
8-millionth-ounce gold pour
Fort Knox mine
(photo credit: North of 60 Mining News)
2018 Exploration Expenditures (US$140.1 million) 16%
Development Expenditures (US$334.1 Million) 12%
Area Covered by Mining Claims 29%
Full-Time Employment 2%

2019 Exploration Expenditures (~US$150 Million) 7%
2019 Alaska Production

- **6 lode mines**
- **1 coal mine**
- **~ 200 placer Au mines**
- **~ 64 exploration & development projects**

### 2019 Production

<table>
<thead>
<tr>
<th>2019 Production</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Zn</td>
<td>603,932 tonnes</td>
</tr>
<tr>
<td>Pb</td>
<td>121,045 tonnes</td>
</tr>
<tr>
<td>Au</td>
<td>539,390 oz.</td>
</tr>
<tr>
<td>Ag</td>
<td>16,000,000 oz.</td>
</tr>
</tbody>
</table>

- **Red Dog**
  - 552,400 tonnes Zn
  - 102,800 tonnes Pb
  - ~6-7 M oz. Ag

- **Fort Knox**
  - 200,263 oz. Au

- **Pogo**
  - 154,589 oz. Au

- **Usibelli**
  - ~1,000,000 tonnes coal

- **Greens Creek**
  - 9,890,125 oz. Ag
  - 56,625 oz. Au
  - 51,532 tonnes Zn
  - 18,245 tonnes Pb

- **Kensington**
  - 127,914 oz. Au

- **Dawson**
  - Au
Mine Production Trends

Gold oz

Silver oz

Lead Tons

Zinc Tons
2019 – Gold

Mine or Advanced Exploration
Drilling ± surface exploration
Surface exploration
Active
Kensington Mine [Coeur Alaska, Inc.]

- Underground mine: mesothermal-gold quartz-vein system
- 2019 production: 127,914 oz. Au
- Current mine life through 2022

<table>
<thead>
<tr>
<th>Dec. 31, 2018</th>
<th>Million Tonnes</th>
<th>Au (g/T)</th>
<th>Au Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>2.345</td>
<td>7.29</td>
<td>0.552</td>
</tr>
<tr>
<td>Measured &amp; Indicated</td>
<td>2.432</td>
<td>8.56</td>
<td>0.671</td>
</tr>
<tr>
<td>Inferred</td>
<td>0.644</td>
<td>9.49</td>
<td>0.161</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.421</strong></td>
<td><strong>8.12</strong></td>
<td><strong>1.384</strong></td>
</tr>
</tbody>
</table>

Jualin:
- First production Dec. 2018
- ~15% of Kensington’s Au production in 2019
- Driving improved cash flow and lower costs

- Exploration drilling:
  - Elmira vein: 1.1 m @ 150.7 g/T Au
  - Eureka vein: 4.7 m @ 11.7 g/T Au
  - Johnson vein: 0.8 m @ 72.7 g/T Au
Dawson Mine [Sundance Mining Group LLC]

Alaska’s new lode mine

- Historical production throughout area
- Initiated production in April 2019
- Block-and-pillar underground mine
- Mill 150 short tons/day
- 2019 production not reported; ~30,000 oz. Au (est.)
- 2.4-km-long, north-south-oriented, orogenic gold vein-fault system; typical 34 g/T Au, 68 g/T Ag
- Veins located just off crest of anticline in Descon Formation
- Development is on Humboldt vein system
- Vein thickness: 0.6 m to 1.2 m (up to 1.8 m)
- Pyrite, galena, sphalerite, chalcopyrite, ± bornite
- Higher Au grades in pyrite/base-metal-rich areas

Geologic map of Dawson mine area showing historical mine adits (Herreid and Rose, 1966)
**Fort Knox Mine** [Kinross Gold corporation]

Open-pit gold mine; intrusion hosted

- 8 millionth ounce of gold poured Oct. 9, 2019
- 2019 Production: 200,263 oz. Au

**Gilmore expansion:**
- Added 2.4 M oz. Au to resource; IRR 17%
- Initial production in late 2019
- Extends mine life through 2027
- 2019-2027 production: ~245,000 oz. Au/year

**Barnes Creek Heap Leach:**
- New 172.4-M-tonne-capacity heap leach pad
- Finished liner in 2019; leaching through 2027

<table>
<thead>
<tr>
<th>Dec. 31, 2018</th>
<th>Million Tonnes</th>
<th>Au g/T</th>
<th>Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>267.6</td>
<td>0.4</td>
<td>3.036</td>
</tr>
<tr>
<td>Measured &amp; Indicated</td>
<td>155.7</td>
<td>0.4</td>
<td>1.797</td>
</tr>
<tr>
<td>Inferred</td>
<td>88.7</td>
<td>0.3</td>
<td>0.808</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>512.0</strong></td>
<td><strong>0.36</strong></td>
<td><strong>5.641</strong></td>
</tr>
</tbody>
</table>

8-millionth-ounce gold pour
(photo credit: North of 60 Mining News)
Pogo Area
Regional Geology

Generalized Timeline:

- Devonian-Mississippian Protolith deposition
- Jurassic Peak metamorphism
- Early Cretaceous extension, exhumation, metamorphic cooling
- ~ 105 Ma Magmatism
- Pogo
- ~ 90 Ma Magmatism
- Ft Knox
- ~ 55 Ma Extensional magmatism

Legend
- Cretaceous intrusions
- Seventymile (oceanic rocks)
- Butte Assemblage (greenschist grade)
- Blackshell, Dan Ck. (carbonaceous units)
- Lake George Assemblage (amphibolite grade)

