



## 14.0 Conclusions

As part of the approval process Treasury Metals is undergoing for their Goliath Gold Project, they completed a thorough and comprehensive environmental assessment in accordance with the Project-specific EIS Guidelines prepared by the Canadian Environmental Assessment Agency (the Agency). Treasury Metals submitted an EIS for the Project to the Agency in March of 2015, and April of 2015 the Agency confirmed that Treasury Metals' EIS as met conformity with the requirements of the EIS Guidelines. Following a period of technical review and public comment, the Agency issued a series of requests to Treasury Metals. As part of the information request (IR) process, the Agency requested that Treasury Metals prepare and submit a revised EIS (this document). The revised EIS was prepared in accordance with the Agency's request, and included the completion of further technical work required as part of the IR response process.

This revised EIS lays out the evaluation of potential effects of the Project in a traceable and methodical manner. The effects of the Project were evaluated for the following disciplines:

- |                             |                                  |
|-----------------------------|----------------------------------|
| ) Terrain and soils;        | ) Wildlife and wildlife Habitat; |
| ) Geology and geochemistry; | ) Migratory Birds;               |
| ) Noise;                    | ) Fish and fish habitat;         |
| ) Light;                    | ) Wetlands and vegetation;       |
| ) Air quality;              | ) Land use;                      |
| ) Climate;                  | ) Social;                        |
| ) Surface water quality;    | ) Economic;                      |
| ) Surface water quantity;   | ) Human health;                  |
| ) Groundwater quality;      | ) Heritage resources; and        |
| ) Groundwater quantity;     | ) Aboriginal peoples.            |

For each of these disciplines, valued components (VCs) were identified. The Agency describes VCs as "...environmental features that may be affected by a project and that have been identified to be of concern by the proponent, government agencies, Aboriginal peoples or the public." (CEAA, 2015b). From an ecological perspective, a VCs can be an aspect of the physical environment (e.g., air quality or surface water quality), and individual species (e.g., walleye or northern pike), or a range of species that serve as a surrogate for species that interact similarly with the environment (e.g., upland birds). From a socio-economic perspective, VCs could represent an aspect of community well-being, such as housing or employment. The VCs used in the revised EIS are described fully in Section 6.1.3, and are summarized in Table 14.0-1.



**Table 14.0-1: Disciplines and VCs used in the Revised EIS Assessment**

Discipline or Component	Valued Components (VCs)
Terrain and soils	Natural Landscapes
	Overburden
	Soil chemistry
Geology and geochemistry	Pit lake water quality
Noise	Ambient noise levels
	Noise disturbance to wildlife (including SAR)
	Blasting noise and vibration
	Noise related health effects
Light	Light trespass
Air quality	Air quality
Climate	GHG emissions
	Changes in climate due to the Project
Surface water quality	Surface water quality
Surface water quantity	Surface water quantity
Groundwater quality	Groundwater quality
Groundwater quantity	Groundwater quantity
Wildlife and wildlife Habitat	Wildlife Species at Risk
	Ungulates
	Furbearers
	Upland Birds
	Wetland Birds
	Small mammals
	Reptiles and amphibians
	Invertebrates
Migratory Birds	Upland Birds
	Wetland Birds
Fish and fish habitat	Stream-resident fish population
	Migratory fish populations
	Lake-resident fish populations
	Fish species at risk
Wetlands and vegetation	Wetland extent
	Vegetation communities and species
Land use	Land use planning and policies
	Aggregate operations
	Forestry
	Mineral exploration
	Fishing - recreational and commercial
	Hunting
	Trapping
	Cottagers and outfitters
	Other recreational uses
Social	Population demographics
	Education
	Infrastructure and services
	Housing and property values
	Public safety
	Transportation and traffic



**Table 14.0-1: Disciplines and VCs used in the Revised EIS (continued)**

Discipline or Component	Valued Components (VCs)
Economic	Labour force, labour participation and employment
	Income levels
	Cost of living
	Real estate
	Economic development
	Existing businesses
	Government revenues
Human health	Human health
Heritage resources	Archaeological sites
	Historic heritage sites
Aboriginal peoples	Health effects
	Gathering of plant material
	Hunting, trapping, fishing
	Cultural activities
	Socio-economic effects

As set out in the EIS Guidelines, a series of spatial and temporal boundaries were established for evaluating the effects of the Project. Section 6.1.4 provides a description and justification for the spatial boundaries, referred to as study areas, used for each discipline. In most cases, both a local study area (LSA) and regional study area (RSA) were defined. The LSAs selected usually included the areas where the direct effects of the Project were considered to be likely, while the RSA enclosed the larger regional context. In some cases, only a single study area was used for a discipline (e.g., social factors) as the effects were most appropriately addressed on a broader, regional scale. The temporal boundaries were selected to correspond with the following phases of the Project life:

- ) Site preparation and construction phase;
- ) Operations phase;
- ) Closure phase; and
- ) Post-closure phase.

