUCE: Okay. Thank you.

My next question is respect to silt loading content. Can Generation -- so in their hearing submission MECP has raised the issue that air quality emissions estimates used a low silt content of 5.8 percent for

unpaved roads. MECP has suggested that a silt content of 9.14 percent would be more appropriate and that this is the mean value from the range of .1 percent to 36.8 percent typically found on unpaved roadways on Ontario mining sites.

So the question to Generation PGM, can you explain why the silt content of 5.8 percent on unpaved road was used in the air quality monitoring -- sorry, air quality modelling?

MR CROOKS: Certainly. Madam Chair, Greg Crooks for the record.

I would characterize the value of 5.8 percent that used in the emission inventory in the modelling as being representative of silt content for mine sites with rocks similar to Generation PGM. The reference that the Ministry was quoting in their written submissions which was CIAR 1081, they reference the documents, Centre For Excellence in Mining Innovation data. And the data that is presented in that table is for mine sites across Ontario.

Now, the geology of Ontario

is quite variable, and the types of rocks that occur at different mine sites is also quite variable. And the data that's included in that report and on which that average number is based includes data for mine sites that have much softer rocks, things like limestone, for instance, or sandstone and which will more readily create silt as opposed to the harder rock, igneous-type rock which is what we find at the Generation PGM site, and the harder rocks will typically generate less silt.

So the value that's -- the Ministry is discussing is skewed high relative to numbers we would expect for the rock types in -- such as Generation PGM. The value that we used in the assessment was taken a U.S. EPA reference document for mine sites that have a rock type that is in fact actually very similar in hardness to the rocks at the Generation PGM site. So we could expect those data would actually be, you know, representative of what we would be getting for silt content at the Generation PGM site.

PANEL MEMBER BRUCE: Okay. Thank you. I'm not sure, and you can -- just

because I don't have it in front of me. So I'm going to ask you, the reference that you are referring to from the U.S. EPA data, was that something that was referenced in your document?

Sorry, you're muted.

MR. CROOKS: Pardon me. That is referenced in the air quality assessment which is appendix D1 of the EIS, which is CIAR 727, I believe.

UNDERTAKING 22:

PANEL MEMBER BRUCE: Could you give me a moment to caucus, please. Thank you.

So we're going to ask please, so that we have it on record, that the relevant section of the document that you have referred to be submitted to the panel and this would be undertaking 22. Any questions about that?

MR. ANWYLL: Yeah, just to confirm, Panel Member Bruce, did you want the reference from the EIS document or the EPA document?

PANEL MEMBER BRUCE: No, no, the EPA document --

MR. ANWYLL: All right. Copy that.

PANEL MEMBER BRUCE: -- which lays out the rationale, I would assume, for the 5.8 percent with respect to igneous rocks.

MR. ANWYLL: Excellent. We understand that. Thank you.

PANEL MEMBER BRUCE: Okay. Thank you.

And just a follow-up question. Is Generation PGM willing to conduct a site sampling just to confirm that that was a reasonable conclusion and adapt their dust management strategies if necessary based on the results?

Just to confirm that silt content is in the order of 5.8 percent.

MR. ANWYLL: Sorry, Panel Member Bruce, we were in the midst of a caucus issue. If you would give me a moment to caucus.

PANEL MEMBER BRUCE: No problem.

MR. ANWYLL: Sorry about that.

MR. CROOKS: Okay. Thank you,

Madam Chair. Gregory Crooks for the record. Yes, I can confirm that Generation will commit to measuring silt content on the haul roads.

PANEL MEMBER BRUCE: In advance of construction.

MR. CROOKS: In this case it would have to be during construction because we actually have to build the haul roads before we can measure the silt content on them.

PANEL MEMBER BRUCE: Okay. That's fair. Thank you.

Okay. So my next question is related to dust mitigation monitoring and follow up, and it links back to some of the discussions on vegetation.

Generation PGM mentioned at slide 18 of their presentation on March 22nd that dust effects to vegetation will be mitigated through dust suppression activities.

The table of commitment includes a commitment to monitor fugitive dust from the site and that is CIAR 727, chapter 8, page 18. Generation PGM indicated that as part of the atmospheric environment monitoring

program fugitive dust will be collected using dustfall jars as special receptor locations and that sampling will occur at appropriate intervals throughout the life of the project.

Are you able to expand on what is meant by appropriate intervals, specifically frequency and duration of sampling.

MR. CROOKS: Okay. Certainly. Madam Chair, Greg Crooks for the record.

Dustfall sampling around mine sites is typically conducted during operations and construction for the entirety of those phases. And dustfall monitoring is done with dustfall jars which collect monthly samples.

So you get the total dustfall every month, and then it's changed and then you measure the next month and so on. So dustfall would be continuously measured throughout the construction and operations phases.

PANEL MEMBER BRUCE: Okay. Thank you.

The table of commitments also includes a commitment to incorporate design

features such as windbreaks to limited fugitive dust emissions. Have specific locations been identified for windbreaks, and is this an adaptive management measure if fugitive dust surpasses a certain level, or is this something that would be installed from the start?

MR. CROOKS: Thank you for that question. I'll need take a moment to caucus with my colleagues.

PANEL MEMBER BRUCE: Thank you.

MR. ANWYLL: Thank you for the question, Panel Member Bruce.

PANEL MEMBER BRUCE: Go ahead, sir.

MR. ANWYLL: We did have some discussions in the caucus, and we established that this would be part of the adaptive management procedures we put in place for operations and construction for that matter should it be -- so we didn't have any specific locations with this in mind.

PANEL MEMBER BRUCE: Okay. Thank you.

I may need Mr. Crooks back up. This question before you decide who is coming up -- but I just want to make sure in terms of the Braun's Holly-fern, the monitoring that is -- that he described, the continuous monitoring, would this also address the specific concerns associated with the impacted of dustfall on Braun's Holly-fern.

MR. ANWYLL: All right. Thanks for the question, Panel Member Bruce. I'll caucus to come back with an answer. We'll get Mr. Gregory Crooks to clarify an answer on this one, please.

PANEL MEMBER BRUCE: Thank you.

MR. CROOKS: Madam Chair, Greg Crooks for the record.

The locations where dustfall monitoring would be conducted would be developed during the development of the ambient monitoring plan, and typically we look at locations of maximum dustfall and also locations that are of other interest. And in this case as the Braun's Holly-fern, you know, is a species of interest, then we would locate

dustfall monitoring jars that would provide representative data for those species.

PANEL MEMBER BRUCE: Thank you. Okay.

My next set of questions relate to nickel exceedances at the rail loadout facility. The air quality effects assessment predicts exceedances of the 24-hour and annual average nickel criteria on the mile property boundary around the rail loadout facility. The exceedances are in the order of 41 percent and 185 percent.

GenPGM has said this modelled exceedance will be addressed at the detailed design permitting stage through the inclusion of additional mitigation measures such as full enclosure with dust collection as required. Do you have any new information to provide the panel with respect to mitigation measures?

MR. CROOKS: Thank you. I'll need to caucus on this question. Thank you. Thank you. Greg Crooks for the record.

At this point the design of the rail loadout facility hasn't progressed past the feasibility study that was used in

the environmental impact assessment, but we do assume that in the detailed design that full enclosure with bag houses would be incorporated in the design of it.

PANEL MEMBER BRUCE: Thank you.

My next question relates to air quality monitoring and follow-up program. There is a lack of detail for atmospheric environment monitoring program. Both MECP and Health Canada have noted this and suggested elements to include in the program. The government agencies have also recommended the following monitoring.

Prior to construction fugitive dust to verify silt content used in modelling, which we did speak about a bit, as well as polyaromatic hydrocarbons, specifically benzo(a)pyrene, to establish real local background concentrations.

During all phases of the project they have also asked that total suspended particulate matter including PM10, PM2.5, crystalline silica, NO2 and dustfall, benzo(a)pyrene and benzene. Recommendations

also include trigger or action levels for adaptive management based on the most stringent air quality applicable.

We have heard in PGM's presentation today a commitment to air quality modelling program during construction and operation. So do you believe that your plans, Generation PGM's plan for atmospheric environment monitoring program are aligned with the recommendations from the expert departments today?

MR. CROOKS: Thank you for that question. I'll need to take one moment to caucus. Thank you. Madam Chair, Greg Crooks for the record.

Yes, we do believe that that ambient monitoring program that we're contemplating, you know, will be generally aligned with the recommendations that we've received from Ministry of Environment and Environment Change Canada. The exact details of it will be marked out with the development of the ambient monitoring plan. That will be done, you know, should be -- will be overseen for the project, and that monitoring plan will

be developed in consultation with the Ministry and other regulatory industries as well as Indigenous communities as well to get their input. And ultimately that plan will have to be approved by the Ministry of Environment.

PANEL MEMBER BRUCE: My question also included Health Canada. I just want to give you the chance to confirm if --

MR. CROOKS: Yes, Health Canada as well would be --

PANEL MEMBER BRUCE: Okay. Thank you.

Question with respect to benzo(a)pyrene criteria. In the EIS Generation PGM rated the effect from benzo(a)pyrene exceedances as of low magnitude -- this is in the significance assessment -- due to the small project contribution. However, benzo(a)pyrene sees criteria exceedances in the project alone scenario even, without even looking at the background.

Can GenPGM explain why the effect for the benzo(a)pyrene exceedance was characterized as being of low magnitude?

MR. CROOKS: Yes. Thank you

for that question. Greg Crooks for the record.

The benzo(a)pyrene exceedance in the project alone scenario was due to traffic, and it was simply confined to the area around the rail loadout. So the extent of the exceedance was deemed, you know, small and so that was the basis for that significance assessment.

PANEL MEMBER BRUCE: Okay. Thank you. Bear with me for a sec.

I just want to confirm that you had made a statement earlier suggesting that in the development of the atmospheric monitoring program that there is a commitment to work with the various government agencies as well as Indigenous groups. Is that correct.

MR. CROOKS: Yes, that's correct.

PANEL MEMBER BRUCE: Okay. Thank you.

My next few questions relate to greenhouse gases. Actually before we go, I'm going to call up, MECP, please.

So Generation PGM indicated that the document that MECP used for reference

for silica was a publication produced by the Centre For Excellence in Mining. Is that correct?

MR. QIU: Actually, like, for the silica concentration the typical value that Ministry recommend is 9.4, 14 percent. So if they don't have the, you know, site specific silica value, we recommend they use the, you know, typical mean value in order to get the conservative result for the worst case. That's our point.

PANEL MEMBER BRUCE: So my question specifically was, and maybe I'm not sure whether it should be addressed you to or Generation PGM. We're just looking to get a copy of the publication that was produced by Centre of Excellence in Mining that was used to reference silica, crystalline silica concentrations. Is that something that you use, or should I be asking Generation PGM for that?

