

# Québec Mining Activity Report 2018

## Chapter 5 – Overview of the Quebec mining activities

Status	SNRC/Administrative region	Mine or project	Average number of jobs for active mines only	Type of operation	Substances	Proven and probable reserves	Measured and indicated resources	Presumed resources	Resource calculation date	Years of operation	Project description	Anticipated nominal operating capacity	Highlights
Active mine	33A16/Nord-du-Québec	Renard Stornoway Diamond Corporation www.stornowaydiamonds.com	490	Underground and open-pit operations	Diamond	33.42 Mt 66.50 c/t	67.12 Mt 64.85 c/t	76.23 Mt 43.00 c/t	2015-09-24	2017-2031			
Active mine	31G11/Outaouais	Othmer Dentsply Canada www.dentsply.ca		Open-pit operations	Feldspar	0.24 Mt 10.00%		18.00 Mt 10.00%	2000-02-01	2002-			
Active mine	23J15/Côte-Nord	DSO Tata Steel Minerals Canada www.tatasteelcanada.com	200	Open-pit operations	Iron					2017-2032 1954-1982			2018: Improvement of the wet processing plant
Active mine	23B06/Côte-Nord	Fire Lake ArcelorMittal Mining Canada G.P. www.transformerlavenir.com	120	Open-pit operations	Iron					2006-2045 1977-1981			
Active mine	23B14/Côte-Nord	Lac Bloom Quebec Iron Ore www.mineraiferquebec.com	490	Open-pit operations	Iron	411.75 Mt 29.99% Fe	*911.60 Mt 29.71% Fe	80.40 Mt 25.60% Fe	2016-11-15	2018-2033 2010-2014			2018-07-01: Commercial production achieved

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Active mine	23B11/Côte-Nord	Mont-Wright ArcelorMittal Mining Canada G.P. www.transformerlavenir.com	1920	Open-pit operations	Iron	2 114 Mt 30.11% Fe		1 877 Mt 29.10% Fe	2017-12-31	1974-2045	Water treatment basin Planned investment: \$458 million Planned operating life: 20 years		2018-08-15: Global provincial authorization certificate obtained
Active mine	31J05/Laurentides	Lac-des-Îles Imerys Graphite & Carbon Canada www.imerys-graphite-and-carbon.com	60	Open-pit operations	Graphite					1989-2022			
Active mine	32C05/Abitibi-Témiscamingue	Lithium Amérique du Nord North American Lithium na-lithium.com	220	Open-pit operations	Lithium	20.50 Mt 0.94% Li <sub>2</sub> O	39.30 Mt 1.04% Li <sub>2</sub> O	18.40 Mt 1.06% Li <sub>2</sub> O	2017-05-01	2018-2032 1956-1965	Reopening of mine and concentrator Planned investment: \$76 million Planned operating life: 14 years		2018-02-01: Start of commercial production 2018-07-10: Federal government authorization obtained
											Reopening of the hydrometallurgical plant Planned investment: \$241.9 million		
Active mine	31O16/Mauricie	Lac Letondal Imerys Mica Suzorite www.imerys-perfmins.com	30	Open-pit operations	Mica	27 Mt 85%			2012-12-06	1974-2074			

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Active mine	35H11/Nord-du-Québec	Nunavik Nickel Canadian Royalties www.canadianroyalties.com	330	Open-pit operations	Nickel Cobalt Cooper Palladium Platinum					2014-2029			
Active mine	35H12/Nord-du-Québec	Raglan Glencore Canada Corporation www.glencore.com	900	Underground and open-pit operations	Nickel Copper Cobalt Palladium Platinum	11.27 Mt 2.79% Ni 0.76% Cu 0.06% Co 2.01 g/t Pd 0.82 g/t Pt	*20.70 Mt 3.34% Ni 0.95% Cu 0.07% Co 2.37 g/t Pd 0.96 g/t Pt	14.00 Mt 3.00% Ni 0.90% Cu 0.07% Co 2.20 g/t Pd 0.90 g/t Pt	2018-12-31	1997-2040	Phase 2 expansion Planned investment: \$1,000 million		
Active mine	22D11/Saguenay-Lac-St-Jean	Niobec Niobec www.niobec.com	420	Underground operations	Niobium	416.42 Mt 0.41% Nb <sub>2</sub> O <sub>5</sub>	288.68 Mt 0.43% Nb <sub>2</sub> O <sub>5</sub>	61.09 Mt 0.38% Nb <sub>2</sub> O <sub>5</sub>	2015-01-26	1976-2045			
Active mine	32C04/Abitibi-Témiscamingue	Beaufor Monarch Gold Corporation www.monarquesgold.com	120	Underground operations	Gold	0.14 Mt 6.83 g/t Au	0.35 Mt 7.67 g/t Au	0.05 Mt 8.34 g/t Au	2017-09-30	2002-2022 1996-2001 1939-1942			
Active mine	32D01/Abitibi-Témiscamingue	Canadian Malartic Canadian Malartic Partnership www.canadianmalartic.com	1200	Open-pit operations	Gold Silver	157.66 Mt 1.10 g/t Au	18.45 Mt 1.48 g/t Au	5.38 Mt 1.23 g/t Au	2018-12-31	2011-2028 1933-1965 1927-1929	Expansion Barnat and Jeffrey deposits and deviation of Highway 117 Planned investment: \$209 million Planned operating time: 6 years		In construction
											Expansion Odyssey North and South Planned investment: \$500 million Planned operating life: 10 years		2018-01-22: Submission of the project notice for the impact study to the provincial and federal governments. 2018-11-28: Authorization from the provincial government obtained