The methodical steps taken for evaluating the effects of the identified disciplines and VCs included the following:

- ) **Identify the Likely Effects of the Project on the Environment:** The likely potential effects of the Project on each discipline during each of the four Project phases were identified, along with the possible linkages between the various disciplines and VCs.



- J) **Predict the Effects of the Project:** Using clearly described approaches, the effects of the Project on the disciplines and VCs. The prediction of effects need to identify and evaluate those measures incorporated in the Project to avoid effects. The results of the effects prediction should cover all Project phases, and indicate whether the Project is predicted to result in adverse effects.
- J) **Mitigation Measures:** As set out in the EIS Guidelines, mitigation measures need to be identified in those cases where adverse effects were predicted, In keeping with the EIS Guidelines, such mitigation should be technically and economically feasible.
- J) **Residual Effects:** Residual adverse effects are those that remain after consideration of the application of technically and economically feasible mitigation measures. The residual effects that remain after mitigation are those that are carried forward for consideration of possible cumulative effects (Section 7) and ultimately for the determination of significance (Section 8).

A summary of the above steps in the effects assessment process is provided in Table 14.0-2.

**Table 14.0-2: Summary of Predicted Effects in Revised EIS**

Discipline or Component	Valued Components (VCs)	Indicators	Predicted Effects	Predicted Adverse Effects	Predicted Residual Adverse Effects
Terrain and soils	Natural Landscapes	Uniqueness of surface features from surrounding terrain	Yes	Yes	Yes
	Overburden	Erosion of disturbed overburden	— <sup>(1)</sup>	—	—
	Soil chemistry	Changes in soil chemistry	—	—	—
Geology and geochemistry	Pit lake water quality	All	Yes	Yes	Yes
Noise	Ambient noise levels	Equivalent noise levels, LEQ	Yes	Yes	Yes
	Noise disturbance to wildlife (including SAR)	Area predicted LEQ above 50 dBA	Yes	Yes	Yes
	Blasting noise and vibration	Peak sound pressure level	Yes	Yes	Yes
		Peak particle velocity	Yes	Yes	Yes
	Noise related health effects	Absolute sound pressure, LDN Percent highly annoyed, %HA	Yes Yes	Yes Yes	Yes Yes
Light	Light trespass	Ambient light levels	Yes	† <sup>(2)</sup>	†
Air quality	Air quality	All	Yes	Yes	Yes
Climate	GHG emissions	Annual equivalent carbon dioxide emissions (eCO <sub>2</sub> )	Yes	Yes	Yes
	Changes in climate due to the Project	All	Yes	†	†
Surface water quality	Surface water quality	Various	Yes	Yes	Yes
Surface water quantity	Surface water quantity	Increase in surface flows	Yes	Yes	Yes
		Decreases in surface flows	Yes	Yes	Yes
		Change in lake levels	Yes	†	†



**Table 14.0-2: Summary of Predicted Effects in Revised EIS (continued)**

Discipline or Component	Valued Components (VCs)	Indicators	Predicted Effects	Predicted Adverse Effects	Predicted Residual Adverse Effects
Groundwater quality	Groundwater quality	All	Yes	†	†
Groundwater quantity	Groundwater quantity	Decreasing elevations in private wells	Yes	Yes	‡ <sup>(3)</sup>
		Decreasing contributions to surface flow patterns	Yes	Yes	Yes
Wildlife and wildlife Habitat	Wildlife Species at Risk	Common Nighthawk	Yes	Yes	Yes
		Northern Myotis/Little Brown Myotis	Yes	Yes	Yes
		Barn Swallow	Yes	Yes	Yes
	Ungulates	Moose	Yes	Yes	Yes
	Furbearers	American Marten	Yes	Yes	Yes
	Upland Birds	Upland birds	Yes	Yes	Yes
	Wetland Birds	Marsh birds	Yes	Yes	Yes
	Small mammals	Small mammals	Yes	Yes	Yes
	Reptiles and amphibians	Reptiles and amphibians	Yes	Yes	Yes
Migratory Birds	Upland Birds	Upland birds	Yes	Yes	Yes
	Wetland Birds	Marsh birds	Yes	Yes	Yes
Fish and fish habitat	Stream-resident fish population	Habitat loss	Yes	Yes	†
		Habitat alteration or disruption	Yes	Yes	†
		Potential for mortality	Yes	Yes	Yes
	Migratory fish populations	Habitat loss	Yes	Yes	†
		Habitat alteration or disruption	Yes	Yes	†
		Potential for mortality	—	—	—
	Lake-resident fish populations	Habitat loss	—	—	—
		Habitat alteration or disruption	—	—	—
		Potential for mortality	—	—	—
Fish species at risk	Habitat loss	—	—	—	
	Habitat alteration or disruption	—	—	—	
	Potential for mortality	—	—	—	
Wetlands and vegetation	Wetland extent	Wetland extent	Yes	Yes	Yes
	Vegetation communities and species	Floating Marsh Marigold ( <i>Caltha natans</i> )	—	—	—
Land use	Land use planning and policies	Conflict with accepted land uses as stipulated in approved land use plans.	Yes	Yes	Yes
		Overlap with protected areas.	Yes	Yes	Yes
	Aggregate operations	Change in access to aggregate resources.	Yes	Yes	Yes
		Change in demand of aggregate resources extraction.	Yes	Yes	Yes
	Forestry	Change in access to forestry resources for management.	Yes	Yes	Yes
	Mineral exploration	Change in access to mineral claims for exploration and production.	Yes	Yes	Yes
	Fishing - recreational and commercial	Change in access to and abundance of fisheries resources, and therefore, the ability to fish.	Yes	Yes	Yes
Hunting	Change in access to and abundance of wildlife resources, and therefore, the ability to hunt.	Yes	Yes	Yes	
Trapping	Change in access to and abundance of wildlife resources, and therefore, the ability to trap.	Yes	Yes	Yes	



