UPDATE ON PRODUCTION AND EXPLORATION ACTIVITY IN NEVADA

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¹Nevada Bureau of Mines and Geology (www.nbmg.unr.edu)



²Nevada Division of Minerals (minerals.state.nv.us)

\$490+/oz Au!

THE MAIN POINT: Nevada is a really great place to explore for and mine gold.



Latest Statistics from the

Nevada Division of Minerals

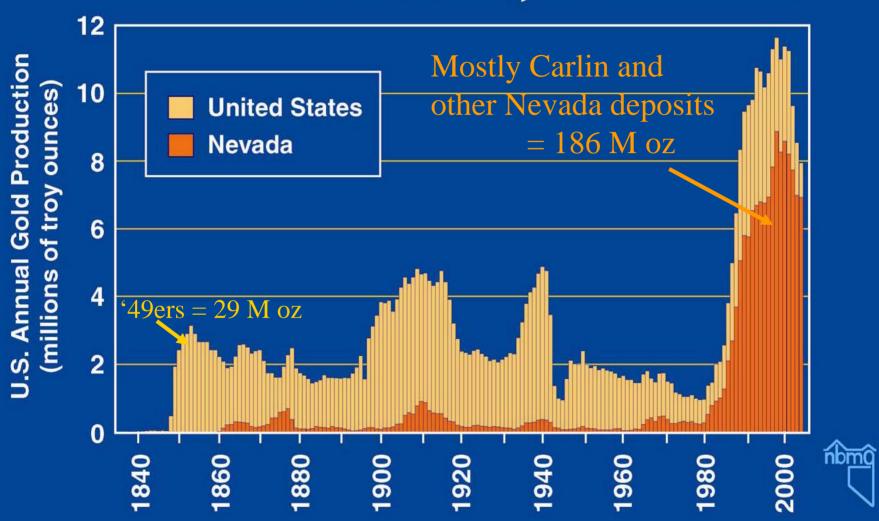
(minerals.state.nv.us)

and the

Nevada Bureau of Mines and Geology (www.nbmg.unr.edu)

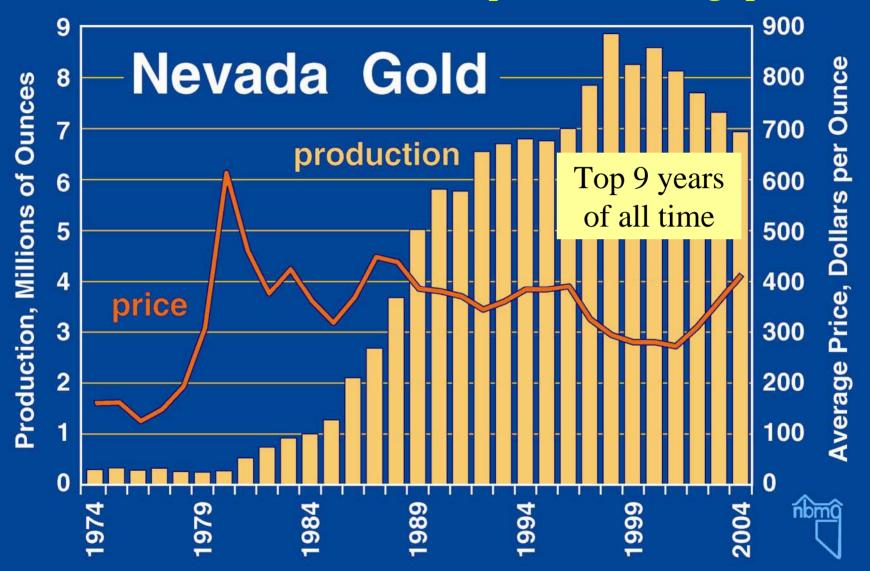
Photo credits to Mike Visher, Jeff Scovil, JGP, and others

Gold Production, 1835–2004



We are in the midst of the biggest gold boom in American history.

6.942 million ounces in 2004; \$410 per ounce average price



Nevada produced ~87% of U.S. and 9% of world gold in 2004.

Major Mines, Oil Fields, and **Geothermal Plants**

23 major gold mines (8 not on the trend with production > 100K oz)

Precious Metals

Industrial Minerals

Copper

Oil Field

Geothermal Plant



Quaternary faults Quaternary sediments Quaternary-Tertiary volcanic rocks Upper Tertiary volcanic rocks Tertiary sedimentary rocks Lower Tertiary volcanic rocks Mesozoic and Tertiary intrusive rocks Jurassic or Cretaceous igneous and metamorphic complex Mesozoic sedimentary, volcanic, and intrusive rocks Upper Paleozoic sedimentary and volcanic rocks Upper Paleozoic carbonate rocks Lower Paleozoic sedimentary and volcanic rocks Lower Paleozoic carbonate rocks 20 40 60 kilometers Precambrian metamorphic and intrusive rocks

Trends of Mineral Deposits

- X Metals (mostly Au, Cu, Ag)
- X Industrial minerals

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Trends of Mineral Deposits

Carlin trend

- X Metals (mostly Au, Cu, Ag)
- X Industrial minerals

Quaternary faults **Quaternary sediments** Quaternary-Tertiary volcanic rocks **Upper Tertiary volcanic rocks** Tertiary sedimentary rocks Lower Tertiary volcanic rocks Mesozoic and Tertiary intrusive rocks Jurassic or Cretaceous igneous and metamorphic complex Mesozoic sedimentary, volcanic, and intrusive rocks Upper Paleozoic sedimentary and volcanic rocks Upper Paleozoic carbonate rocks Lower Paleozoic sedimentary and volcanic rocks Lower Paleozoic carbonate rocks Precambrian metamorphic and intrusive rocks

Trends of Mineral Deposits

Battle Mountain-Eureka trend

(aka Cortez trend and with Getchell and Twin Creeks included)

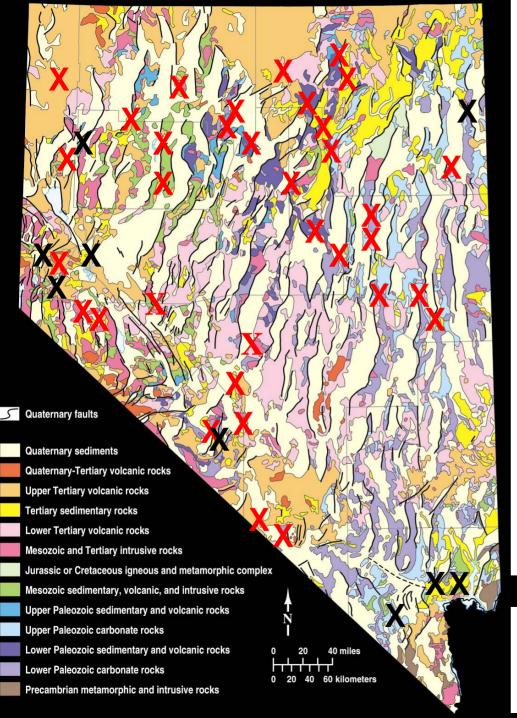
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Trends of Mineral Deposits

Walker Lane

- X Metals (mostly Au, Cu, Ag)
- X Industrial minerals

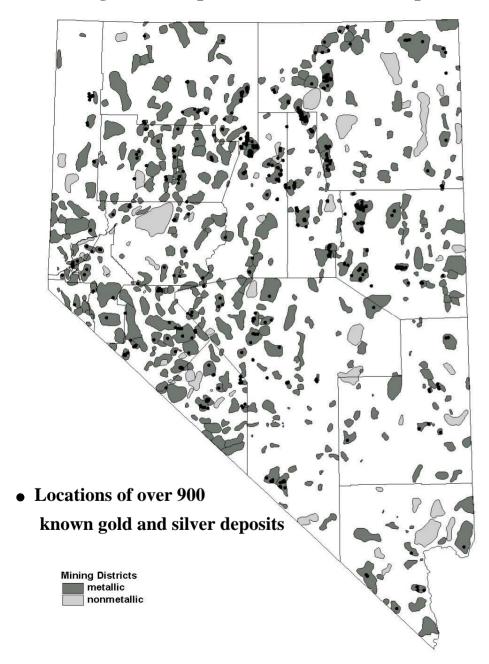


Mining Districts of Nevada

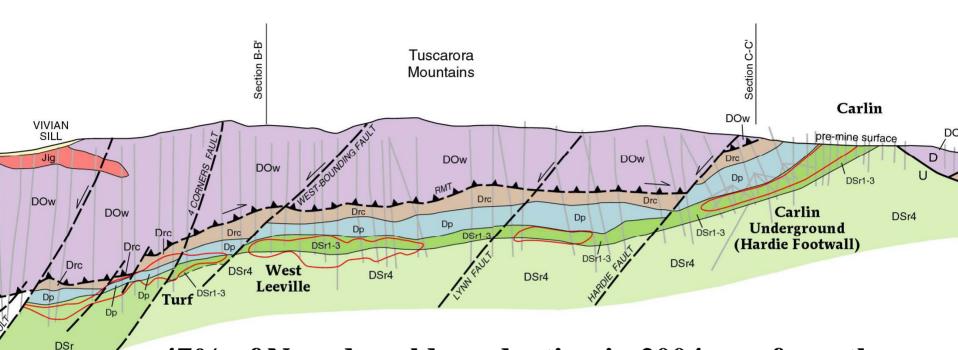


- X Metals (mostly Au, Cu, Ag)
- X Industrial minerals

Mining Districts plus Gold and Silver Deposits



The Nevada Bureau of Mines and Geology is updating its "Gold and Silver Resources in Nevada" map as a GIS layer as well as a paper copy.



47% of Nevada gold production in 2004 was from the Carlin trend. On about May 1, 2005, the Carlin trend had produced a total of 60 million ounces of gold.