MR. QIU: Yeah, I think we also use that. I can provide it for that.

UNDERTAKING 23:

PANEL MEMBER BRUCE: Okay.

Thank you. That will be undertaking 23 to get a copy of the document that was produced by the Centre For Excellence in Mining.

MR. QIU: Okay, I will send that document.

PANEL MEMBER BRUCE: Thank you, sir.

MR. QIU: You're welcome.

PANEL MEMBER BRUCE: Okay. So now we're going the turn to some questions on greenhouse gases, please. And just bear with me, I'm just going to caucus with my panel while that is getting sorted out.

GenPGM and -- is ready, Mr. Capstick, we're ready to ask some questions on greenhouse gases.

So does -- just this bit of background. The EIS addendum includes mitigation measures to reduce project greenhouse gas emissions such as optimized mine design, maintenance of equipment, recovery of marketable timber and anti-idling and a commitment to evaluate other mitigation and enhancement measures, such as CO2 capture and trolley assist.

In their hearing submission Environment Canada and Climate Change considered mitigation measures proposed to reduce greenhouse gas emissions to be minimal. They said optimizing mine design and management of fuel use are simply standard practices.

Does Generation PGM have any new information to share on potential GHG mitigation measures such as C02 capture and construction concrete or trolley assist.

MR. CAPSTICK: Thank you Chairman Bruce, can I just caucus for a moment, please.

PANEL MEMBER BRUCE: Certainly.

MR. ANWYLL: Hello, Panel Member Bruce. Drew Anwyll for the record.

So clarity on those two elements, carbon capture and potential trolley assist. So in terms of carbon capture it is early days in discussion with concrete and cement providers. Although based on those initial discussions, we do have considerations for low carbon impact with concrete, and it's

just a matter of when and where and what circumstance the providers can assist us with that. So in the big picture no additional clarity other than we've already started discussions with them.

In terms of trolley assist, so that is effectively the haulage trucks would be using an overhead trolley line when they are advancing up steep inclines. In discussion with two of the main OEMs, original equipment manufacturers, we have had discussions with both of them on options and when to implement those, but those will be defined in our further mine design.

PANEL MEMBER BRUCE: Are there any other mitigation measures that you would like to flag that are potentially that we have not heard from you on at this point?

MR. ANWYLL: I'll caucus quickly, if I could, please.

PANEL MEMBER BRUCE: Thank you.

MR. ANWYLL: Thank you, Panel Member Bruce.

So in terms of the mine

design we are looking at additional mitigation. At this point in time they haven't been established to a level where we're ready to implement them. In terms of the longer term, we have been speaking to the OEMs on fully battery fuel cell vehicles which are in the early stage of design. We have had the opportunity to have direct conversations with senior management and the applicability for our site, but at this point in time that's still anywhere from 5 to 7 years down the road before those would be implementable.

PANEL MEMBER BRUCE: Okay. Thank you.

MR. ANWYLL: All right. Excellent.

PANEL MEMBER BRUCE: So one final question and this relates to -- I'll just find my notes.

So Generation PGM highlighted on slide 22 of the presentation today that independent benchmarking results show that the project is less greenhouse gas intensive than other similar ones in Canada and internationally.

Now, I stand to be corrected, I don't think we have a copy of that independent assessment.

MR. ANWYLL: Correct. I don't anticipate you have a copy of that.

UNDERTAKING 24:

PANEL MEMBER BRUCE: So one, could we get a copy of that. That would be undertaking 24.

MR. ANWYLL: Understood, yes.

PANEL MEMBER BRUCE: And I don't know -- if you're not in a position to answer this right now, we can look at it when we see the document. But can GenPGM provide any examples of how your proposed operation compares to other operations in Canada? And I don't know if that is a fair question off the top of your head, but if you can answer it, that's great.

MR. ANWYLL: It is a fair question. If I could caucus for a second quickly to determine a way to best communicate this to you. So give me a second please.

PANEL MEMBER BRUCE: Thank you.

MR. ANWYLL: Thank you, Panel Member Bruce.

So in the caucus we were discussing how best to communicate this. So we do have the undertaking 24 which we will certainly deliver the report, and then in that report what it effectively does is it looks at the carbon intensity of the operation.

What I'll do now is I'll hand over to Sean Capstick to give you a clarity of what you're going to see when that document comes, if that would help.

PANEL MEMBER BRUCE: Thank you.

MR. CAPSTICK: Thank you, Member Bruce. Sean Capstick for the record.

So SKARN, S-K-A-R-N, is a independent U.K.-based firm that benchmarks mining project for greenhouse gas and water internationally. So they collect information from publicly available documents, from direct sources, for other mining companies they retain directly in terms of developing these benchmarks. And what they look at is, you know, a measure, a comparative measure, so an

intensity-type measurement looking at scope 1, 2 and select scope 3 emissions. So how much energy is used in mining, so different mining techniques whether it's underground, open pit, et cetera, where the electricity source is coming from.

In Ontario we have a very low GHG intensive electricity source. So those scope 2 emissions that I talked about earlier are low in comparison to some other jurisdictions, especially international jurisdictions. And then there's other proxies they look at for transportation, smelting and refining.

So again, depending on where the concentrate is shipped to, then those emissions are estimated as well. So it's a stacked bar graph that provides a height in terms of the intensity, a width in terms of the amount of concentrate produced, and it's stacked from the most efficient to the highest.

PANEL MEMBER BRUCE: Okay. Thank you for that information.

So I do have just a question

on the information that would have been given to SKARN; I think that is how you pronounced it. So assumptions presumably would have been passed on to them about the operation, and I just want to clarify. Would those assumption have been that transportation will be by rail and some indication of the location of the smelter?

MR. CAPSTICK: Can I caucus for a moment, please.

PANEL MEMBER BRUCE: Yes.

MR. CAPSTICK: Thank you, Member Bruce. So it's my understanding that the information that was passed on to SKARN in terms of looking at those scope 3 emissions were transportation of the concentrate by rail to the Horne smelter that is located in Quebec and compared to, you know, other locations in terms of distance and to -- and types of transportation modes. That's where those stacked bars are smaller compared to the piers.

PANEL MEMBER BRUCE: Okay. Thank you.

So I'm going to -- I don't

have any further questions for GenPGM at this point in time.

I do want to address some questions or comments to Environment Canada -- sorry, ECCC, and these are questions with respect to climate change and greenhouse gases. So noting that ECCC didn't make a presentation today, I'm not going to -- I'm going to give you a little bit of time to answer these over our lunch break. So I have three questions for you -- actually four questions.

So the first question is does ECCC agree with GenPGM's characterization for greenhouse gas impacts as being of low magnitude and high reversibility? So that's the first question.

If you do not agree, can you discuss criteria that could be used to evaluate the importance of environmental effects from GHG emissions in the context of the project.

My third question is can ECCC provide examples of additional mitigation measures, if you have any thoughts on that,

that would be appropriate for such a mining operation?

And my fourth question is open-ended. Do you have any comments that you would like to make on presentations that were made today or any information that you heard with respect to air quality impacts.

So if you're in a position to answer when we come, we'll have you start off, and if you need a, you know, little bit more time this afternoon, that's fine as well.

MR. CLAVERING: Okay. Rob Clavering, Environment Climate Change Canada for the record, and that sounds like a good approach.

PANEL MEMBER BRUCE: Okay. Thank you. So I'm going to turn it back to the panel chair.

PANEL CHAIR: Thanks, Ms. Bruce, for your questions. So we have a couple of things to follow up after lunch before we head back into presentations. So why don't we come back here at 1:30 to begin the afternoon. Thank you.

--- Recess taken at 12:21 p.m.

--- Upon resuming at 1:32 p.m.

PANEL CHAIR: Mr. Anwyll, I see you've got your hand up. Go ahead.

MR. ANWYLL: Thank you very much. In reference to Guowang Qiu from MECP, his question earlier on the kilometres travelled on page 299.

We're prepared to clarify that if now is the appropriate time. If not, we can take your cue, Chair Sikora, on when we should answer Panel Member Bruce's, the detail of that question. So we can do it now or later, and we'll take your guidance.

PANEL CHAIR: Okay. That's perfect. Thank you. I was just going to go through a couple of things, but that was one of them.

So what I thought I would do is just a quick summary. We will start off -- we may as well start off, Mr. Anwyll, then with the follow-up for MECP.

Before we broke for lunch Ms. Bruce had questions of Environment Climate Change Canada, so we'll do a follow-up there, and I wanted also to just do a quick summary

of the undertakings, and I know I mentioned before lunch we were going to quickly move into our next group of presentations. We do as a panel have questions related to noise, so before we do the next set of presentations we will be proceeding to our noise questions. So I just wanted to make that clear.

So with that maybe, Mr. Anwyll, since you were up, please go ahead with clarification on the earlier question today from MECP.

MR. ANWYLL: Thank you very much. I'll hand back over to Mr. Crooks to clarify that one.

PANEL CHAIR: Thank you.

MR. CROOKS: Madam Chair, Greg Crooks for the record.

We went back and looked at that table that was in question, and the number for the vehicle kilometres travelled. And the -- that column on the right hand of the table is actually mislabelled. It's not the total vehicle kilometres travelled. It's vehicles kilometre travelled in a worst-case hour. So it's -- so that would be less than

the total that you would see a 24-hour period which is why the number is look somewhat lower because it's only based on an hour as opposed to the entire 24-hour.

PANEL CHAIR: Okay. And with that explanation I wonder, do we have MECP still on the line? Oh, there you are.

MR. QIU: Yes.

PANEL CHAIR: Does that help clarify your question?

MR. QIU: Yeah, that is not the only one. I just give you the one example. Actually they have a lot of tables. They are make this seem -- we can call or maybe else or didn't do it correctly. So this is only one example I'm show them. So if they put all together, then that means, you know, the total emission will be underestimate. That's all I can say for now.

PANEL CHAIR: So maybe if you could leave that with me, just before we have a break. So let me understand. That was an example. You're citing there are other tables that potentially have this issue, and the result of which when corrected for -- if

that's the appropriate word or clarified, may have some direct effects on other documentation. Is that fair to say?

MR. QIU: Yes.

PANEL CHAIR: Okay. So let's -- Generation PGM having heard that we'll come back maybe just after break this afternoon and sort through how best to for you to get that information clarified. Okay? Thank you. Thanks so much. I appreciate that update.

Before we did break for lunch, Ms. Bruce had four questions for Environment Climate Change Canada, and I wonder -- good afternoon, Mr. Clavering. Welcome back.

MR. CLAVERING: Good afternoon.

PANEL CHAIR: And we'll turn it over to you.

MR. CLAVERING: Okay. So Rob Clavering, Environment and Climate Change Canada for the record. So thank you panel members for the question. So I'll go through them one at a time.