**Table 14.0-2: Summary of Predicted Effects in Revised EIS (continued)**

Discipline or Component	Valued Components (VCs)	Indicators	Predicted Effects	Predicted Adverse Effects	Predicted Residual Adverse Effects
	Cottagers and outfitters	Change in access to cottage and/or outfitter areas.	Yes	Yes	Yes
		Alteration in the enjoyment of properties, their surroundings and their property, or intrinsic values.	Yes	Yes	Yes
	Other recreational uses	Change in access for residents and visitors to public lands for non-consumptive purposes such as all-terrain travel (e.g., motorized recreational vehicles), canoeing, viewing wildlife and landscape, and general physical activities such as walking and hiking.	Yes	Yes	Yes
		Change in access for residents and visitors to pick berries and/or mushrooms or other for consumptive purposes.	Yes	Yes	Yes
Social	Population demographics	Population change	Yes	Yes	Yes
	Education	Capacity of education services	Yes	Yes	Yes
		Education attainment	Yes	Yes	Yes
		Project-specific Training	Yes	Yes	Yes
	Infrastructure and services	Municipal Services	Yes	Yes	Yes
		Community services such as recreation, health and social services	Yes	Yes	Yes
	Housing and property values	Housing availability	Yes	Yes	Yes
		Property values	Yes	Yes	Yes
	Public safety	Crime rate	Yes	Yes	Yes
		Capacity of emergency services	Yes	Yes	Yes
Requests for emergency services initiated by the Project		Yes	Yes	Yes	
Transportation and traffic	Road network capacity and conditions	Yes	Yes	Yes	
Economic	Labour force, labour participation and employment	Labour income	Yes	Yes	Yes
	Income levels	Employment	Yes	Yes	Yes
	Cost of living	Income levels and categories	Yes	Yes	Yes
	Real estate	Current prevailing cost of living	Yes	Yes	Yes
	Economic development	Housing prices and affordability	Yes	Yes	Yes
	Existing businesses	Municipal taxes and contribution to economic development projects	Yes	Yes	Yes
	Government revenues	Local business availability	Yes	Yes	Yes
Human health	Human health	Aboriginal health	Yes	†	†
		Non-Aboriginal health	Yes	†	†
Heritage resources	Archaeological sites	Presence of a site	—	—	—
		Disturbance of a site	—	—	—
	Historic heritage sites	Presence of a site	—	—	—
		Disturbance of a site	—	—	—
Aboriginal peoples	Health effects	Changes in water quality downstream of the Project site	Yes	Yes	Yes



**Table 14.0-2: Summary of Predicted Effects in Revised EIS (continued)**

Discipline or Component	Valued Components (VCs)	Indicators	Predicted Effects	Predicted Adverse Effects	Predicted Residual Adverse Effects
		Changes in quality of harvested plants, animals, or fish	Yes	Yes	Yes
		Changes in health due to noise and vibration	Yes	Yes	Yes
	Gathering of plant material	Removal of locations of traditionally harvested vegetation	Yes	Yes	Yes
		Restricted access to areas of previous traditional plant harvesting	Yes	Yes	Yes
		Change in plant quality	Yes	Yes	Yes
		Diminished on-the-land experience	Yes	Yes	Yes
	Hunting, trapping, fishing	Changes in populations of harvested animals or fish	Yes	Yes	Yes
		Change in access to areas previously used for traditional hunting, trapping, or fishing activities	Yes	Yes	Yes
		Change in amount of habitat	Yes	Yes	Yes
		Change in quality of fish	Yes	Yes	Yes
		Diminished on-the-land experience	Yes	Yes	Yes
	Cultural activities	Removal of cultural sites or restricted access to cultural sites	Yes	Yes	Yes
		Reduction in traditional activities	Yes	Yes	Yes
	Socio-economic effects	Economic effects	Yes	Yes	Yes
		Social effects	Yes	Yes	Yes

