Nevada Mining Summary - 2019

- 5th leading producer of GOLD in the WORLD! (Behind China, Australia, Russia, and Canada)
- 20+ minerals are produced in Nevada at over 100 mines
- $12.4B impact to Nevada’s economy, representing 3.1% of GDP
- Ranked 3rd best mining jurisdiction in the world (Fraser Institute, 2020)
- Lots of interest in new lithium (and other critical mineral) production

In 2019 Nevada Mining provided 32,976 Nevada Jobs.

$2.6 Billion in total paid salary

Nevada produced 10% of all U.S. mineral production

Mines operate on less than ¼ of 1% of Nevada’s 70,798,080 acres
Nevada Gold

2019 Production
4.87 Moz, -13% vs. '18
51% private vs. 49% public land
31 mining operations
18 operators

Gold price, $/troy ounce
Production

Gold production, millions of troy ounces
### 2019 NEVADA METAL PRODUCTION, BY PRODUCER - Final

**Ranked by gold production**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Gold (ozs)</th>
<th>Silver (ozs)</th>
<th>Copper (lbs)</th>
<th>Moly (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nevada Gold Mines</td>
<td>3,673,631</td>
<td>1,070,177</td>
<td>30,585,072</td>
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<tr>
<td>Kinross</td>
<td>538,528</td>
<td>954,345</td>
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<tr>
<td>SSR Mining</td>
<td>220,227</td>
<td>4,223</td>
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<tr>
<td>Jerritt Canyon Gold</td>
<td>117,985</td>
<td>NR</td>
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<tr>
<td>Hecla (Klondex)</td>
<td>66,166</td>
<td>181,741</td>
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<tr>
<td>KGHM International</td>
<td>51,277</td>
<td>`</td>
<td>113,132,886</td>
<td>766,699</td>
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<tr>
<td>Florida Canyon Mining (Alio Gold)</td>
<td>43,305</td>
<td>30,877</td>
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<td>Fiore Gold</td>
<td>40,499</td>
<td>NR</td>
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<td>Coeur</td>
<td>35,401</td>
<td>3,761,060</td>
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<td>McEwen Mining</td>
<td>30,709</td>
<td>614</td>
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<tr>
<td>Rawhide Mining</td>
<td>14,381</td>
<td>140,187</td>
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<tr>
<td>Gold Resource Corp.</td>
<td>10,810</td>
<td>9,574</td>
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<tr>
<td>Hycroft Mining</td>
<td>8,916</td>
<td>56,783</td>
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<tr>
<td>Premier Gold (40% of S. Arturo)</td>
<td>8,412</td>
<td>NR</td>
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<tr>
<td>Mineral Ridge Gold</td>
<td>3,863</td>
<td>2,324</td>
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<td>Ruby Hill Mining</td>
<td>3,356</td>
<td>2,540</td>
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<tr>
<td>Borealis Mining</td>
<td>605</td>
<td>387</td>
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<tr>
<td>Toquima Gold</td>
<td>15</td>
<td>NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>4,868,086</td>
<td>6,214,832</td>
<td>143,717,958</td>
<td>766,699</td>
</tr>
</tbody>
</table>
New Mining Operation for 2020
Americas Gold and Silver – Relief Canyon, Pershing County

- Past production – 1986 to 1990
- New construction began – May 2019
- Stockpiled ore placed on heap leach – December 2019
- First gold pour – February 2020
- Full mine production by Q2 2021
- Production target – 80-100 koz/yr
- Avg. Au grade - 0.8 g/t
- Current mine life – 6 years
Nevada silver

2019 Production
6.28 Moz, -22% vs. '18
25 mining operations
14 operators

Silver price, $/troy ounces
Silver production, millions of troy ounces

Production
Price

6.28 Moz, -22% vs. '18
25 mining operations
14 operators

2019 Production
6.28 Moz, -22% vs. '18
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2019 Production
6.28 Moz, -22% vs. '18
25 mining operations
14 operators
2019 production
143.7M lbs, -0.6% vs. '18

3 mining operations
3 operators

*Pumpkin Hollow mine produced copper concentrate but had no sales in 2019
Nevada Copper’s Pumpkin Hollow Mine, Lyon County

- 2 deposits with 6 billion contained pounds of Cu
  - Higher grade eastern deposit; underground
  - Shallower western deposit; open-pit
- Main shaft and materials handling system completed Dec. 2020
- First copper production occurred in Q4 2019 with temporary suspension from April to August 2020 due to the pandemic
- The mine will employ ~300 people
- 13.5 year mine life (underground) and 19 year mine life (open pit)
- Becomes Nevada’s 3rd copper producer in past 20 years
Nevada Barite Production

2019
464,334 tons shipped
-7% vs. '18
5 operators
#1 producer in US

Average Annual Price per Barrel of Oil

Production (1,000 short tons)

Oil Price

Nevada Limestone Production 1991-2019
Tied to Construction Activity

# of Mines Reporting

Amount Mined

Year
Nevada Gypsum

2019 Production
3.0 M tons
6 producers
Tied to Residential Construction need for Sheetrock
Other Industrial Minerals Produced in 2019

- 7,900,000 lbs of lithium carbonate*
- 1,900,000 tons of gypsum
- 618,000 tons of silica sand
- 119,000 tons of magnesite*
- 276,000 tons of diatomite
- 24,500 tons of salt
- 2,200 tons of perlite

* Only producer in US
The Demand for Lithium

- The Tesla/Panasonic battery factory alone needs 5X the amount of lithium mined annually in Nevada.
## Lithium in Brine vs. Lithium in Clay/Rock

### Lithium Brine
- Albemarle’s Silver Peak mine is only lithium mine in US, operating since 1966.
- Solar evaporation in ponds over 18-24 months increases concentration of lithium chloride prior to processing into lithium carbonate.
- Cheaper processing costs but lower recovery %s.
- Requires placer mining claims and significant water rights.
- Requires significant quicklime consumption.
- Newer technologies may not require same timeframe or consumptive water use.
- 17 other playa basins in Nevada being explored.