Selected projects
- Mineral occurrence (ARDF)
- Thrust fault
- Low-angle normal fault

after Dusel-Bacon and others (2017)
Pogo Mine [Northern Star Resources Limited]

- Underground, shear zone/quartz vein-hosted gold mine

2019 Production: 154,589 oz Au
- Guidance (through June 2020) = 200,000 to 240,000 oz. Au/year

Accomplishments:
- Since acquiring Pogo mine in Q3 2018, reduced AISC/T by 29%
- New mining fleet significantly improving tonnage productivity
- Development rates increased 76% since March 2019
- Transitioning to longhole stoping; goal 60% of ore tonnes by 2020

2019 Mine Drilling:
Underground reserve definition & extension drilling:
- All Liese Vein systems (L1, L2, L3), North Zone, X-Vein, South Pogo, & Fun Zone areas
- Excellent intersections from extensions to all known vein systems

Plans through 2021:
- Expand processing plant from ~1M T/year to 1.3 M T/year (US$30 M)

<table>
<thead>
<tr>
<th></th>
<th>Million Tonnes</th>
<th>Au g/T</th>
<th>Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve</td>
<td>6.103</td>
<td>7.5</td>
<td>1.472</td>
</tr>
<tr>
<td>Resource</td>
<td>13.225</td>
<td>10.57</td>
<td>4.477</td>
</tr>
<tr>
<td>Total</td>
<td>19.328</td>
<td>9.6</td>
<td>5.949</td>
</tr>
</tbody>
</table>

June 30, 2019

Underground ore shells at Pogo mine

Mining truck fleet
2019 Goodpaster Veins Exploration:
- 4 drill rigs for surface exploration
- Select 3Q exploration drilling results:
  - 4.0 m at 67.5 g/T Au
  - 5.2 m at 15.7 g/T
  - 8.9 m at 5.0 g/T
- 2.3 km strike, 500 m depth, open in all directions
- Series of stacked, flat- & steeply-dipping veins

2019 Goodpaster Intercepts (true widths):
- DDH19-073: 0.5 m at 44.1 g/T Au; 1.1 m at 23.0 g/T Au
- DDH19-085: 0.9 m at 15.7 g/T Au; 1.4 m at 19.3 g/T Au
- DDH19-087: 0.2 m at 588.7 g/T Au; 4.5 m at 21.0 g/T Au
- DDH19-086: 0.3 m at 24.9 g/T Au
- DDH19-091: 1.0 m at 11.4 g/T Au

North-South CSAMT lines over Pogo area, and newly discovered Goodpaster & Central vein systems (circled in red)

Underground ore shells at Pogo mine
64 North – Goodpaster [Millrock Resources Inc./Resolution Minerals Ltd.]

**2019 Activities:**
- Acquired CSAMT geophysical lines
- Agreement with Resolution Minerals
- Construction of road to property
- Preparing for 7,500-m, Q1 2020 core drilling program

**Q1 2020 DDH targets CSAMT conductors (red oval outlines)**

**Goodpaster Project**
- Resources
- NST Prospects Sept/19
- Pogo Road
- West Pogo Focus Area
- Millrock Claims
- District Bounding Faults
- Large Scale High Angle Faults
- Quartzic Intusives

**Surface Geochemistry**

- Au ppm in Soil
  - 0.00 - 0.10
  - 0.11 - 0.25
  - 0.26 - 1.00

- Au ppm in Stream Seeps
  - 0.00 - 0.10
  - 0.11 - 0.25
  - 0.26 - 1.00
  - 2.00 - 6.00
  - 6.00 - 10.00

**Goodpaster:**
- 4 m @ 67.5 g/T Au
Naosi (pit-constrained, sulfide + oxide, draft resource):

<table>
<thead>
<tr>
<th>Dec. 2019</th>
<th>Million Tonnes</th>
<th>Au Oz. (million)</th>
<th>Ag Oz. (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>8.144</td>
<td>0.844</td>
<td>10.976</td>
</tr>
<tr>
<td>Inferred</td>
<td>10.398</td>
<td>0.524</td>
<td>6.414</td>
</tr>
<tr>
<td>Total</td>
<td>18.542</td>
<td>1.368</td>
<td>17.390</td>
</tr>
</tbody>
</table>

2019 Program:
- 1,572 line-km airborne magnetic survey
- 72 HQ core & 10 RAB holes at Naosi/Mon, for 8,611 m
- 10 HQ core, 514 m at East Mon
- DDH NA19-146:
  - 8.8 m at 16.76 g/T Au
- Low-angle, gold-bearing veins /breccias
- High-angle, higher-grade zones
Tibbs [Tectonic Metals Inc.]