Notes:

- (1) The “—” symbol denotes where there were no effects predicted as a result of the Project for the VC and indicator
- (2) The “†” symbol for where Project effects were predicted, but the effects were not measurable, or below threshold used for determining whether the effects were adverse (i.e., there were no adverse effects)
- (3) The “‡” symbol denotes where adverse effects were predicted, but the effects were eliminated or offset by the Project mitigation (i.e., there were no residual adverse effects)

For each of the identified residual effects (see Table 14.0-2), the EIS Guidelines require that the assessment consider the potential for there to be cumulative effects. The cumulative effects assessment, presented in Section 7, followed the process set out by the Agency in the document entitled “Technical Guidance for Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012” (CEAA, 2014). The assessment of cumulative effects also relied on Agency’s operational policy statement entitled “Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012” (CEAA, 2015). The future Projects included in the assessment of possible cumulative effects was expanded from the original EIS to include Project identified by the Agency as part of IR process. The cumulative effects assessment, which is summarized within Table 14.0-3, concluded that while potential cumulative effects were identified for some VCs, those potential cumulative effects were small and would not alter the magnitude of the predicted residual effects associated with the Project, nor would they alter the determination of significance.



**Table 14.0-3: Summary of Cumulative Effects in Revised EIS**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
Treasury Metals exploration program	Terrain and Soils	Yes	Yes	Although these activities will overlap, the effects are not similar. There would be no cumulative effects.
	Noise	Yes	Yes	It is unlikely the relatively limited activities associated with exploration would alter the noise predictions
	Air Quality	Yes	Yes	There is the potential for overlap in space and time. It is expected that the level of activity would be small compared to the Project
	Surface Water Quality	Yes	Yes	These activities are not expected to measurably alter surface water quality.
	Surface Water Quantity	Yes	Yes	These activities are not expected to measurably alter surface water quantities
	Groundwater Quantity	Yes	Yes	These activities are not expected to alter surface groundwater quantities
	Wildlife and Wildlife Habitat	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on wildlife
	Migratory Birds	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on migratory birds
	Fish and Fish Habitat	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on fish
	Wetlands and Vegetation	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on wetland and vegetation
	Land Use	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Social Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Economic Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Aboriginal Peoples	Yes	Yes	These activities are too minor too have measurable cumulative effects
Highway 17	Surface Water Quality	Yes	Yes	These activities are not expected to measurably alter surface water quality.
	Wildlife and Wildlife Habitat	Yes/No	Yes	The effects do not overlap the LSA for most VCs, but are within the RSA used for ungulates. The cumulative effects to individuals are not likely to be measurable
	Land Use	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Social Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects





**Table 14.0-3: Summary of Cumulative Effects in Revised EIS (continued)**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
	Economic Factors	Yes	Yes	These activities are too minor to have measurable cumulative effects
	Aboriginal Peoples	Yes	Yes	These activities are too minor to have measurable cumulative effects
Canadian Pacific Railway	Surface Water Quality	Yes	Yes	These activities are not expected to measurably alter surface water quality.
Canadian Pacific Railway	Wildlife and Wildlife Habitat	Yes/No	Yes	The effects do not overlap the LSA for most VCs, but are within the RSA used for ungulates. The cumulative effects to individuals are not likely to be measurable
	Land Use	Yes	Yes	These activities are too minor to have measurable cumulative effects
	Social Factors	Yes	Yes	These activities are too minor to have measurable cumulative effects
	Economic Factors	Yes	Yes	These activities are too minor to have measurable cumulative effects
	Aboriginal Peoples	Yes	Yes	These activities are too minor to have measurable cumulative effects
Dryden Forest Management Company	Terrain and Soils	Yes	Yes	While the FMA for the company overlaps with the viewscape of the WRSA, the planned harvesting areas (see Figure 7.2.5-1) are located several kilometres to the east of the project. As a result, there would be no cumulative effect on the view of the WRSA from Thunder Lake.
	Noise	Yes	Yes	While there are planned harvesting areas (see Figure 7.2.5-1) located within 5 km of the open pit, the activities would be far enough from the Project they would not alter the maximum predicted noise magnitudes which would occur in close proximity to the operations area.
	Air Quality	Yes	Yes	While there are planned harvesting areas (see Figure 7.2.5-1) located within 10 km of the open pit, the activities would be far enough from the Project they would not alter the maximum predicted air concentrations, which would occur in close proximity to the operations area.
	Surface Water Quality	Yes	Yes	Although there are planned harvesting activities that overlap small portions of the fisheries LSA (see Figure 7.2.5-1), they do not overlap the watercourses potentially affected by the project. Therefore, these activities are not expected to measurably alter surface water quality.
	Surface Water Quantity	Yes	Yes	Although there are planned harvesting activities that overlap small portions of the fisheries LSA (see Figure 7.2.5-1), they do not overlap the watercourses potentially affected by the project. Therefore, these activities are not expected to measurably alter surface water quantities.



