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March 3, 2023

Harry Keess  
Project Manager, Ontario Region  
Impact Assessment Agency of Canada (IAAC)  
600-55 York Street  
Toronto, ON  
M5J 1R7

*Submitted to the IAAC Registry for the Crawford Nickel Project*

**Subject: Health Canada's Comments on the Draft Tailored Impact Statement Guidelines (TISGs) for the Crawford Nickel Project**

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Dear Harry Keess,

Thank you for your email dated February 6, 2023 requesting Health Canada (HC)'s comments on the draft TISGs for the proposed Crawford Nickel Project by Canada Nickel Company (the Proponent).

Health Canada participates in the impact assessment (IA) process as a federal authority under the *Impact Assessment Act* (IAA), upon request. Health Canada makes available specialist/expert information or knowledge in its possession to reviewing bodies under the IAA. Health Canada does not make decisions or issue licenses, permits, or authorizations in relation to the impact assessment of a development project.

Health Canada has reviewed the draft TISGs and has provided comments for your consideration in the comment form (Attachment 1) based on the Proponent's Detailed Project Description and recent experience in tailoring the guidelines to reflect the latest HC guidance relative to IA of designated projects.

Should you have any questions concerning Health Canada's comments, please contact the undersigned.

Sincerely,

Kitty Ma  
Regional Manager, EHP – Ontario Region,  
ROEB, Health Canada  
[ia-on-ie-on@hc-sc.gc.ca](mailto:ia-on-ie-on@hc-sc.gc.ca)

cc: Chantal Roberge, National Director, EHP, ROEB, Health Canada  
Angelika Zidek, A/Director, Chemicals and Environmental Health Management Bureau, Healthy Environments and Consumer Safety Branch (HECSB), Health Canada

Heather Jones-Otazo, A/Manager, Environmental Assessment Division (EAD), HECSB, Health Canada  
Aurelia Thevenot, Senior Environmental Health Specialist, EAD, HECSB, Health Canada  
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**Attachment 1:** Comment Form – Draft Permitting Plan and Draft Tailored Impact Statement Guidelines –  
Federal Review Team

**Comment Form – Draft Permitting Plan and Draft Tailored Impact Statement Guidelines – Federal Review Team**

**Crawford Nickel Project**

**Response required by: March 3, 2023**

All comments should be submitted via the Submit a Comment feature available on the Project’s Canadian Impact Assessment Registry page (Reference #83857 at <https://iaac-aeic.gc.ca/050/evaluations/proj/83857>). Documents can be uploaded using this feature. If you have any difficulties submitting this way, please contact the registry directly at [registry-registre@iaac-aeic.gc.ca](mailto:registry-registre@iaac-aeic.gc.ca). All comments submitted using this table will be posted on the Project’s Registry website.

Please note that this will be your final opportunity to make changes to the Tailored Impact Statement Guidelines. The Agency is required to issue the final Guidelines and plans by day 180 of the Planning Phase, on April 1, 2023.

Department/Agency:	Health Canada		
IA Contact:	Umme Akhtar	Telephone:	416-278-1757
		Email:	ia-on-ie-on@hc-sc.gc.ca

**Section 1:**

1. Confirm that all applicable legislative and regulatory oversight that may apply to the Project, under the authority of your department, is accurately listed in the draft Permitting Plan.

<b><u>Insert response here:</u></b> <b>Not applicable</b>
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2. Indicate whether your department has identified any power that it will be unable to exercise to allow the Project to proceed, in whole or in part. For more information, refer to subsection 17(1) of IAA.

<b><u>Insert response here:</u></b> <b>Not applicable</b>
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**Section 2:**

1. Please review the draft Tailored Impact Statement Guidelines (the Guidelines) sections that are applicable to your department’s mandate.
2. Using the table below, given the context of the Project, please provide any comments and include your recommendation for how the final Tailored Impact Statement Guidelines should be adapted to address any comments.
  - Please indicate any recommended **additions or deletions** to the text. Please provide clear context and rationale for your recommendations.
  - As a reminder, the Guidelines should focus on key issues, effects and factors anticipated to be material and relevant to a public interest decision, and requirements should be clear and specific.