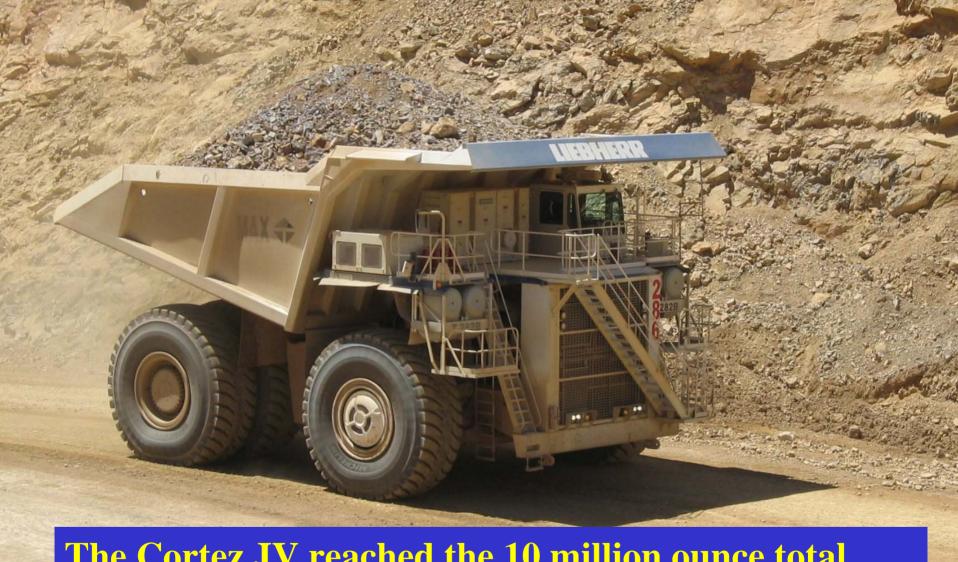
Section by Steve Moore & others, Newmont, NBMG Bulletin 111 - *Gold Deposits of the Carlin Trend*, edited by Tommy Thompson, Lew Teal, and Dick Meeuwig (204 pages, with detailed geologic maps and sections – \$35 from www.nbmg.unr.edu)



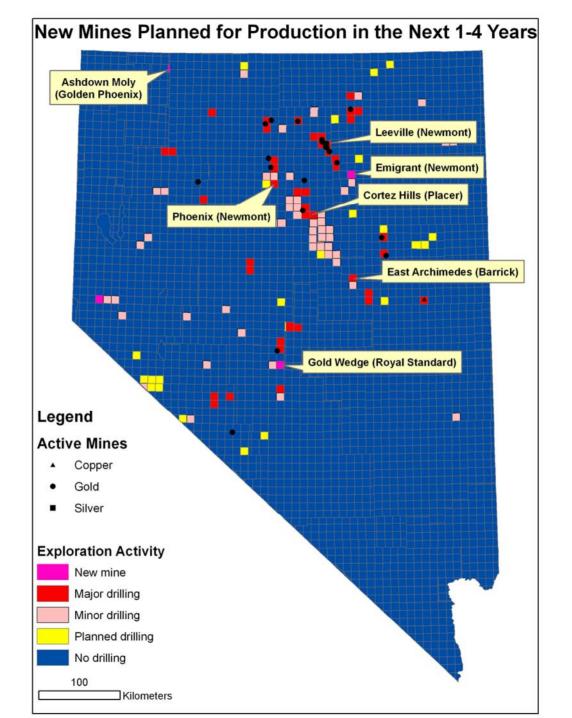
The Betze-Post mine was the most productive pit: 1.38 million ounces of gold in 2004. Barrick's near-pit exploration added about 2 million ounces of reserves in 2004.

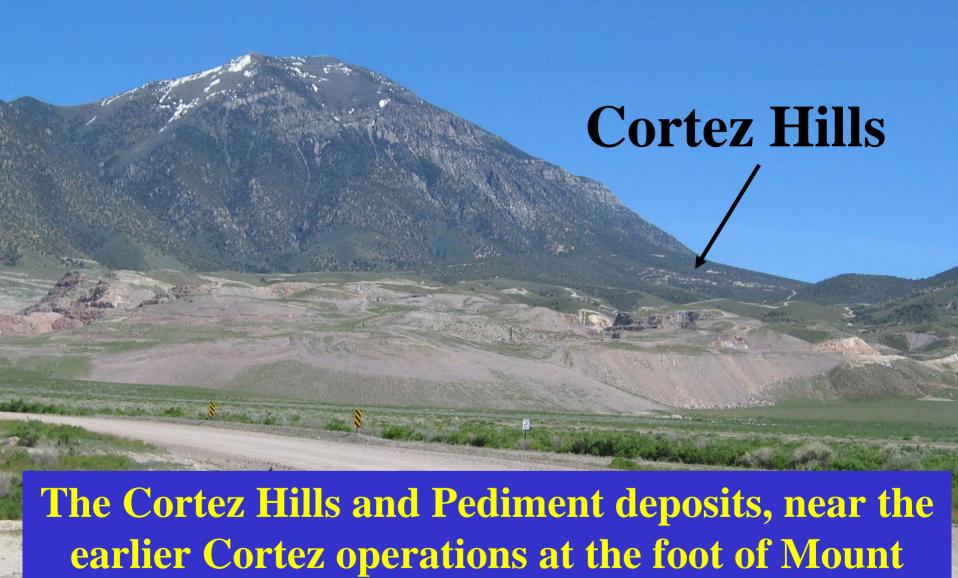


The Meikle mine was the most productive underground mine: 561,345 ounces of gold in 2004.



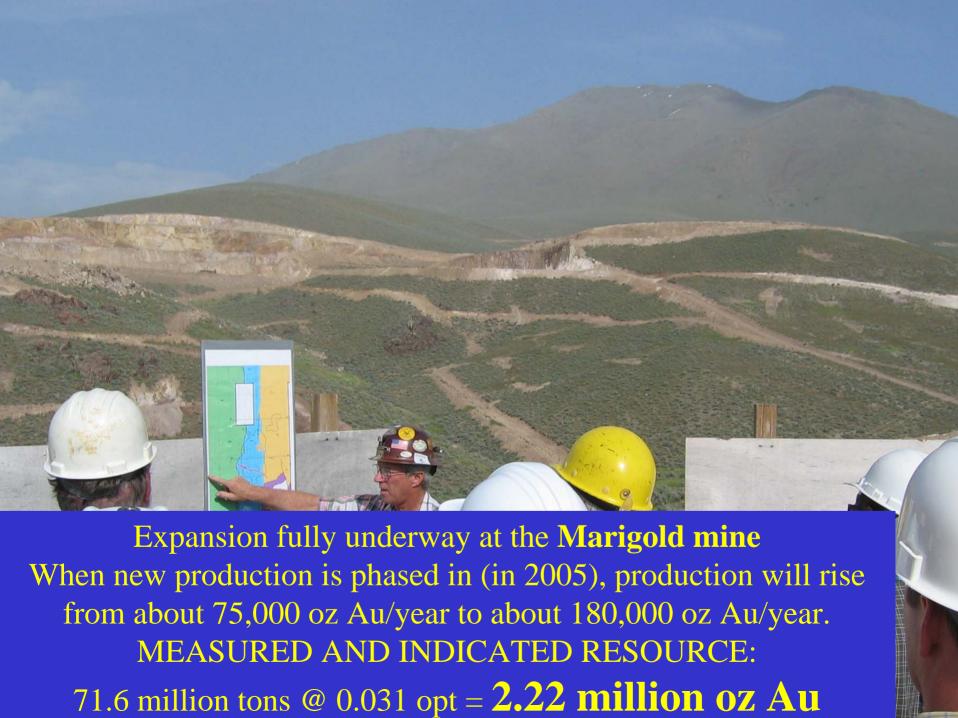
The Cortez JV reached the 10 million ounce total gold production milestone and produced 1.05 million ounces in 2004. Mining 300,000 tons per day at the Pipeline deposit is aided by the use of 400-ton trucks.





The Cortez Hills and Pediment deposits, near the earlier Cortez operations at the foot of Mount Tenabo, contain 9.6 million ounces, with intercepts as good as 410 feet @ 1.035 opt.



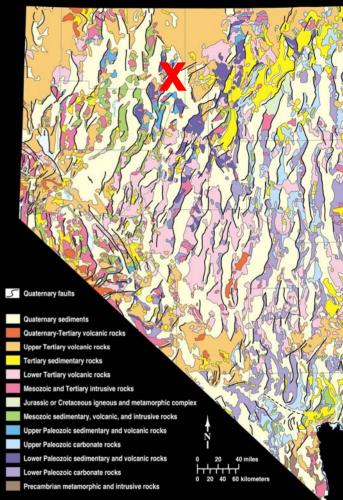




Standard deposit (22.5 Mt @ 0.018 opt Au), near Florida Canyon in Pershing County: permitted in less than two years! poured its first gold in December of 2004 annual production of 30,000 to 40,000 ounces 400 thousand ounces total

Placer Dome-Newmont JV –
Turquoise Ridge in Humboldt
County: reserve of 9 million
ounces in ore averaging
0.6 opt Au



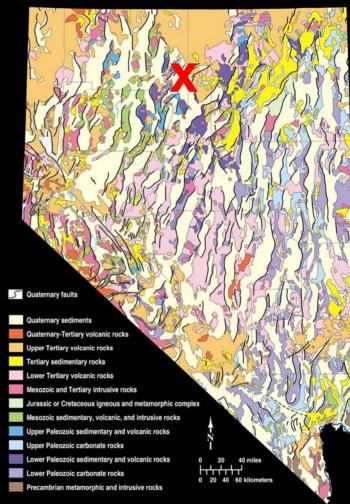


Generalized Geologic Map of Nevada

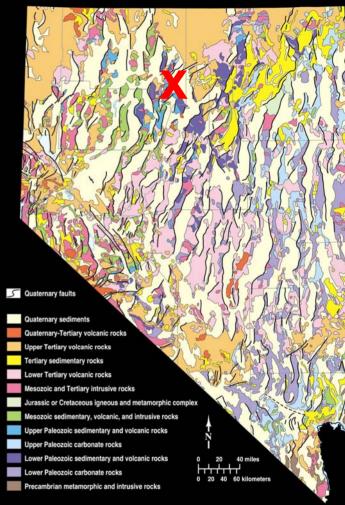


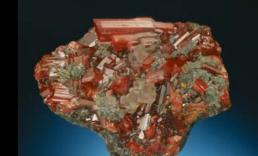
Newmont – Twin Creeks in Humboldt County: 4.7 million ounces of reserves added to the north (2.7 million ounces of refractory ore averaging 0.091 opt Au) and south (about 2 million ounces of oxide ore averaging 0.061 opt Au); will extend mine life through 2018.





Atna Resources – Pinson mine area in Humboldt County: ~1.9 million ounces in 1.8 million tons of measured and indicated resources @ 0.30 opt Au plus 4.2 million tons of inferred resources @ 0.32 opt Au; 76.8 feet with an average grade of 0.45 opt Au.

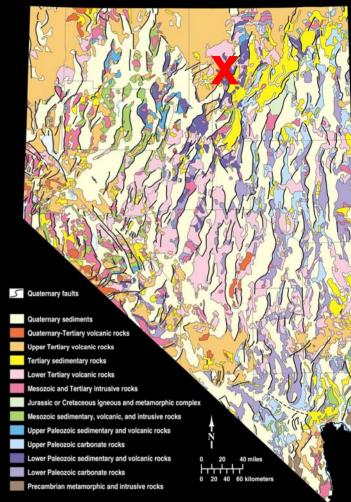






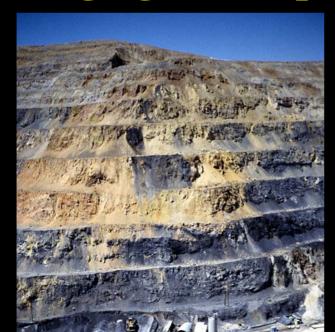
DEVELOPMENTS Centerra Gold - Ren property on the Carlin trend: ~1.3 million ounces in 2 million tons of indicated resource @ 0.382 opt Au plus 1.39 million tons of inferred resource @ 0.37 opt.

