

## Federal Authority Advice Record Form

Spanish Mountain Gold Project – Spanish Mountain Gold Ltd.

**Response due by May 6, 2022**

Please submit the form to: [SpanishMountain@iaac-aeic.gc.ca](mailto:SpanishMountain@iaac-aeic.gc.ca)

Agency File: 005827 Registry Reference No.: 83495

Department/Agency	Health Canada
Lead IA Contact	Herbert Antill
Full Address	218-757 West Hastings Street Sinclair Center, Federal Tower Vancouver, BC V6C 1A1
Email	<a href="mailto:Herbert.Antill@hc-sc.gc.ca">Herbert.Antill@hc-sc.gc.ca</a>
Telephone	(604) 809-7652
Alternate Departmental Contact	<a href="mailto:Yota.Hatziantoniou@hc-sc.gc.ca">Yota.Hatziantoniou@hc-sc.gc.ca</a> , <a href="mailto:Paula.Smith@hc-sc.gc.ca">Paula.Smith@hc-sc.gc.ca</a>

- 
1. Is it probable that your department or agency may be required to exercise a power or perform a duty or function related to the Project to enable it to proceed?

If yes, specify the Act of Parliament and that power, duty or function.

Not applicable

- 
2. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to the conduct of an impact assessment of the Project?

Specify as appropriate.

---

As a federal authority, Health Canada (HC) will provide specialist or expert information and knowledge in the Department's possession (expertise) to support the assessment of impacts on human health from projects considered individually and cumulatively under the *Impact Assessment Act* (IAA). The Department provides expertise in the areas described below; it does not play a regulatory role. How the expertise provided by HC will be used in the impact assessment process will ultimately be determined by the reviewing body(ies). It should also be noted that expertise related to assessing human health that are relevant to impact assessments may be held by other federal, provincial and municipal partners, reflecting the shared jurisdiction for environmental and human health within Canada.

To support the implementation of the IAA, HC can provide expertise in the following areas:

- Air quality
- Recreational and drinking water quality
- Traditional foods (Country Foods)
- Noise
- Human Health Risk Assessment (HHRA)

(cont'd)

- Methodological expertise in conducting Health Impact Assessment (HIA)
- Electromagnetic fields
- Radiological emissions
- Public health emergency management of toxic exposure events

**Available Health Canada guidance:**

HC has published the following guidance documents for evaluating human health impacts:

*Guidance for Evaluating Human Health Impacts in Environmental Assessment:*

- Human Health Risk Assessment
- Air Quality
- Drinking and Recreational Water Quality
- Country Foods
- Noise
- Radiological Impacts

<https://publications.gc.ca/site/eng/search/search.html?st=1&e=0&f=0&ssti=on&ast=Guidance+for+Evaluating+Human+Health+Impacts+in+Environmental+Assessment&cnst=&adof=on&hpp=10&psi=1&rq.ssp=-5>

Information on power lines and electrical appliances can be found at:

<https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/everyday-things-emit-radiation/power-lines-electrical-appliances.html>

3. Has your department or agency considered the Project; exercised a power or performed a duty or function under any Act of Parliament in relation to the Project; or taken any course of action that would allow the Project to proceed in whole or in part?

Specify as appropriate.

Not applicable

4. Has your department or agency had previous contact or involvement with the proponent or other party in relation to the Project? (for example, enquiry about methodology, guidance, or data; introduction to the project)

Provide an overview of the information or advice exchanged.

No

5. Does your department or agency have additional information or knowledge not specified, above?

Specify as appropriate.

No

6. From the perspective of the mandate and area(s) of expertise of your department or agency, what are the issues that should be addressed in the impact assessment of the Project, should the Agency determine that an impact assessment is required?

For each issue discussed, provide a concise, plain-language summary that is appropriate for inclusion in the Summary of Issues and Engagement.

Based on the limited information provided in the initial Project Description (iPD), HC has identified the following key issues and information requirements that are likely to be relevant to the Spanish Mountain Gold Project (the

Project). These are not to be construed as an exhaustive list of requirements pertaining to human health for the Project.

### **Human Health Setting / Receptors**

#### **Key Message:**

*Include the locations of all potential permanent/temporary/seasonal human receptors (e.g., residences, sensitive locations), waterbodies used for recreational or ceremonial purposes, sites used for drinking water, and the distance between them and the Project components that may affect them.*

The closest population centre to the Project is the village of Likely (approximately 350 people), located about 6 km northwest of the Spanish Mountain Property. The Project also lies within the traditional territories of Williams Lake First Nation (T'exelcenc), Canim Lake Band, Stswéceřnc/Xget'tem First Nation, and Xat'súll First Nation (communities of the Northern Shuswap Tribal Council) and the Lhtako Dené Nation (community of the Carrier Chilcotin Tribal Council).

Outdoor recreation/commercial activities in the area include an active guide outfitter tenure and two traplines. There are also three recreation sites located within 4 to 10 km of the Project. It is essential that the locations of all potential human receptors (including any foreseeable future receptors) be identified within the Project area. These locations could include residences, cabins, and temporary/seasonal traditional use sites for hunting, fishing, trapping, berry picking, ceremonial use, and other uses (e.g., recreational). Sensitive human receptor locations, such as schools, hospitals, retirement complexes or assisted care homes, should also be included. Additionally, the distances between human receptor locations and the key components of the Project that may have potential impacts on these receptors should also be identified.