With regards to question

number one, ECCC does note that GHG emission are of concern due to their cumulative nature and that the project's GHG emissions lead to align with Canada's targets and international commitments.

As outlined in our written submission ECCC considers that mitigation measures proposed by GenPGM to reduce the GHG emissions to be minimal at this point and have recommended that the proponent identify and incorporate additional mitigation measures where technically and economically feasible to avoid or reduce the potential adverse effects related to GHG emissions.

With respect to the second question. Again, as outlined in our written submission ECCC considers that overall the proponent's approach GHG emissions estimates was acceptable and reasonable.

With regards to question number 3, ECCC does not have any specific examples of appropriate mitigation measures and does defer to the proponent to identify these measures.

However, we would like to

note that GenPGM may wish to refer to section 5.1.3 of the Strategic Assessment of Climate Change, also known as the SACC, and the SACC provides technical guidance to support proponents in determining best available technologies and best environmental practices that could be applied to the project.

And with regards to question number 4. I want to thank you for the opportunity to provide comment, and I can confirm at this time we do not have any further comments to provide based on what we've heard today.

PANEL MEMBER BRUCE: Thank you for your responses.

PANEL CHAIR: Thank you very much. So I'm just going to do a quick update on the status of undertakings before we turn over to panel questions on noise.

And very quickly, so thank you for the submission of quite a few more of the undertakings. That's much appreciated.

There's just a couple that hopefully in today Generation PGM number 5 and number 11, and Ministry of Environment,

Conservation and Parks number 10 and number 16, and then just for the information of participants.

On Thursday following last week's session we did provide an undertaking to Generation PGM and that has been posted to the registry. It's undertakings 18 to 21 related to caribou presentations from last week. That's not due until the end of March. And that's it for the summary. Thank you again for all the submissions.

With that I will turn over a questions now to my colleague Ms. Drescher for noise. Thank you.

PANEL MEMBER DRESCHER: Thank you, Madam Chair. I have a first question, please, to GenPGM, Mr. Anwyll.

This is probably about three or four questions on baseline noise. Could we please have table 1 from CIAR 950, IR 6-9 put on the screen, please. If you could please scroll down to table 1. Yeah, that's good, right there. Thank you.

So the context here is this table shows baseline sound levels compared to

predicted sound levels for facility operation steady noise. A map showing the location of the receptors was provided in CIAR 727, appendix D2, figure 2. In that figure the Peninsula Inn, May's Gifts, Laughing Moose Restaurant and Residence and the Wayfare Inn appear to be within close proximity of each other. The baseline sound levels for those five receptors, however, vary as we can see on this table here.

So if we were to take, for example, Wayfare Inn, the baseline sound at 1.5 metres is 53.3, and for Peninsula Inn the baseline for 1.5 metres is 29.1.

And closer inspection of figure 2, it would be fair to say that Wayfare Inn and Peninsula Inn are literally across the road from each other. So the question is could an explanation be provided to that, for that relatively large gap between sound levels.

MR. ANWYLL: All right. Thank you for the question, Panel Member Drescher. I'll caucus for a second quickly.

PANEL MEMBER DRESCHER: Thank you.

MR. ANWYLL: Panel Member Drescher, I'll introduce Mr. Frank Babic to clarify this.

MR. BABIC: Frank Babic for the record.

So with respect to baseline sound levels in this area, these were defined from the traffic along the highway. Where we take that impact is dependent on the worst-case facade. So the one facade may be shielded from that impact from that highway traffic where another facade would be not shielded. Therefore, you could see a difference in those baseline noise levels, and that was accounted for in the detailed noise, baseline traffic noise model, the TNM model, that we prepared.

PANEL MEMBER DRESCHER: Thank you for that explanation.

Continuing with this table, so again trying to understand how this table works. So we have one column that says "Predicted Project Sound Levels." And let's take the Wayfare Inn again at 1.5 metre receptor height. And then the baseline sound,

which is indicated as 53.3, and then we see a project sound level increase over baseline as being minus 7.2.

Could you describe for us what a minus 7.2 means relative to the noise that one would hear?

MR. BABIC: Yes. Thank you. I would like to clarify what the comparison is. Comparison in this table is not an increase. It is a comparison of absolute values.

So the predicted is an absolute value of 46. The baseline is an absolute value of 53. And as the IO was requesting what was the change; what's the difference. That is simply a mathematical addition. We have not added the 46 to the 53 as an increase, for clarification.

PANEL MEMBER DRESCHER: Yeah, I appreciate that. Thank you. I'm still trying to understand what minus 7.2 means.

MR. BABIC: Oh, that the -- that the predicted sound level of 46 is 7.2 dB lower than the existing background level expected from our noise modelling.

PANEL MEMBER DRESCHER: Right.

So in other -- what does that mean in terms of a person hearing noise at let's say the Wayfare Inn?

MR. BABIC: Okay. So as sort of rough numbers, if you're anywhere 10 decibels or lower than an existing background level, you would not actually perceive or hear the noise level. We're close to 7, so you might mildly hear that noise, but it wouldn't be significantly increasing or adding to the existing background noise for this example.

PANEL MEMBER DRESCHER: Okay. So recognizing that dBA is a logarithmic scale, and I understand that they're absolute values, you're -- if I understand this correctly, and let's take the Peninsula Inn, for example, which is a predicted sound level of 47.3 at 1.5 metres, and then the actual daytime baseline is 29.1, so in that particular case you would have a significant, potentially significant increase in noise at that particular facility.

MR. BABIC: Agreed. At that particular facility the dominant source would now be the predicted sound levels versus the

background as it's shown as the quieter 29.

PANEL MEMBER DRESCHER: And where you indicated the worst-case facade, what is the worst-case facade considered to be?

MR. BABIC: The worst case facade is the worst-case impact from the project; the one that is closest facing to the project.

PANEL MEMBER DRESCHER: Closest facing to the project?

MR. BABIC: Yes.

PANEL MEMBER DRESCHER: Okay. Thank you very much.

My next question has to do with truck travel worst-case scenario. Can I direct it to you, Mr. Babic?

MR. BABIC: Yes.

PANEL MEMBER DRESCHER: Yes. Okay. Thank you.

So GenPGM assumed 30 trucks a day would carry concentrate to the rail loadout facility when assessing project traffic noise, and that is CIAR 727, appendix D2, page 19.

In response to IR number 3, ore processing, GenPGM indicated that additional truckloads of concentrate that may leave the site should magnetic separation become economically viable in the future were accounted for in the accidents and malfunction scenarios through the consideration of up to 50 trucks. So that's 10 for the copper PGM concentrate plus an additional 40 for other possible concentrates. And that comes from CIAR 749, IR 3, PDF page 6.

However, in response to undertaking 1 GenPGM indicated that in the event that a vanadium magnetite concentrate was to be produced up to an additional estimated 30 truckloads of concentrate may leave the site on a daily basis. So just a little bit confused here.

Does that mean that that is an additional 70 trucks to the 10 that are already anticipated? In other words, what is the actual number that is being used for the worst case given these numbers that I've just read out?

MR. BABIC: Thank you. I would

like to take a moment to caucus.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Frank Babic for the record. So I can clarify that for modelling purposes of the noise impacts we provided a 30-truck-per-day daytime noise impact.

PANEL MEMBER DRESCHER: Sorry, was that for your worst case?

MR. BABIC: For our worst noise modelling case, yes.

PANEL MEMBER DRESCHER: So the 50 trucks were not actually modelled.

MR. BABIC: We did not model more than 30 trucks; that's correct.

PANEL MEMBER DRESCHER: Okay. And could you indicate for us, please, what is the frequency of trucks passing per hour in the Town of Marathon?

MR. BABIC: Request a moment to caucus.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Frank Babic for

the record. So we've confirmed that for the truck modelling we had two peak hours of ten trucks within that hour, first hour being from 7:00 a.m. to 8 a.m., and the other one from 7:00 p.m. to 8:00 p.m., and the other trucks were evenly distributed throughout the day after that.

PANEL MEMBER DRESCHER: Okay. So I'm still struggling a little bit here with the numbers. You did not model 50 trucks per day, but this was indicated in an IR response. So are the 50 trucks a possibility or is that whole consideration of the concentrates no longer viable?

MR. BABIC: I will pass it to Generation PGM regarding the operation of the trucks, and I'll just take a moment to caucus.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Frank Babic for the record.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thank you. And I've confirmed that we would be having the 10

concentrate trucks and the 30 magnetite trucks which provides an underestimation in our noise impact. We had 30, and we would expect 40 is my understanding.

One, this would be a slight increase to our predicted noise levels. However, also looking at the table of impacts, we are still significantly below the 65 decibel criteria and significantly below the 5 decibel change. Both of those need to be triggered with respect to consideration for mitigation. So we would expect an adjustment for the 30 to 40 but likely still be below the criteria.

PANEL MEMBER DRESCHER: Okay. Thank you for that clarification. So again, if we're now looking at 40 trucks, we do the same calculation that you provided earlier which is between 7:00 and 8:00 a.m. in the morning. That would be the highest volume of trucks going through the town which would be equivalent to I believe you said two per hour?

MR. BABIC: At peak hours we had 10, and then we had distributed between -- about one truck per hour approximately.

PANEL MEMBER DRESCHER: Okay. Sorry. That's 10. So that 10 will still hold, and then the other 30 will be distributed out through the rest of the day?

MR. BABIC: Correct.

PANEL MEMBER DRESCHER: Okay. Thank you. Thanks for that clarification. Okay. So my the next question is please to Health Canada. Thank you, Mr. Babic.

Ms. Ma, thank you very much. In your submission and in your presentation this morning, and particularly in your presentation this morning, your recommendation was that the proponent should be asked to recalculate the changes of percent highly annoyed for all project phases to account for all noise sources and adjustment factors.

I was wondering if you could specify very clearly what you mean by all noise sources and the adjustment factors so that we have, like, something specific on the record.

MS. MA: Thank you for your question. I would like to take a few moments to caucus with my team.

PANEL MEMBER DRESCHER: Certainly, thank you.

MS. MA: Thank you. Thank you, Panel Member, for your question. I would like to invite Dr. Stephen Keith to answer your question.

PANEL MEMBER DRESCHER: Thank you.

MS. MA: Thank you.

PANEL MEMBER DRESCHER: Go ahead, Dr. Keith.

MR. KEITH: Okay. Thank you, Panel Member Drescher, for your question. Stephen Keith for the record.

The proponent has included basically three sources separately in calculating the percent highly annoyed. That would be truck traffic, mining-related noise and the rail loadout. We would like those to be included together because we look at the entire noise environment when we do our evaluation, and if there are locations where the sources can add together, then that makes it easier to see when all sources are considered together.