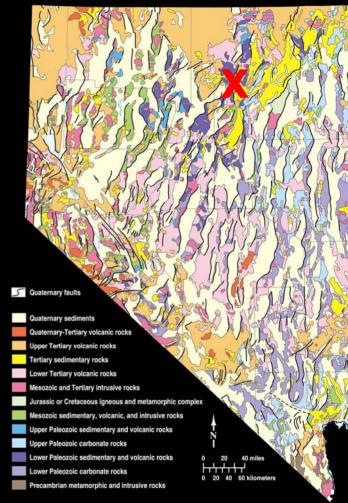
SIGNIFICANT



SIGNIFICANT DEVELOPMENTS

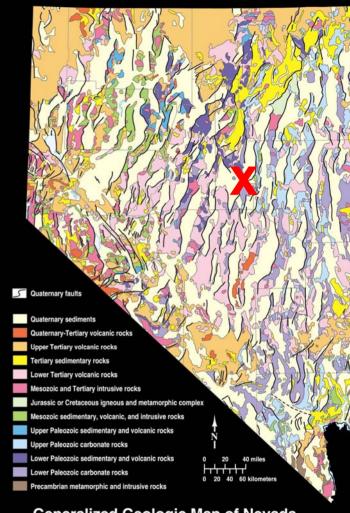
Newmont – Emigrant deposit in Elko County: reserve of about 1.2 million ounces in run-of-mine oxide ore averaging 0.018 opt Au





SIGNIFICANT DEVELOPMENTS

Barrick Gold - East Archimedes deposit at Eureka: ~1.0 million ounces in 13.99 million tons of proven reserve @ 0.061 opt Au plus 2.58 million tons probably resource with comparable grade; construction is underway; production is expected in mid-2007. Barrick is also drilling "Ruby Deeps," exploring for high-grade ore below the East Archimedes deposit.

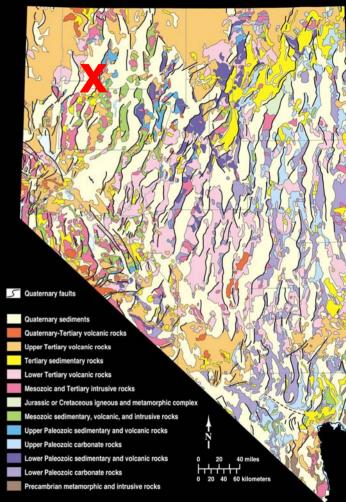


SIGNIFICANT DEVELOPMENTS

Vista Gold – Hycroft mine in Humboldt County: ~585 thousand ounces in reserve of 32.5 million tons @ 0.018

opt Au

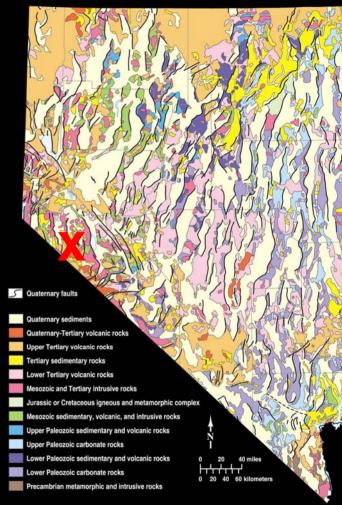




Generalized Geologic Map of Nevada

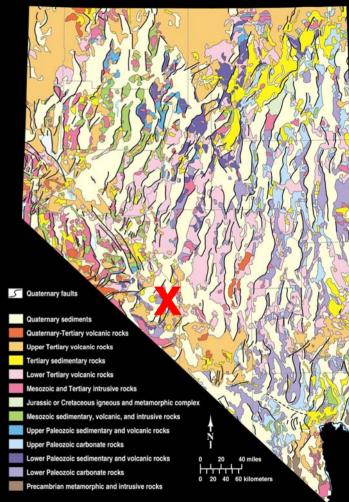
SIGNIFICANT DEVELOPMENTS Gryphon Gold-Golden Phoenix Minerals – **Borealis mine in Mineral County: ~1.5 million ounces** in resource of 43.3 million tons @ 0.034 opt Au





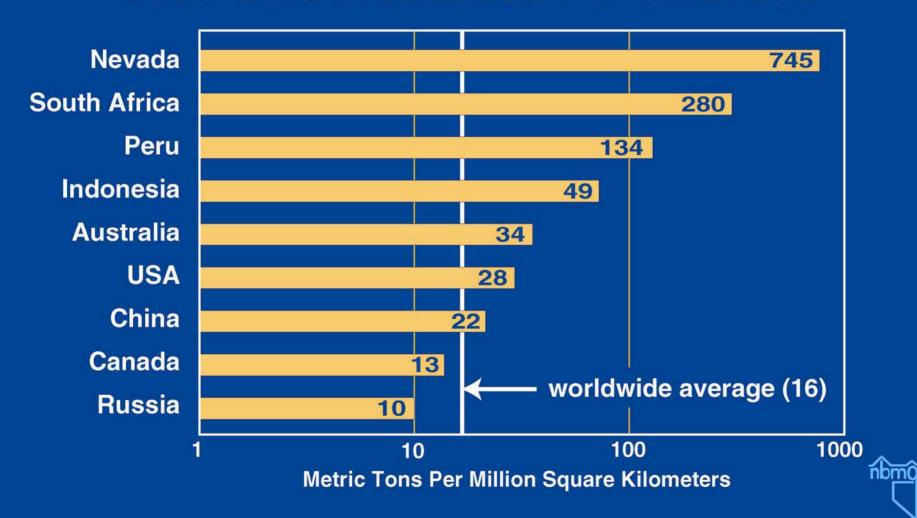
Metallic Ventures – Converse property in Esmeralda County: ~3.9 million ounces in resource of 263 million tons @ 0.015 opt Au – planning a feasibility study

Nevada Bureau of Mines and Geology

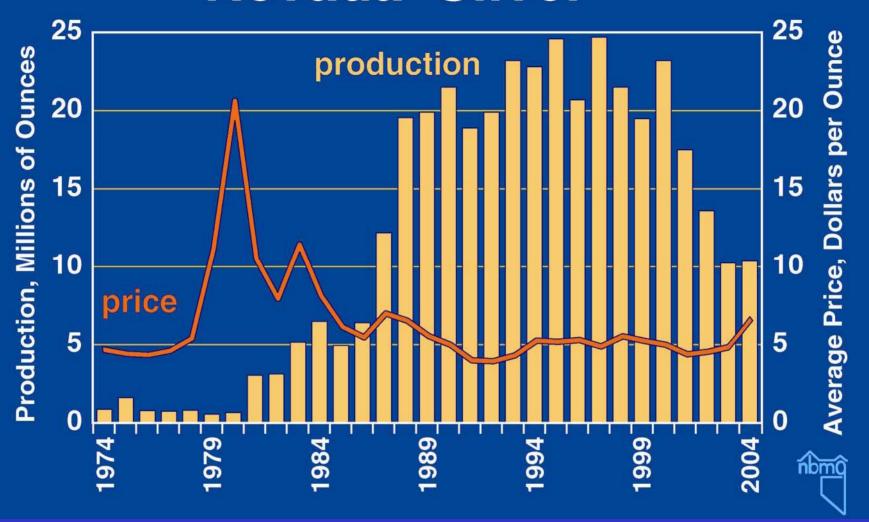


Nevada is a really great place to explore for and mine gold.

2004 Gold Production Per Unit Area



Nevada Silver



The Coeur Rochester mine in Pershing County produced its 100 millionth ounce of silver in January 2004. Production in 2004 was 5.67 million ounces of silver at an 82:1 silver:gold ratio.



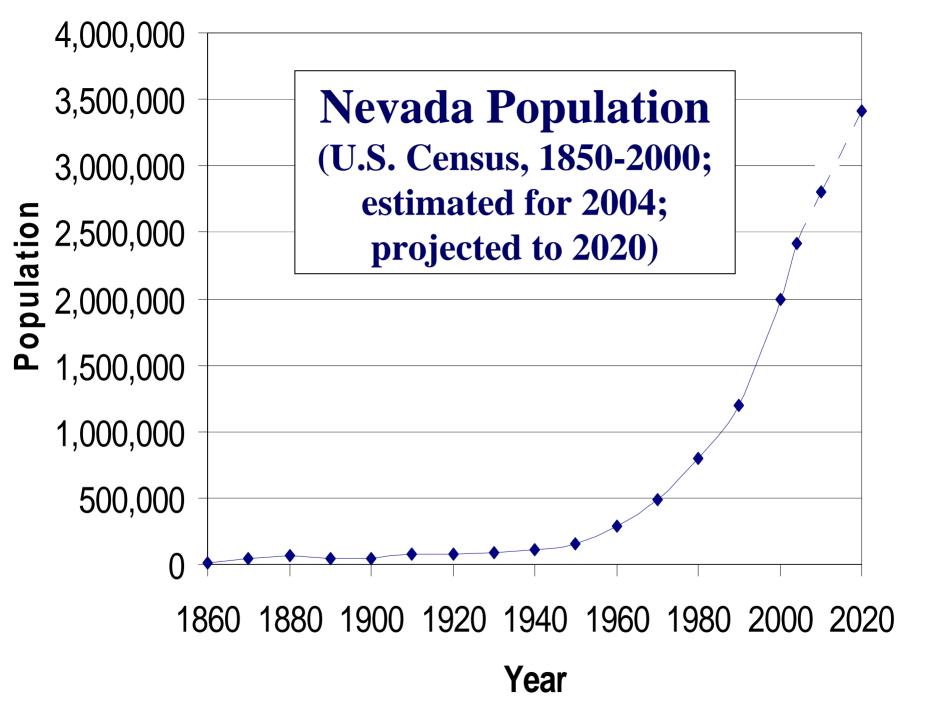
27 million pounds of Cu produced in 2004