In addition, the iPD indicates (p. 36) that most construction workers will reside at the onsite camps, which will accommodate up to 315 persons. HC recommends that potential health effects be assessed for off-duty workers residing in the worker camps.

### **Air Quality**

#### **Key Message:**

*Recommend the air quality assessment consider nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), VOCs, polycyclic aromatic hydrocarbons (PAHs), particulate matter, metals, diesel particulate matter (DPM), secondary pollutants (e.g., ground level ozone), chemicals associated with ore extraction (e.g., emissions from ammonium nitrate), and processing (e.g., sodium cyanide).*

*Use of the most stringent Canadian Ambient Air Quality Standards to undertake an assessment of existing baseline, project-only, and future (baseline + project), and cumulative effects.*

Emissions of air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health. Project activities that may result in emission to air include vehicle operation, heavy machinery operation, blasting, ore processing, and solid waste incineration. There is also the potential for fugitive dust to be generated.

Given there are human receptors near the Project area including off-duty workers, HC recommends that an air quality assessment be conducted to assess the following scenarios: baseline, project alone, baseline plus project, and cumulative. HC is of the opinion that the most stringent air quality objectives or standards (e.g., CAAQS) should be used when undertaking the air quality assessment.

HC recommends the air quality assessment considers nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), particulate matter (e.g., PM<sub>2.5</sub>, PM<sub>10</sub>), metals (e.g., arsenic, cadmium, chromium), and diesel particulate matter (DPM). Given diesel exhaust and DPM from diesel generators and heavy equipment are likely emitted from the Project, it is important that the carcinogenic and non-carcinogenic health impacts of DPM be assessed (separately from PM<sub>2.5</sub>). Consideration could also be given to secondary pollutants such as ground level ozone (O<sub>3</sub>) and secondary fine particulate matter (PM<sub>2.5</sub>) that may be formed by reactions in the atmosphere, when precursors such as NO<sub>x</sub>, SO<sub>x</sub>, and VOCs are emitted. Furthermore, any chemicals associated with ore extraction (e.g., emissions from ammonium nitrate/fuel oil explosives used for blasting) and processing (e.g., sodium cyanide) would be important to consider. HC suggests the DPD clarify which chemicals will be used in processing.

Finally, HC recommends the air quality assessment also consider emissions during construction and operation for all transportation-related activities that may be scoped into the Project assessment.

## Water Quality

### **Key Message:**

*Identify all drinking water sources and water bodies used for traditional purposes, and confirm whether Indigenous users consume treated or untreated water from the Project.*

Effects to surface and groundwater quality could result from increased erosion and sediment generation, transport, and deposition; dissolution of nitrates; deposition of particulate matter; and discharges, spills or seepage of contaminants from mine and waste management infrastructure (e.g., metal leaching, acid rock drainage). HC recommends the water quality assessment considers metals, and chemicals associated with ore extraction and processing (e.g., sodium cyanide).

The iPD (Table 14.1, p. 117) indicates that potable water will be supplied from two freshwater wells and will be “sterilized” before being stored in a potable water tank and distributed to the process plant, plant site buildings, and camp. HC suggests identifying if there are any private potable water wells that may be affected by Project activities. The impact statement should confirm whether the drinking water source(s), and selected water treatment technology and capacity would adhere to applicable water quality standards or guidelines (e.g., Guidelines for Canadian Drinking Water Quality). As well, HC recommends identifying all drinking water sources and water bodies that are used for traditional purposes, and confirming whether Indigenous users consume treated or untreated water from the Project site.

Furthermore, surface and ground water quality may impact human health through dermal contact. HC therefore suggests identifying water bodies that are currently being used, or may be used in the future, for recreational and ceremonial purposes (e.g., swimming, fishing) and that may be affected by Project activities.

## Noise

### **Key Message:**

*Include a noise assessment in accordance with Health Canada guidance to assess potential effects of noise on sensitive receptors, including the potential for sleep disturbance.*

The Project is located in a sparsely populated area. The land uses surrounding the Project area include activities such as trapping, hunting, fishing, hiking and camping. HC recommends a noise assessment be conducted in accordance with HC guidance. The noise assessment should identify and describe human receptors who may have a heightened sensitivity to noise exposure (e.g., Indigenous peoples, schools, child care centres, places of worship, etc.). It should be noted that human receptors in rural areas could have a greater expectation of “peace and quiet”. It is recommended that particular attention be given to the potential for sleep disturbance of local residents, including off-duty workers residing in, or near, the Project area.