- At least 21 targets; 35 km east of Pogo mine
- Au-As-Sb-Bi-W signature
- Historical lode Au production in 3 locations
- Gold in intrusive & metamorphic rocks
- Controlled by district-scale, NE-trending, Black Mountain Tectonic Zone

- High-grade, near-surface gold in:
  - High-angle quartz-arsenopyrite veins
  - Sheeted to stockwork quartz-sulfide veins
  - Sericite alteration

2019 Program:
- Guided by 2017/2018 DIGHEM geophysical survey; heli-portable excavator trenching
- 2,184-m Rotary Air Blast (RAB) drilling
- Tested 9 priority targets
- Michigan Zone: 6.03 g/T Au over 28.95 m
- Discoveries:
  - Upper Trench & Hilltop/Oscar Zones

Arsenopyrite in quartz; 10.5 g/T Au
Healy [Northway Resources Corp./optioned from Newmont GoldCorp]

- Greenfields Au-As-Sb property SE of Pogo mine
- Prospective regional contact between intrusions & metasedimentary units
- Major NE-trending high-angle fault system
- Au spatially associated with both steeply dipping & low-angle fault zones

2019 Program:
- Focused on Bronk prospect; 1 of 7 Au-in-soil targets
- 10 reverse-circulation holes, total 800 m
- HRC19-01 intersected 53.4 m @ 0.35 g/T Au
- HRC19-02 intersected 49.4 m @ 0.42 g/T Au

Track-mounted RC rig tests Bronk target Au-in-soil anomaly
(Photo credit: North of 60 Mining News)
Livengood [International Tower Hill Mines]

-Metasediment-hosted, intrusion-related gold system
-Easy access to road and power

<table>
<thead>
<tr>
<th>April 2017</th>
<th>Million Tonnes</th>
<th>Au g/T</th>
<th>Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven/Probable</td>
<td>392</td>
<td>0.71</td>
<td>8.9</td>
</tr>
<tr>
<td>Measured, Indicated &amp; Inferred***</td>
<td>578</td>
<td>0.68</td>
<td>12.6</td>
</tr>
</tbody>
</table>

***Inclusive of reserves

2017 Initial PFS:
-6.8 M oz of Au produced over 23-year mine life

2019 program (US$3.7 M):
-Metallurgical studies:
  -Evaluate optimum grind size
  -Evaluate multi-recovery parameters
-Define & refine project flow sheet
-Ongoing environmental studies
Donlin Gold (Development stage) [50% Barrick Gold Corp./50% NovaGold Resources Inc.]

2019 Milestones:
- Advancing State permits; completed federal permitting in 2018
- Incorporated 2017 drill results into geologic/resource models

2019 Program (US$26 M):
- State permitting, including Dam Safety Certification
- Geotechnical drilling of tailing storage & water dam areas
- Updating 2011 feasibility study to reflect optimized development plan

Projected production:
1.1 M oz. of Au/year
27-year mine life

<table>
<thead>
<tr>
<th>Jan. 2012</th>
<th>Million Tonnes</th>
<th>Au (g/T)</th>
<th>Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven &amp; Probable</td>
<td>504.8</td>
<td>2.09</td>
<td>33.849</td>
</tr>
<tr>
<td>Resources, inclusive of reserves*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured &amp; Indicated*</td>
<td>541.3</td>
<td>2.24</td>
<td>39.0</td>
</tr>
<tr>
<td>Inferred</td>
<td>92.2</td>
<td>2.02</td>
<td>5.99</td>
</tr>
<tr>
<td>Total</td>
<td>633.6</td>
<td>2.21</td>
<td>45.0</td>
</tr>
</tbody>
</table>

Open pit outline and gold-in-soils showing additional potential
Estelle [Nova Minerals Limited]

- Cretaceous intrusion-related Au system
- Maiden inferred resource of 2.5 M ounces of Au

<table>
<thead>
<tr>
<th>Sept 2019</th>
<th>Million Tonnes</th>
<th>Au g/T</th>
<th>Ounces (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>181.29</td>
<td>0.43</td>
<td>2.5</td>
</tr>
</tbody>
</table>

2019 Program (US$1.39M):
- 18 RC holes (1,367 m) @ Targets A & B, Korbel Oxide deposit area
- Resampled 3 historical core holes; 1 hole from RPM prospect yielded 177.4 m @ 0.79 g/T Au
- Ground magnetometer survey @ Oxide deposit
- 3D magnetic, resistivity, & IP chargeability modeling/interpretation
- Demonstrated 76% Au-leach recoveries at Korbel deposit

Gold-bearing sheeted quartz veins

Oxide deposit area geology and 3D geophysics modeling
Epithermal, banded multi-stage quartz veins with high-grade visible gold
Primarily hosted within dioritic intrusive rocks

2019 Program:
- 20 holes, total of 5,128 m
  - 13 holes, 3,510 m at Ben Zone
  - 7 holes, 1,618 m at Fish Zone
- Soil, rock, and continuous-chip
  samples from outcrops and
  magnetic-high anomalies identified
  in 2018 VLF-magnetic surveys

Resource:
- 1 million tons @ 0.446 opt Au
- 445,000 oz. Au
Valdez Creek [Valdez Creek Mining and Exploration]

- Orogenic Au system
- Located along secondary fault splays off of crustal-scale thrust faults

2019 Program:
- Drilled 3 holes, 1,163 m
- Oriented core indicates ore shoots hosted in intersection lineations
- Exploration included:
  - Mapped alteration in Timberline intrusion
  - Trench mapping & sampling, ground resistivity & IP surveys, geochemical sampling at Timberline Ridge & White Creek
  - 1,200-sample soil grid over East Block

Location of 2019 exploration programs (outlined in blue)

Geologic Map of Timberline prospect area
2019 – Base Metals & Polymetallic

Mine or Advanced Exploration
Drilling ± surface exploration
Surface exploration
Active

Red Dog Mine
Aktigiruq
Anarraaq
Lik
Omar/Smucker
Arctic
Bornite
Sunshine
Sun

Red Mountain
Palmer
Greens Creek Mine
Delta

Base Metal Belts

Niblack
Johnson Tract
Sun
Greens Creek VMS [Hecla Mining Co.]

