



TREASURY

METALS Inc.

GOLIATH GOLD PROJECT DRYDEN, ON ENVIRONMENTAL IMPACT STATEMENT



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GLOSSARY

Acid Rock Drainage	The acidic water that is created when sulphide minerals are exposed to air and water and produce sulphuric acid
AARL Method	Anglo American Research Laboratory Method of Carbon elution for metallurgical gold recovery
Alienation	An area of Crown land that has been withdrawn from staking or other use for surface rights, mining rights or both under various legislative authorities
Aggregate	Crushed rock or gravel screen to sizes for uses in road surfaces, concrete, and construction mixes
Anthropogenic	Generated by humans
Baseline	Conditions that would prevail if no actions were taken
Baseline Conditions	Pre-project environmental conditions
Bedrock	Solid rock that underlies loose material such as soil, sand, clay, or gravel
Bench	Horizontal surface which is used to provide an area from which the Open Pit machinery can dig down to the subsequent level
Berm	A constructed shelf that breaks the continuity of a slope, or artificial ridge of earth, with the purpose of reducing erosion, or to increase the thickness of the embankment at a point of change in a slope or defined water surface elevation, or to direct surface water runoff
Blanket Drain	Drainage method using a horizontally placed layer (blanket) of permeable material to allow for the drainage of water
Canadian Council of Ministers of the Environment (CCME)	A council made up of environmental ministers from provincial and federal levels of government that proposes nationally consistent environmental standards and objectives to achieve high levels of environmental quality for waste management, air pollution, and toxic chemicals across Canada

Canadian Environmental Assessment Act, 2012	Federal legislation respecting the environmental assessment of certain activities and the prevention of significant adverse environmental effects. Catchment Area – The area of land which drains into a body of water
Carcinogen	A substance directly involved in the promotion of cancer
Chemical of Potential Concern	Project-related chemicals, elements and compounds that have the potential to elicit adverse human or ecological health effects
Claims to Lease	Process of converting a mining claim into a lease. A mining claim grants its owner the exclusive rights to explore for minerals on a designated piece of land. The owner of a mining claim is not granted title or ownership to the land and cannot extract or sell any resources removed from the land. A mining claim can be converted into a lease. A lease grants its owner title and ownership to the land, permits the extracting and sale of extracted resources and removes the requirement to perform yearly assessment work.
Collection System	A series of constructed and maintained connected ditches and ponds that collect surface runoff and groundwater seepage that has come in contact with Project components
Crown Land	Land belonging to the province of Ontario. It does not include: (a) land, the surface rights, mining rights or the mining and surface rights of which are under lease or licence of occupation from the Crown; (b) land in the actual use or occupation of the Crown, the Crown in right of Canada, or of a department of the Government of Canada or a ministry of the Government of Ontario; (c) land the use of which is withdrawn or set apart or appropriated for a public purpose; or (d) land held by a ministry of the Government of Ontario (“terre de la Couronne”)
Crown Timber	Timber on public lands or timber that is the property of the Crown under the management of the Minister of Natural Resources on lands other than public lands
Crusher	A machine used to break down aggregate into smaller pieces

Cumulative Effects	The environment effects that are likely to result from a project in combination with other physical activities that have or will be carried out
Cyanidation	The addition of cyanide to the ground slurry consisting of mineralized rock material and water which forms a water soluble complex of gold
Cyanide Detoxification	The process of removing cyanide from tailings using a sulphur dioxide/air oxidation process
Coagulant	An agent added to induce a process of contact and adhesion whereby the particles of a dispersion form larger-size clusters
Decibel (dB)	A logarithmic measure of any measured physical quantity and commonly used in the measurement of sound
Dewatering	To remove groundwater or surface water from an area for construction purposes.
Doré	A semi-pure alloy of gold and silver created at the mine site and then transported to a refinery for further purification
Drawdown	The drop in the water table or level of water in the ground when water is being pumped
Drive	An underground tunnel or development drift created for access to the underground mining areas
Effluent	Partially or completely treated wastewater flowing out of a treatment facility
Electrowinning	The process in which a current is passed from an inert anode through a liquid solution containing the metal so that the metal is extracted as it is deposited onto the cathode
Flocculation	A process of contact and adhesion whereby the particles of dispersion form larger-size clusters
Grubbing	The removal and disposal of stumps and roots remaining after vegetation clearing