Mo circuit coming on line late in 2005 or early 2006

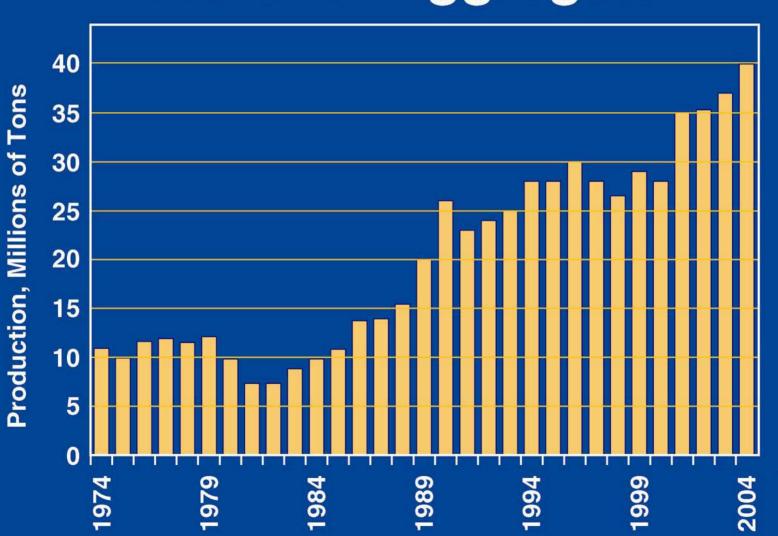
Quadra Mining

restarted production at the Robinson (Ely) mine in White Pine County in 2004

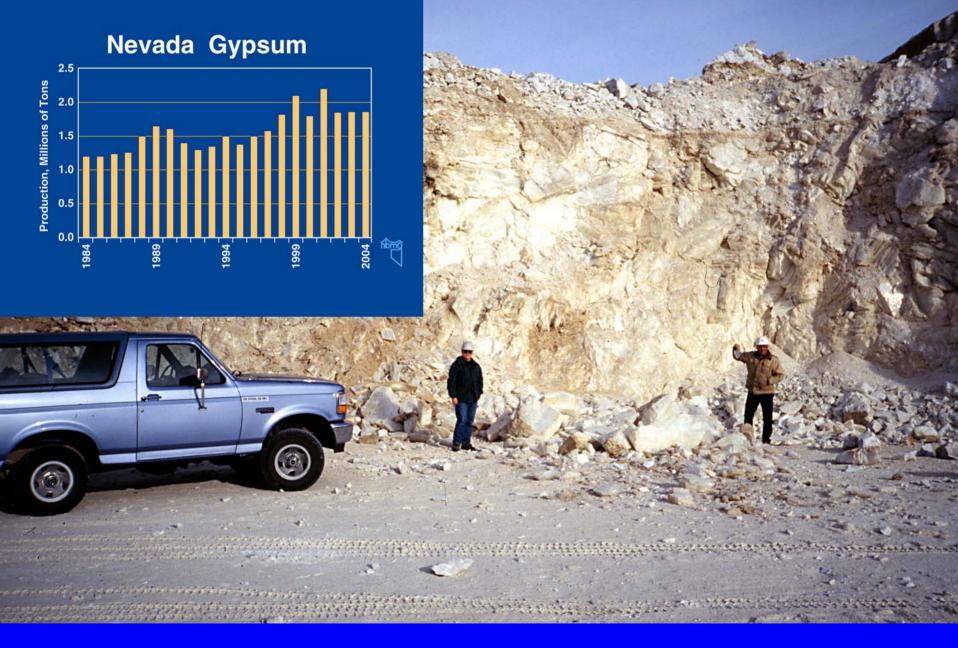
(reserve = 145 million tons @ 0.687% Cu, ~0.01% Mo, and 0.008 opt Au; ten-year mine life averaging 165 million pounds of Cu, 1 million pounds of Mo, and 57,000 ounces of Au per year; purchased from BHP Billiton for \$18 million)



Nevada Aggregate



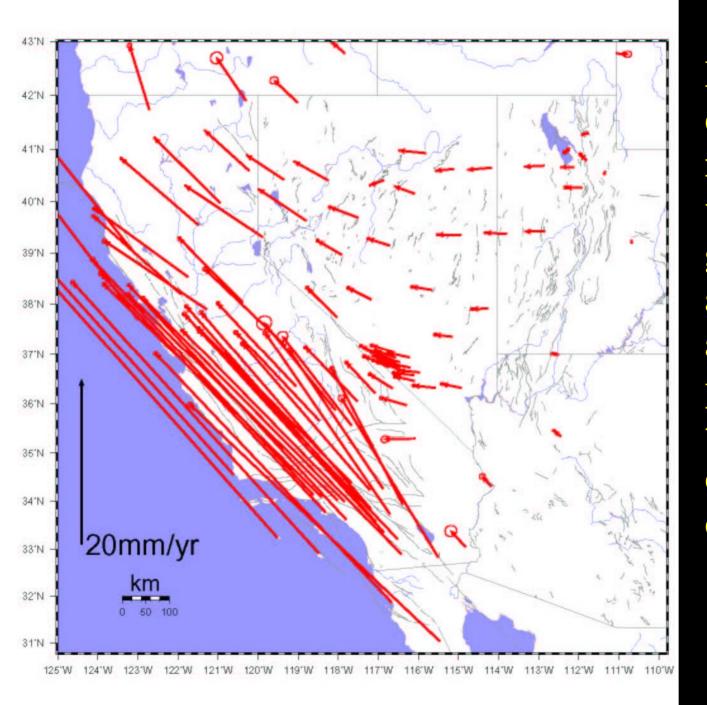




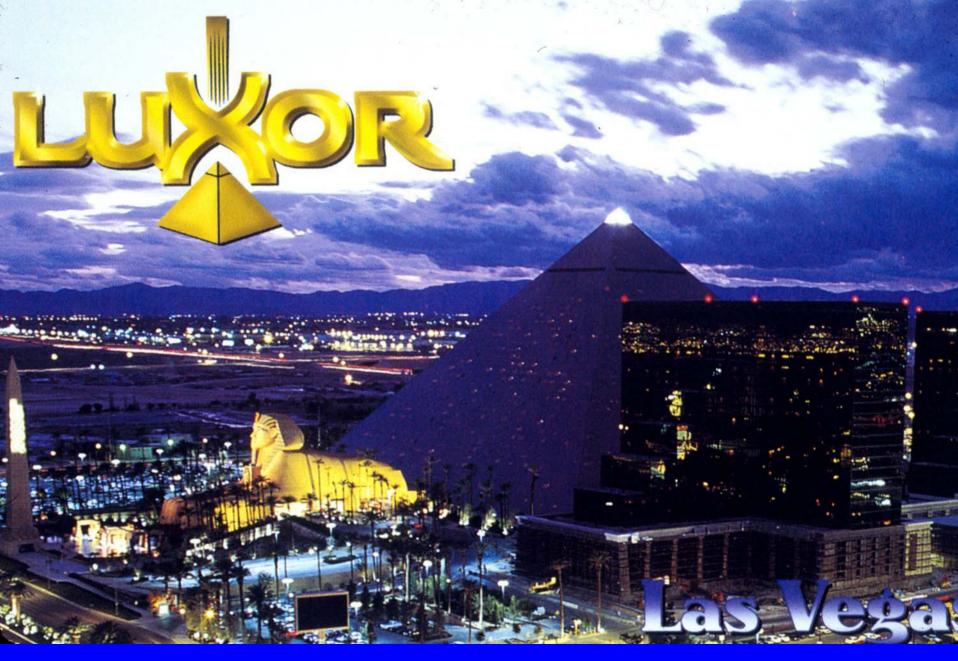
Gypsum at the Selenite pit, Empire mine, Pershing County



The Las Vegas urban area is growing in population at a rate of 9 to 10 people per hour and in size at a rate of 2 acres an hour.



But geodetic data indicate that we are only gaining about 1.5 acres of area per year through crustal extension.

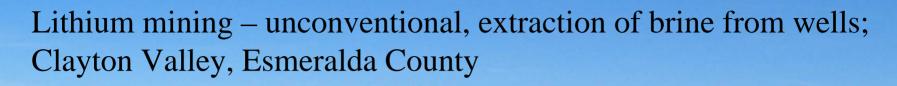


Where is that 1.5 acres on the Strip?



Barite – Nevada is the leading producer in the USA.



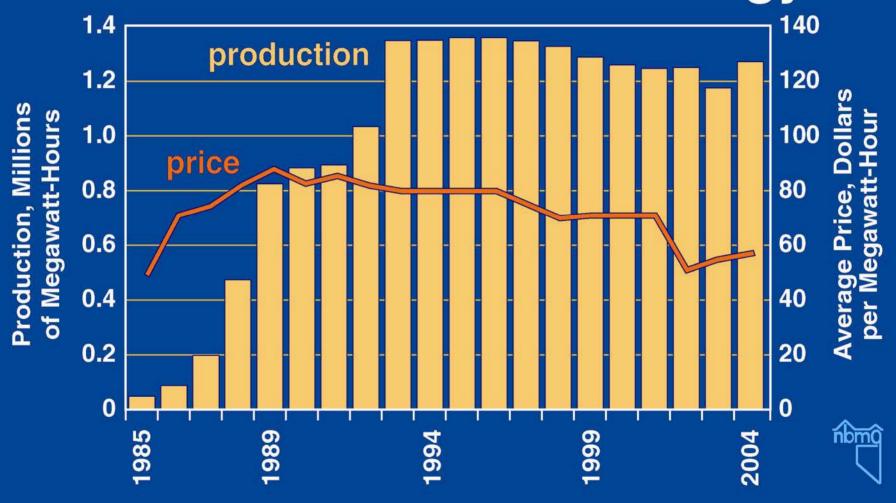






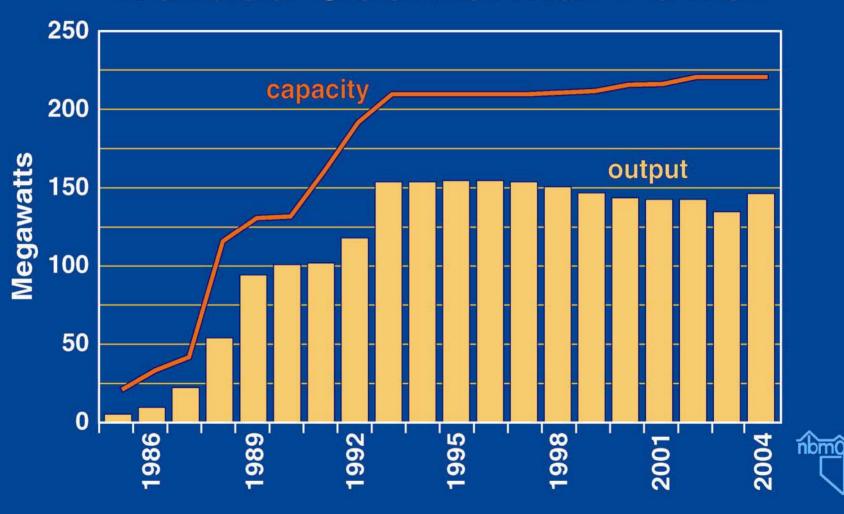
Lithium brine pool, with cinder cone in background, Clayton Valley

Nevada Geothermal Energy



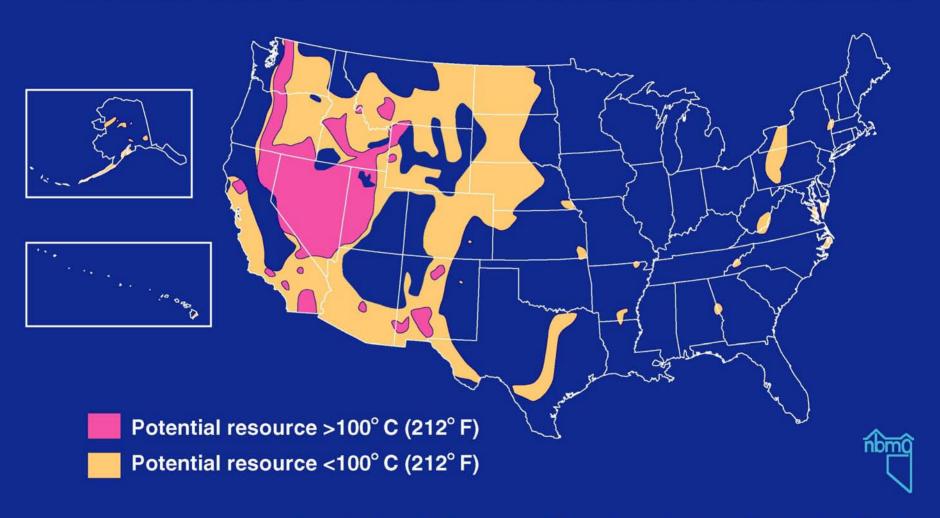
Energy prices are on the rise.