There are also adjustments that we applied to the sources. Truck traffic would not get an adjustment, but, for example, at the rail loadout facility the coupling noise which can be highly impulsive we would say it deserves a 12 dB penalty, and that's only because the metric that is used, a long-term average, isn't very good at -- when it's used for a short term event.

So we add an adjustment to account for a long-term average being used to measure a short term event, and that adjustment we recommend is 12 dB. Now, I believe the proponent has used only a 5 dB adjustment for that, for the rail loadout.

And for backup alarms for the trucks if those backup alarms are tonal, we would also recommend a 5 dB adjustment be applied to them because the tonal noise can be more intrusive or more noticeable than other noises at the same level.

There's also air ventilation which depending on the characteristics of the noise may deserve an adjustment, but basically if it's not tonal there would normally not be

an adjustment for that unless it was -- had low frequency noise, a strong low frequency noise component.

And that would be it except for the mine noise, the blasting noise. There is -- there are adjustments that could be applied to the blasting noise from the mining operations, but those -- Health Canada is willing to accept the proponent's use of the Ontario criteria, so we are not advocating the use of an adjustment for the blasting noise at this point. And that would be my summary of this issue, thank you.

PANEL MEMBER DRESCHER: Okay. Thank you very much, Dr. Keith.

The next question that I have is to GenPGM, please. Mr. Babic, could you comment on these adjustment factors? I know that you have provided a response in an IR to the first round of questions that Health Canada provided on this particular topic, and I was wondering if you could follow up on these ones, please?

MR. BABIC: I'll just take a brief moment to caucus.

Thank you very much for your consideration.

I will go through the various elements that were presented by Dr. Keith here. The first one being the separation of the truck noise, the mining noise and the rail noise.

First of all, truck noise is a general impact generally associated with its assessment to other types of transportation noise, and it's typically separated out due to its specific type of impact. That's the approach that we did take.

The mining and rail facilities are significantly far enough from each other, kilometres away such that any impact from one is relatively negligible or non-existent to the other. So contention about combining the sources, we don't expect any significant increase or change to our results on that basis.

Now, moving to the adjustments discussion. Dr. Keith recommends or suggests a plus 12 coupling noise adjustment. This is incorrect. This is with

regard to shunting, not coupling. The difference being in a rail loadout facility shunting is the act of driving a train car into, in other words, a high impact.

If you see videos, it is like 10, 20 kilometres; they push these cars together, very high impact. Therefore, in that case definitely would be a case. We did provide in our IR response that there is no shunting. There is coupling. This is a small -- smaller noise impact from -- as the couples come together. Therefore, we apply the plus 5 as has been done in other rail facilities in my experience. So we disagree on that basis that it's not applicable in this case.

PANEL MEMBER DRESCHER: Could I just ask for just -- you started talking about it. Could you just describe coupling for the record, please?

MR. BABIC: Yes. So when you have a train and it just starts off, the connections will sometimes just do a small slip called a coupling.

PANEL MEMBER DRESCHER: Okay. Okay. Thank you. In anticipation of going back

to Health Canada and asking them if they have any additional mitigation measures that they would recommend, would you like the opportunity to identify any additional mitigation measures in this particular case?

MR. BABIC: Not with respect to this case at this time.

PANEL MEMBER DRESCHER: Okay. Thank you. If I could have Health Canada back, please. Thank you, Ms. Ma.

So the question is, if the noise levels have been underestimated in your opinion, which is not shared by Generation PGM, just generally do you recommend any additional mitigation measures that the company could undertake at this tame or could include in their overall assessment?

MS. MA: Thank you for your question. I'll take it back with the team.

PANEL MEMBER DRESCHER: So you would like me to repeat it?

MS. MA: Oh, no, sorry. I would like a few minutes to caucus with the team.

PANEL MEMBER DRESCHER: Okay.

MS. MA: Thank you. Thank you for waiting, panel members. I would like to invite Dr. David Michaud to answer this question.

PANEL MEMBER DRESCHER: Thank you. Go ahead, Dr. Michaud.

MR. MICHAUD: Thank you for the question. David Michaud for the record. I'll just start off by saying that I think we still have some disagreement with respect to coupling being highly impulsive or not, but we'll let that sit for now.

With respect to your specific question about potential ongoing mitigation. Given the uncertainty always exists with estimating project-related sound levels, Health Canada feels that it's probably best to have in place a very strong community consultation process that itself can serve as a form of noise mitigation if there are any project-related concerns that arise. Something that is transparent that community members know how to use where noise-related complaints will be readily identified and addressed, and these would extend to things, you know,

related to sleep.

In our submission, we specifically mention that there is a significant percentage of people that sleep outside the hours of 11:00 p.m. to 7:00 a.m., so project-related concerns with respect to sleep would be something to emphasize in a community consultation plan. So that, you know, in essence would be what we would fall back on to avoid any project-related noise concerns given some ongoing uncertainties in other areas.

PANEL MEMBER DRESCHER: Okay. Thank you very much for your clarification and for your addition to mitigation measures. I appreciate it. Thank you.

Ms. Ma, just one other clarification point, if I may. There were -- actually in your hearing submission there were three points. One was covering the or combining the noises together. The second point was addressing intermittent noise sources.

Could you provide an indication of what that means, or if that is

already taken into consideration in the adjustments/in the combining of the two.

MS. MA: Thank you for your question. I'll take a few moments to caucus with the team.

PANEL MEMBER DRESCHER: Thank you.

MS. MA: Thank you. Thank you very much for the question. I would like to invite Dr. Stephen Keith to answer your question.

PANEL MEMBER DRESCHER: Go ahead, Dr. Keith.

MR. KEITH: Thank you, Panel Member Drescher. Stephen Keith for the record.

The intermittent noise sources that I'm referring -- that are referred to in Health Canada submission would include things like coupling noise, however you choose to define that, and that's accounted for by the adjustments. And because there's more annoyance due to short term events when they are evaluated over the long-term with a long-term average that means you need to have an adjustment.

So the intermittent sources have more impact on people, and that's accounted for by the adjustments and that's basically it. Thank you.

PANEL MEMBER DRESCHER: Okay. Thank you very much for your explanation. Thanks, Dr. Keith. Okay. Thank you very much, Ms. Ma. That's -- I would like to back to GenPGM now, please.

Mr. Babic, so this is -- this question -- questions relate specifically to Bamoos Lake and Pic River as noise receptors.

GenPGM has predicted that the project would increase noise levels at Bamoos Lake and Pic River, two receptors that represent areas where Indigenous communities practice current use. Even though the predicted sound levels would be below the MECP and Health Canada thresholds for noise, the change in noise level at the Pic River receptor is particularly high in comparison to all of the other sensitive noise receptors GenPGM has assessed. And this I'm referring to CIAR 950, IR 610, PDF page 4.

So just so that we can

understand from what noise effects are that are felt by a human being, could you characterize the type of noise that a person would experience at the Pic River and Bamoos Lake receptors?

So for clarity, from the perspective of an individual being on a lake or a river seeking solitude, for example, what would they hear during project construction and project operations.

MR. BABIC: Thank you very much for your question. I would just like to take a moment to caucus to review the specific numbers at Pic River.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thank you. Sorry, I was on mute there for a second.

So to provide some context I just quickly reviewed the operational noise levels. I think construction is about the same. At Pic River if you're an individual and two people were talking, they talk about 65 decibels standard conversational. We are predicting a noise level of about 40, so four

times quieter. So consider a whisper-type noise, but it would be inaudible to say drone of the operating mine and the construction. It's 12 decibels higher than the existing, so therefore it's noticeable over the existing, but that's I think a best characterization, a quiet consistent droning of the mine operations or construction.

PANEL MEMBER DRESCHER: Okay. Thank you. Would -- so where we're just on that, and that comparison that's very helpful. Thank you. How do you think that would apply to blasting? Same person, same situation, what would they experience from a blast?

MR. BABIC: Thank you. I just want to review the specific blasting level and then provide it. A moment to caucus to review that.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thank you, Panel Member Drescher. I appreciate it.

So can you reiterate the question so -- for clarity?

PANEL MEMBER DRESCHER: Okay.

So you answered the question of what somebody would experience on the Pic River from construction and operation noise, and you said that was 40 decibels is my recollection.

MR. BABIC: Yes.

PANEL MEMBER DRESCHER: And then I asked what would somebody in the same situation experience from blasting? And I understand that there's a -- I'll just add a little bit more context for you. There's a setback distance of a thousand metres I believe is what was indicated this morning, and the Pic River is some distance beyond that.

However, it is -- there are two components to blasting; one is the noise component and the other is the effect or the percussion, for want of a better term, experience. So I'm just trying to understand what somebody would experience if they are seeking that quiet and solitude recognizing that there is a constant droning in the background.

MR. BABIC: Thank you. So we did take a look at the distance. As you said

it's beyond 1,000 metres, somewhere 1,000 to 1,500. We provided some IR responses, 610, where we said at about a kilometre away we get 125 decibels, and let's say somewhere around 120 if you are going beyond that. But I also want to clarify what this decibel means because there's always confusion.

This is an overpressure decibel. It's different than the hearing decibel. So for -- just for clarification, you could measure a blast at 120 decibels. That would be a mild breeze felt, about 10, 20 kilometres, kind of wind versus 120, 130 decibels is roaring jet engine noise. So they are very different scales, and I just want to provide a context for that so we're understanding, you know, your question to what is being experienced.

So first one being that concussive overpressure noise -- wave, I guess is the best way to determine it. We provided sort of a table in our IR response 611, table 3. At between 90 and 120 we get what's called a mildly unpleasant felt sound or the air pressure change from that.

So likely by that distance someone could possibly still feel some of the air pressure change from the blast. Wouldn't be significant, but it would be noticeable.

PANEL MEMBER DRESCHER: Okay. Okay. Thank you for that clarification.

While we're just on blasting, how frequently -- I know this has been answered before, but I'm lining up for the rest of it. How frequently would blasting be expected to occur, and more to the time, would there be specific times that GenPGM could advise people of blasting potential so that they know what to expect?

MR. BABIC: My understanding is it's a once-per-day blast for operational blasting, and I expect there would be a communication to that or to make residents know.

PANEL MEMBER DRESCHER: Okay. Could we have confirmation of that, though, please?

MR. BABIC: I can provide confirmation. Just one moment.

PANEL MEMBER DRESCHER: Thank

you.

MR. DART: Thank you for the question, Panel Member Drescher. This is Jeremy Dart for the record. I'm going to answer this question related to blasting and notification.

So yes, I can confirm that blasting will occur typically once a day and that GenPGM will be establishing blasting notification protocols for the public as the project progresses.

PANEL MEMBER DRESCHER: Okay. Thank you very much, Mr. Dart.