Department – Comment ID (e.g., ECCC-01)	Draft Guidelines Section	Context and Rationale (provide an explanation of your comments)	Recommendation: provide text to be inserted or deleted. Be specific on the location within the draft Guidelines that the text would be added/deleted.
HC-01	<b>7.6 Cumulative effects assessment, pdf p. 45</b>	While examples of industrial developments (i.e., Kidd Mine and North Timmins Gold Project) are mentioned in the cumulative effects section of the Detailed Project Description (DPD) (Section F.10, pdf p. 83), the Proponent’s Reid Property is not explicitly included. If it is reasonable that this nickel deposit may be mined within the operating life of the proposed Crawford mine, it should also be included in the consideration of cumulative effects, especially given its scale and proximity.	Health Canada (HC) recommends the following additions to the guidelines in bold:  Section 7.6, 7 <sup>th</sup> bullet, 1 <sup>st</sup> sub-bullet: “past, existing or future mining activities or projects <b>(e.g., Kidd Mine, North Timmins Gold Project, Reid Property)</b> ;”
HC-02	<b>8.5.1. Baseline conditions, pdf p. 52-53</b>  <b>8.5.2. Effects to the atmospheric, acoustic, and visual environment, pdf p. 55</b>	For mining projects, reduced ambient air quality may be of concern due to exhaust emissions from heavy machinery, fugitive dust (e.g., from vehicular traffic and material stockpiling), fuel combustion by-products, and blasting. The DPD includes a list of predicted air emissions from different project activities (Section F.7.1, pdf p. 78). However, it does not include the parameters to be monitored during baseline air quality monitoring activities.	Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:  (a) Section 8.5.1, 2 <sup>nd</sup> bullet, 8 <sup>th</sup> sub-bullet: insert the following footnote after “volatile organic compounds (VOCs)”  “ <b>#It is recommended to assess specific aldehydes that are associated with diesel exhaust (DE), such as acetaldehyde,</b>

		<p>Mining projects may involve diverse construction and operation activities and may be associated with air contaminant emissions, such as:</p> <ul style="list-style-type: none"> <li>• Particulate matter [total particulate matter (TPM), particulate matter less than 10 microns (PM<sub>10</sub>) and particulate matter less than 2.5 microns, or fine particulate matter (PM<sub>2.5</sub>)] and metals in dust from ore extraction, including blasting.</li> <li>• Diesel exhaust (DE) emissions, which is a complex mixture of gaseous and particulate compounds, including diesel particulate matter (DPM), polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs), from the operation of heavy equipment, diesel generators, and vehicle exhaust.</li> </ul> <p>Health Canada recommends that predicted air concentrations be compared to the most stringent federal or provincial air quality standards applicable to the given area [e.g., Canadian Ambient Air Quality Standards (CAAQS), or Ontario Ambient Air Quality Criteria (AAQC)].</p>	<p><b>formaldehyde, 1,3-butadiene, and acrolein, as well as benzene, for the evaluation of VOCs.”</b></p> <p>(b) Section 8.5.1, 2<sup>nd</sup> bullet, revise the sub-bullets as follows:</p> <ul style="list-style-type: none"> <li>○ <b>metals;</b></li> <li>○ <b>diesel Particulate Matter (DPM);</b></li> <li>○ any other relevant air pollutants from mobile, stationary or fugitive sources, <del>including contaminants produced by the combustion of diesel fuel, and metals;</del></li> </ul> <p>(c) Section 8.5.2, 3<sup>rd</sup> bullet: “use atmospheric dispersion modelling to predict the fate of <b>air pollutants emissions</b> resulting from project-related sources and provide appropriately scaled contour map(s) plotting the predicted <b>pollutant levels emissions for all phases of the project</b> (see Appendix 1 - <i>Additional guidance for biophysical components</i> for guidance on dispersion modelling);”</p> <p>(d) Section 8.5.2, 9<sup>th</sup> bullet, 1<sup>st</sup> sub-bullet: “comparison of <b>predicted air pollutant levels to the most stringent federal or provincial air quality ambient</b> standards, including the <del>Canadian Ambient Air Quality Standards (CAAQS).</del>”</p>
HC-03	<p><b>8.5.2. Effects to the atmospheric, acoustic, and visual environment, pdf p. 55-56</b></p> <p><b>8.5.3 Mitigation and enhancement measures, pdf p. 57</b></p>	<p>The DPD identifies blasting, operation of heavy equipment and handling of mine materials as the major sources of noise during operation (Section F.7.1, pdf p. 78-79). These activities related to noise can impact nearby receptor locations, such as Bigwater Campground.</p> <p>When noise levels exceed 85 A-weighted decibels (dBA) (at a receptor location), they can cause hearing loss, as well as sleep disturbances and interference with speech comprehension at lower sound levels. Health effects on human receptors</p>	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>(a) Section 8.5.2, 10<sup>th</sup> bullet: “describe changes in ambient vibration and <b>other</b> sound levels resulting from the Project <b>at potential receptor locations (such as including</b> along the mine site, highway relocation, and new and existing rail spurs) <b>and how they might impact the perception of non-anthropogenic sounds</b>. Describe the anticipated frequency and timing of changes in ambient vibration and <b>other</b> sound levels such as <b>changes that might occur</b> from blasting and rail operations.</p>