2019 Production:
9.89 M oz. Ag; 56,625 oz. Au; 51,533 tonnes Zn, 18,245 tonnes Pb

- Expanding high-grade, near-surface resources at East Ore & Upper Plate Zones
- Drilling in the NWW, 200 South, SW, and 9A Zones
- Increasing revenues starting in 2019 & decreasing development costs over next 4 years

<table>
<thead>
<tr>
<th></th>
<th>Dec. 31, 2018</th>
<th>Million Tonnes</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Au g/T</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves</td>
<td>8.42</td>
<td>7.6</td>
<td>2.8</td>
<td>3.08</td>
<td>394</td>
<td></td>
</tr>
<tr>
<td>Measured &amp; Indicated</td>
<td>6.77</td>
<td>8.2</td>
<td>3.1</td>
<td>3.42</td>
<td>445</td>
<td></td>
</tr>
<tr>
<td>Inferred</td>
<td>2.24</td>
<td>2.6</td>
<td>3.0</td>
<td>3.08</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td><strong>17.43</strong></td>
<td><strong>7.2</strong></td>
<td><strong>2.9</strong></td>
<td><strong>3.21</strong></td>
<td><strong>427</strong></td>
<td></td>
</tr>
</tbody>
</table>

First quarter 2019 drilling
Palmer VMS District

[Constantine Metal Resources Ltd. (51%) & Dowa Metals & Mining Alaska Ltd. (49%)]

June 2019 PEA Highlights:
- US$354 M pre-tax NPV (7%)
- US$266 M after-tax NPV (7%)
- 21% post-tax IRR
- 11-year mine life after 24 months pre-production
- 3,500 T/day
- US$278 M pre-prod. development capital cost
- Post-tax payback 3.3 years
- LOM recovered metal: 1,068 M lbs Zn, 196 M lbs Cu, 18 M oz Ag, 91 K oz Au 2.89 M tonnes BaSO4

2019 Program:
- 8 DDH’s, 3,165 m
- 355-m step out testing extension of RW Zone yielded 4.6 m @ 0.52% Cu, 4.65% Zn, 27.7 g/T Ag, 0.20 g/T Au, & 43.7% BaSO4
- Step-out drilling at AG Zone
- HG prospect geophysical anomaly test

<table>
<thead>
<tr>
<th>Nov 2018</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Zn %</th>
<th>Ag g/T</th>
<th>Au g/T</th>
<th>Barite %</th>
<th>Zn Eq %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>4.7</td>
<td>1.49</td>
<td>5.23</td>
<td>30.8</td>
<td>0.30</td>
<td>23.9</td>
<td>11.67</td>
</tr>
<tr>
<td>Inferred</td>
<td>5.3</td>
<td>0.96</td>
<td>5.2</td>
<td>29.2</td>
<td>0.28</td>
<td>22.0</td>
<td>9.9</td>
</tr>
<tr>
<td>Total</td>
<td>10.1</td>
<td>1.21</td>
<td>5.21</td>
<td>29.9</td>
<td>0.29</td>
<td>22.9</td>
<td>10.72</td>
</tr>
</tbody>
</table>

Based on 108 DDH’s totaling 44,900 m, $75 NSR cutoff

South Wall Resource

VMS horizon (red line) & prospects (stars ✪)
Red Dog Mine [Teck]
Sediment-hosted Zn-Pb-Ag deposits; open-pit mine
Began operation in 1989

2019 Production:
552,400 tonnes Zn
102,800 tonnes Pb
~7 M oz. Ag

VIP2 mill-upgrade project is advancing to commissioning in 2020 & expected to improve throughput by ~15%

Red Dog port facilities and road

Currently mining Qanaiyaq and Aqqaluk
Aktigiruq/Anarraaq Zn-Pb-Ag [Teck]

Sediment-hosted massive sulfide deposits

Anarraaq inferred resource (Dec 2016): 19.44 M T @ 14.4% Zn, 4.2% Pb, 73 g/T Ag
Aktigiruq exploration target: 80-150 M tonnes @ 16-18% Zn+Pb

2019 program (US$1.246M):
- Resource-definition drilling; 18 holes, 6,821 m
- Ground gravity, geologic mapping, geochemical sampling
- Prior 2016 drill hole: 54.6 m @ 16.8% Zn, 3.63% Pb (DDH1737)
- Applied for a permit to build road
Lik (Su) Zn-Pb-Ag [Solitario Exploration & Royalty Co. & Teck Resources Ltd.]

Sediment-hosted massive sulfide deposit
- New partnership; **Teck** taking exploration lead

**2014 PEA for Lik South:**
- Open-pit mine, initial 9-year life
- Produce 234,000 tonnes Zn & 55,800 tonnes lead concentrates/year
- IRR = 9.7%; NPV(8%) of $25.0 million
- Assumed constructed with no Red Dog infrastructure benefits
- Doesn’t include the adjacent Lik North deposit

<table>
<thead>
<tr>
<th></th>
<th>Million Tonnes</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicated</strong></td>
<td>17.3</td>
<td>8.0</td>
<td>2.7</td>
<td>51</td>
</tr>
<tr>
<td><strong>Inferred</strong></td>
<td>2.9</td>
<td>8.6</td>
<td>2.6</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20.2</strong></td>
<td><strong>8.1</strong></td>
<td><strong>2.7</strong></td>
<td><strong>49</strong></td>
</tr>
</tbody>
</table>

**2019 work:**
- Geologic mapping
- Gravity surveying
- Geochemical sampling at North Prospect
- XRF & re-logged 20 select historical cores
- Re-model Lik geology