## Biophysical Health Effects / Human Health Risk Assessment

### **Key Message:**

*Assess effects to human health from exposure to contaminants of potential concern from multiple pathways of exposure (e.g., through consumption of local foods or water, air (inhalation/deposition), dermal contact with contaminated surface/groundwater) in a highly mineralized area.*

The iPD (pp. 67-68) indicates the presence of elevated metal concentrations in both surface water and streambed samples that frequently exceed relevant Canadian Council of Ministers of the Environment (CCME) environmental quality guidelines within or near the Project area. Although the iPD does not describe the importance of the Project area to nearby Indigenous communities, with respect to the collection of traditional foods or other cultural and spiritual activities, the iPD does confirm the nearby presence of traplines and the importance of outdoor recreation in the area, including hunting and fishing. As such, it may be necessary to identify contaminants of potential concern (COPCs) and understand the potential uptake of these COPCs into traditional foods consumed by residents, off-duty workers, and recreationalists in the Project area. Additionally, it is recommended that contaminants (e.g., metals) emitted into the air that may deposit onto traditional foods be considered.

HC guidance supports the need for a multi-media Human Health Risk Assessment (HHRA) when elevated levels of COPCs are identified in environmental media, and there are possible exposure pathways to humans (i.e., through the consumption of traditional foods, drinking water, inhalation of airborne contaminants etc.).

## Non-Biophysical Health Effects / Health Impact Assessment

### **Key Message:**

*Consider a determinants of health approach / Health Impact Assessment to capture positive and adverse effects on social, economic, and health conditions. Consider community concerns (e.g., housing) and use GBA+ to assess effects on sub-populations.*

Worker influx and other aspects of resource development projects have the potential to create positive and negative effects on local populations. The iPD (p. 100) indicates that during operations, the Project will transport operational staff from local pick-up hubs to the Project site. A temporary 265-person camp will be provided during the two-year construction phase, and an existing 50-person permanent camp will be available for worker accommodation during both construction and operational phases. The iPD (pp. 124-125) also indicates that the Project may result in an increase in local housing demand, and demands on municipal and social services. Likewise, there is community interest regarding the influence of the Project on housing and real estate - both positive and negative (p. 53).

A health impact assessment (HIA) may be appropriate to capture potential positive and adverse effects on social, economic and health conditions in addition to the environmental (biophysical) conditions typically included in an environmental assessment. An HIA emphasizes that physical, mental, and social well-being is determined by a broad range of conditions, or factors, from all sectors of society known as the determinants of health. Relevant determinants of health can be selected to reflect the setting and circumstances of the affected communities. In addition, it will be important to examine linkages (i.e., effect pathways) between potential project-related changes to environmental, economic, social and cultural factors that contribute to community well-being and changes to health.

An HIA would consider community concerns (e.g., housing) and incorporate Gender-based Analysis Plus (GBA+) to reflect how project activities can affect subgroups of the population in different ways. Disaggregated information is required to conduct GBA+ and understand the differential health impact of the project on women, children and other vulnerable groups, including from a cumulative effects perspective.

## Alternatives to the Project / Electrification of Mining Fleet

### **Key Message:**

*Consider the feasibility of electrifying part of the mining fleet, and the positive Project effects that may result for human health and the environment.*

The iPD (Table 12.1, p. 100) indicates that grid power will supply the majority of electrical needs, although there will also be the use of on-site diesel for the mining fleet, including haul trucks. The anticipated mining fleet diesel consumption has been calculated to be 16 million litres (ML) per year for the first 6 years of mine operation, and then 27 ML from Year 7 onwards (p. 30). The Project's proposed worker camp(s) would bring off-duty workers in proximity to mining operations, and potentially increase their exposure to air contaminants while residing on-site.

Health Canada has determined that diesel exhaust is carcinogenic in humans, which is consistent with the conclusion of the International Agency for Research on Cancer, and that diesel exhaust is associated with significant population health impacts in Canada.

Health Canada is aware that [BC Hydro's Electrification Plan](#) (dated September 2021) aims to advance electrification and fuel switching in BC by providing incentives to three key segments – one of which includes large mining operations. The Copper Mountain mine near Princeton, BC is one of the first open pit mines to commission an electric trolley assist over a 1 kilometre haul ramp, to reduce the mine's reliance on diesel fuel; thereby, reducing emissions and cost and increasing mine productivity. Health Canada suggests that the proponent consider the technologies and incentives available in BC for the (partial) electrification of its mining fleet, and the potential positive effects to human health and the environment that may result.

## Assessment Scope

### **Key Message:**

*Suggest scoping in all transportation routes into and out of the mine site, and confirm the scoping of the new 138 kV transmission line and electrical substation.*

The iPD (pp. 35 to 36) indicates that construction equipment and materials will be shipped to the Mine Site by heavy trucks over the 24-month construction period. It is estimated this may include up to 1,000 heavy loads over the construction period. HC suggests that all transportation routes into and out of the mine site be scoped

into all relevant assessments, including those for air quality, human health, and community health and well-being. As well, Spanish Mountain will own a new 77.8 km long, 138 kV transmission line and receiving substation. Health Canada acknowledges that some people are concerned that daily exposure to electric and magnetic fields (EMFs) may cause health problems and the Detailed Project Description should indicate if this transmission line and substation will be scoped into the project.

Herbert Antill

Name of Departmental / Agency Responder

Regional Manager,  
Environmental Health Program  
British Columbia

Title of Responder

April 29, 2022

Date