Hazard	A substance or other condition which that has the potential to cause harm to human, ecological or environmental receptors
Hazard Potential Classification (HPC)	A classification system defined by Ontario's Ministry of Natural Resources and Forestry that is used to determine the potential for flooding of dams
Illuminance	The total luminous flux (the perceived power of light) incident on a surface per unit area
Lowest Effect Level (LEL)	Indicating a level of sediment contamination that can be tolerated by the majority of benthic organisms
Luminance	Luminance is the luminous intensity (i.e., the power of light energy emitted) per unit area projected in a given direction. Luminance is measured in candela per square metre (cd/m ²).
Lux	The unit of measure for light incidence either in or outside the facility is a lux. A lux is equal to 1 lumen per square metre (lumen/m ²) where a lumen is a measure of total quantity of visible light emitted by a source, weighted according to the human eye.
Mineralization	The process by which minerals of interest are geographically or organically formed
Mining Claim	A parcel of land, including land under water, that has been staked and recorded in accordance with the Mining Act, 1990 and the regulations
Mining Rights	The rights to minerals located in, on or under the land. Also referred to as mineral rights
Mitigation Measures	Measures taken to reduce, eliminate, or control effects on the environment
Monitoring	Periodic or continuous surveillance or testing to determine the characteristics of a substance or the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, plants, and animals

Ore	Rock or earth containing workable quantities of a mineral or minerals of commercial value
Overburden	Soil or other consolidated materials overlying bedrock
Phreatic	The uppermost level at which the groundwater can be found
Preg robbing	The absorption by carbonaceous components which preferentially absorbs gold and gold-cyanide complexes
Point of Impingement (POI)	A defined point or points set at a defined distance from a facility (usually between the facility and special community receptors) at which a specific limit for air pollutants must be met
Potable water	Water suitable for drinking
Portal	Ramp entrance to the underground from surface
Progressive Rehabilitation	Rehabilitation done continually and sequentially during the entire period that a project or mine hazard exists
Provincial Water Quality Objectives (PWQO)	Document published by the Ontario Ministry of Environment and Energy that establishes permitted levels of contaminants/ parameters in water in order to protect aquatic life and recreation
Jumbo	Drilling machine typically used for the development (drilling and blasting) of underground tunnels and infrastructure
Runoff	The portion of precipitation or melt water that flows over the soil making its way to surface water supplies
SAG mill	Semi Autogenous Mill that uses steel balls and the rock itself turned inside a cylinder to crush the rock to a finer particle size
Seepage	The slow movement of water through soil or rock
Severe Effect Level (SEL)	Indicating the level at which pronounced disturbance of the sediment dwelling community can be expected. This is the sediment concentration of a compound that would be detrimental to the majority of benthic species

Sky Glow	Refers to the illumination of the sky and/or clouds by light sources on the surface of the earth such as street lighting
Spillway	A gated or ungated hydraulic structure used to discharge water from a reservoir. An emergency spillway is a spillway that is designed to provide additional protection against overtopping of dams and is intended for use under extreme flood conditions or malfunction of the service spillway.
Surface Rights	Every right to land other than the mining rights
Spigotting	The placement or deposition of tailings material using the end of the pipe from the top of the tailings embankment
Tailings	Crushed or ground rock and process effluents that are generated in a mine processing plant
Thermostatically	Method of control using a thermostat to regulate airflow and temperature
Total Suspended Particulate (TSP)	Airborne particles that are less than 100 micrometres in size. They are used as a parameter to assess air quality
Total Suspended Solids (TSS)	Solid materials, including organic and inorganic, that are suspended in the water. They are used as a parameter to assess water quality.
Watercourse	Any flowing water including rivers, streams and overland flow paths
Watershed	A catchment basin or area including all of the land that is drained by a watercourse and its tributaries. Watershed boundaries are defined by heights of land. Boundaries are set where a height of land causes water to flow away from the watercourse.
Wildlife Management Unit (WMU)	An area identified by the Ontario Ministry of Natural Resources and Forestry that designates customized hunting regulations. There are 95 WMUs in Ontario.
Zone of Influence	The area of land within or adjacent to a construction site that potentially may be affected by vibrations emanating from a construction activity where the peak particle velocity measured at the point of reception is equal to or greater than 5 mm/sec at any frequency