### Lithium in Clay/Hard Rock
- No current mines, but 3 projects are in various stages of permitting:
  - Thacker Pass, Humboldt Cty
  - Rhyolite Ridge, Esmeralda Cty
  - TLC Project, Nye Cty
- Resources typically very large with long mine-life.
- Processing is more expensive but yields higher recovery %s.
- Requires location of lode mining claims.
- Much less water consumption but high sulfuric acid consumption.
- Many additional exploration projects.
Lithium Americas – Thacker Pass Project

- Reserves – 3.1M tonnes LCE at 2,358 ppm Li
- Strip ratio – 1.6:1
- Mine life – 46 years
- Processing time - <24 hours
- Lithium recovery – 83%
- Pilot plant operational in Reno
- BLM issued Record of Decision on January 15, 2021
- Production target is Q3 of 2022
ioneer’s Rhyolite Ridge Project

Project overview

A searlesite resource that is different to other sedimentary lithium deposits - it is suitable for a simple acid leach process

- Total Resource\(^1\) of 4.1 million tonnes lithium carbonate & 10.9 million tonnes boric acid
- Including 121 million tonnes of lithium-boron ore containing:
  - 1.1 million tonnes lithium carbonate
  - 8.6 million tonnes boric acid
- Lithium only clay mineralisation to be stockpiled
American Lithium – TLC Project

- Measured and indicated resource of 5.4 Mt lithium carbonate equivalent
- Lithium ore at the surface
- Preliminary metallurgical tests indicate >90% recovery in <10 minutes using sulfuric acid leach
- Economic analysis is underway
208,109 Active Mining Claims (Assessment Year 2021) in Nevada as of 12/28/2020

Increase of 1.7% from October 2019

>50% of all US mining claims

Claims are ~20 acres in size

Annual maintenance payments of $165/claim to BLM and $12/claim to county recorder

~$34M to BLM

~$2.6M to Nevada counties
NDOM has been gathering active claim data from LR2000 at the end of October for the last seven years. The purpose of this graph is to show claims data and statistics from the same snapshot in time.
- Minerals selected are deemed “vital to the Nation's security and economic prosperity.”
- Nevada contains known occurrences or deposits of **20 of the 35** critical minerals
- Exploration for cobalt, graphite, REE, Tungsten, Vanadium in progress.
Geothermal Development 2019-2020

Wells Completed 2019-2020
3 Industrial Injection
3 Industrial Production
1 Observation
7 Temperature Gradient

As of 1/13/2021 there were 455 permitted commercial and industrial wells.

There are 25 active geothermal plants in Nevada.

There are 285 authorized geothermal leases as of 12/31/2020 which total 569,542 acres.

NEVADA GEOTHERMAL POWER PRODUCTION 2019 Production
3.9 Million megawatt hours sold
+12.7% vs. 2018

Map Produced By:
Lucia M. Patterson
Nevada Division of Minerals
Projection:
UTM Nad 1983 Zone 11

Legend
Number of Wells Drilled 2019-2020
1
2
3
4

Sections With Authorized Federal Geothermal Leases and Geothermal Fields*

*Authorized leases are plotted by section and do not necessarily depict actual lease boundaries. Lease data as of December 31, 2020.
As of January 14, 2020 there were 120 permitted oil wells

There are currently 10 active oil fields in Nevada

As of December 31, 2020 there were 487 authorized oil leases
which total 882,948 acres

There is one oil refinery in Nevada

Legend
- Oil Refinery
- Oil Drilling Activity (3 Wells)
- Active Oil Fields
- Authorized Oil & Gas Leases
- County Boundary

*Authorized leases are plotted by section and do not necessarily depict actual lease boundaries. Lease data as of December 31, 2020
TRENDS & PREDICTIONS

- Metals mining is increasingly underground, >30% now.
- Copper is #2 in gross value and increasing
  - Limitation is lack of downstream smelting and refining
  - Electric vehicles vs. gas require 5-8X more copper
- Industrial mineral production in NV likely to increase as it is easier to put into operation than in other western states
- Increase in # of projects being permitted largely due to increased gold price but also in relation to increased demand for commodities needed for renewable energy and batteries (Co, Li, Ni, V, Zn)
- If one or more Li clay project progresses, NV will produce >10% of world production, would then expect vertical integration with a cathode plant built in NV.
- Increasing geothermal energy production
- Escalation in investor interest on the value of environmental, social and corporate governance (ESG)
For More Info:

- Agency Homepage: minerals.nv.gov
- “Mining” program page
  - Production summaries and stats
  - Numerous free publications and maps
- “Current Information”
  - Links to our Distance Learning Educational Videos
  - Recent Presentations
- “Important Links - Open Data Site”
  - Interactive web mapping application to display and download information related to the minerals industry.
  - Location of mining claims, current and historical exploration activity and mineral production.
  - Public lands issues
  - New “Mining in Nevada” page