Nevada Geothermal Power

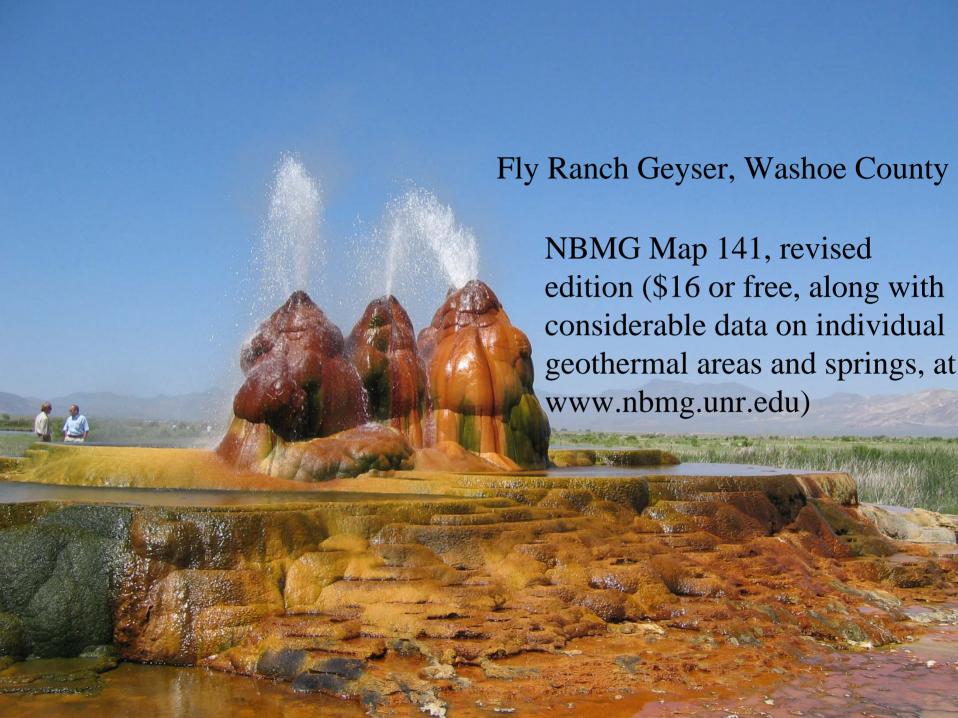


Capacity for geothermal power production is rising.

Known and Potential Geothermal Resources



Compiled by the Energy and Geoscience Institute, University of Utah



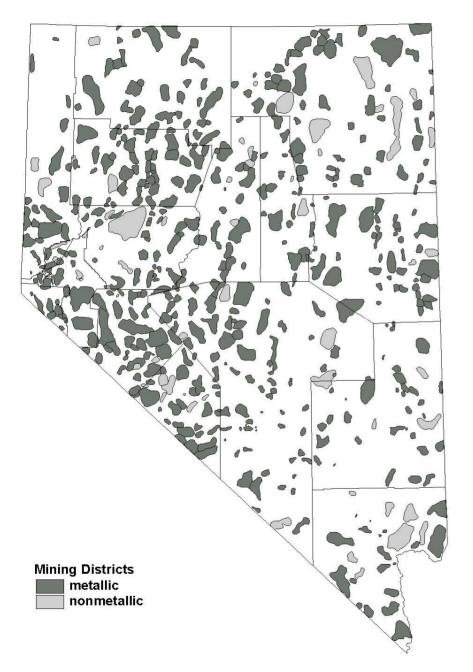
Arnold Schwarzenegger – Jesse Ventura Tag Team





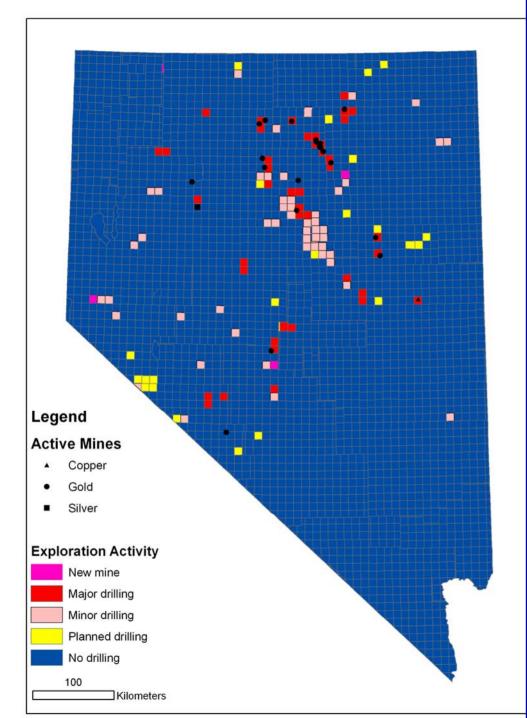


Mining Districts of Nevada



Exploration is occurring in most of Nevada's 17 counties and many of its 526 mining districts.





EXPLORATION ACTIVITY

(153 Projects)

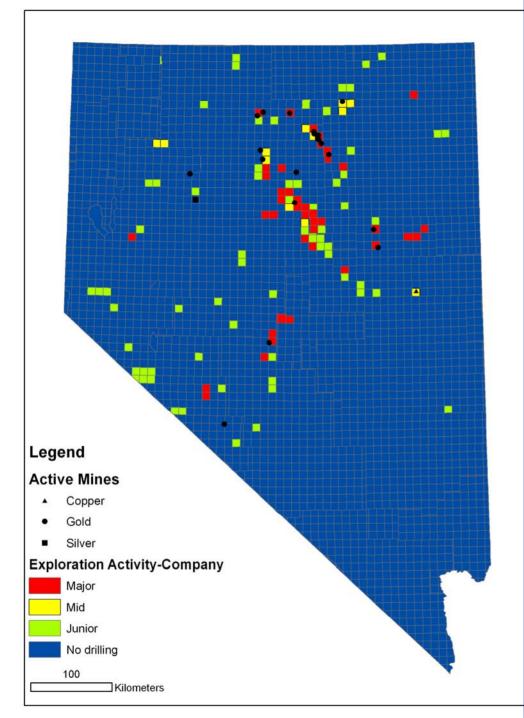
New mine = test mining and permitting

Major drilling (≥25 holes)

Minor drilling (<25 holes)

Planned drilling = yellow

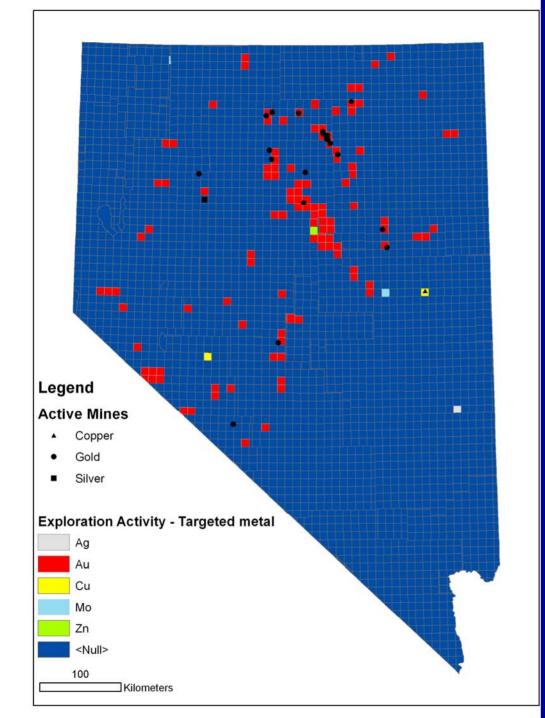
Lots of Activity!



EXPLORATION ACTIVITY (By Size of Company)

Major = red
Mid = yellow
Junior = green

Room for Everybody!

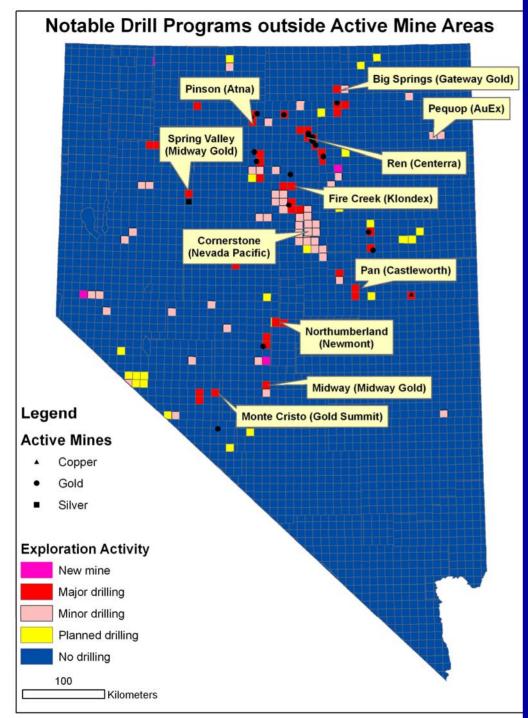


EXPLORATION ACTIVITY

(By Metal)

Gold = red

Mostly Gold, but Other Metals Too!