	<p><b>9.3. Mitigation and enhancement measures, pdf p. 98</b></p>	<p>may also vary based on timing (e.g., night-time activities), duration and sound characteristics (tonal, impulsive, etc.). In addition to awakenings, sleep disturbance can cause increased fatigue, increased irritability, decreased concentration and performance, accidents resulting from these conditions, and increased risk of developing hypertension.</p> <p>In the context of noise exposure, two of the most common community reactions indicative of potential adverse health effects are complaints and annoyance. Complaints and annoyance may also occur, or be exacerbated, when project-related noise alters the perception of non-anthropogenic (i.e., natural) sounds (e.g., running water in streams, bird calls).</p>	<p>(b) Section 8.5.2, 3<sup>rd</sup>-to-last bullet, 1<sup>st</sup> sub-bullet: “quantify sound levels at appropriate distances from any project facility and/or activities (including from the mine site, highway relocation, and new and existing rail spur) and describe, <b>for each contributing source, the timing (e.g., hours of night-time activities), the frequency-number and duration of noise events, and character of sound-their sound characteristics, including frequency spectrum;</b>”</p> <p>(c) Section 8.5.2, insert after 3<sup>rd</sup>-to-last bullet, 1st sub-bullet: “<b>provide the baseline hourly distribution of individual noise events at night compared to that of predicted individual noise events at night, at each receptor location;</b>”</p> <p>(d) Section 8.5.3, 2<sup>nd</sup>-to-last bullet: “provide a noise management plan, including identification of the noise sources, common noise mitigation measures (<b>including a detailed complaint resolution process and pro-active community engagement/communication plan</b>), the performance efficiency of the noise control devices, the best practices programs and the continuous improvement programs, and establish the need for follow-up monitoring for the purposes of validation of the model or due to any concern raised by participants;</p> <p>(e) Section 9.3., 3<sup>rd</sup> bullet: “describe additional measures to manage <del>chrysotile</del> (asbestos) in airborne dust, if necessary;”</p>
<p>HC-04</p>	<p><b>9.1 Baseline conditions, pdf p. 93</b></p>	<p>Baseline water quality should be provided for recreational water bodies (used currently or potentially in the future) to provide a comprehensive assessment of potential human health effects from exposure to impacted surface waters.</p>	<p>Health Canada recommends the following additions to the guidelines in bold:</p> <p>Section 9.1, 17<sup>th</sup> bullet: “provide baseline contaminant concentrations in ambient air, drinking <b>and recreational water sources</b> and tissues of traditional foods (where appropriate) consumed by Indigenous Peoples. The</p>

			proponent should work with local Indigenous communities to collect <b>baseline</b> samples where appropriate;”
HC-05	<p><b>9.2.1. Biophysical determinants of health, pdf p. 95-96</b></p> <p><b>Appendix 2 – Resources and guidance</b></p>	<p>A discussion and quantitative evaluation of the health risks of diesel exhaust is requested when diesel emissions are a key source of air pollution for a project (i.e., construction and mining equipment). Diesel exhaust causes cancer and non-cancer adverse health effects<sup>1,2</sup>.</p> <p>To characterize the carcinogenic risk of diesel exhaust from a project, HC has published a report (2022)<sup>3</sup>, which provides a quantitative assessment of the relationship between ambient PM<sub>2.5</sub> exposure and lung cancer risk. Specifically, this report quantifies the increase in risk of lung cancer mortality (over the baseline rate in the Canadian population) due to PM<sub>2.5</sub> exposure. This quantitative assessment is considered appropriate to characterize risks from diesel PM given the contribution of diesel exhaust to ambient PM<sub>2.5</sub> in Canada, and that the carcinogenicity of diesel exhaust has generally been evaluated based on the respirable PM fraction<sup>1,2</sup>.</p>	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>(a) Section 9.2.1, 9<sup>th</sup> bullet, 1<sup>st</sup> sub-bullet: “carry out a quantitative risk assessment <del>using the associated unit risk value published by the Environmental Protection Agency of California that, despite not being expressly recognized in Canada, can provide an overview of the potential impacts that a particular project may have on the risks associated with diesel emissions based on the information in Health Canada’s (2022) report, which provides a quantitative assessment of the relationship between ambient PM<sub>2.5</sub> exposure and lung cancer risk. A sample calculation is available upon request to: ia-ei@hc-sc.gc.ca.”</del></p> <p>In Appendix 2, add the following reference:  <b>Lung Cancer and Ambient PM<sub>2.5</sub> in Canada: A Systematic Review and Meta-analysis. Available at: <a href="https://publications.gc.ca/site/eng/9.907038/publication.html">https://publications.gc.ca/site/eng/9.907038/publication.html</a>.</b> Health Canada. 2022.</p> <p>(b) Section 9.2.1, insert new 10<sup>th</sup> bullet: “<b>assess non-cancer risks of short-term and chronic exposure to diesel exhaust using the guidance values presented in Health Canada, 2016 (<a href="#">Human Health Risk Assessment for Diesel Exhaust</a>);”</b></p> <p>In Appendix 2, add the following reference:  <b>Human Health Risk Assessment for Diesel Exhaust. Available at:</b></p>