Gravity survey identified North Prospect in 2018
Ambler Mining District Industrial Access Project [AIDEA]

**State Land with Mineral Potential**

- **Snow**: 4.8-m @ 3g/T Au, 421g/T Ag, 3.5% Pb, 6.1% Zn, 0.3% Cu
- **Horse Creek**: ~10 MT @ 1% Cu, 3% Zn, 2% Pb, 31g/T Ag
- **Sunshine**: ~20 MT @ 1.4% Cu, 2.5% Zn, 0.5% Pb, 25g/T Ag
- **Smucker**: 11.6 MT @ 0.95% Cu, 6.7% Zn, 2.3% Pb, 180 g/T Ag, 0.62g/T Au
- **Pardner Hill**: ~1 MT @ 2.0% Cu
- **Bornite**: 182 MT @ 2.0% Cu, 0.02% Co
- **Arctic Probable Reserve**: 43 MT @ 2.3% Cu, 3.2% Zn, 0.6% Pb, 36g/T Ag, 0.5g/T Au
- **BT**: ~3.5 MT @ 1.7% Cu, 2.6% Zn, 0.9% Pb, 40g/T Ag
- **Sun**: 10.73 MT @ 1.25% Cu, 4.2% Zn, 1.4% Pb, 78g/T Ag, 0.24 g/T Au
- **Shungnak**: ~1 MT @ 3% Cu, 2% Zn, 2% Pb, 62g/T Ag
- **PROPOSED ROAD**
Arctic VMS [Trilogy Metals Inc./South32 Limited]

PFS (April 2018):
- 12-year mine life
- Estimated after-tax payback within 2 years
- After-tax 33.0% IRR; $1,412.7 million NPV at 8%

Resources: (based on 152 DDH; inclusive of reserves); plans for recalculation to JORC standards in 2020

<table>
<thead>
<tr>
<th>April 2018</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Au g/T</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probable</td>
<td>43</td>
<td>2.32</td>
<td>3.24</td>
<td>0.57</td>
<td>0.49</td>
<td>36.0</td>
</tr>
</tbody>
</table>

2019 program (US$7 M):
- 11 holes, total 2,405 m
- Geotechnical & hydrological studies to support Feasibility Study
- Working with AIEDA to advance Ambler Mining District Industrial Access Road project; BLM completed Draft EIS.

2020 plans:
- Complete feasibility study in 2Q 2020
- Final EIS expected in late 2019/early 2020
- Initiate permitting once receive BLM/USACOE Record of Decision regarding road
Bornite Carbonate-Hosted Cu-Co [Trilogy Metals Inc./South32 Limited]

Stratabound “reefs” of Cu-Co mineralization

2019 program (US$9.2 M):
- 10 holes; total 7,610 m
- Infill & exploration drilling to test VTEM, ZTEM, & gravity anomalies
- RC19-0264: 18 mineralized intervals (1.5% Cu cut-off):
  e.g., 22.8 m @ 2.86% Cu; 5.1 m @ 11.01% Cu; 7.2 m @ 5.98% Cu

2020 events:
- South 32 Limited decision regarding forming a 50/50 JV by Jan. 31, 2020

<table>
<thead>
<tr>
<th>Oct. 2017 Cu</th>
<th>July 2018 Co</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Co %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td></td>
<td>40.5</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Inferred</td>
<td></td>
<td>141.9</td>
<td>1.74</td>
<td>0.019</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>182.4</td>
<td>1.24</td>
<td>0.019</td>
</tr>
</tbody>
</table>

Contained metal: 6.363 B lbs. Cu; 77 M lbs. Co
Sunshine VMS [Trilogy Metals Inc./South32 Limited]

Volcanogenic massive sulfide deposit in Ambler Mineral District
13 km west of Arctic VMS; same stratigraphy & massive/semi-massive sulfides

Historical resource: (Kennecott, 1997)

<table>
<thead>
<tr>
<th>1997</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Au g/T</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>20</td>
<td>1.4</td>
<td>2.5</td>
<td>0.5</td>
<td>---</td>
<td>23.75</td>
</tr>
</tbody>
</table>

2019 program (US$2 M):
- 6 holes; total 1,357 m
- **Hole SC19-019**: 5 mineralized intervals (1.5% Cu-eq. cut-off):
  - 9.1 m @ 3.02% Cu, 1.42% Zn, 0.27% Pb, 0.14 g/T Au, 24.65 g/T Ag
  - 3.3 m @ 1.68% Cu, 1.77% Zn, 0.47% Pb, 0.12 g/T Au, 27.57 g/T Ag
  - 3.7 m @ 4.74% Cu, 0.97% Zn, 0.13% Pb, 0.15 g/T Au, 28.96 g/T Ag
  - 3.0 m @ 0.75% Cu, 1.40% Zn, 0.35% Pb, 0.08 g/T Au, 21.02 g/T Ag
  - 7.88 m @ 2.23% Cu, 5.62% Zn, 1.10% Pb, 0.18 g/T Au, 46.95 g/T Ag
- Additional drill hole assay results pending
Sun [Valhalla Metals Inc.]