EXPLORATION ACTIVITY

(Notable Drill Programs)

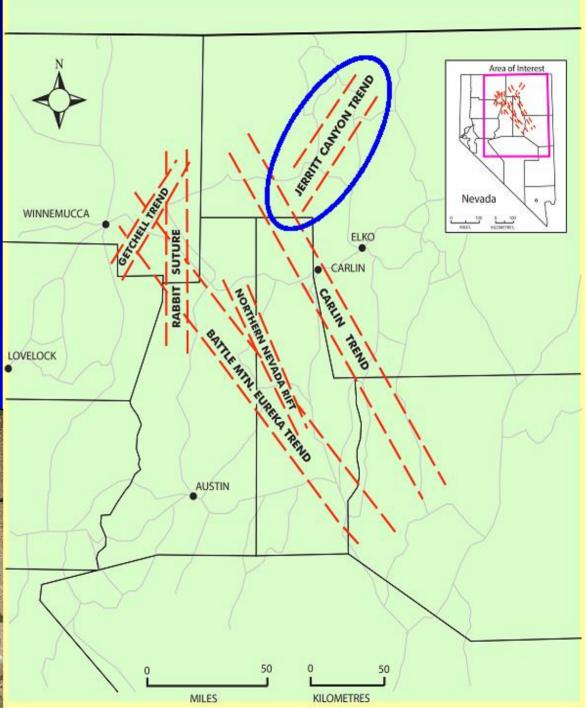
Discoveries Are Being Made!

BIG SPRINGS

GATEWAY GOLD

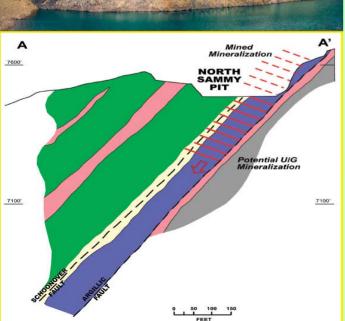
www.gatewaygold.com

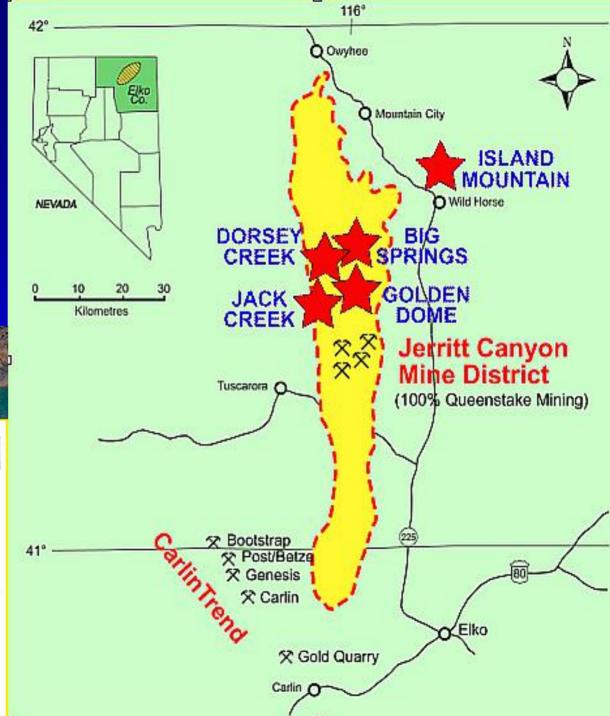


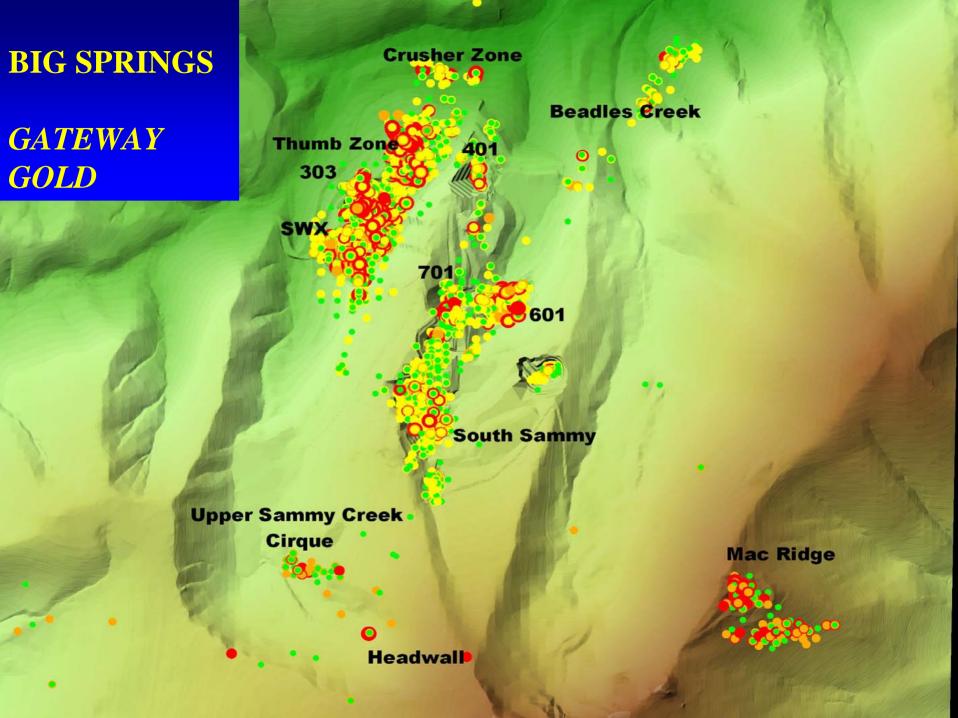


BIG SPRINGS

GATEWAY GOLD

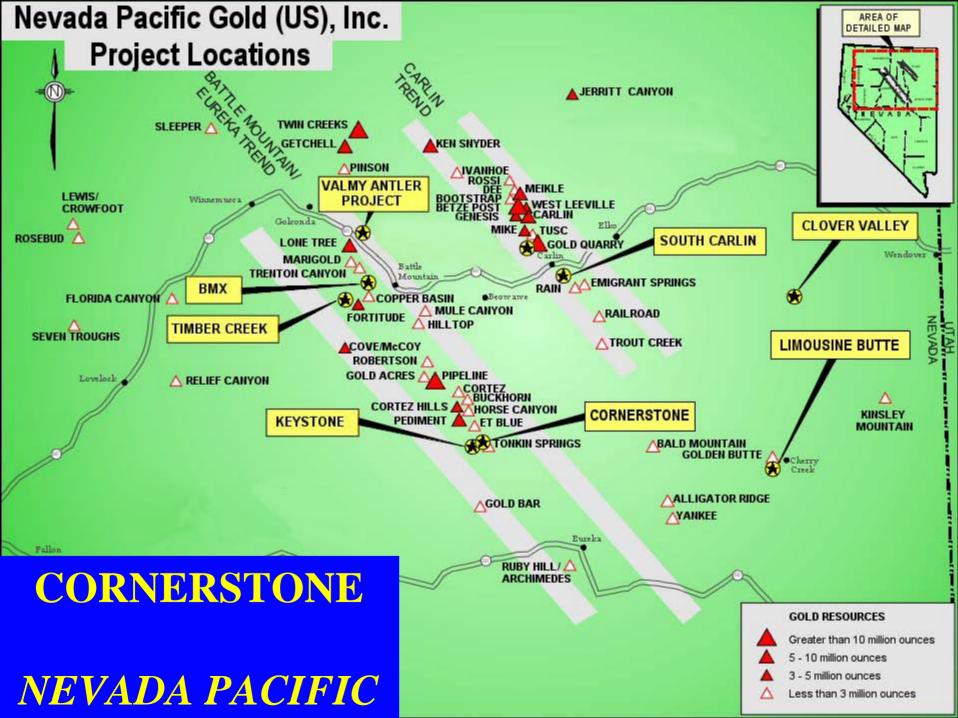






BIG SPRINGS GATEWAY GOLD

- Previous operator resource estimate of 850K+ oz Au (open pit) and 150K+ oz Au (underground) mineralization
- 150,000 ft of drilling (250 holes) and \$7M spent from 2003 thru 2005
- New discoveries at Beadles Creek, Crusher, 601/701 zones, and nearby Dorsey Creek
- New resource calculation underway