<sup>1</sup> Health Canada (HC). 2016. Human Health Risk Assessment for Diesel Exhaust. Available at: [http://publications.gc.ca/collections/collection\\_2016/sc-hc/H129-60-2016-eng.pdf](http://publications.gc.ca/collections/collection_2016/sc-hc/H129-60-2016-eng.pdf)

<sup>2</sup> International Agency for Research on Cancer (IARC). 2014. Diesel and gasoline engine exhausts and some nitroarenes. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 105. Available at: <https://publications.iarc.fr/129>

<sup>3</sup> HC. 2022. Lung cancer and ambient PM<sub>2.5</sub> in Canada: a systematic review and meta-analysis. Available at: <https://publications.gc.ca/site/eng/9.907038/publication.html>

			<p><a href="https://publications.gc.ca/collections/collection_2016/sc-hc/H129-60-2016-eng.pdf">https://publications.gc.ca/collections/collection_2016/sc-hc/H129-60-2016-eng.pdf</a>. Health Canada. 2016.</p> <p>(c) Section 9.2.1, insert new 11<sup>th</sup> bullet: “<b>assess the cancer risks of human exposure to all potentially carcinogenic PAHs in the diesel mixture rather than to a single surrogate substance (refer to Health Canada’s <i>Guidance for Evaluating Human Health Impacts in Environmental Assessments: Human Health Risk Assessment (2019)</i>);</b>”</p>
HC-06	<b>9.2.1. Biophysical determinants of health, pdf p. 96</b>	<p>Based on the information provided in the DPD, it is unclear whether there are any receptors, including Traditional Land and Resource Use (TLRU) activities (e.g., hunting, harvesting plants), in the proximity of the proposed transmission lines (construction of a new 230 kV transmission line and relocation of a 500 kV transmission line). The DPD mentions that there are a few seasonal-use properties located in the area (Section D.4, pdf p 38). Exposure to extremely low frequency (ELF) electromagnetic field (EMF) is possible if anyone is close to a source (e.g., right beside a transformer box, directly under a high voltage power line). As the distance from the source increases, the level of exposure rapidly decreases.</p> <p>Health Canada recommends that the Proponent evaluate the predicted electric and magnetic field strengths directly underneath and at the edge of the transmission line ‘right of way’ in relation to current international exposure limits<sup>4,5</sup>. This can inform mitigation measures to reduce exposure if human health risks are identified, including</p>	<p>Health Canada recommends the following addition in bold:</p> <p>(a) Add Section 8.13:  <b>8.13 Electromagnetism and corona discharge</b></p> <p><b>For projects that could potentially create increased electromagnetism or corona discharges within the study area (e.g., new high voltage transmission lines), the Impact Statement must:</b></p> <ul style="list-style-type: none"> <li>• <b>describe electric field gradient and magnetic field strength expected at the edge of any transmission line right-of-way and maximum loading;</b></li> <li>• <b>describe predicted electromagnetic field levels; and</b></li> <li>• <b>provide any relevant standards and compare to predicted levels.</b></li> </ul> <p>(b) Section 9.2.1, insert after last bullet: “<b>identify any real or perceived human health risks from current and potential future Traditional Land and Resource Use activities (e.g., hunting, harvesting plants) in the close vicinity of the proposed transmission line.</b>”</p>

<sup>4</sup> International Commission on Non-Ionizing Radiation Protection (ICNIRP). (2010). Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz - 100 kHz). Available at: <https://www.icnirp.org/cms/upload/publications/ICNIRPLFgdl.pdf>

<sup>5</sup> Institute of Electrical and Electronics Engineers (IEEE). 2020. C95.1-2019/Cor 2-2020. IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz - Corrigenda 2. Available at: [https://standards.ieee.org/standard/C95\\_1-2019-Cor2-2020.html](https://standards.ieee.org/standard/C95_1-2019-Cor2-2020.html)