ACRONYMS, ABBREVIATIONS AND SYMBOLS

%	Percentage
#	Number
AARL	Anglo American Research Laboratories
ABA	Acid-base accounting
ABBO	Atlas of Breeding Birds in Ontario
AES	Atmospheric Environment Service
Ag	Silver
Al	Aluminum
ALS	ALS Laboratories
a.m.	Ante meridiem
AM	Amphibian station
ANFO	Ammonium nitrate/fuel oil
AP	Acid potential
Apr	April
ARD	Acid rock drainage
As	Arsenic
Au	Gold
Aug	August
Avg	Average
B	Boron
Ba	Barium
BACI	Before/after, control/impact

BBS	Breeding Bird Survey
BC	Sediment sampling site BC
Be	Beryllium
Bi	Bismuth
BMS	Biotite muscovite schist
Bq/L	Becquerel per litre
Br	Bromine
BS	Basal sand
BS	Biotite schist
°C	Degrees celsius
Ca	Calcium
CA	Catchment area
CAAQS	Canadian Ambient Air Quality Standards
CaCO ₃	Calcium carbonate
CaCO ₃ NP	Calcium carbonate neutralization potential
Carb-NP	Carbonate neutralization potential
CBC	Christmas Bird Count
CCL	Cumming Cockburn Limited
CCME	Canadian Council of Ministers of the Environment
CCD	Counter Current Decantation
CCTV	Closed caption television
Cd	Cadmium
CDA	Canadian Dam Association

Ce	Cerium
CEC	Cation exchange capacity
CEAA	Canadian Environmental Assessment Agency
CIP	Carbon-in-pulp
CIL	Carbon-in-leach
Cl	Chloride
cm	Centimetres
CN	Cyanide
Cn	Curve number
CNR	Canadian National Railway
Co	Cobalt
CO	Carbon monoxide
COA	Canada-Ontario Agreement
CofA	Certificate of Approval for Discharge from Industrial Sewage Works
COC	Contaminants of concern
COPC	Constituents of potential concern
COSSARO	Committee on the Status of Species at Risk in Ontario
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
Cr	Chromium
Cs	Caesium
Cu	Copper
CVAAS	Cold vapour atomic absorption spectrophotometry
CWQG	Canadian Water Quality Guidelines

Cyanide-WAD	Weak acid dissociable cyanide
D	Simpson's Diversity Index
DCBC	Dryden Christmas Bird Count
dBA	Decibel (A-weighted)
DDC	Dryden Development Corporation
Dec	December
DEM	Digital elevation model
DFMC	Dryden Forest Management Company
DFO	Department of Fisheries and Oceans Canada
DO	Dissolved oxygen
dtpd	Dry tonnes per day
Dup	Duplicate sample
E	Endangered
EA	Environmental assessment
EAQA	Environmental air quality assessment
EC	Environment Canada
ECA	Environmental Compliance Approval
EDS	Environmental design storm
EEM	Environmental Effects Monitoring
e.g.	Example gratia
EIS	Environmental impact statement
EI	Elevation
ELC	Ecological Land Classification
EMP	Environmental management plan

EPA	Ontario Environmental Protection Act
EPP	Environmental preparedness plan
EPT	Ephemeroptera, Plecoptera and Trichoptera
ES	Ecosite
ESA	Environmental site assessment
Eu	Europium
FBMP	Forest Bird Monitoring Program
FDP	Final discharge point
Fe	Iron
Feb	February
FEL	Front-end loader
FL	Fork length
FLT	Fault zone
FMP	Forest management plan
FMU	Forest Management Unit
FMZ	Ontario Fisheries Management Zone
FoS	Factor of safety
FRI	Forest Resources Inventory
g	Gram
Ga	Gallium
GARD	Global acid rock drainage
GDE	Groundwater dependent ecosystems
GDP	Gross domestic product