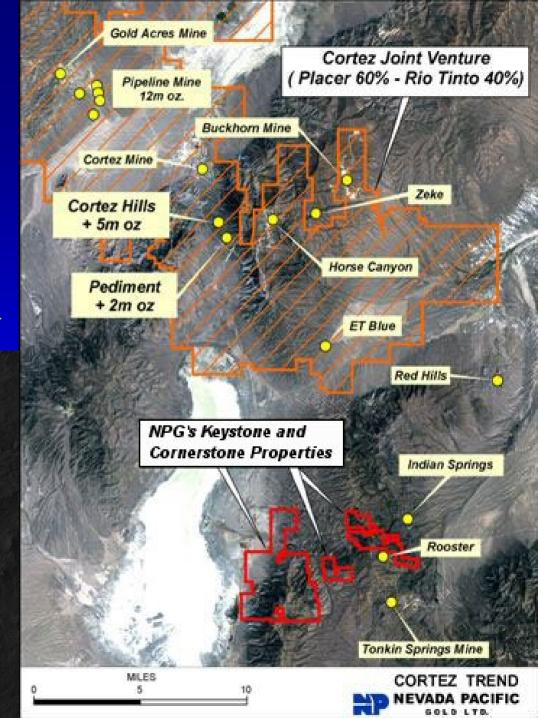
CORNERSTONE

NEVADA PACIFIC

www.nevadapacificgold.com

Cornerstone Project Brecciated Jasperoid Bolder



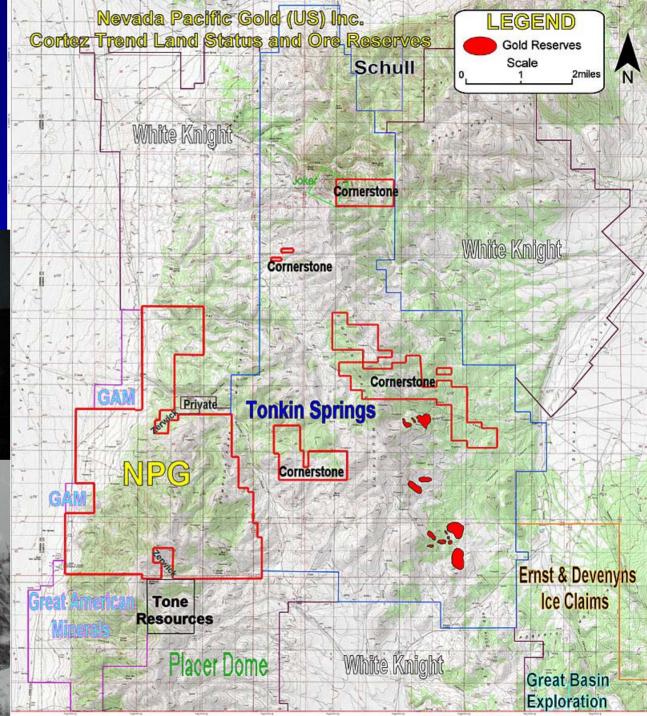


CORNERSTONE

NEVADA PACIFIC







CORNERSTONE NEVADA PACIFIC

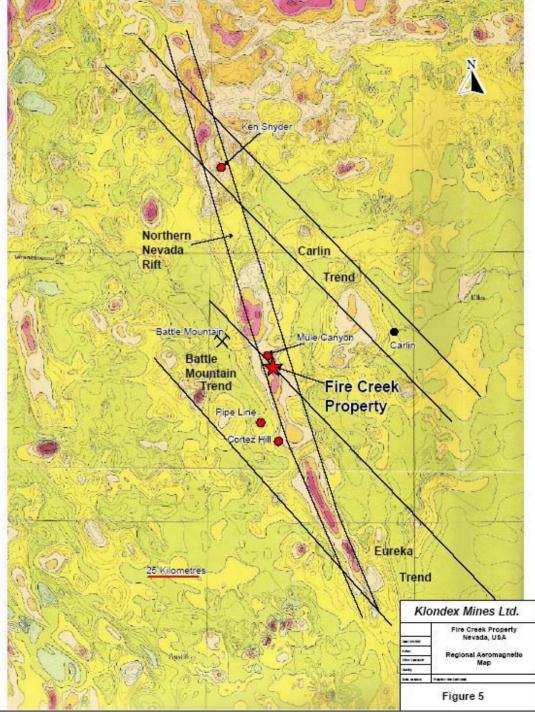
- Adjacent to U.S. Gold 1.4M oz Au Tonkin Springs deposit and NPG Keystone project
- Trench#1 intersected 10' of 0.32 opt Au within 162' of 0.028 opt Au
- Near surface drill intercepts of 65' of 0.023,
 50' of 0.051, and 130' of 0.055 opt Au
- Additional road cuts and drill pads have been permitted

FIRE CREEK

KLONDEX MINES

www.klondexmines.com





FIRE CREEK KLONDEX MINES

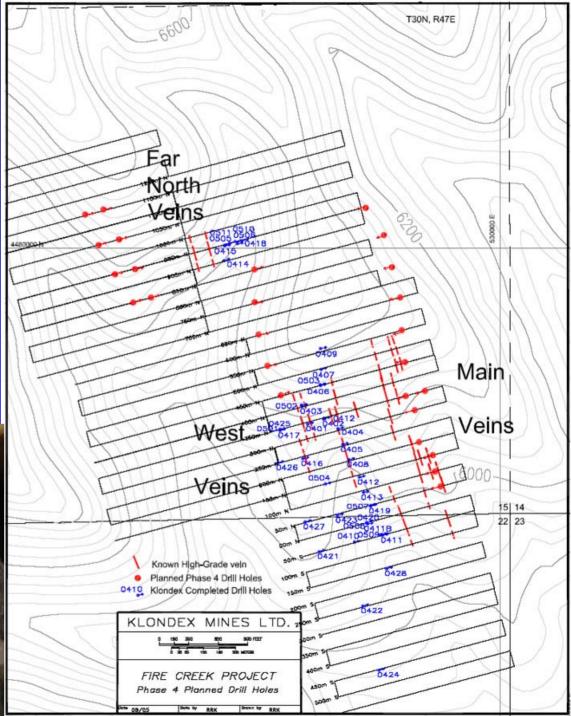


FIRE CREEK

KLONDEX MINES

Hole FC 0417 5 ft of 12.0 opt Au at 1,230 ft





FIRE CREEK KLONDEX

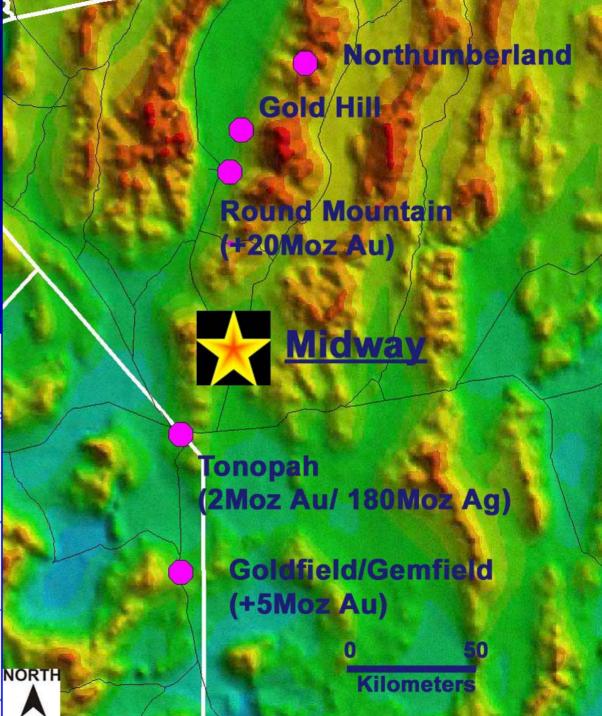
- 38 drill holes (32,000 ft) in 2004 and 2005
- 2005 resource estimate showed 1.8M tons grading 0.328 opt Au (583,000 oz)
- Fourth phase drill program underway (30 holes for 40,000 ft)
- Recent high grade intercepts on Main and West veins at 700' to 1100' below surface including 24.8 ft of 1.22 opt Au

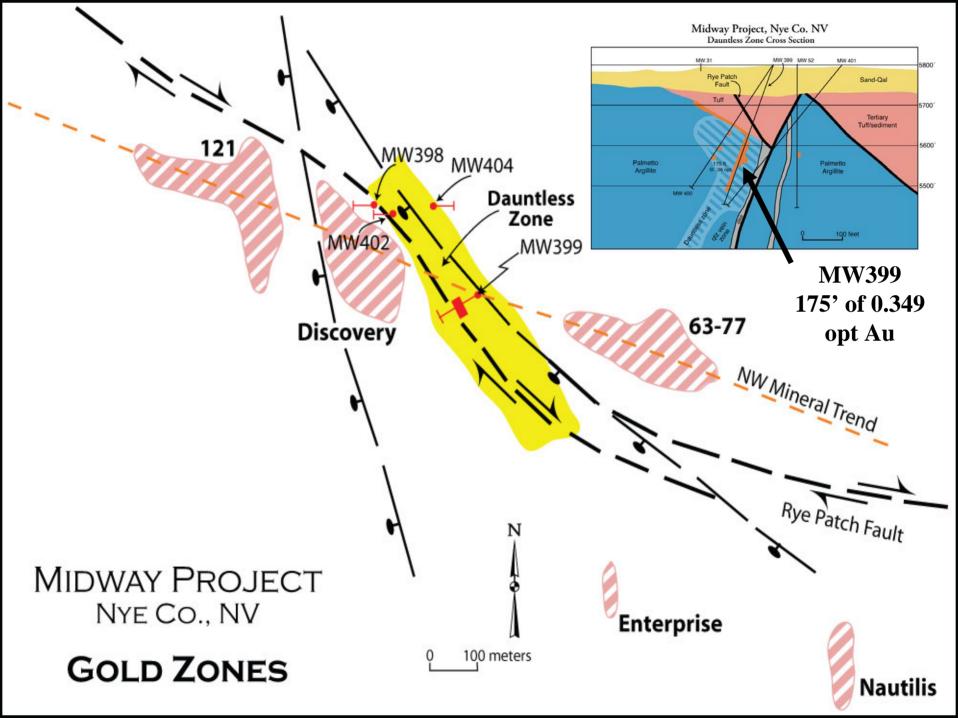
MIDWAY

MIDWAY GOLD

www.midwaygold.com









MIDWAY MIDWAY GOLD

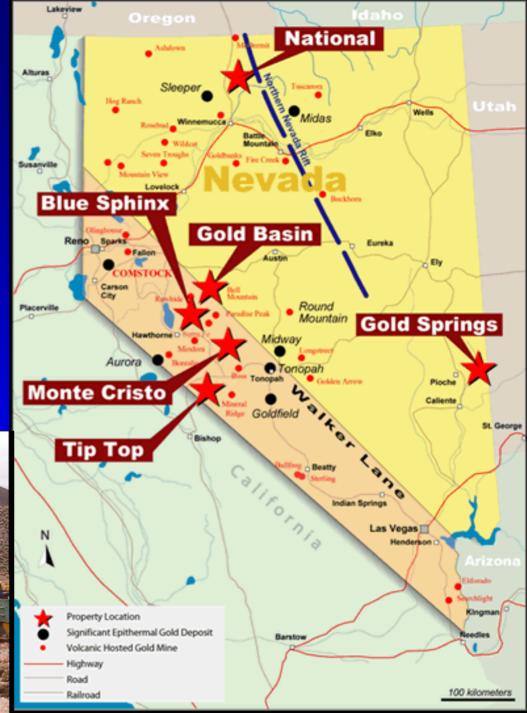
- 6 gold deposits have been identified and eleven target zones are being tested
- Recent shallow intercepts include 175' of 0.349 opt Au on the newly discovered Dauntless Zone and 135' of 0.058 opt Au just north of the Discovery Resource
- Additional drilling to begin in December