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Mine active	32E11/Nord-du-Québec	Casa Berardi Hecla Québec www.hecla-mining.com	1000	Underground and open-pit operations	Gold	21.54 Mt 2.73 g/t Au	11.57 Mt 3.27 g/t Au	5.64 Mt 3.60 g/t Au	2018-12-31	2007-2034 1988-1997			
Mine active	32D06/Abitibi-Témiscamingue	Elder Abcourt Mines www.abcourt.com	80	Underground operations	Gold		0.64 Mt 6.39 g/t Au	0.55 Mt 5.93 g/t Au	2018-05-31	2016-2025 1984-1989 1947-1966			
Mine active	33C09/Nord-du-Québec	Éléonore Opinaca Mines Ltd. www.goldcorp.com	1140	Underground operations	Gold	17.79 Mt 5.68 g/t Au	3.18 Mt 5.04 g/t Au	3.19 Mt 5.76 g/t Au	2018-06-30	2015-2027			
Mine active	32C04/Abitibi-Témiscamingue	Goldex Agnico Eagle Mines Ltd. www.agnicoeagle.com	320	Underground operations	Gold	6.53 Mt 1.54 g/t Au	30.42 Mt 1.78 g/t Au	31.08 Mt 1.59 g/t Au	2011-12-31	2013-2025 2008-2011			
Mine active	32D08/Abitibi-Témiscamingue	LaRonde Agnico Eagle Mines Ltd. www.agnicoeagle.com	820	Underground operations	Gold Zinc Copper Silver	25.81 Mt 4.13 g/t Au 0.84% Zn 0.25% Cu 17.97 g/t Ag	11.67 Mt 2.48 g/t Au 0.97% Zn 0.16% Cu 25.34 g/t Ag	8.48 Mt 4.59 g/t Au 0.63% Zn 0.24% Cu 14.31 g/t Ag	2018-12-31	1988-2026			
Mine active	32F08/Nord-du-Québec	Lac Bachelor Bonterra Resources www.bonterraresources.com		Underground operations	Gold	0.84 Mt 7.38 g/t Au	0.84 Mt 7.79 g/t Au	0.43 Mt 6.52 g/t Au	2011-04-26	2013-2019 1982-1989			Closing expected in 2019
Mine active	32F12/Nord-du-Québec	Veza Procon Holding	140	Underground operations	Gold		1.24 Mt 6.62 g/t Au	0.44 Mt 4.90 g/t Au	2013-05-06	2016-2021 2012-2013 1995-1997			