**Table 14.0-3: Summary of Cumulative Effects in Revised EIS (continued)**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
	Groundwater Quantity	Yes	Yes	While the closest planned harvesting areas (see Figure 7.2.5-1) will overlap with the zone of influence resulting from the dewatering of the open pit and underground mine, the forestry activities are not expected to measurably alter groundwater quantities.
Dryden Forest Management Company	Wildlife and Wildlife Habitat	Yes	Yes	While the closest planned harvesting activities will overlap small portions of the wildlife LSA (see Figure 7.2.5-1), the affected areas are a small percentage of the available habitat. These activities are not expected to measurably alter the wildlife effects. While harvesting activities will also overlap with the wildlife RSA, any cumulative effects to individuals are not likely to be measurable at this scale.
	Migratory Birds	Yes	Yes	While the closest planned harvesting activities will overlap small portions of the migratory birds LSA (see Figure 7.2.5-1), the affected areas are a small percentage of the available habitat. These activities are not expected to measurably alter the migratory bird effects.
	Fish and Fish Habitat	Yes	Yes	Although this future activity will overlap with the fisheries LSA, the planned harvesting areas (See Figure 7.2.5-1) do not overlap the portions of Blackwater Creek used by the affected stream-based fish populations
	Wetlands and Vegetation	Yes	Yes	While the closest planned harvesting activities will overlap small portions of the wetlands and vegetation LSA (see Figure 7.2.5-1), the planned harvesting does not overlap with any of the wetlands affected by the Project. Additionally, the planned harvest within the LSA represents a small percentage of the available forested land. These activities are not expected to measurably alter the wetlands and vegetation effects.
	Land Use	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Social Factors	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Economic Factors	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Aboriginal Peoples	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions



**Table 14.0-3: Summary of Cumulative Effects in Revised EIS (continued)**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
Domtar Dryden Pulp Mill	Air Quality	Yes	Yes	Although the pulp mill is located outside of the 10 km extent for cumulative air quality effects, there is a potential that the effects from Dryden pulp will overlap with those of the Project. It should be noted that the mill will need to comply with their ECA requirements at the property line. The highest air concentrations from the pulp mill will occur near the pulp mill, just as the highest concentration from the Project would occur near the property line of the Project. Therefore the high concentrations from these projects would not affect the same receptor, and thus the cumulative effects will not affect the magnitude of the air quality effects of the Project.
	Wildlife and Wildlife Habitat	Yes/No	Yes	The effects do not overlap the LSA for most VCs, but are within the RSA used for ungulates. The cumulative effects to individuals are not likely to be measurable. The local forestry effects are addressed for the Dryden Forest Management Company.
	Land Use	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Social Factors	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Economic Factors	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
	Aboriginal Peoples	Yes	Yes	The continuance of activities do not represent a cumulative effect distinct from the exiting conditions
Aggregate pits or quarries;	Terrain and Soils	Yes	Yes	Although these projects overlap, there is a low potential for tall structures at a quarry. Therefore, they would not be visible in the same viewscapes
	Noise	Yes	Yes	There is the potential for overlap in space and time. However, it is expected that the level of activity would not alter the maximum noise predictions. If the aggregate source was sufficiently close to the Project, it is likely that the recovery would be done using Treasury Metals equipment.
	Air Quality	Yes	Yes	There is the potential for overlap in space and time. It is expected that the level of activity would be small compared to the Project
	Surface Water Quality	Yes	Yes	These activities are not expected to measurably alter surface water quality.