- VMS deposit in Ambler Mineral District
- 60 km east of Arctic VMS; same stratigraphy
- 5 km from proposed road route

NI 43-101 Resource:

<table>
<thead>
<tr>
<th></th>
<th>June 1, 2018</th>
<th>Million Tonnes</th>
<th>Zn %</th>
<th>Cu %</th>
<th>Pb %</th>
<th>Ag g/T</th>
<th>Au g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>1.71</td>
<td>4.32</td>
<td>1.48</td>
<td>1.11</td>
<td>60.0</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>Inferred</td>
<td>9.01</td>
<td>4.18</td>
<td>1.21</td>
<td>1.46</td>
<td>81.7</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10.73</td>
<td>4.20</td>
<td>1.25</td>
<td>1.40</td>
<td>78.24</td>
<td>0.24</td>
<td></td>
</tr>
</tbody>
</table>

2019 Airborne VTEM survey:
- Extent of drilled resource at Sun deposit extends to 200 m
- Wider, stronger geophysical target extends 900 m further down-dip of the resource
Red Mountain VMS District [White Rock Minerals Ltd./Sandfire Resources NL]

**2019 program (US$ 5.4 M):**
- 12 holes; total 4,451 m; down-hole EM
- Drilled new targets & Dry Creek massive sulfide extensions
- Geologic mapping, hyperspectral data analysis
- 3,128 soil & 388 rock chip geochemical analyses
- 3,000 line-km, 500 sq.-km, SkyTEM airborne EM & magnetic survey; ground-based CSAMT & MT surveys

<table>
<thead>
<tr>
<th></th>
<th>April 2017 3% Zn cut-off</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Ag g/T</th>
<th>Au g/T</th>
<th>Zn Eq %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Creek Main</td>
<td>2.4</td>
<td>0.2</td>
<td>4.7</td>
<td>1.9</td>
<td>69</td>
<td>0.4</td>
<td>8.7</td>
<td></td>
</tr>
<tr>
<td>West Tundra Flats</td>
<td>6.7</td>
<td>0.1</td>
<td>6.2</td>
<td>2.8</td>
<td>189</td>
<td>1.1</td>
<td>14.4</td>
<td></td>
</tr>
<tr>
<td>Total Inferred</td>
<td>9.1</td>
<td>0.1</td>
<td>5.8</td>
<td>2.6</td>
<td>157</td>
<td>0.9</td>
<td>12.9</td>
<td></td>
</tr>
</tbody>
</table>

**Exploration targets and 2019 drill-hole locations**

![Red Mountain Project Tenement Outline](image)

**Dry Creek sulfide lens – 200-m extension**

Photo courtesy North of 60 Mining News
Johnson Tract [HighGold Mining Inc.]

- Epithermal or VMS(?) district last explored 25 years ago
- Historical drilling: 87 DDH’s, 27,317 m total

**Historical Resource:** (Westmin, 1994)

<table>
<thead>
<tr>
<th>As of 1994</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Zn %</th>
<th>Pb %</th>
<th>Au g/T</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inferred</td>
<td>~1</td>
<td>0.75</td>
<td>8.32</td>
<td>1.13</td>
<td>10.05</td>
<td>7.63</td>
</tr>
</tbody>
</table>

**2019 Program:**
- 9 holes, total 2,247 m Johnson Tract deposit
- Hole JT 19-085: 59.2 m @ 8.16 g/T Au, 5.9 g/T Ag, 0.39% Cu, 8.8% Zn, 0.72% Pb
- Re-sampled/assayed historical cores
- Prospecting at regional targets & 1:5,000-scale mapping
- 201 rock-chip & 258 soil and silt samples
- Planned NI43-101-compliant resource estimate 1Q 2020

Quartz-sulfide banded vein textures
Laminated sphalerite-galena bands - brecciated

Historical DDH JT-83-012 – massive sphalerite
2019 – Porphyry + Skarn

Mine or Advanced Exploration
Drilling ± surface exploration
Surface exploration
Active

Pebble
Round Top
Groundhog
San Diego Bay
Pyramid
Shumigan (Unga)
Alaska Range
Shorty Creek
Taurus
Oreo
Northway
Peak Gold (Tetlin)
Hona
New DGGS mapping
Porphyry belt

Project
Prospect
Porphyry Cu-Au-Mo

0 125 250
Miles
Pebble Porphyry Cu-Mo-Au [Pebble Limited Partnership]

-Jan. 6, 2018: U.S. Army Corps of Engineers accepted PLP’s permit application
-USACOE timeline: Finalized EIS and ROD mid-2020

2019 Work:
-Geotechnical drilling proposed: 27 ODEX/Sonic sites, 3 DDH’s, & repair 2 boreholes.

Proposed development plans:
-Footprint <1/2 of prior envisioned size
-Single drainage for site infrastructure
-Open-pit mine; ~20-year mine life
-Tailings storage facility designed for maximum safety
-Separation of potentially acid generating tailings from non-acid generating; fully lined tailings storage facility
-Annual production: 287 M lbs. Cu, 321,000 oz Au, 1.6 M oz Ag, ~13 M lbs. Mo

Dec. 2017 | Million Tonnes | Cu Billion pounds | Cu (%) | Au (g/T) | Mo (ppm) | Ag (g/T)
--- | --- | --- | --- | --- | --- | ---
Measured | 527 | 4 | 0.33 | 0.35 | 178 | 1.7
Indicated | 5,929 | 53 | 0.41 | 0.34 | 246 | 1.7
Inferred | 4,454 | 25 | 0.25 | 0.25 | 226 | 1.2
TOTAL | 10,910 | 82 | 0.34 | 0.30 | 235 | 1.5

Mine plan submitted to U.S. Corps of Engineers
Alaska Range Project  [PolarX Ltd./Lundin Mining]