Okay. One last question on Indigenous receptors, and this is just a point of clarification. GenPGM stated in CIAR number 50, IR 6-13, page 2, PDF page 2, that the highest percent highly annoyed at a noise sensitive receptor for the project was 2.4 percent. However, it seems in this response did not consider the new Indigenous receptors that were included in information request 6-10 of the same IR package in which the Pic River noise-sensitive receptor is indicated as 4.1 percent. Could you provide an explanation,

please?

MR. BABIC: Thank you. I believe that it was simply an oversight. You are correct that it's -- the Indigenous is the highest at 4.

PANEL MEMBER DRESCHER: It is at 4.1?

MR. BABIC: Yes.

PANEL MEMBER DRESCHER: Okay. Thank you very much. Okay. Moving on to mitigation measures.

Could we please bring up table 6.1.2 of the EIS addendum, CIAR 727, appendix D2, PDF page 32, please. Would you mind zooming in on it a bit, please. Okay. Thank you.

So my first question is to MECP, please. Hello, Mr. Smith.

MR. SMITH: Hello.

PANEL MEMBER DRESCHER: So in that shows that the construction traffic notice, and we can see for Wayfare Inn, Laughing Moose Restaurant and Residence, R1 residence and Berganini (ph) apartment rental, the baseline is higher than 55 dBA. Project

predictions increase those values by less than one decibel.

A similar situation is illustrated in tables showing noise operations traffic noises at pages 34 and 35. For many of the receptors construction and operation truck traffic noise is predicted to be higher than the MECP noise limit of 55.

However, GenPGM indicated that since Highway 17 is a provincial highway and Peninsula Road is a former provincial highway, it used the Ministry of Transportation guide to assess highway traffic noise. And for reference Peninsula Road is the one that travels into Marathon, leads into Marathon.

According to the MTO guide noise mitigation is not required when the predicted notice level for a highway is less than 65 dBA, and the increase in traffic noise predicted for the proposed project is less than 5 dB. GenPGM indicated that using the 65 dBA noise limit will be excessive for the entire travel route in the Town of Marathon. Instead, it used the MECP guideline of 55 but

determined that mitigation would only be required if a 5-decibel increase in road traffic was predicted to the project's effects.

In you're hearing submission -- in MECP's hearing submission you indicated that the predicted noise impact will be compliant with MECP Ministry of Transportation's noise protocol for road traffic when the facility is fully functional.

So the first question we have is if traffic noise surpasses 55 dBA, the MECP criteria -- which is the MECP criteria, is that considered an exceedance and is that a significant level for MECP?

MR. SMITH: I think the proponent's analysis is consistent with the MTO policy which is that traffic noise is not going to exceed 65 and/or the traffic noise impact is not going to be more than 5 decibels. So they appear to be compliant.

PANEL MEMBER DRESCHER: With MTO?

MR. SMITH: With MTO, yes.

PANEL MEMBER DRESCHER: Does

MECP have any concerns with this in their application?

MR. SMITH: No, we generally don't consider traffic noise as part of a large mining environmental assessment. The GenPGM study has gone above and beyond which we usually expect for traffic noise assessment.

PANEL MEMBER DRESCHER: Thank you very much for that clarification. I would like to go back to GenPGM, please.

Mr. Babic, GenPGM committed to purchasing vehicles and equipment that need the applicable noise suppression regulations to mitigate potential project effects from noise. This is CIAR 727, chapter 8, PDF 18. Could you provide the difference in decibels that will be achieved with the proposed mitigation.

MR. BABIC: Thank you, and I request an opportunity to caucus.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thank you for your question. Do you mind restating the question

once more.

PANEL MEMBER DRESCHER: Could you provide the difference in decibels that will be achieved with proposed mitigation. In other words, you had committed to purchasing vehicles and equipment that meet the applicable noise suppression regulations to mitigate potential effects.

MR. BABIC: Correct. So just to understand the question, if we apply these what is the additional noise reduction we would expect with these regulations?

PANEL MEMBER DRESCHER: Yes.

MR. BABIC: So we did not model to the noise regulations. We used the applicable reference and manufacture data, and it would be speculative at this moment to see how much of a reduction, if any, we would see with those noise regulations.

PANEL MEMBER DRESCHER: Thank you. But just where we're on water and noise reduction, or suppression, could you describe what you are proposing in terms of noise suppression and how would you increase noise suppression if ambient noise levels were found

to exceed regulatory criteria.

MR. BABIC: I'll just take a moment to caucus. Thank you.

MR. BARRETTO: I just wanted to let the panel know we can hear your deliberations slightly, just while Mr. Babic is caucusing. I apologize for interrupting.

PANEL MEMBER DRESCHER: I appreciate it. Thank you.

MR. BABIC: In the event we see exceedances to any criteria we would look at the site-specific issue as well as usually operational restrictions or conditions as well as physical; a combination thereof the two would be considered.

PANEL MEMBER DRESCHER: Okay, thank you. I would like to move on to rail loadout facility again, please.

So just so we have a better understanding of how the rail loadout facility works, we had established in an earlier comment that the 10 trucks would appear somewhere between 7:00 and 8:00 a.m. in the morning, and then whatever trucks are remain would appear over the balance of the day. And

the balance of the day is -- sorry, the operation of the rail loadout facility for the daytime is considered to be 7:00 to 11:00 p.m. -- 7:00 a.m. to 11:00 p.m. Do I have that correct?

MR. BABIC: That is correct.

PANEL MEMBER DRESCHER: So the trucks appear. Could you just walk us through, please, what an average day at the facility would look like so that we can gauge when noise effects would take place. For example, coupling, movement of locomotives, movement of cars, just so we have an understanding of the types of noises and whether it's consistent noise all the way through, whether it's intermittent, what the town of Marathon could expect.

MR. BABIC: Thank you, and I'll just take a moment to caucus. Thank you very much for your consideration.

So we are going to present this in a two-part response with one being how -- okay, first of all, we haven't finalized the location but we have assessed it within the town of Marathon.

On the basis of that location, we -- I'm going to discuss the predictive analysis which is a worst case conceptual impact and sources, which was I think one of your questions about the noise sources. And then GenPGM will talk about the actual operating routine for context, if that's okay. Thank you.

So with respect to a predictive noise model, we don't address the rail loadout as a facility on a daytime basis; we actually use a worst case hour. This is similar approach -- the approach the Ministry of Environment has provided. So within that worst case hour we identify all potential noise sources in that worst case hour that could be happening.

So even if during the day those are spread out, we look at it if they happened all at the same time. This provides what the Ministry in their guidance calls a predictable worst case such that the actual impact would be no greater than that condition.

With respect to noise

sources, we actually provide those in our -- in noise and vibration report. We have the rail loadout facility and we identified all of the noise sources in that table page 88. We have dust collectors on the building. Track mobile units. The coupling noises that we were identifying and discussing earlier. We have -- just a minute here. And of the various trucks as they go around the facility as well.

So all of those have been considered in the predictable worst case notice impact.

Now I will turn it over to Generation PGM to discuss the daily operations.

MR. ANWYLL: Thanks, Frank. So Drew Anwyll for the record, Panel Member Drescher.

So the details of the operation are as outlined in CIAR 727 section 1.5.6.3 so there will be probably a little more clarity, but I'll generally walk you through how the processes should go.

So for the copper concentrate that will be moved from site, that will be

moved from trucks from the plant building itself to the loadout location. The building will be a sealed building. So the truck will effectively drive in, the doors will close, it will side dump into the loadout area. That loadout area has a small loader that will pick up the concentrate and deposit it into a rail car. The rail car will have a hood that will be -- after the rail car is full it will be covered and it will be moved along the line. CP, which is the group that we would -- that's a CP line. So that would typically be moved, again details to be finalized with them specifically, but at this point we would assume between one to two -- two to three times a week they would collect those rail cars and move them off-site.

The building itself would be sealed from the rail cars and the trucks coming in. The loader will be contained within that building and that would be dust suppression that would be included in those -- that building itself.

PANEL MEMBER DRESCHER: I understood that most of the activity with

respect to the rail loadout facility was going to occur inside of a building except for two or three times a week when a train was actually going to leave.

MR. ANWYLL: When the CP train would collect the cars that had been loaded, correct.

PANEL MEMBER DRESCHER: And it would go off-site at that point.

MR. ANWYLL: Correct.

PANEL MEMBER DRESCHER: So thank you for that clarification. It's much appreciated.

The next question that I have though is with respect to the timing of various activities. So the timing of that exercise that you just described, starting at 7:00 o'clock in the morning goes until 11:00 o'clock at night each day?

MR. BABIC: I'll caucus for one second quickly, if I could, Panel Member.

We've had an opportunity to discuss the daytime impact from the 7:00 a.m. to the 11:00 p.m. From a modelling impact point of view we assessed that worst case hour

as occurring over every hour over that time period. So we know that operationally won't happen that way but we know from an impact point of view we have addressed that, and thus the daily impact would be likely lower than predicted.

PANEL MEMBER DRESCHER: Thank you for that clarification. Can we just switch to what happens between 11:00 a.m. and 7:00 p.m.

MR. BABIC: Yes, we understand that there is no activity happening during that period, therefore no impacts for the Generation PGM rail loadout facility.

PANEL MEMBER DRESCHER: Okay. And one other quick question is the scheduling of concrete delivery times.

There was a commitment made on chapter 8 of the EIS addendum, PDF page 18 that these delivery times would be at times of the day to reduce complaints whenever possible. When would it not be possible when a complaint is received?

MR. BABIC: Thank you. I'll just request a moment to caucus.

MR. DART: Thank you for the question. Jeremy Dart for the record.

So with respect to given truck traffic and having to change up our planning, that could really occur, say, for instance, if at our processing facility at the project site our concentrate area was full, so then we would have to consider moving a truck of concentrate down to the rail loadout due to the fact that we wouldn't have adequate storage at the processing site. So that would be a one-off if we did run into a situation like that.

PANEL MEMBER DRESCHER: Thank you. I think what we'll do, I'll turn it back over to Madam Chair.

PANEL CHAIR: Thank you. I think, given the hour, we'll take a 15-minute break and return at 3:45 and we'll continue questions on noise from the panel.

MAYOR DUMAS: Madam Chair, good afternoon. We were on the schedule to speak today. We will have to ask for our schedule to be first thing in the morning if possible. We have a planned council meeting.

We have to be there for 3:45. Our council meeting starts at 4:00 p.m. so we will not be able to address the panel this afternoon on the economic and socioeconomic impact.

PANEL CHAIR: Thank you, Mayor Dumas. You've indicated you are available tomorrow morning?

MAYOR DUMAS: Yes, that would be great if we could do that presentation first thing tomorrow morning.

PANEL CHAIR: Thank you very much for that information. We appreciate your flexibility. Thank you.

MAYOR DUMAS: Thank you and hope to see you in the morning. Thanks.

PANEL CHAIR: Take care.

--- Recess taken at 3:30 p.m.