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Mine active	32D07/Abitibi-Témiscamingue	Westwood IAMGOLD Corporation www.iamgold.com	850	Underground operations	Gold	4.94 Mt 7.61 g/t Au	*4.18 Mt 11.07 g/t Au	5.49 Mt 9.50 g/t Au	2018-12-31	2013-2035			
Mine active	11N12/Gaspésie-Îles de la Madeleine	Mines Seleine K+S Windsor Salt Ltd. www.windsorsalt.com	150	Underground operations	Salt					1983-2033			
Mine active	12L11/Côte-Nord	Lac Tio Rio Tinto Iron and Titanium www.riotinto.com	275	Open-pit operations	Titanium	119 Mt 83.20% Ti	19 Mt 84.60% Ti		2016-12-31	1950-2051	East Expansion Planned investment: \$50 million Planned operating life: 31 years		
Mine active	32F12/Nord-du-Québec	Bracemac-McLeod Glencore Canada Corporation www.glencore.com	250	Underground operations	Zinc Copper Silver Gold	2.70 Mt 6.17% Zn 0.87% Cu 26.33 g/t Ag 0.57 g/t Au	*3.70 Mt 6.57% Zn 0.96% Cu 28.16 g/t Ag 0.56 g/t Au		2018-12-31	2013-2022			
Mine active	32F02/Nord-du-Québec	Langlois (Grevet) Nyrstar Langlois www.nyrstar.com	270	Underground operations	Zinc Copper Silver Gold	2.34 Mt 7.23% Zn 0.59% Cu 36.48 g/t Ag 0.06 g/t Au	*5.39 Mt 8.00% Zn 0.52% Cu 36.27 g/t Ag 0.07 g/t Au	1.78 Mt 6.11% Zn 0.38% Cu 30.71 g/t Ag 0.07 g/t Au	2017-12-31	2012-2023 2007-2008 1997-2000 1996-1996			
		<b>Total: 26</b>											
Développement	32O12/Nord-du-Québec	Whabouchi Nemaska Lithium www.nemaskalithium.com		Underground and open-pit operations	Lithium	24.00 Mt 1.53% Li <sub>2</sub> O	*37.60 Mt 1.57% Li <sub>2</sub> O	16.06 Mt 1.38% Li <sub>2</sub> O	2017-11-24		1- New mining site Planned investment: \$459 million Planned operating life: 33 years	213,000 t/y of spodumene concentrate (treated on the mining site)	In construction

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											2- Hydrometallurgical plant Planned investment: \$790 million Planned operating life: 33 years		2018-06-01: Start of construction
Développement	32C04/Abitibi-Témiscamingue	Lamaque Eldorado Gold Corporation www.eldoradogold.com		Underground operations	Gold	4.09 Mt 7.25 g/t Au	*5.08 Mt 8.29 g/t Au	8.40 Mt 6.78 g/t Au	2018-09-30	2019-2027	New mining site Planned investment: \$364 million Planned operating life: 10.3 years		Upgrading of the treatment plant
		<b>Total: 2</b>											
Activity	22J07/Côte-Nord	Arnaud Mine Arnaud www.minearnaud.com		Open-pit operations	Apatite	342.60 Mt 4.30% P <sub>2</sub> O <sub>5</sub>	*545.49 Mt 4.00% P <sub>2</sub> O <sub>5</sub>	44.64 Mt 3.36% P <sub>2</sub> O <sub>5</sub>	2014-08-01		New mining site Planned investment: \$768 million Planned operating life: 32 years	1,200,000 t/y of apatite concentrate (treated on the mining site)	
Activity	22E15/Saguenay-Lac-St-Jean	Lac à Paul Arianne Phosphate www.arianne-inc.com		Open-pit operations	Apatite Ilmenite	472.09 Mt 6.88% P <sub>2</sub> O <sub>5</sub>	*702.70 Mt 7.16% P <sub>2</sub> O <sub>5</sub> 7.71% TiO <sub>2</sub>	26.01 Mt 6.58% P <sub>2</sub> O <sub>5</sub> 6.39% TiO <sub>2</sub>	2015-02-18		New mining site, including construction of a road (220 km) and a wharf on the Saguenay River Planned investment: \$1,275 million Planned operating life: 26 years	3,000,000 t/y of apatite concentrate (treated on the mining site)	
Activity	32G16/Nord-du-Québec	BlackRock BlackRock Metals www.blackrockmetals.com		Open-pit operations	Iron Vanadium Ilmenite						New mining site Planned investment: \$300 million Planned operating life: 42 years	830,000 t/y of iron and vanadium concentrate (treated on the mining site)	