Cu-Au Skarn and Porphyry systems; Sediment hosted Cu

- Strategic partnership with Lundin Mining for Stellar project

2019 program:
- 6 holes, 3,041 m at Saturn and Mars
- Discovered Cu-Au-Mo porphyry at Mars
- 102.1 m @ 0.22% Cu, 0.07 g/T Au, 20 ppm Mo
- 28.7 line-km IP & gravity survey at Saturn (400 m x 200 m grid)
- Trenching and mapping at Zackly skarn to improve targeting

Alaska Range Project – Copper in soils

Zackly resource (2012):
3.4 M T @ 1.2% Cu,
2.0 g/T Ag, 14.0 g/T Au

Mars: First DDH contains Cu-Au-Mo-bearing veins;
102 m @ 0.22% Cu, 0.07 g/T Au, 20 ppm Mo
Earth MRI - Eastern Tanacross

Mt Fairplay
Syenite
(REE)

McArthur Creek
(Au):

RioTinto

Oreo (Cu-Mo-Au):

‘Northway (Au+):

Peak Gold, LLC
Triple Z (Au, Cu, Mo)

Taurus, Bluff
(Cu-Mo-Au-Re)

Geologic map (Wilson and others, 2015)

Draft Geologic map
(Twelker and others, 2020)

TKv - Felsic Volcanics
Tki - Felsic to Alkalic Intrusives
Kg - Granitic Plutonic rocks
Pks – Greenschist Klondike Schist
Mdlu – Amphibolite Ladue unit
MZlg - Amphibolite Lake George Assemblage
Taurus Porphyry Cu-Au-Mo (Re) [Kenorland Minerals/Freeport]

**Historical resource:** 68.2 M tonnes @ 0.275% Cu, 0.032 Mo, 0.166 g/T Au

**2019 Program (US$4.7M):**
- 15 holes, 6,718 m
- 1,556 line-km ZTEM and Magnetic airborne survey
- Geologic mapping and sampling

Quartz-stockwork veining; West Taurus

Quartz-sericite-pyrite alteration; West Taurus

Main phase quartz monzonite w/K-alteration, Cu, Mo, Au, Ag; East Taurus (2008 DDH-40)

2019 drilling at East Taurus (Photo credit: Evan Twelker, DGGS)
Oreo Porphyry [Tubutulik Mining Company LLC/Rio Tinto]

- Very early stage porphyry copper-molybdenum-silver project

Prior exploration:
- 2018 - Rio Tinto - 412 soil samples;
  - Cu-Mo-Ag soil anomaly 8 km (E-W) by 1- to 2-km (N-S)

2019 Program:
- 6 HQ core holes, totaling 1,061 m.
- Oreo 19-001: ave. 0.0263% Cu, 37 ppm Mo, 1.7 ppm Ag over 166-m length;
  includes 71 m @ 0.029% Cu
  - Oreo 19-003 & 3A: 66 m @ 190 ppm Mo; incl. 12 m @ 391 ppm Mo
  - Oreo 19-002: 88 m @ 4 ppm Ag

Oreo 19-001:
Quartz-pyrite-molybdenite-chalcopyrite ± magnetite veins w/K-feldspar alteration halo at 143.4m

Oreo 19-003A:
Multiple cross-cutting veinlets.
Quartz-molybdenite vein

Oreo 19-003A (92.1m):
Quartz-k-feldspar vein with molybdenite, pyrite, magnetite and chalcopyrite. Shreddy biotite halo surrounding the vein.
Peak (Tetlin) Cu-Au-Ag Skarn [Peak Gold, LLC]

2019 Program (~US$7.3 M):
-3 DDH at East Peak
-1 DDH at North Saddle
-2 DDH in Hona porphyry
-DDH19002: 17 m @ 0.41 g/T Au, 5.4 g/T Ag, 0.333% Cu
-1,006 line-km magnetic & VTEM survey over Hona

Peak Skarns PEA (Sept. 2018):
- Produce 1.1M oz. Au; 2M oz. Ag
- 8-year mine life
- 3,500 T/day
- 91.6% Au, 57.0% Ag recovery
- 3.9:1 strip ratio
- US$294 M initial capital
- US$428/oz. Au recovered, total cash cost
- ~2-year, after-tax payback
- 29% post-tax IRR

<table>
<thead>
<tr>
<th>Peak Skarns</th>
<th>Million Tonnes</th>
<th>Cu %</th>
<th>Au g/T</th>
<th>Ag g/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measured &amp; Indicated</td>
<td>9.2</td>
<td>0.153</td>
<td>4.08</td>
<td>14.2</td>
</tr>
<tr>
<td>Inferred</td>
<td>1.34</td>
<td>0.151</td>
<td>2.69</td>
<td>16.1</td>
</tr>
<tr>
<td>Total</td>
<td>10.54</td>
<td>0.153</td>
<td>3.9</td>
<td>14.43</td>
</tr>
</tbody>
</table>

Hona porphyry Cu-Au-Ag prospect

Prospects

Peak deposits

Peak deposits
Round Top: 2019 drill holes (green dots)

Illinois Creek

**Oxide Au-Ag-Cu**

**2019 Illinois Creek program:**
- 3 holes, 366 m
- NI 43-101 report – Updated resource
- Initiated PEA in August; Q1 2020
- Existing leach pad resource: ~50-79,000 ounces Au + ~3 M ounces Ag