**Table 14.0-3: Summary of Cumulative Effects in Revised EIS (continued)**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
	Surface Water Quantity	Yes	Yes	These activities are not expected to measurably alter surface water quantities
	Groundwater Quantity	Yes	Yes	These activities are not expected to alter surface groundwater quantities.
Aggregate pits or quarries;	Wildlife and Wildlife Habitat	Yes	Yes	These activities are not expected to meaningfully alter the magnitude of residual effects on wildlife
	Migratory Birds	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on migratory birds
	Fish and Fish Habitat	Yes	Yes	These activities are not expected to meaningfully alter magnitude the residual effects on fish
	Wetlands and Vegetation	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on wetland and vegetation
	Land Use	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Social Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Economic Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Aboriginal Peoples	Yes	Yes	These activities are too minor too have measurable cumulative effects
Wataynikaneyap Power	Wildlife and Wildlife Habitat	Yes/No	Yes	The effects do not overlap the LSA for most VCs, but are within the RSA used for ungulates. The cumulative effects to individuals is not likely to be measurable
	Land Use	Yes	Yes	This project is not expected to have a measurable cumulative effect
	Social Factors	Yes	Yes	This project is not expected to have a measurable cumulative effect
	Economic Factors	Yes	Yes	This project is not expected to have a measurable cumulative effect
	Aboriginal Peoples	Yes	Yes	This project is not expected to have a measurable cumulative effect
Local infrastructure	Noise	Yes	Yes	There is the potential for overlap in space and time. It is expected that the level of activity would not alter the maximum noise prediction on which the magnitude of effects are established.
	Air Quality	Yes	Yes	There is the potential for overlap in space and time. It is expected that the level of activity would be small compared to the Project
	Surface Water Quality	Yes	Yes	These activities are not expected to measurably alter surface water quality.



**Table 14.0-3: Summary of Cumulative Effects in Revised EIS (continued)**

Future Project	Discipline	Do Spatial Extents Overlap?	Do Temporal Boundaries Overlap?	Potential for Cumulative Effects
	Surface Water Quantity	Yes	Yes	These activities are not expected to measurably alter surface water quantities
	Wildlife and Wildlife Habitat	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on wildlife
	Migratory Birds	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on migratory birds
	Fish and Fish Habitat	Yes	Yes	These activities are not expected to alter magnitude the residual effects on fish
Local infrastructure	Wetlands and Vegetation	Yes	Yes	These activities are not expected to alter the magnitude of residual effects on wetland and vegetation
	Land Use	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Social Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Economic Factors	Yes	Yes	These activities are too minor too have measurable cumulative effects
	Aboriginal Peoples	Yes	Yes	These activities are too minor too have measurable cumulative effects



For each of the residual carried into the cumulative effects assessment (see Table 14.0-2), a determination of significance was completed (Section 8). The significance assessment incorporated consideration of the following measures identified in the EIS Guidelines:

- ) Magnitude;
- ) Geographic extent;
- ) Timing;
- ) Duration;
- ) Frequency; and
- ) Reversibility.

The methods used for assigning the above measures were set out in Section 8.1, and then applied on a discipline by discipline basis (Sections 8.2 through 8.21). The results of the determination of significance for all of the identified residual effects, including consideration of cumulative effects, indicated the following:

- ) There were no significant residual adverse effects identified for the Project.
- ) There were five (5) significant residual effects determined as positive. These effects were all for the economic discipline during the operations phase of the Project. The following five (5) VCs were identified with significant positive residual effects:
  - o Labour force, labour participation and employment (operations phase);
  - o Income level (operations phase);
  - o Economic development (operations phase);
  - o Existing businesses (operations phase); and
  - o Government revenues (operations phase).
- ) There was one (1) significant residual effect identified as neutral in direction, specifically the real estate VC. Changes in property values were identified as having a significant positive effect from perspective of a seller, and a significant negative effect from the perspective of a buyer, resulting in a neutral direction from a population basis.

A summary of the significance determinations is provided in Table 14.0-4.



**Table 14.0-4: Summary of the Determination of Significance in Revised EIS**

Discipline	Valued Components (VCs)	Indicators	Site Preparation and Construction	Operations	Closure	Post Closure
Terrain and soils	Natural Landscapes	Uniqueness of surface features from surrounding terrain	— <sup>(1)</sup>	Not significant	Not significant	Not significant
	Overburden	Erosion of disturbed overburden	‡ <sup>(2)</sup>	‡	‡	—
	Soil chemistry	Changes in soil chemistry	‡	‡	‡	—
Geology and geochemistry	Pit lake water quality	All	—	—	—	Not significant
Noise	Ambient noise levels	Equivalent noise levels, LEQ	Not significant	Not significant	Not significant	—
	Noise disturbance to wildlife (including SAR)	Area predicted LEQ above 50 dBA	(3)	(3)	(3)	—
	Blasting noise and vibration	Peak sound pressure level	Not significant	Not significant	—	—
		Peak particle velocity	Not significant	Not significant	—	—
	Noise related health effects	Absolute sound pressure, LDN	Not significant	Not significant	Not significant	—
Percent highly annoyed, %HA		Not significant	Not significant	Not significant	—	
Light	Light trespass	Ambient light levels	† <sup>(4)</sup>	‡	†	—
Air quality	Air quality	All	Not significant	Not significant	Not significant	—
Climate	GHG emissions	Annual equivalent carbon dioxide emissions (eCO <sub>2</sub> )	Not significant	Not significant	Not significant	—
	Changes in climate due to the Project	All	†	†	†	—
Surface water quality	Surface water quality	Various	†	Not significant	†	Not significant
Surface water quantity	Surface water quantity	Increase in surface flows	†	Not significant	†	Not significant
		Decreases in surface flows	†	Not significant	†	Not significant
		Change in lake levels	†	‡	†	‡
Groundwater quality	Groundwater quality	All	‡	‡	‡	‡
Groundwater quantity	Groundwater quantity	Decreasing elevations in private wells	—	‡	‡	‡
		Decreasing contributions to surface flow patterns	—	Not significant	Not significant	‡
Wildlife and wildlife Habitat	Wildlife Species at Risk	Common Nighthawk	Not significant	Not significant	Not significant	‡
		Northern Myotis/Little Brown Myotis	Not significant	Not significant	Not significant	‡
		Barn Swallow	Not significant	Not significant	Not significant	‡