		communication plans for TLRU receptors regarding the presence or absence of health risks.	
HC-07	<p><b>9.2.1. Biophysical determinants of health, pdf p. 94</b></p> <p><b>Appendix 2 – Resources and guidance</b></p>	An Ontario fish consumption advisory is currently in place for mercury in the region for the Mattagami river, the North Driftwood River, and the Abitibi River for fish traditionally consumed by Indigenous groups (such as northern pike) <sup>6</sup> . There is a potential for the project to modify the surrounding wetland areas (such as the use of waste rock or aggregate to construct access and haul roads, and proximity of tailing to waterbodies) (DPD, Section C.3.2, pdf p. 27; Appendix D, pdf p. 198), increase mercury methylation processes, and lead to the bioaccumulation of methylmercury in country food species for which assessment should be considered.	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>(a) Section 9.2.1, 3<sup>rd</sup> bullet: “describe how <b>project-related</b> contaminants (e.g., chrysotile, nickel, <b>cobalt</b>, arsenic, cadmium, lead, mercury) <del>related to the Project, and that</del> <b>that</b> can potentially end up in the water, air or soil, may be <del>absorbed</del> <b>taken up</b> in country foods (i.e., foods that are trapped, fished, hunted, harvested or grown for subsistence, cultural or medicinal purposes);”</p> <p>(b) Section 9.2.1, 4<sup>th</sup> bullet: “provide the rationale if a determination is made that an assessment of the potential for contamination of country foods (traditional foods) or other exposure pathways, (such as inhalation) is not required or if some contaminants are excluded from the assessment;”</p> <p>(c) Section 9.2.1, add new 5<sup>th</sup> bullet: “<b>include a detailed HHRA of mercury exposure via consumption of country foods, especially fish, using the Tolerable Daily Intake (TDI) published by Health Canada (Health Canada, 2021):</b>”</p> <p>In Appendix 2, add the following reference:  <b>Federal contaminated site risk assessment in Canada: Toxicological Reference Values (TRVs). Available at: <a href="https://publications.gc.ca/collections/collection_2021/sc-hc/H129-108-2021-eng.pdf">https://publications.gc.ca/collections/collection_2021/sc-hc/H129-108-2021-eng.pdf</a>. Health Canada. 2021.</b></p>
HC-08	<b>9.2.1. Biophysical determinants of health, pdf p. 96</b>	The bullet that refers to psychosocial effects is misplaced, and belongs under Section 9.2.2, which relates to the Social Determinants of Health.	Health Canada recommends the deletions in strikethrough.

<sup>6</sup> Ministry of the Environment, Conservation and Parks. 2021. Fish consumption advisory: <https://www.ontario.ca/page/eating-ontario-fish>

		<p>Similarly, the bullets referring to food security are also misplaced and belong in Section 9.2.2.</p>	<p>(a) Section 9.2.1, 10<sup>th</sup> bullet: <del>“describe and quantify potential effects to mental and social well-being (e.g., stress, depression, anxiety, sense of safety);”</del></p> <p>(b) Section 9.2.1, 14<sup>th</sup> bullet: <del>“with regard to potential effects on food security:</del></p> <ul style="list-style-type: none"> <li><del>○ describe changes in terms of availability, use, consumption and quality of country foods (traditional foods), and the potential effects related to these changes on physical and mental health of Indigenous Peoples<sup>26</sup>;</del></li> <li><del>○ identify possibilities of avoidance of certain country food sources or drinking or recreational water sources by the Indigenous Peoples due to the perception of contamination;”</del></li> </ul>
<p>HC-09</p>	<p><b>17.2. Follow-up program monitoring, pdf p. 130</b></p> <p><b>17.3. Compliance Monitoring, pdf p. 130</b></p>	<p>Timely submission of monitoring reports is critical for the development and implementation of suitable adaptive management measures.</p> <p>Additionally, Health Canada recommends monitoring of contaminant (or noise) levels:</p> <p>a) when the predicted contaminant (or noise) levels are near or above the environmental quality criteria/standards and/or guideline values;</p> <p>b) when the project is predicted to contribute significantly to the increase of contaminant (or noise) levels above baseline levels; and/or</p> <p>(c) when there is a high degree of uncertainty regarding the predicted contaminant (or noise) levels.</p> <p>The proposed follow-up monitoring intervention mechanisms appear to be triggered only by “...non-compliance with the legal and environmental requirements or with the obligations imposed on contractors by the provisions of their contracts.” However, the monitoring results should also be</p>	<p>Health Canada recommends the following additions to the guidelines in bold:</p> <p>(a) Section 17.2, 6<sup>th</sup> bullet: “guidelines for preparing monitoring reports (number, content, <b>timing</b>, frequency, format, duration, geographic extent) that will be sent to the authorities involved;”</p> <p>(b) Section 17.3, insert after 2<sup>nd</sup> bullet: “<b>a description of how the monitoring results will be used to trigger the proponent’s intervention mechanisms for effects that do not have compliance-based thresholds (e.g., CAAQS management levels for common air pollutants);”</b>”</p>