---

**Illinois Creek Resource; >500 DDH**

<table>
<thead>
<tr>
<th>Oct. 1, 2019</th>
<th>Tonnes (million)</th>
<th>Au (g/T)</th>
<th>Ag (g/T)</th>
<th>Cu (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>6.76</td>
<td>1.04</td>
<td>34.3</td>
<td>0.18</td>
</tr>
<tr>
<td>Inferred</td>
<td>2.03</td>
<td>1.06</td>
<td>38.8</td>
<td>0.22</td>
</tr>
<tr>
<td>Total</td>
<td>8.79</td>
<td>1.04</td>
<td>35.24</td>
<td>0.19</td>
</tr>
</tbody>
</table>

---

Round Top: 2019 program:
- 7 holes, 1,537 m infill
- Initiated NI 43-101 report to calculate resource based on 40 DDH (9,933 m); planned for release Q1 2020

~74 Ma Cu-Mo-Ag Porphyry + skarn + carbonate-replacement

Oct. 1, 2019 0.4 AuEq cut-off

Tonnes (million)  Au (g/T)  Ag (g/T)  Cu (%)

Indicated 6.76 1.04 34.3 0.18
Inferred 2.03 1.06 38.8 0.22
Total 8.79 1.04 35.24 0.19

---

Honker Low Sulfdiation Vein

Round Top Porphyry Cu Deposit

Existing Road Network to Camp & Airstrip

Waterpump Ck Deposit

Manto Targets

Leach Pad

Illinois Creek Oxide Au Ag Deposit

Illinois Creek West Pit and Porphyry Cu-Au Target

Waste Dump

Illinois Creek historical mine area
Porphyritic intrusions associated with Cu-Au & Cu-Mo

**2019 program (~US$2.3 M):**

- South32 Limited provided funding
- 5 drill holes; 1,542 m targeting Hill 1835 & Hill 1710
- 100 km of IP surveys & 98 km of ground magnetic surveys
- 543 soil samples

Copper mineralization in core sample

Airborne & ground magnetic-high anomaly drill targets

**Shorty Creek [Freegold Ventures Limited/South32 Limited]**
2019 – Graphite, REEs, PGEs, Ti-V-Au, Industrial Minerals

Drilling ± surface exploration
Surface exploration
Active

Alaska’s Criticality-Score-Weighted Critical Minerals Potential

Alaska’s Mineral Belts
- Gold
- Base Metal
- Porphyry

Graphite Creek
Lost River Sn
Genesis (Tonsina) PGE, Ni
Icy Cape Au, industrial minerals, PGE
Snettisham Fe, Ti, V, Au, PGE
Bokan Mountain REEs
Graphite Creek [Graphite One Inc.]

USA’s largest, large-flake graphite deposit

- Major U.S. multi-national electric-vehicle manufacturer testing graphite
- Coated spherical graphite is a major component in lithium-ion battery anodes

2019 Program:
- 800 m in-fill drilling
- Geotechnical work & environmental baseline studies
- Geochemical assays for future resource update
- PFS by 2Q 2020

2017 PEA:
- Open-pit, 40-year mine life, 1.11 M tonnes graphite-bearing material/year
- 41,850 tonnes high-grade coated spherical graphite/year for Li-ion battery applications
- 13,500 tonnes of refined, sub-20-micron graphite powder/year

Battery-grade spheronized graphite from Graphite Creek is being tested by a major U.S. multinational electric vehicle manufacturer (preliminary results above are from prior testing)

<table>
<thead>
<tr>
<th>March 2019 5% cut-off</th>
<th>Tonnes (Million)</th>
<th>Cg %</th>
<th>Graphite (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>1.69</td>
<td>8.0</td>
<td>135,171</td>
</tr>
<tr>
<td>Indicated</td>
<td>9.26</td>
<td>7.7</td>
<td>715,363</td>
</tr>
<tr>
<td>Inferred</td>
<td>91.89</td>
<td>8.0</td>
<td>7,342,883</td>
</tr>
<tr>
<td>Total</td>
<td>102.84</td>
<td>8.0</td>
<td>8,193,417</td>
</tr>
</tbody>
</table>
**Snettisham** [Northern Cobalt Ltd.]

**Alaska-type mafic-ultramafic complex & Orogenic Juneau Gold Belt**
- Potential for Fe, Ti, V, and Au
- Historical surface samples of magnetite-rich rock chips:
  - Up to 0.56% V2O5, 35.9% Fe and 6.47% TiO2
- Historical drilling:
  - Missed main magnetic target; ave. grades of 20% Fe

**Nearby Infrastructure:**
- Snettisham Hydroelectric Power Plant ~18 km NW; main transmission line runs within 2.5 km of project
- On coast, adjacent to deep-water channel
- 50 km from Juneau, with large mining workforce

**2019 Program:**
- Helicopter-based airborne magnetic survey
- 3D inversion, modeling indicates magnetic body is ~50-m deep, 2.5-km long, up to 600-m wide, & extends to depth of ~2 km.
- Model of >70% magnetite shell (= >40% contained Fe)
Usibelli Coal Mine [Usibelli]

- 2019 Production ~1 M tonnes
- Regional electrical generation

Credit: http://www.usibelli.com/Coal-Leases.php
Alaska’s Mineral Resource Information

Division of Geological & Geophysical Surveys
http://dggs.alaska.gov/

- Geochemistry
- Geophysics
- Geologic Maps
- Elevation Data
- Minerals Report
- Mineral Occurrences
- GMC

Division of Mining, Land & Water
http://dnr.alaska.gov/mlw/

- Land status
- Mining claims
- Mine Permitting
- Mine Regulation

Geologic Materials Center
http://dggs.alaska.gov/gmc/index.php

- Core Repository
- Indoor core viewing and storage
- Surface samples
- Geochemistry pulps
- Online Inventory
- Confidential storage and viewing