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											Pyrometallurgy plant Planned investment: \$640 million Planned operating life: 42 years		2018-07-17: Provincial public hearings
Activity	32H13/Nord-du-Québec	Lac Doré Vanadium VanadiumCorp Resource www.vanadiumcorp.com		Open-pit operations	Iron Ilmenite Vanadium			99.10 Mt 0.28% V <sub>2</sub> O <sub>5</sub>	2015-04-10		New mining site Planned investment: \$321 million	876,000 t/y of iron and vanadium concentrate (treated on the mining site)	
Activity	22N03/Côte-Nord	Lac Guéret Mason Graphite www.masongraphite.com		Open-pit operations	Graphite	4.74 Mt 27.78% Cg	*65.54 Mt 17.19% Cg	17.61 Mt 17.20% Cg	2018-12-01		New mining site Planned investment: \$258 million Expected operating time: 25 years	51,900 t/y of graphite (treated at Baie-Comeau)	2018-05-16: Global provincial authorization certificate obtained
Activity	31I12/Lanaudière	Matawinie Nouveau Monde Graphite nouveaumonde.ca		Open-pit operations	Graphite	59 Mt 4.35% Cg	*95.80 Mt 4.28% Cg	14 Mt 4.19% Cg	2018-07-10		New mining site Planned investment: \$283.4 million Expected operating time: 25 years	99,800 t/y of graphite (treated on the mining site)	2018-12-10: Publication of the feasibility study 2018-01-18: Submission of the project notice for the impact study to the provincial government
Activity	31G10/Laurentides	Miller Canada Carbon www.canadacarbon.com		Open-pit operations	Graphite		2.65 Mt 0.80% Cg	7.56 Mt 0.77% Cg	2016-11-23	1845-1900	New mining site Planned investment: \$44.4 million Expected operating time: 19 years	1,650 t/y of graphite (treated on the mining site)	
Activity	32D08/Abitibi-Témiscamingue	Authier Sayona Québec www.sayonaquebec.com		Open-pit operations	Lithium	12.10 Mt 1.00% Li <sub>2</sub> O	*17.18 Mt 1.01% Li <sub>2</sub> O	3.76 Mt 0.98% Li <sub>2</sub> O	2018-08-24		New mining site Planned investment: \$100 million Planned operating life: 14 years	96,000 t/y of spodumene concentrate (treated on the mining site)	2018-09-24: Publication of the feasibility study

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Activity	33C01/Nord-du-Québec	Rose Critical Elements Corporation www.ceccorp.ca		Open-pit operations	Lithium Tantalum	26.80 Mt 0.85% Li <sub>2</sub> O 133.00 g/t Ta <sub>2</sub> O <sub>5</sub>	*31.90 Mt 0.93% Li <sub>2</sub> O 148.00 g/t Ta <sub>2</sub> O <sub>5</sub>	2.80 Mt 0.82% Li <sub>2</sub> O 145.00 g/t Ta <sub>2</sub> O <sub>5</sub>	2017-10-20		New mining site Planned investment: \$341 million Planned operating life: 17 years	236,500 t/y of spodumene concentrate 430 t/y of tantalum oxide (treated on the mining site)	Examination of the impact study in progress
Activity	32D09/Abitibi-Témiscamingue	Dumont Nickel Magneto Investments Limited Partnership www.rncminerals.com		Open-pit operations	Nickel Cobalt Palladium Platinum	1 178.60 Mt 0.27% Ni 107.22 g/t Co 0.02 g/t Pd 0.01 g/t Pt	1 665.60 Mt 0.26% Ni 107.34 g/t Co 0.02 g/t Pd 0.01 g/t Pt	499.80 Mt 0.26% Ni 101.00 g/t Co 0.01 g/t Pd 0.01 g/t Pt	2013-04-30		New mining site Planned investment: \$1,268 million	180,000 t/y of nickel concentrate (treated on the mining site)	
Activity	32C04/Abitibi-Témiscamingue	Akasaba Ouest Agnico Eagle Mines Ltd. www.agnicoeagle.com		Open-pit operations	Gold Copper	4.94 Mt 0.89 g/t Au 0.50% Cu	2.48 Mt 0.66 g/t Au 0.40% Cu		2016-12-31		New mining site Planned investment: \$51.1 million Planned operating time: 6 years	777,600 g/y of gold (processed at the Goldex and LaRonde plants)	2018-06-28: Global provincial authorization certificate obtained
Activity	32B13/Abitibi-Témiscamingue	Barry Bonterra Resources www.bonterraresources.com		Underground and open-pit operations	Gold		2.05 Mt 5.84 g/t Au	2.74 Mt 5.14 g/t Au	2019-05-24	2008-2010	Reopening of the mine site Planned investment: \$8.5 million Planned operating time: 9 years	668 300 g/y of gold (processed at the Bachelor plant)	2018-09-24: Acquisition by Bonterra Resources
Activity	32C03/Abitibi-Témiscamingue	Croinor Gold Monarch Gold Corporation www.monarquesgold.com		Underground operations	Gold	0.60 Mt 6.67 g/t Au	0.80 Mt 9.12 g/t Au	0.16 Mt 7.42 g/t Au	2015-11-06	2003-2005 1996-1997 1944-1948	Reopening of the mine site Planned investment: \$50.7 million Expected operating time: 2.5 years	1,261,000 g/y of gold (processed at the Beacon plant)	2018-03-22: Publication of the pre-feasibility study
Activity	32E09/Nord-du-Québec	Douay Maple Gold Mines www.maplegoldmines.com		Underground and open-pit operations	Gold		9.38 Mt 1.59 g/t Au	84.15 Mt 1.02 g/t Au	2018-02-09		New mining site Planned investment: \$73.3 million	1,244,000 g/y of gold (processed at a plant in the region)	