		used to trigger intervention mechanisms for the valued components where clear legal or environmental compliance criteria do not exist (e.g., human health and social/economic conditions), or when other threshold values are established through the impact assessment process (such as based on baseline levels).	
HC-10	<b>Appendix 2 – Resources and guidance, pdf p. 151</b>	As radon gas emitted from open pit mining activities would be diffused into the air, it is not anticipated to be a major concern to human health in a non-occupational setting.	Health Canada recommends the following deletions in strikethrough:  In Appendix 2, remove: “ <i>Guidance for Evaluating Human Health Impacts in Environmental Assessments: Radiological Impacts</i> , available at <a href="http://www.canada.ca/en/health-canada/services/publications/healthy-living/guidanceevaluating-human-health-impacts-radiological.html">http://www.canada.ca/en/health-canada/services/publications/healthy-living/guidanceevaluating-human-health-impacts-radiological.html</a> . Health Canada. 2017.”
HC-11	<b>9.1. Baseline conditions, pdf p. 91-92</b>  <b>9.2. Effects to human health, pdf p. 93</b>  <b>9.2.2. Determinants of health, pdf p. 96</b>	<p>The <i>Impact Assessment Act</i> requires that “Health, social and economic effects (...) be considered for all populations”<sup>7</sup>. As such, baseline information should support the assessment of the project’s effects on the health of “Indigenous Peoples, local communities and disadvantaged populations”<sup>8</sup>.</p> <p>A distinction is being made between "interconnections" (that link the project to relevant determinants of health) and "pathways of health effects" (that reflect the "effects" related to these health determinants).</p> <p>In addition, the term 'risks' is more appropriate than 'outcomes' when referring to project</p>	Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:  (a) Section 9.1, 1 <sup>st</sup> bullet: “be sufficient to provide a comprehensive understanding of the state of health of <b>potentially affected</b> Indigenous Peoples <b>and local communities;</b> ”  (b) Section 9.1, 2 <sup>nd</sup> bullet: “provide information that is sufficiently detailed to describe the <del>pathways</del> <b>interconnections</b> by which the Project's influence on the determinants of health may <del>affect</del> decrease or increase health <del>outcomes</del> <b>risks</b> for <b>potentially affected</b> Indigenous Peoples <b>and local communities;</b> ”

<sup>7</sup> Impact Assessment Agency of Canada, (IAAC). 2020. Analyzing Health, Social and Economical Effects under the *Impact Assessment Act*. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/analyzing-health-social-economic-effects-impact-assessment-act.html>

<sup>8</sup> IAAC. 2021. Guidance: Considering the extent to which a project contributes to Sustainability. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html>

		<p>influences. While Health Impact Assessment (HIA) integrates indicators of biophysical and social determinants of health (SDOH), including Indigenous-specific SDOH, the common endpoint is the changes in health risks.</p>	<p>(c) Section 9.1, 3<sup>rd</sup> bullet: “provide a comparison of data at the provincial, regional or national level, if possible, to better interpret baseline conditions for the health of <b>potentially affected</b> Indigenous Peoples <b>and local communities;</b>”</p> <p>(d) Section 9.1, 2<sup>nd</sup> paragraph: “<b>In addition to the City of Timmins, and the towns of Cochrane, Black River-Matheson, Iroquois Falls, and Smooth Rock Falls, other Indigenous communities may be affected by the project to a certain extent, depending on the level of traditional land use in the area and the ability to commute to and from the project site.</b> To understand the <del>community</del> context and <del>baseline health profiles for</del> <b>of local and</b> Indigenous communities including Indigenous Peoples living in <b>the</b> urban areas <b>mentioned above</b>, the Impact Statement must:”</p> <p>(e) Section 9.1, 2<sup>nd</sup> paragraph, 1<sup>st</sup> bullet: “develop community health profiles that reflect the overall health of <b>potentially affected</b> <del>each</del> Indigenous Peoples and local communities <del>community, and of the urban Indigenous population in general</del>, where information is available, that include:”</p> <p>(f) Section 9.2, 1<sup>st</sup> paragraph: “The proponent must assess the potential effects of the Project on the health of <b>potentially affected</b> Indigenous Peoples<sup>22</sup> <b>and local communities.</b>”</p> <p>(g) Section 9.2.2, 1<sup>st</sup> bullet: “describe the potential health effects arising from the effects on social and economic VCs, and their respective indicators, reflecting the input of <del>the</del></p>
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			<b>potentially affected Indigenous Peoples, and local communities;”</b>
HC-12	<b>9.1. Baseline conditions, pdf p. 92-93</b>	<p>The sub-bullet in the 3<sup>rd</sup> paragraph of Section 9.1 regarding “community health profiles” should focus on the information required to describe existing community vulnerabilities, or resiliencies, from a health perspective rather than a project-influence perspective.</p> <p>The guidelines should describe separately the information requirements on how the project’s social, cultural, and/or economic factors may be connected to health. Baseline information on the social determinants of health may be outlined in section 10 <i>Social conditions</i> and section 11 <i>Economic conditions</i>.</p>	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>Section 9.1, 2<sup>nd</sup> paragraph, delete the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> bullets. Insert a new 3<sup>rd</sup> paragraph with the following bullets:  <b>To identify relevant project-related health determinants, the Impact Statement must:</b></p> <ul style="list-style-type: none"> <li>• <b>illustrate the interconnections between project components and activities (e.g., project location, workforce recruitment) and social, cultural and/or economic factors, and their relationships to health factors in terms of mental and physical well-being, or more generally health inequalities.</b></li> <li>• <b>describe the determinants of health for subgroups within each community.</b></li> </ul>
HC-13	<b>9.2. Effects to human health, pdf p. 94</b>	<p>The use of the term "social determinants of health" needs to be clarified for consistency with HC<sup>9</sup> and Public Health Agency of Canada guidance. The term “social determinants of health” is all-encompassing; it represents the social, cultural and economic factors that make up the social fabric of life, as per the following standard WHO understanding of what affects people’s health: “The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life<sup>10</sup>.” To be noted, cultural factors could be considered part of social conditions (at times called socio-cultural factors).</p>	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>Section 9.2, 3<sup>rd</sup> bullet: “describe any potential health effects resulting from changes on biophysical <b>determinants of health (i.e., environmental conditions)</b> and <del>social and economic</del> <b>determinants of health (i.e., social and economic conditions);”</b></p>