--- Upon resuming at 3:46 p.m.

PANEL CHAIR: Welcome back, everyone. I will turn it back to Ms. Drescher to continue her questions on noise.

PANEL MEMBER DRESCHER: Thank you, Madam Chair. So just in continuing on the rail loadout facility, if we could, please.

So we understand that, based

on your earlier comments, there will be 10 trucks arriving between the hour of 7:00 and 8:00 a.m. each day to the rail loadout facility; is that correct?

MR. BABIC: That is correct.

PANEL MEMBER DRESCHER: And did I understand it correctly that if there is no other concentrated, it's just those 10 trucks. Like your worst-case scenario is 30 trucks.

MR. BABIC: Yes. So on the rail loadout facility itself we've accounted for trucks on the site. Off the site we've accounted for the 10 trucks peak plus the 30 trucks per day total.

PANEL MEMBER DRESCHER: Okay. And they are to be arriving between 7:00 and 8:00 a.m. in the morning?

MR. BABIC: Yes, it's accounted for in the road impact. However, on the facility impact it doesn't matter about the time of day because we've done a complete worst-case impact of all sources happening.

PANEL MEMBER DRESCHER: I appreciate that. I'm getting at the road right

now.

MR. BABIC: Okay. The road. Excellent. Thank you.

PANEL MEMBER DRESCHER: One of the concerns that MECP had raised was having these 10 trucks rumbling through town between high peak, relatively speaking, rush hour in Marathon. And the question that we have is, can that be mitigated in any way? Are there options for reducing that number in that specific time period?

MR. BABIC: Thank you very much for that clarification that we're talking about the road impact at the hour, not the facility itself. I think that's a good clarification for everyone.

I'll briefly caucus and come back.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thank you.

So we did model, and again a predictive modelling scenario of 10 trucks within that hour; however, we understand that is not going to be the typical operating

condition. Likely it would be throughout the entire period, but we've confirmed with Generation PGM that it's not the every day operating case. We have accounted for that on a worst-case basis for the road traffic noise.

PANEL MEMBER DRESCHER: Right. So are there any suggested mitigative measures? If it's likely going to occur, which I just heard you say, but it may not occur, what is the actual mitigation that is being proposed?

MR. BABIC: Thank you. I'll turn it over to Mr. Dart to talk about some operational considerations.

PANEL MEMBER DRESCHER: Thank you. Mr. Dart.

MR. DART: Thank you, Ms. Drescher for the question. Jeremy Dart for the record.

Yes, as Frank stated, the modelling was one instance. Based on operational aspect of moving concentrate from the project site to the rail out facility, that would likely be done spread throughout the day as the rail loadout facility will

likely only be operating during the daylight or daytime conditions say from 7:00 a.m. to 5 p.m. So it's most likely that trucks will be spread out throughout that eight or ten-hour operating window and that would be in consideration of trucks being loaded at that project site and moved across to the rail loadout facility.

So yeah, that would be over mitigations rather than stating -- than based on the model that we had 10 trucks moving in that one-hour period between 7:00 and 8:00 the operational face will likely show that trucks can be moved between 7:00 a.m. and say 5:00 p.m. when the rail loadout facility is operating.

So that would be one of our mitigations. If there are concerns that are brought up from community members or the panel regarding traffic with respect to the busy periods in town, we could definitely look at mitigating truck movement to alleviate some of those concerns.

PANEL MEMBER DRESCHER: Great. Thanks very much, Mr. Dart. I would like to

just quickly ask a question of MECP, please.

Hi, Mr. Smith. Based on the discussion that we just had about the rail loadout facility and the management of truck delivery and the actual operation within the facility itself, do you have any further concerns with the proposal and would you recommend any further mitigative measures.

MR. SMITH: Yes. I have one concern. If the project trucks are going to increase from 30 to 40 per day will there be an increase in the number of required rail cars from three to four per day at the rail loadout facility?

PANEL MEMBER DRESCHER: Okay. That is a worst-case scenario is what you are referring to?

MR. SMITH: Yes, because I understand from an earlier discussion that there would be more trucks per day, 40 per day? Would that necessarily mean more rail cars are necessary?

PANEL MEMBER DRESCHER: So let's just work with that for a second as opposed to going back and forth here. Just to

understand, what is the concern and what mitigative measures would you recommend in that particular case.

MR. SMITH: The concern is if there is more rail cars then there's more coupling impulses, and we're getting close to the sound level limit for impulse of sound for the worst case hour based on modelling of the addendum.

PANEL MEMBER DRESCHER: Right, okay, I appreciate that. So if there is a cap set on the noise criteria they would have to comply with that.

MR. SMITH: Yes.

PANEL MEMBER DRESCHER: Thanks very much. Just to clarify and just so that we can have it on the record, Mr. Babic, would there be more rail cars with 40 trucks?

MR. BABIC: Thank you, and I will briefly caucus to confirm that.

Frank Babic for the record. We confirm that with the additional -- going from 30 to 40 cars would require additional rail cars and therefore the concern from the Ministry being more coupling, however, the

operations of the rail loadout could accommodate storage and operation such that multiple rail cars don't occur within the same hour, and that can be spread out thus we would still meet the maximum three coupling events per hour. It could be accommodated.

PANEL MEMBER DRESCHER: Thank you very much for the clarification. Just moving on, if we could. I freely admit to being confused again.

At one point we were talking today, and I believe I heard you say that shunting is not considered part of the operation of the rail loadout facility.

MR. BABIC: That is correct.

PANEL MEMBER DRESCHER: Okay. CIAR 727, chapter 8, PDF page 14 there are some mitigative measures that refer to shunting. I guess I just want to have absolute clarity that there is no shunting anticipated -- expected.

MR. BABIC: Well, we provide a response in IR-68 that says there is no shunting at the RLO.

PANEL MEMBER DRESCHER: Okay.

So that negates what is in chapter 8, the commitments in chapter 8 then.

MR. BABIC: If you don't mind I'll take a brief review of that for clarity.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Frank Babic for the record. So thank you for bringing that to our attention.

There's definitely a miscommunication in the document. We've confirmed that there is no shunting, it would be coupling. And that document table 81 should be referring to coupling, low impact coupling, and that should be the correct terminology there.

PANEL MEMBER DRESCHER: Thank you very much for that clarification. That's helpful. The next question that I have is with respect to a berm. The reference to the berm appears twice, at least from what we can see. So in the noise effects assessment, GenPGM indicated that the process solids management facility construction activities increased and were also considered during operational phases

and mitigated by to account for increasing the berm heights. So this is CIAR 727, appendix D2, PDF page 19. And then a perimeter berm to limit public access to the open pits was mentioned in the human health risk assessment, which again is 727, this time appendix D10, PDF page 94.

Is the berm you mentioned in the noise assessment the same perimeter berm to limit public access to the open pits? We're just trying to understand where that berms are located.

MR. BABIC: Thank you, and I'll just take a moment to caucus to confirm how they were addressed in the modelling:

Frank Babic for the record. To confirm, the perimeter berm and pit berms are not the same berm.

PANEL MEMBER DRESCHER: Thanks very much. So if we talk about the pit berm, could you explain what the effect of having that berm in place will have on noise attenuation.

MR. BABIC: So for that we understand it to be a fence, and we didn't

want to count specific mitigation attenuation with that as part of the analysis.

PANEL MEMBER DRESCHER: Thanks again for the clarification. Very helpful.

So one more thing about trucks, and specifically equipment. Backup alarm technologies. We haven't actually touched on that yet.

So could you explain what the options are for alternative backup alarm technologies and what operational considerations would be necessary in determining the need for backup alarms.

MR. BABIC: So with respect to backup alarms, those are used on various equipment for construction and operations. Whenever we have a piece of equipment that is backing up, and consider bulldozers, trucks, for example, forklifts, and they are used for safety purposes.

As a result, they are typically exempt from the noise impacts as -- because of that aspect. It's the combination of annoyance versus safety. So there's typical beep beep that we normally hear, but there are

alternative technologies. There are broadband noise alarms available which have more of a whooshing type noise versus that beeping. They are also ambient-adjusted which change based on the background level. If it gets quieter they get quieter; if it gets louder they get louder. So there are various technologies available for backup alarms.

PANEL MEMBER DRESCHER: This is a concern raised by MECP about the backup alarms and exploring the opportunity for changing to different technologies. Would you, GenPGM, be willing to install them for all mobile heavy machinery as MECP recommends?

MR. BABIC: Thank you. I'll just take a moment to caucus with Generation PGM on that.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Pass it on to Mr. Dart.

MR. DART: Thank you for the question. Jeremy Dart for the record.

I can confirm that GenPGM will consider the use of ambient-adjusted

backup monitoring based on balance of the health and safety considerations and noise considerations.

PANEL MEMBER DRESCHER: Thank you very much. I have a question with respect to monitoring which, Mr. Babic, if you would like to field it or perhaps pass it on.

So up until now we've heard quite a lot of discussion regarding the engagement plan and what it would entail and I anticipate that there will probably be more discussion on that during the community session. But this one is specific to monitoring. And what we have so far is an indication from GenPGM that only blasting activities will be monitored, no other activities will necessarily be monitored.

So there's a two-part question. One is would other activities be considered in a monitoring plan and what would they be. And the second question is with respect to blasting activity monitoring specifically, it has been indicated that monitoring would occur only if it's within 1,000 metres of the actual blast itself.

However, we had some discussion back and forth with respect to the Bamoos Lake and Pic River, and both of those are outside of that 1,000-metre setback distance. We would just like to have clarification if the company would be prepared to monitor for those locations for the reasons that we had already discussed.

MR. BABIC: Yes, thank you, and I'll just take a moment to caucus.

PANEL MEMBER DRESCHER: Thank you.

MR. BABIC: Thanks for the question again.

MR. DART: This is Jeremy Dart for the record.

GenPGM has committed an IR response 3-3 to conduct additional ambient monitoring. At this time those programs will be developed as we advance through the project phase in consideration of community consultation, Indigenous consultation and regulatory consultation to determine the scope of the ambient program.

PANEL MEMBER DRESCHER: Okay,

thank you. Does that also include monitoring at Bamoos and Pic River?

MR. DART: Thank you for the question again, Panel Member Drescher.

At this time we want to acknowledge that we -- there are no exceedances with respect to Bamoos and then the Pic River. However, we would consider some additional monitoring at those locations.

PANEL MEMBER DRESCHER: Thank you very much.

Madam Chair, that's the conclusion of the questions. Thank you.

PANEL CHAIR: Thank you, Ms. Drescher. Can we take just five minutes for panel caucus just to sort through the rest of the afternoon, given the hour.

We'll come back here at -- actually give us till 4:25, please. Thank you.

--- Recess taken at 4:16 p.m.

--- Upon resuming at 4:21 p.m.

