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No.	EIS Section	Primary Author
1.0	Introduction and Project Overview	Treasury
2.0	Assessment of Alternatives	Treasury
3.0	Project Description	Treasury
4.0	Accidents and Malfunctions	Tetra Tech
5.0	Existing Environment	Tetra Tech
6.0	Effects Assessment	Tetra Tech
7.0	Cumulative Effects Assessment	Tetra Tech
8.0	Public Engagement	Treasury
9.0	Commitments Registry	Treasury
10.0	Benefits to Canadians	Treasury
11.0	Conceptual Closure Plan	Tetra Tech
12.0	Safety, Health and Environmental Management Plan	Treasury
13.0	Environmental Monitoring Program	Tetra Tech
14.0	Conclusions	Tetra Tech

Technical studies and the resulting supporting documents were conducted and prepared by the following:

Optimization Study	Lycopodium
Mining Study	P&E
Tailings Storage Facility	WSP
Traffic Study	KAL
Water Management Plan	Lycopodium
Environmental Baseline Study	KCB
Acoustic Environment	RWDI
Light Environment	RWDI
Air Quality	RWDI
Dust Best Management Practices	RWDI
Geochemistry	EcoMetrix
Geochemical Modeling	Tetra Tech
Hydrogeology	AMEC
Hydrogeology Monitoring	AMEC
Surface Hydrology	DST
Hydrologic Modeling	Tetra Tech



Aquatics	DST
Fisheries and Habitat	DST
Terrestrial	DST
Wetlands	DST
Socio-economic	GCK
Heritage Resources	BHC
Risk Assessment	Tetra Tech
Preliminary Economic Assessment	ACA Howe
Aboriginal Consultation Report	Treasury
Tailings Storage Facility Failure Modeling	Tetra Tech
Failure Modes and Effects Analysis	Tetra Tech
Fisheries Compensation Strategy and Plans	Treasury
Country Foods Assessment	Treasury
Public Engagement	Treasury



GLOSSARY

AARL Method – Anglo American Research Laboratory Method of Carbon elution for metallurgical gold recovery.

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.

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.

Cyanidation – The addition of Cyanide to the ground slurry consisting of mineralized rock material and water which forms a water soluble complex of gold.

Coagulant – An agent added to induce a process of contact and adhesion whereby the particles of a dispersion form larger-size clusters.

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 a dispersion form larger-size clusters.

Illuminance – The total luminous flux (the perceived power of light) incident on a surface per unit area.

Luminance – Luminance is the luminous intensity (i.e., the power of light energy emitted) per unit area projected in a given direction and a direct line of sight is required for this issue to be of importance. Luminance is measured in candela per square metre (cd/m²).

Mineralization – The process by which minerals of interest are geographically or organically formed.

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 ground water can be found.

Preg robbing – The absorption by carbonaceous components which preferentially absorbs gold and gold-cyanide complexes.

Portal – Ramp entrance to the underground from surface.



Jumbo – Drilling machine typically used for the development (drilling and blasting) of underground tunnels and infrastructure.

Relative Brightness – Brightness is subjective and does not have an accepted industry standard procedure for its measurement. As such, “relative brightness” is used to bring an approximate measure of quantification. Relative brightness is based on luminance which is a measurable quantity that closely corresponds to brightness as both parameters are significantly dependent on the area and angle from which the light is emitted.

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.

Spigotting – The placement of tailings material simply using the end of the pipe from the top of the tailings embankment.

Thermostatically – Method of control using a thermostat to regulate airflow and temperature.



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
NH ₄	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
OMNRF	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
P5	5 th Percentile
P80	80 th Percentile
P95	95 th Percentile
PAG	Potentially acid generating
PAHs	Polycyclic Aromatic Hydrocarbons



Pb	Lead
PCS	Plant control system
PD	Project description
PM	Particulate matter
PM2.5	Particulate matter < 2.5 microns
PM10	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	Peak flow expected to occur once every 10, 20, 100 or 200 years respectively
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