**Table 14.0-4: Summary of the Determination of Significance in Revised EIS (continued)**

Discipline	Valued Components (VCs)	Indicators	Site Preparation and Construction	Operations	Closure	Post Closure
	Ungulates	Moose	Not significant	Not significant	Not significant	‡
	Furbearers	American Marten	Not significant	Not significant	Not significant	‡
	Upland Birds	Upland birds	Not significant	Not significant	Not significant	‡
	Wetland Birds	Marsh birds	Not significant	Not significant	Not significant	‡
	Small mammals	Small mammals	Not significant	Not significant	Not significant	‡
	Reptiles and amphibians	Reptiles and amphibians	Not significant	Not significant	Not significant	‡
	Invertebrates	Terrestrial invertebrates	Not significant	Not significant	Not significant	‡
Migratory Birds	Upland Birds	Upland birds	Not significant	Not significant	Not significant	‡
	Wetland Birds	Marsh birds	Not significant	Not significant	Not significant	‡
Fish and fish habitat	Stream-resident fish population	Habitat loss	‡	‡	‡	‡
		Habitat alteration or disruption	‡	‡	‡	†
		Potential for mortality	Not significant	†	†	†
	Migratory fish populations	Habitat loss	‡	‡	‡	‡
		Habitat alteration or disruption	‡	†	‡	†
		Potential for mortality	‡	†	†	†
	Lake-resident fish populations	Habitat loss	—	—	—	—
		Habitat alteration or disruption	†	†	†	†
		Potential for mortality	—	—	—	—
Fish species at risk	Habitat loss	—	—	—	—	
	Habitat alteration or disruption	—	—	—	—	
	Potential for mortality	—	—	—	—	
Wetlands and vegetation	Wetland extent	Wetland extent	Not significant	Not significant	Not significant	Not significant
	Vegetation communities and species	Floating Marsh Marigold ( <i>Caltha natans</i> )	Not significant	Not significant	Not significant	Not significant
Land use	Land use planning and policies	Conflict with accepted land uses as stipulated in approved land use plans.	Not significant	Not significant	Not significant	Not significant
		Overlap with protected areas.	Not significant	Not significant	Not significant	Not significant
	Aggregate operations	Change in access to aggregate resources.	Not significant	Not significant	Not significant	Not significant
		Change in demand of aggregate resources extraction.	Not significant	Not significant	Not significant	Not significant





**Table 14.0-4: Summary of the Determination of Significance in Revised EIS (continued)**

Discipline	Valued Components (VCs)	Indicators	Site Preparation and Construction	Operations	Closure	Post Closure
	Forestry	Change in access to forestry resources for management.	Not significant	Not significant	Not significant	Not significant
	Mineral exploration	Change in access to mineral claims for exploration and production.	Not significant	Not significant	Not significant	Not significant
	Fishing - recreational and commercial	Change in access to and abundance of fisheries resources, and therefore, the ability to fish.	Not significant	Not significant	Not significant	Not significant
	Hunting	Change in access to and abundance of wildlife resources, and therefore, the ability to hunt.	Not significant	Not significant	Not significant	Not significant
	Trapping	Change in access to and abundance of wildlife resources, and therefore, the ability to trap.	Not significant	Not significant	Not significant	Not significant
	Cottagers and outfitters	Change in access to cottage and/or outfitter areas.	Not significant	Not significant	Not significant	Not significant
		Alteration in the enjoyment of properties, their surroundings and their property, or intrinsic values.	Not significant	Not significant	Not significant	Not significant
	Other recreational uses	Change in access for residents and visitors to public lands for non-consumptive	Not significant	Not significant	Not significant	Not significant
Change in access for residents and visitors to pick berries and/or mushrooms or other for consumptive purposes.		Not significant	Not significant	Not significant	Not significant	
Social	Population demographics	Population change	Not significant	Not significant	Not significant	Not significant
	Education	Capacity of education services	Not significant	Not significant	Not significant	Not significant
		Education attainment	Not significant	Not significant	Not significant	Not significant
		Project-specific Training	Not significant	Not significant	Not significant	Not significant
	Infrastructure and services	Municipal Services	Not significant	Not significant	Not significant	Not significant
		Community services such as recreation, health and social services	Not significant	Not significant	Not significant	Not significant
Housing and property values	Housing availability	Not significant	Not significant	Not significant	Not significant	