PANEL CHAIR: Welcome back, everyone. Thank you for the opportunity to caucus.

I just wanted to give you an

idea of what we would like to do with respect to scheduling.

Before I get to that, we did have the question earlier in the day from Ministry of Environment, Conservation and Parks to Generation PGM requesting some clarification on a table, and while we did hear some clarification, it was explained that this was an example and that there were other potentially other examples, if I have that right.

So what I am going to suggest is if the Ministry of Environment, Conservation and Parks would work directly with Generation PGM and come back to the panel with clarity with respect to the questions that MECP does have and any proposed resolution with respect to additional information that may need to come to the panel to respond to that.

So thought was rather than trying to do this here in the hearing, it might be a little bit easier for you folks to work together, and then we thought a day or two. But again I don't really know the extent

of what questions MECP may have.

So I would request that you two work together. Do we still have MECP on the line? I just want to make sure.

MR. QIU: Yes.

PANEL CHAIR: So if you're okay to work with Generation PGM on clarifying any remaining questions, and then you can let us know at some point tomorrow how much time that would take for again either clarity or a proposed resolution on that. Does that work for both parties?

MR. ANWYLL: I think that's a very pragmatic solution and -- Mr. Guowang Qiu, if you can help us, if you do have those written questions all ready we can tackle that, but if it's on a phone call to figure those out we can certainly arrange for that as well.

MR. QIU: Yeah, I think probably is better to do a phone call instead of for writing e-mail back and forth.

PANEL CHAIR: Thank you.

MR. ANWYLL: Thank you very much, Panel Chair.

So just again we appreciate everyone's flexibility today, and you did hear we've got some participants that were scheduled for today we are looking to reschedule for tomorrow and appreciate everybody's flexibility.

In order to do that our focus tomorrow will be on socioeconomic effects, land and resource use, and proceeding into then to the remaining human health topics. We will have a number of presenters tomorrow and of course questions from presenters and the panel, and in order to be perhaps more efficient, we wondered if Generation PGM would like to proceed with their presentation originally scheduled for earlier in the day on the socioeconomic effects, land and resource use. I wonder if that would be possible if you wouldn't object to doing that presentation so we're prepared for tomorrow.

MR. BARRETTO: Madam Chair, Jeremy Barretto for the record. I will just check for one minute and come back, but I believe that's a good proposal.

Thank you, Madam Chair, we

just did a roll call and all our witnesses are in place for the socioec presentation and are prepared to proceed. Thank you.

PANEL CHAIR: That's wonderful. Really appreciated. Thank you very much. And we'll turn over the floor to you. Thank you.

MR. ANWYLL: Excellent. Thank you very much.

Can we go to I think it's slide 3 for the title. So I think we know what we'll be reviewing. Next slide, please.

And these are the folks that will be doing the presentation for this afternoon. Frank Bohlken from Stantec, economics and employment; Hilary Janes, who is the lead on socio-economics; Christine Walsh; and Colin Varley. And we can go to slide 10 now. I think I'm handing over to Frank.

PRESENTATION BY FRANK BOHLKEN:

MR. BOHLKEN: Thank you, Drew. So I'll be presenting on employment and economy.

This first slide shows the regional and local study area which are the

same areas for employment and economy. The area is encompassed by the green dashed circle, and it's an area around 100 kilometres from Marathon, which is really capturing those communities that are within approximately commuting distance because on the assumption that people that would be commuting would be considered local for purposes of hiring and so forth, people from outside of this area would be unlocal and would, for example, may need to reside at a project and workforce camp as opposed to the local resident community into the project.

So this is some of the information that's in the baseline report. With respect to people living within this regional study area, about 9,400 people, unsurprisingly approximately half female, including just over 1,850 people of Indigenous -- that should be 19.8 percent in terms of percentage of the total population, not 9.8 percent. The labour force, which is the people that are either employed or unemployed and looking for work, is a participation rate about just under 60 percent.

In this area mining is a large feature of the economy, so looking at the labour force, this is the national occupation classification used by Statistics Canada, mining, quarrying, and oil and gas are the largest employers in this region.

There is no oil and gas activity that we're aware of so really it's the mining industry is actually the single largest source of employment in this area. Most of the workforce are living within the region; approximately 70 percent are living within the region.

We just have some note here on the Barrick's Hemlo mine, which has transitioned or is transitioning from a underground -- sorry, from aboveground to an underground with a contract labour force which would result in a reduction of the workforce needed at that project by about half. This information was used to inform our assessment in terms of available workforce that could be working on the Generation project.

Next slide, please.

So for the assessment of

employment and economy we are looking at what are the impacts -- economic impacts, rather, related to the project expenditure and investment in the region, and more generally in Ontario and indeed in Canada as well as direct hiring. This is done using the multipliers generated from Statistics Canada's interprovincial input-output model.

And we did this for the three phases of the project construction operation and decommissioning. We also did the modelling for sustaining capital investment which is investment that's undertaken after the initial capital expenditure to -- for additional equipment, for maintenance and so forth.

So we look at three broad areas of economic impact. One is on employment and labour income related to again the investment activities. The other one is government revenue and this is done at the federal, provincial and municipal levels. In the government revenue assessment we looked at things such as corporate income taxes, taxes associated with purchase of equipment and products and so forth, sales taxes, as well as

similar income taxes on project-related employment, as well as we considered mining duties, as well as at a municipal level it would be local and school taxes. We also look at the impact on gross domestic product which is really the value added created by project.

We do this -- the modelling provides information on the direct, indirect and induced impacts. So the direct impacts are basically from like the purchase itself or direct hiring. So these would be, for example, people working directly for the project. Indirect would mean suppliers or vendors who are, say, one step removed from those direct vendors to the project, so if, say, suppliers to an equipment manufacturer of raw materials and going into a final product that is -- actually used by the project.

What we mean by induced, this refers to household spending that is associated with the direct and induced -- direct and indirect workforce. So again people that are earning money related to the project, then they go out into the community, they spend it on groceries, cars, entertainment and

so forth, and that also has an economic impact. So that's what we're talking about -- that's what we mean when we talk about induced impacts.

Next slide, please.

So this is an outline of some of the mitigation and enhancement measures related to the project. So to the extent that is practical we would be recruiting people from within the regional area to work on the project, and as well as contracting opportunities for local businesses again; so trying to retain investment within the communities.

Training opportunities for people within the regional study area. Once the project is phasing out and there will be a need to help transition some of the workforce post-closure operations, again that would be a strategy that would come further down the line.

Some of the employment training programs that have been again broadly outlined in the EIS would be again focusing on those skill sets needed for the project, but

also trying to expand the participation of underrepresented -- so populations including women and Indigenous people within the project's labour force.

Generation is working specifically with Indigenous groups to help enhance employment and economic participation, and then working with regional institutions and training organizations to facilitate that training that would be part of the program.

Next slide, please.

So this is an outline of some of the benefits. Again the quantitative work here was -- as a result of this economic impact assessment was done direct investment in the project would create approximately 3,900 jobs in Ontario and 5,000 in Canada. So this is direct, indirect, and induced impacts. During the construction phase with an additional 3,600 approximately full-time equivalents of employment during sustaining capital expenditure and just under 4,500 in Canada.

So again approximately 80 percent of the economic benefits we are seeing

overall from the modelling would occur in Ontario.

Operations. More of the benefits are going to occur in Ontario because the project is sited in Ontario and that's where obviously a lot -- most of the benefit is going to occur. So approximately 1,170 or so full-time equivalents of employment occurring during operations each year. So that's on an annual basis. And closure would be just over 330 full-time equivalents of employment.

As that is translated into labour income, we're just seeing -- I don't think I need to read through all the lines this time, but as we're seeing here, there would be hundreds of millions of dollars in terms of labour income associated with the project occurring in Canada and in more specifically Ontario really through all phases of the project; less so in during the closure phase.

Next slide, please.

This is the projections related to gross domestic product and

simulating sort general economic duties. So again gross domestic product is the value add related to project investment. Again, in the construction phase over approximately 780 million Canada-wide of which over 600 million created in Ontario. Additional capital investment during the operation phase would result in an estimated 400 million in Canada; just over 300 million in Ontario.

Annually during operations, approximately 190 million additional GDP occurring in Ontario.

Needless to say this investment is new money coming into the economy so that's why it's considered as an economic impact. This is money coming in, so without the project these types of benefits will not occur.

Next slide, please.

So we also look at -- or the model, rather, looks at government revenue. So as I mentioned earlier, there is government revenue associated with personal and corporate taxes, consumption taxes like sales tax, mining duties and property taxes, and this is

just an overview of some of the figures that have been reported in the EIS with respect to the magnitude of government revenue that would be associated with the project.

I believe that is it for my review of the economic section. So I'm going pass back to -- I think over to Hilary who is going to talk about infrastructure and services. Thank you.

PRESENTATION BY HILARY JANES:

MS. JANES: Thank you, Frank. It's Hilary Janes for the record. Can I get the next slide, please.

And next slide, please.

So I will be presenting infrastructure and services. This first slide shows the study areas for that value of the component, very similar to the one you just saw for economy and employment. The LSA and RSA for infrastructure and services includes those communities that are most likely to experience effects as a result of the project; includes those communities that are most likely to house the project labour force and supply infrastructure and services to the

project.

So the LSA includes the area immediately surrounding the project and the town of Marathon and BN First Nation, and the RSN includes the RSA and those communities that are about within 100-kilometre travel distance of the project. So Terrace Bay, Manitouwadge, Schreiber, White River, Pic, Mobert, and Pays Plat First Nation.

Next slide, please.

So this is some highlights from the baseline section for infrastructure and services, and just for context, to update the baseline information for the addendum we revisited the original baseline sources, investigated some new sources and asked questions from the Town of Marathon and from BN First Nation. And so these are some of the main points from our existing conditions.

So we've got a low vacancy rate for rental and permanent accommodations in Marathon but we know that Marathon has plans to expand its supply of housing. BN has a wait list for on reserve housing and they have limited serviceable land to build new

homes.

There are several police detachments in the RSA; however, there was an increase in the crime severity index between 2014 and 2018. Most utilities in the RSA have spare capacity; for instance, the landfill was built fairly recently and was designed with a 100-year lifespan.

However, BN have challenges with their water infrastructure and often have to issue boil water advisories because the water treatment system is operating beyond its lifespan and requires upgrades. The supply of physicians in the RSA is generally good and BN reopened a renovated health centre in 2018 with a new mental health crisis team which has improved their capacity to provide health care.

Schools in the RSA generally have spare capacity with the exception of Pic River elementary which is operating beyond capacity and requires upgrades or replacement. And another issue is recruiting teachers to the community. That's been a challenge.

And results of the updated

traffic baseline report indicate that the road network has the capacity to accommodate additional vehicles.

Next slide, please.