Ge	Germanium
GHG	Greenhouse Gases
Goliath Gold Project	The Project
Gov	Government
H	Hydrogen
ha	Hectare
HCl	Hydrochloric acid
HCN	Hydrogen cyanide
HCT	Humidity cell tests
HDPE	High density polyethylene
Hf	Hafnium
Hg	Mercury
HMANA	Hawk Migration Association of North America
HPC	Hazard potential classification
HQ	Hazard quotient
Hr	Hour
HVAC	Heating, ventilation and air condition
HWR	Hanging wall rocks
Hwy	Highway
ICP-MS	Inductively coupled plasma mass spectroscopy
ID	Identification
IDF	Inflow design flood
IES	Illuminating Engineering Society
IESO	Independent electrical services operator

ILR	Intensive leach reactor
In	Indium
INAP	International Network for Acid Prevention
I/O	Input/output
IPWQO	Interim Provincial Water Quality Objectives
Ir	Iridium
Jan	January
JCTa	Sediment sampling site JCTa
K	Potassium
KCB	Klohn Crippen Berger
Kg	Kilogram
kHz	Kilohertz
Km	Kilometre
km/h	Kilometres per hour
km ²	Square kilometre
kV	Kilovolt
kW	Kilowatt
L	Litre
La	Lanthanum
Lat	Latitude
lb	Pound
LEED	Leadership in Energy and Environmental Design
LEL	Low effect level
LHD	Load haul dump vehicles

LGO	Low-grade ore
Li	Lithium
Long.	Longitude
L/s	Litres per second
LSA	Local Study Area
Lu	Lutetium
LHD	Load haul dump
LWD	Large woody debris
m	Metre
M	Molar
m ²	Square metre
m ³	Cubic metre
m ³ /d	Cubic metres per day
m ³ /h	Cubic metres per hour
m ³ /s	Cubic metres per second
m/s	Metres per second
Mar	March
masl	Metres above sea level
Max	Maximum
mbg	Metres below grade
MCC	Motor control centers
MD	Mafic dyke
MDL	Method detection limit

MED	Median
MEND	Mine Environmental Neutral Drainage
meq/100g	Milliequivalents per 100 grams
mg	Milligrams
Mg	Magnesium
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
min	Minutes
MISA	Municipal Industrial Strategy for Abatement
ML	Metal leaching
mm	Millimetre
MMER	Metal Mining Effluent Regulations
MMP	Marsh Monitoring Program
Mn	Manganese
MNDM	Ministry of Northern Development and Mines
Mo	Molybdenum
MOE	Ministry of the Environment
MOECC	Ministry of the Environment and Climate Change
MoELP	Ministry of Environment, Lands and Parks
MRA	Mine rock area
mS-NP	Modified Sobek Neutralization Potential
MSDS	Material Safety Data Sheet
MSED	Metasediments

MSS	Muscovite sericite schist
Mt	Megatonne
MTO	Ministry of Transportation
MTVOL	Metavolcanics
MZ	Main zone
N	North
Na	Sodium
NAAQO	National Ambient Air Quality Objectives
NAG	Non-acid generating
NaOH	Sodium hydroxide
NAR	Not at Risk
Nb	Niobium
Nd	Neodymium
NE	Northeast
NEL	No effect level
NG	Natural gas
NHIC	Natural Heritage Information Centre
NH4	Ammonium
Ni	Nickel
NMWL	Nominal molecular weight limit
NNP	Net neutralization potential
Nov	November
No	Number

NO ₂	Nitrogen dioxide
NO ₂ ⁻	Nitrite
NO ₃	Nitrate
NP	Neutralization potential
NPAG	Non-potentially acid generating
NPR	Neutralization potential ratio
NRCan	Natural Resources Canada
NTS	National Topographic System
NTU	Nephelometric Turbidity Unit
NW	Northwest
O ₂	Oxygen
OAAQC	Ontario Ambient Air Quality Criteria
OAHI	Ontario Aquatic Habitat Inventory
OB	Overburden
OBBA	Ontario Breeding Birds Atlas
OBM	Ontario Base Mapper
ODWS	Ontario Drinking Water Standards
OHSP	Occupational Health & Safety Plan
Oct	October
OH	Hydroxide
OIP	Ontario Institute of Pedology
OM	Organic matter
MNRF	Ontario Ministry of Natural Resources and Forestry