**Table 14.0-4: Summary of the Determination of Significance in Revised EIS (continued)**

Discipline	Valued Components (VCs)	Indicators	Site Preparation and Construction	Operations	Closure	Post Closure
	Public safety	Property values	Not significant	Not significant	Not significant	Not significant
		Crime rate	Not significant	Not significant	Not significant	Not significant
		Capacity of emergency services	Not significant	Not significant	Not significant	Not significant
		Requests for emergency services initiated by the Project	Not significant	Not significant	Not significant	Not significant
	Transportation and traffic	Road network capacity and conditions	Not significant	Not significant	Not significant	Not significant
Economic	Labour force, labour participation and employment	Labour income	Not significant	Significant (positive)	Not significant	Not significant
	Income levels	Employment	Not significant	Significant (positive)	Not significant	Not significant
	Cost of living	Income levels and categories	Not significant	Not significant	Not significant	Not significant
	Real estate	Current prevailing cost of living	Not significant	Significant (neutral)	Not significant	Not significant
	Economic development	Housing prices and affordability	Not significant	Significant (positive)	Not significant	Not significant
	Existing businesses	Municipal taxes and contribution to economic development projects	Not significant	Significant (positive)	Not significant	Not significant
	Government revenues	Local business availability	Not significant	Significant (positive)	Not significant	Not significant
Human health	Human health	Aboriginal health	†	†	†	†
		Non-Aboriginal health	†	†	†	†
Heritage resources	Archaeological sites	Presence of a site	—	—	—	—
		Disturbance of a site	—	—	—	—
	Historic heritage sites	Presence of a site	—	—	—	—
		Disturbance of a site	—	—	—	—
Aboriginal peoples	Health effects	Changes in water quality downstream of the Project site	Not significant	Not significant	Not significant	Not significant
		Changes in quality of harvested plants, animals, or fish	Not significant	Not significant	Not significant	Not significant
		Changes in health due to noise and vibration	Not significant	Not significant	Not significant	Not significant



**Table 14.0-4: Summary of the Determination of Significance in Revised EIS (continued)**

Discipline	Valued Components (VCs)	Indicators	Site Preparation and Construction	Operations	Closure	Post Closure
	Gathering of plant material	Removal of locations of traditionally harvested vegetation	Not significant	Not significant	Not significant	Not significant
		Restricted access to areas of previous traditional plant harvesting	Not significant	Not significant	Not significant	Not significant
		Change in plant quality	Not significant	Not significant	Not significant	Not significant
		Diminished on-the-land experience	Not significant	Not significant	Not significant	Not significant
	Hunting, trapping, fishing	Changes in populations of harvested animals or fish	Not significant	Not significant	Not significant	Not significant
		Change in access to areas previously used for traditional hunting, trapping, or fishing activities	Not significant	Not significant	Not significant	Not significant
		Change in amount of habitat	Not significant	Not significant	Not significant	Not significant
		Change in quality of fish	Not significant	Not significant	Not significant	Not significant
		Diminished on-the-land experience	Not significant	Not significant	Not significant	Not significant
	Cultural activities	Removal of cultural sites or restricted access to cultural sites	Not significant	Not significant	Not significant	Not significant
		Reduction in traditional activities	Not significant	Not significant	Not significant	Not significant
	Socio-economic effects	Economic effects	Not significant	Not significant	Not significant	Not significant
		Social effects	Not significant	Not significant	Not significant	Not significant

Notes:

- (1) The “—” symbol denotes where there were no effects potential effects identified for the VC and indicator.
- (2) The “†” symbol denotes where adverse effects were predicted, but the effects were eliminated or offset by the Project mitigation (i.e., there were no residual adverse effects).
- (3) For the “Noise disturbance to wildlife (including SAR)” indicator, the significance for the effects of noise on wildlife were incorporated into the effects of the Project on wildlife and wildlife habitat.
- (4) The “†” symbol for where Project effects were predicted, but the effects were not measurable, or below threshold used for determining whether the effects were adverse (i.e., there were no adverse effects)