So the effects on infrastructure and services are qualitatively and quantitatively assessed by comparing anticipated project demand with existing capacity. For example, some of our measurable parameters are quantitative, doctors per 100,000 population and the capacity of water and waste systems, whereas some anecdotal or descriptive information on some concerns and challenges in the community is more qualitative.

The effects on infrastructure and services result primarily from a temporary increase in the population of the LSA which creates additional demand on housing and other local services and infrastructure.

In general the town of Marathon has capacity to absorb these additional demands, but BN, as outlined on the previous slide, does have some deficiencies in terms of infrastructure and services.

Although we didn't characterize positive effects in the addendum, there is potential for investment in infrastructure and services as result of the project, and where this creates additional capacity this can be beneficial to residents of the LSA and RSA.

We did look at how the project could disproportionately affect vulnerable populations, and these include members of low income households, women, particularly Indigenous women, and youth. There is potential for these groups to experience disproportionate effects when it comes to accessing infrastructure and services and achieving the benefits of project employment, however, with the use of project mitigation and enhancement measures, these effects are not anticipated.

Next slide, please.

So during construction the project will require an average workforce of 360 and a peak workforce of approximately 870. During operation the average workforce of 430 will be required, although it is expected that

80 to 90 percent of those workers will come from the RSA, So where will they live.

The slide shows you some features of the proposed accommodation strategy. Generation PGM will provide housing for workers at an accommodations complex which will house up to that 180 people and there is an existing construction camp that would be available as well.

We have considered a worst-case scenario where 100 percent of the pre-construction workforce and 50 percent of the operation workforce would require housing. The existing work camp can accommodate up to 700 people in addition to the accommodations complex which will house 180, so that would be sufficient to house the peak construction labour force.

Project workers will not likely move families to the RSA for short term construction work, but they may choose to bring families during operation. Considering the expectation that up to 90 percent of the operation labour force will be local, the non-local labour force requiring accommodation

will be likely less than 100 people. We know that other communities in the RSA have capacity to accommodate some families and the Town of Marathon has plans to increase housing stock, as we mentioned previously.

We know that the presence of a work camp associated with resource projects can be a concern for some residents regarding the safety of women in the RSA, particularly the safety of Indigenous women. GenPGM will provide security services at the accommodations complex and at the project site and all workers must abide by a code of construct. In addition, the socioeconomic monitoring plan will help GenPGM monitor any effects on safety.

Next slide, please.

So key mitigation and enhancement measures. As we discussed, the main mitigation measure for infrastructure and services is the accommodations complex. GenPGM also implements a number of other measures to enhance local employment including training programs for members of Indigenous groups. Cultural sensitivity training will be provided

to all employees, and health and emergency services will be provided on site to further reduce effects on health, safety, and emergency infrastructure and services.

There will be management plans including those for traffic and waste that will be implemented to reduce effects, traffic and waste obviously, and GenPGM will continue to communicate with municipal authorities throughout the RSA to provide information about project requirements.

In addition to the project-specific mitigation and enhancement measures, GenPGM will support BN in its efforts to have infrastructure and services concerns addressed by the Crown.

I think that might be it for infrastructure and services. So next slide, please. And I'll pass this over to Christine Walsh. Thank you.

PRESENTATION BY CHRISTINE WALSH:

MS. WALSH: Thank you. Christine Walsh for the record.

The assessment of land and resource use considers activities and

infrastructures related to the use of land and its resources and this includes designated land use such as protected areas, communities, and Crown lands, resource use such as hunting, trapping, fishing and forestry, and recreational use such as hiking, fishing, and snowmobiling.

Next slide, please. I will start by providing a short overview of the current land and resource use conditions.

So the LSA, illustrated there by the purple outline, is located on Crown land and is in an area designated for permitted uses related to natural resources. There are no parks or protected areas within the SSA and it is located in wildlife management units 21A and 21B with hunting permitted for moose, whitetail deer, black bears, small game and fur-bearing animals. And while there is no hunting outfitters established in the Town of Marathon, there are several that serve the broader region.

There are two trap lines within the area and there is informal recreational tourism use in the area including

fishing, swimming, boating, canoeing, biking, picnic-ing, birding, snowmobiling, cross-country skiing and snowshoeing.

Next slide, please.

The assessment of land and resource use primarily relied on spatial analysis to quantify the extent of land and resource use areas available in the SSA, the LSA and the RSA. The assessment considered interactions between land and resource use and other value components and relied on the results of the other value components assessment.

For example, the effects of wildlife and fish species and habitats are important factors to consider for hunting and fishing activities. Similarly, sensory disturbances to land and resource uses rely on the results of air quality and noise assessments.

The changes to land and resource use were predicted to primarily occur through the loss of or restricted access to the SSA, sensory disturbances such as noise and dust from project activities, and the

overall reduction to user experience from project presence.

Next slide, please.

Since the early 2000s access to the site has been controlled with the installation of a gate. This is shown in the yellow square with the X on the figure roughly 4.5 kilometres north of Highway 17, which resulted in limited and restricted access to the SSA.

Limited and restricted access will be required throughout the life of the project to ensure the safety and security of those travelling through the site, employees and equipment. Access will be granted based on the activities being undertaken at the project site.

It is envisioned that limited and restricted access would be provided through the mine site from the guardhouse located at the end of the access road. This is shown as the yellow square with the black dot on the figure. The users will be guided through the site to one of the existing trails north of the SSA.

Alternative access is available to lands within the LSA along an alternative travel corridor currently used between Hare Lake and Bamoos Lake. This is shown as the blue line on the figure.

Next slide, please.

As discussed, access for land and resource users will be restricted throughout the life of the mine to ensure the safety of users and workers. Land users will continue to be able to access land in the LSA and access along Camp 19 Road to the Pic River will be maintained.

Alternative access is available along the Hare Lake and the guided access to the SSA can be provided. There is potential changes to harvesting success, however, it is expected that wildlife displaced from the SSA will seek similar suitable habitat in the surrounding areas of the LSA.

Generation PGM will continue ongoing engagement with users regarding the overlap of the SSA with hunting, trapping, and fishing areas to discuss potential issues and

concerns. There will be a loss of local resource and recreational use within the SSA and sensory disturbances in the LSA. The project, however, is predicted to result in relatively small change on some levels to nearby lands owners and resource users and the sound pressure levels will be below regulatory thresholds. Desired land and resource end uses will be considered in the preparation of a closure plan.

Next slide, please.

As noted, Generation PGM will continue to engage with affected users throughout the life of the project including communicating project activities, locations and timing. Land and resource uses are anticipated to continue at or near current levels over the long term. Alternative land elsewhere in the LSA and the RSA is available for resource and recreational pursuits. Noise and dust effects to nearby users are anticipated to be below regulatory thresholds.

The project is compatible with established federal and provincial and municipal land use designations and policies

and bylaws.

Next slide, please. And I'll pass it over to Colin Varley. Thank you.

PRESENTATION BY COLIN VARLEY:

MR. VARLEY: Thanks, Christine. Thank you. Next slide, please.

So as part of the assessment for the project cultural heritage landscapes were reviewed, carried out an evaluation of the potential built heritage resources and cultural heritage landscapes using the Ministry of Heritage, Sport, Tourism, and Culture Industries checklist.

Part of the review was the review of current aerial photography of the site, desktop screening of historic records, data requests from local and provincial sources, and a review of online databases to determine the presence of previously identified heritage resources or cultural heritage landscapes.

Requests for information were also distributed to Indigenous communities to identify any sites of cultural, spiritual, or traditional land use.

There was no indication from any of the resources checked that there were any potential built heritage resources or cultural heritage landscapes present in the SSA, and this was same finding from a previously completed 2013 assessment that there would be no change to built heritage resources.

Next slide, please.

There had been two archeological assessments completed to date for the study area. In 2008 Woodland completed a stage 1 and 2 archaeological assessment of the SSA along the Pic River most notably and of the interior by helicopter. For the most part Pic River was identified as having steep and high slopes and not particularly navigable through the study area, but there were a few locations along the river that were identified as areas having archeological potential and those areas were surveyed with -- by test pit survey at two locations along the river.

The visual review by the helicopter followed an overview of the -- all the interior and then specifically checked the

end of Bamoos Lake and a road -- proposed road location. The assessment of the interior was that there were no areas of archeological potential along the interior. There were some areas of archaeological potential identified along Bamoos Lake and they were recommended for further assessment should those areas be requirement for the project.

In 2009 an additional assessment was completed. It was a supplemental review of the Hare Lake and Hare Creek area due to a couple of project changes and the potential for water levels to rise in Hare Lake. There were five locations identified on Hare lake as having archeological potential. There was one site identified on the surface at one of those locations during the overview.

There's potential disturbance to one of those locations of archeological potential from a discharge pipe to Hare Lake and a stage 2 assessment is proposed at that discharge location or a refinement of that location to avoid that area if possible.

There is no anticipation that

in fact Hare Lake water levels will rise so the other areas of potential identified will not be affected.

Next slide, please.

And I will pass this back to Hilary.

MS. JANES: Hilary Janes.

Thank you, Colin. It's Hilary Janes for the record. I will just summarize our presentation.

The majority of the feedback we've received has been supportive of the project and people generally recognize the benefits that it will bring to the area. It will create jobs during construction and operations. It will create spinoff employment from spending by project workers. The project will result in millions of dollars in government tax revenue and resource royalties.

Infrastructure and services in the RSA can accommodate the project. Majority of employment anticipated will be from individuals within the RSA. GenPGM will provide facilities that can accommodate workers from outside the RSA. Despite reduced

access to the mining area for safety, resource and recreational pursuits are expect to continue at or near current levels elsewhere in the area. Supplemental archeological assessment will follow MHSTCI standards. And with mitigation and management measures the project is not predicted to result in any significant adverse environmental effects on the socioeconomic environment.

So that concludes our presentation of the socioeconomic environment, archeological and cultural heritage. Thank you, Madam Chair, Member Drescher and Member Bruce, for the opportunity to present our results.

PANEL CHAIR: Thank you very much for all of your presentations this afternoon. Really appreciate you doing this at the end of day and sets us up nicely for tomorrow's presentations and questions that we'll have.

So I think we will conclude proceedings today. We will start again tomorrow with the Town of Marathon and the Ontario Ministry of Heritage, Sport, Tourism

and Culture Industries to begin our day. We will have an updated hearing schedule as well but just thought I would at least give an indication of how we'll start the morning off. So once again thank you to everyone, all of the participants, presenters, those with questions today.

Because we have this topic going over two days we have always asked for participants to remain for the entire topic period and we will do that again today. And we will see you here tomorrow at 9:00 a.m. Thank you.

--- Whereupon at 5:01 p.m. the proceedings were adjourned till Tuesday, March 29, 2022, at 9:00 a.m.