OMS	Operations, Maintenance and Surveillance
ON	Ontario
OOA	Ontario Odonata Atlas
OP	Ontario Parks
OPP	Ontario Provincial Police
OPSQG	Ontario Provincial Sediment Quality Guidelines
O.Reg	Ontario Regulation
OWES	Ontario Wetland Evaluation System
OWRA	Ontario Water Resources Act
P	Phosphorus
P ₅	5 th Percentile
P ₈₀	80 th Percentile
P ₉₅	95 th Percentile
PAG	Potentially acid generating
PAHs	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCS	Plant control system
PD	Project description
PM	Particulate matter
PM _{2.5}	Particulate matter <2.5 microns
PM ₁₀	Particulate matter <10 microns
PP	Provincial Park
ppm	Parts per million

PPV	Peak particle velocity
psig	Pounds per square inch (gage)
PSQG	Provincial Sediment Quality Guidelines
PWQO	Provincial Water Quality Objectives
Q10,20,100 or 200 respectively	Peak flow expected to occur once every 10, 20, 100 or 200 years
QA	Quality Assurance
QBS	Quartz biotite schist
QC	Quality Control
QEG	Quartz eye gneiss
QP	Quartz porphyry
QSS	Quartz-sericite schist
R	Richness
Rb	Rubidium
REE	Rare Earth Element
RISC	Resources Inventory Standards Committee
RO	Reverse osmosis
ROI	Return on investment
ROM	Run of mill
RQD	Rock Quality Designation
RSA	Regional Study Area
S	Sulfur
S1,2,3	Three levels (1, 2, 3) of rarity
SAB	SAG and Ball Mill

SAG	Semi-Autogenous Grinding
SAR	Species at Risk
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
Sb	Antimony
SBR	Shallow bedrock
Sc	Scandium
SC	Special Concern
SCWG	Soil Classification Working Group
SCS	Soil Conservation Service
S-del	Sulphur by mathematical difference
Se	Selenium
SEL	Severe Effect Level
Sept	September
SFE	Shake flask extraction
Si	Silicon
SLRA	Screening level risk assessment
Sm	Samarium
Sn	Tin
SNPR	Sulphide-sulphur based neutralization potential ratio values
SO ₂	Sulphur dioxide
SO ₄	Sulphate
SOM	Soil organic matter

Spp.	Species
Sr	Strontium
SR	Sound Recorder
SS	Surficial sand
STRAT	Stratigraphy
SW	Southwest
SW1,SW2, SW3	Surface Water Sampling Stations
SWD	Small woody debris
SWE	Snow water equivalent
T	Threatened
t/m ³	Tonnes per cubic metre
Ta	Tantalum
TAC	Technical Advisory Committee
Tb	Terbium
T/D	Total and/or dissolved metal (oids)
TDS	Total Dissolved Solids
tc	Time of concentration
Te	Tellurium
Th	Thorium
Ti	Titanium
TIA	Tailings Impoundment Area
TI	Thallium
TL1, TL1a, TL2, TL3	Sediment sampling sites

TMA	Tailings Management Area
TML	Transportable moisture limit
TML	Treasury Metals Incorporated
TMP	Tailings management plan
TOC	Total organic carbon
TOC-COMB	Total organic carbon, combined
TP	Test pit sites for soil sampling
tpd	Tonnes per day
TRV	Toxicity reference value
Trash	Unwanted material
TSF	Tailings storage facility
TSP	Total suspended particulates
TSS	Total suspended solids
U	Uranium
µg/g	Microgram per gram
µg/m ³	Microgram per cubic metre
µm	Micrometre
UNESCO	United Nations Educational, Scientific and Cultural Organization
µs	Microsiemens
µs/cm	Microsiemens per centimetre
UTM	Universal Transverse Mercator
V	Vanadium
VC	Valued components

VESDA	Very early smoke detection alarm
VWP	Vibrating wire piezometer
W	Tungsten
WAD	Weak acid dissociable
WLON	Wabigoon Lake Ojibway Nation
WRA	Whole rock analyses
WRMA	Waste rock management area
WRSA	Waste rock storage area
WWIS	Water Well Information System
XRD	X-Ray diffraction
Yb	Ytterbium
YOY	Young of the year
Yr	Year
Zn	Zinc
ZOI	Zone of influence
Zr	Zirconium