<sup>9</sup> HC. 2022. Interim Guidance Document for the Health Impact Assessment of Designated Projects under the Impact Assessment Act. Draft for review. June 30, 2022. Available upon request to: ia-ei@hc-sc.gc.ca)

<sup>10</sup> World Health Organization. 2023. Social Determinants of Health. Available at: [https://www.who.int/health-topics/social-determinants-of-health#tab=tab\\_1](https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1)

HC-14	<b>9.2.2. Determinants of health, pdf p. 96</b>	Change the header of Section 9.2.2 to "Social determinants of health" since the term "Determinants of health" encompasses both biophysical (Section 9.2.1) and social determinants of health (Section 9.2.2).	Health Canada recommends the following additions to the guidelines in bold:  Section 9.2.2 header: <b>Social</b> determinants of health
HC-15	<b>9.2.2. Determinants of health, pdf p. 96-97</b>	<p>The 2<sup>nd</sup> bullet and its sub-bullets in Section 9.2.2 refer mainly to social and economic impacts and duplicate the requirements of the sections on social and economic conditions. Instead, examples of indicators mentioned in the DPD could be provided in the form of pathways to show health linkages in an integrative manner, thereby distinguishing this section from the social and economic sections. Furthermore, psychosocial pathways should be included as they represent a key component of the long-standing SDOH framework in the field of public health. Psychosocial factors are sources of stress (i.e., psychosocial stressors, as opposed to environmental stressors) and sources of comfort (i.e., stress buffers) that primarily affect mental well-being. Effects on mental well-being have implications regarding coping mechanisms and health-related behaviours, underlying physical well-being.</p> <p>The 1<sup>st</sup> added sub-bullet ("<i>changes to the psychosocial factors of Indigenous....</i>") is proposed for the following reasons:  (1) the proponent's DPD has flagged traditional land use and ways of life as potential project impacts to be assessed (Section F.5, pdf p. 75-76);  (2) HC HIA guidance<sup>9</sup> considers these impacts to be psychosocial effects linked to Indigenous People's</p>	<p>Health Canada recommends the following additions to the guidelines in bold and deletions in strikethrough:</p> <p>(a) Section 9.2.2, replace 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> bullets with the proposed texts:</p> <ul style="list-style-type: none"> <li>● <del>identify and describe anticipated changes to determinants of health that may be related to the Project, for example:</del> <ul style="list-style-type: none"> <li>○ <del>housing availability, home value, housing affordability and home ownership;</del></li> <li>○ <del>demographic information on the region, including available descriptive statistics (e.g., age, ethnicity, sex and gender, language);</del></li> <li>○ <del>access to health and social services;</del></li> <li>○ <del>community cohesion;</del></li> <li>○ <del>average income and wage inequality;</del></li> <li>○ <del>education level;</del></li> <li>○ <del>factors supporting mental health and community well-being (including perceived stress, feelings of isolation, of remoteness, of concern for future generations); and</del></li> <li>○ <del>safety of Indigenous women;</del></li> </ul> </li> <li>● <del>identify any emotional or social stress factor that may result from the Project, particularly:</del> <ul style="list-style-type: none"> <li>○ <del>concerns regarding public safety raised by the construction or by the risk of accidents or</del></li> </ul> </li> </ul>