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Activity	33B04/Nord-du-Québec	Eau Claire Eastmain Resources www.eastmain.com		Underground and open-pit operations	Gold		4.29 Mt 6.18 g/t Au	2.38 Mt 6.53 g/t Au	2018-02-04		New mining site Planned investment: \$175 million Planned operating life: 12 years	2,463,000 g/y of gold	2018-02-04: Publication of the preliminary economic assessment
Activity	32L02/Nord-du-Québec	Fenelon Wallbridge Mining Company www.wallbridgemin.com		Underground operations	Gold		*0.09 Mt 13.21 g/t Au	0.01 Mt 9.15 g/t Au	2016-07-05	2004-2004 2001-2001	Reopening of the mine site	582,000 g/y of gold	
Activity	32D03/Abitibi-Témiscamingue	Granada Granada Gold Mine www.granadagoldmine.com		Open-pit operations	Gold		21.58 Mt 1.17 g/t Au	10.39 Mt 4.56 g/t Au	2017-05-16	1999-2002 1996-1996 1994-1994 1930-1935	Reopening of the mine site		
Activity	32D06/Abitibi-Témiscamingue	Horne 5 Falco Resources www.falcores.com		Underground operations	Gold Zinc Copper Silver	80.90 Mt 1.44 g/t Au 0.78% Zn 0.17% Cu 14.16 g/t Ag	91.20 Mt 1.55 g/t Au 0.88% Zn 0.18% Cu 14.89 g/t Ag	21.50 Mt 1.44 g/t Au 0.71% Zn 0.20% Cu 23.04 g/t Ag	2017-07-26		New mining site Planned investment: \$1,062 million Planned operating life: 15 years	7,340,000 g/y of gold (treated on the mining site)	Examination of the impact study in progress
Activity	32G04/Nord-du-Québec	Lac Windfall Osisko Mining www.miniereosisko.com		Underground operations	Gold		2.87 Mt 8.17 g/t Au	10.35 Mt 7.11 g/t Au	2018-11-27		New mining site (Lac Windfall, Osborne-Bell; processing plant at Lebel-sur-Quévillon) Planned investment: \$397.3 million Planned operating life: 8.1 years	3,300,000 g/y of gold (processed on site or off site)	2018-07-12: Publication of the preliminary economic assessment
Activity	32D01/Abitibi-Témiscamingue	O'Brien Radisson Mining Resources www.radissonmining.com		Underground operations	Gold		1.13 Mt 6.45 g/t Au	1.16 Mt 5.22 g/t Au	2018-03-20	1933-1981	Reopening of the mine site Planned investment: \$36.8 million Planned operating time: 4 years	950,000 g/y of gold (contracted at a mill in the region)	



Definition: Active mine: Mining site at which production has reached at least 60% of nominal capacity  
 Development: From construction to the end of start-up (running in)  
 Activity: From the first preliminary economic assessment to the decision to build

- Note:
1. The data in this table were taken from information published by the companies.
  2. The distinction between proven and probable reserves and between measured, indicated and presumed resources, is defined in accordance with Canadian standard 43-101.
  3. Resources preceded by an asterisk (\*) include reserves.

Key:

Substances	
Ag	Silver
Au	Gold
Co	Cobalt
Cu	Copper
Fe	Iron
HREO	Heavy rare earth oxides
Li <sub>2</sub> O	Lithium oxide
LREO	Light rare earth oxides
NaCl	Sodium chloride
Nb <sub>2</sub> O <sub>5</sub>	Niobium oxide
Ni	Nickel
Pb	Lead
Pd	Palladium
Pt	Platinum
P <sub>2</sub> O <sub>5</sub>	Phosphorus oxide
Ta <sub>2</sub> O <sub>5</sub>	Tantalum oxide
TiO <sub>2</sub>	Titanium oxide
TREO	Rare earth oxides
V <sub>2</sub> O <sub>5</sub>	Vanadium oxide
Y <sub>2</sub> O <sub>3</sub>	Yttrium oxide
Zn	Zinc

Measurement units	
c/t	Carat/ton
g/t	Gramme per ton
Mt	Millions of metric tons
M\$	Millions of dollars
t/y	Metric tons per year
%	Percentage