		<p>mental well-being (a determinant of physical well-being); and  (3) similar “psychosocial” effects are mentioned in the publication, <i>Indigenous Mental Wellness and Major Project Development: Guidance for Impact Assessment Professionals and Indigenous Communities</i><sup>11</sup>.</p> <p>The 2<sup>nd</sup> sub-bullet can replace the 10<sup>th</sup> bullet point in section 9.2.1 about effects to mental well-being and to highlight key psychosocial concerns that can be found mentioned throughout the proponent's DPD.</p> <p>The 3<sup>rd</sup> sub-bullet could include other psychosocial examples focusing on workplace stress, which draws from information found in the proponent's DPD regarding impact assessments (Section D.8.4, pdf p. 57-58, and Appendix D, pdf p. 188).</p> <p>The 4<sup>th</sup> sub-bullet could include one example that focuses on the material pathway of healthy eating, a critical health factor, with primary implications for physical well-being and then mental well-being.</p> <p>The last bullet point refers to a project's workforce recruitment activities, with the possible influx of workers in the host communities. Related indicators, such as housing are known in the published literature to be associated with health inequalities rather than being part of clear-cut cause-effect relationships with health factors. The examples reflect HC's HIA guidance<sup>9</sup> as well as information drawn throughout the proponent's DPD.</p>	<p><del>malfunctions related to project operations;</del>  <del>and</del>  <del>○ disturbance of normal daily activities;</del></p> <ul style="list-style-type: none"> <li>● <del>describe any pathways of effect (positive or negative) on the state of mental health and, if applicable, substance use;</del></li> <li>● <del>describe potential effects on access to social and health services, including the increased use of health services and related social services in the relevant communities;</del></li> <li>● <b>describe, using secondary data and/or community input, health effect pathways regarding positive and adverse influences of project components and activities on social and economic conditions, including but not limited to:</b> <ul style="list-style-type: none"> <li>○ <b>changes to the psychosocial factors of Indigenous community resilience (e.g., traditional land use and connection to the land, cultural continuity, and self-determination) and their subsequent effects on mental well-being (including emotional and spiritual aspects, with implications for physical well-being);</b></li> <li>○ <b>changes to the psychosocial factors of perceived human health risks (e.g., concerns over exposures to air emissions, decreased water quality, country food contamination, accidents and malfunctions, and road safety issues, and the adequacy of risk management practices) affecting mental well-being;</b></li> <li>○ <b>changes to employment opportunities, bringing a sudden increase in income, and</b></li> </ul> </li> </ul>
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<sup>11</sup> Indigenous Mental Wellness and Major Project Development: Guidance for Impact Assessment Professionals and Indigenous Communities, submitted to IAAC on May 7, 2021. Available at : <https://www.canada.ca/content/dam/iaac-acei/documents/research/indigenous-mental-wellness-and-ia-en.pdf>

		<p>The existing 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> bullets in Section 9.2.2 become redundant with the enhanced text proposed.</p>	<p><b>interactions of these effects with life histories (e.g., sources of community resilience, poverty, intergenerational trauma), workplace stress (e.g., from mining jobs, and possibly racism), and related adaptive or maladaptive coping mechanisms (e.g., substance misuse), leading to effects on the mental and physical well-being of workers and their families, and on the need for health and social services; and</b></p> <ul style="list-style-type: none"> <li>○ <b>changes to working conditions (e.g., new jobs’ work schedules) and access to quality on-site food, further influencing workers’ physical and mental resilience.</b></li> <li>● <b>describe the project’s potential influence on factors associated with health inequalities, including but not limited to:</b>  <b>planned local workforce requirements and contingency recruitment plans pertaining to a potential influx of migrant workers, and the potential adverse effects on housing availability and affordability, community safety (e.g., sex trade and related aggressions, violence against Indigenous women and girls), family life, as well as the availability of health and social services and high-quality, affordable childcare for the local populations.</b></li> </ul>
<p>HC-16</p>	<p><b>9.3. Mitigation and enhancement measures, pdf p. 98</b></p>	<p>Including examples of potentially applicable mitigation measures may provide some clarity.</p>	<p>Health Canada recommends the following additions to the guidelines in bold:</p> <p>(a) Section 9.3, 5<sup>th</sup> bullet: “identify any measures that would reduce negative effects or enhance positive effects on the state of mental health (e.g., <b>shuttle services for safe and restful commuting, rest breaks for recovery on the job, life-skills training such as financial management and</b></p>



			<p><b> coping strategies) and, if applicable, substance use by Indigenous Peoples;</b></p> <p>(b) Section 9.3, last bullet: “measures to minimize any potential exacerbation of the opioid crisis currently being experienced in northern Ontario, and measures for preventing substance use on and off the worksite, <b>including stress management training and health education for healthy eating.</b></p>
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