MONTE CRISTO

GOLD SUMMIT

www.goldsummit.com





MONTE CRISTO - GOLD SUMMIT

MacLean Pit - previous operator mined 300K tons at 0.1 opt Au

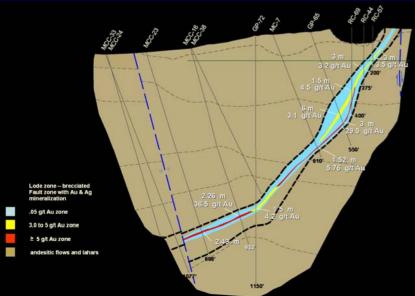


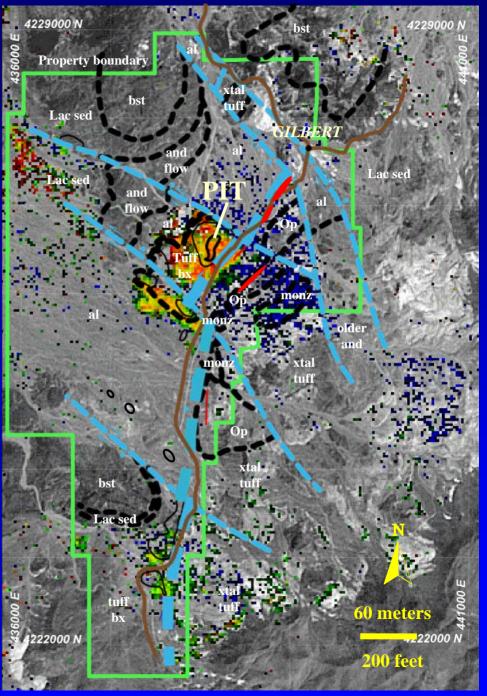
MONTE CRISTO

GOLD SUMMIT

Alteration & Geology

Cross Section below McLean Pit





MONTE CRISTO - GOLD SUMMIT



Hole 12 – 4 ft (1.2 m) of 5.8 opt (180 gpt) Au

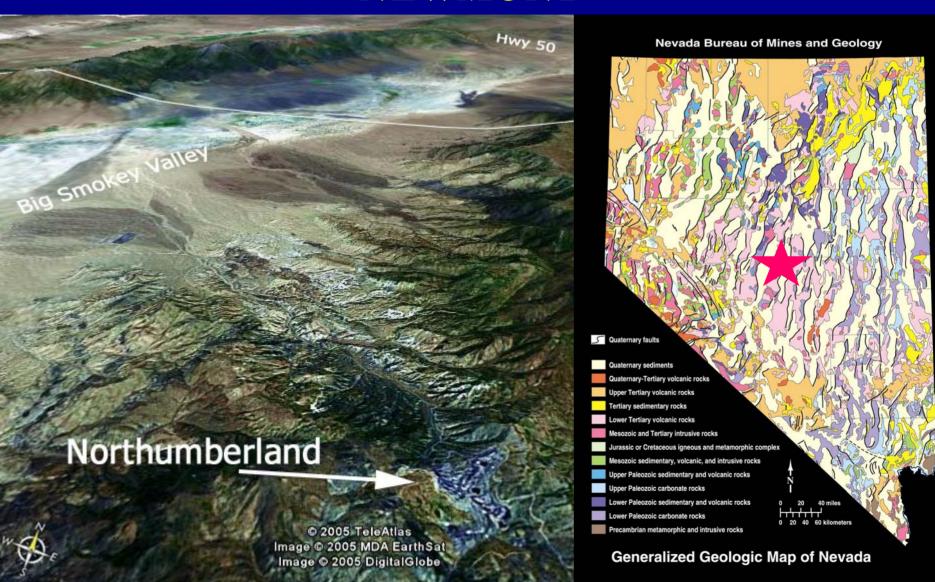
MONTE CRISTO GOLD SUMMIT



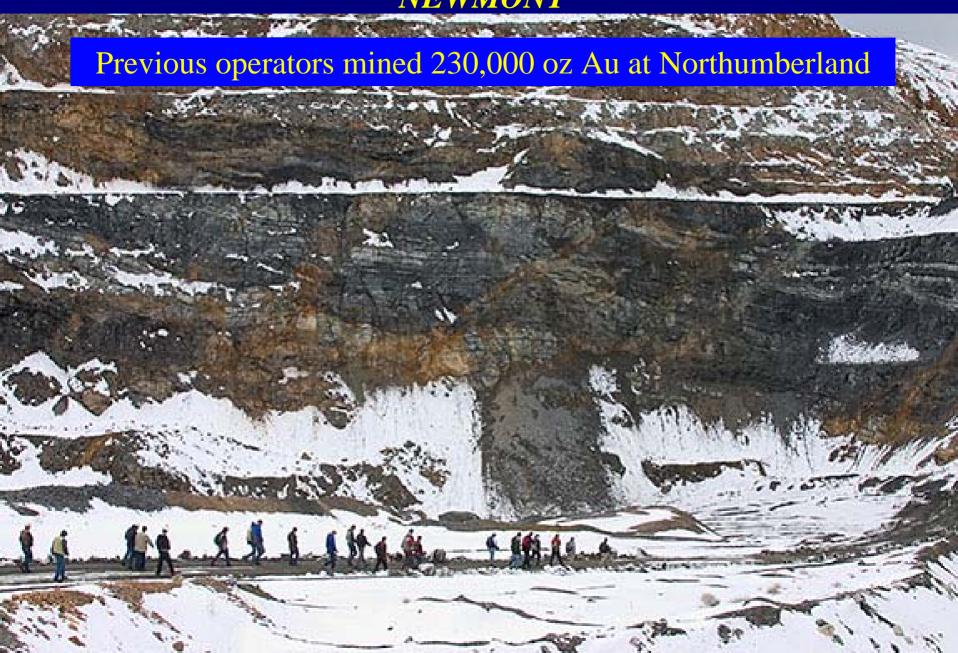
MONTE CRISTO GOLD SUMMIT

- McLean Pit fault breccia ("lode") has been identified over 1,300 ft strike, 1,200 ft vertical, with an average width of 50 ft
- 46 holes completed, 28 had intercepts with > 0.1 opt Au (highest 7.6 opt Au)
- 43-101 resource evaluation underway by Mine Development Associates of Reno

NORTHUMBERLAND NEWMONT



NORTHUMBERLAND NEWMONT



NORTHUMBERLAND

NEWMONT

www.newmont.com

Northumberland Exploration Staff



NORTHUMBERLAND NEWMONT

• "We're stuck at 2,200 feet"

Driller's comment overheard in International Hotel bar in Austin, Nevada

"They're on to a big one"

Overheard at the Nevada Miners and Prospectors meeting at Louis Basque Corner restaurant in Reno, Nevada

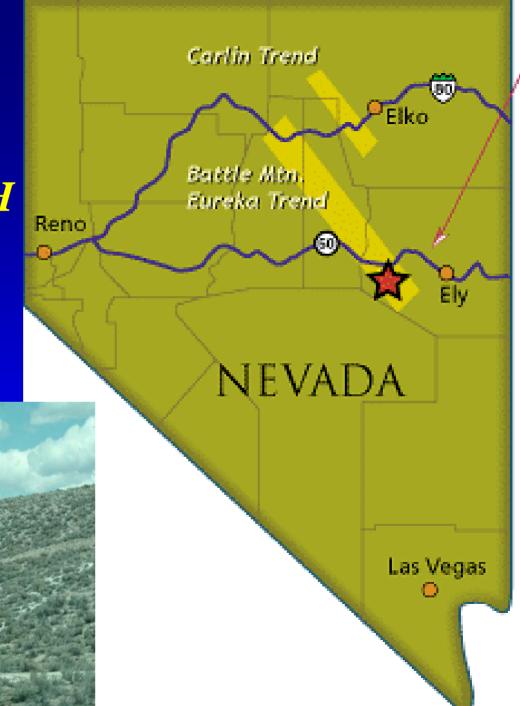
"No comment"

Eric Lauha – Newmont Mining Corp.

PAN

CASTLEWORTH

www.castleworth.com



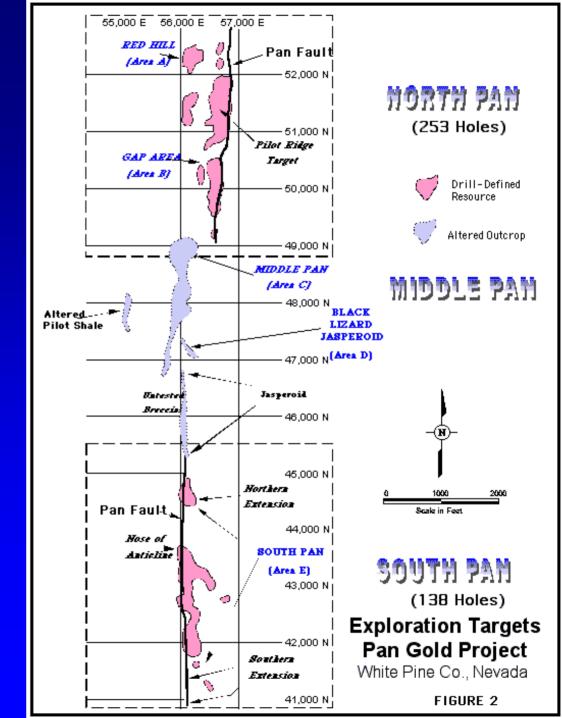


PAN

CASTLEWORTH

www.castleworth.com

North and South Pan indicated resource is 17.9 million tons at 0.019 opt Au for 336,700 oz Au

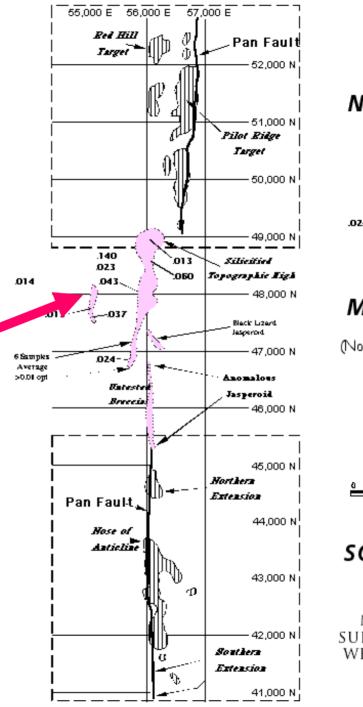


PAN

CASTLEWORTH

www.castleworth.com

Newly discovered "Black Stallion" area with best intercept 40' of 0.101 opt Au from 0' to 40'



NORTH PAN

(253 Holes)



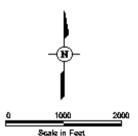
Drill-Defined Resource



Altered Outcrop with surface sample location given in o.p.t. Au

MIDDLE PAN

(No Holes, Virgin Target)



SOUTH PAN

(138 Holes)

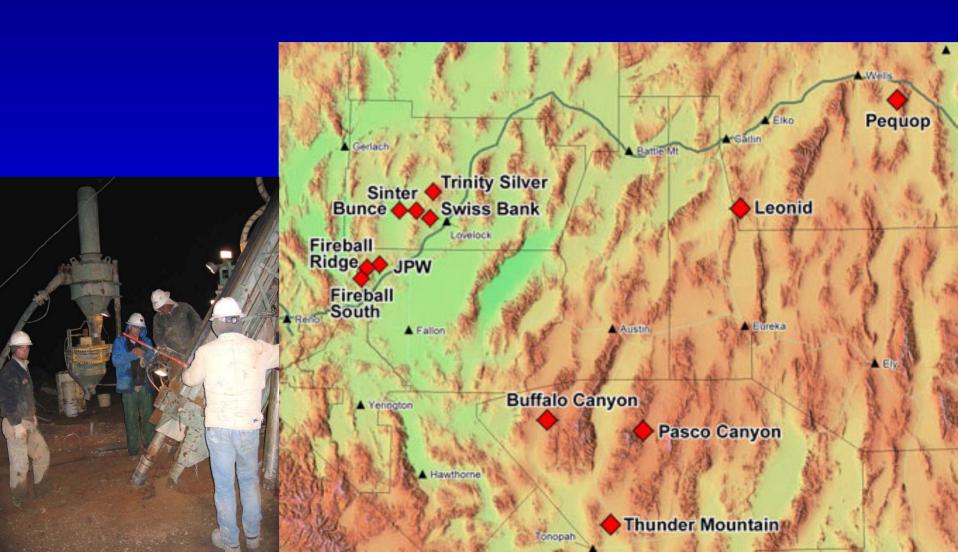
MIDDLE PAN SURFACE SAMPLES WHITE PINECO., NEVADA Figure 2

PAN CASTLEWORTH

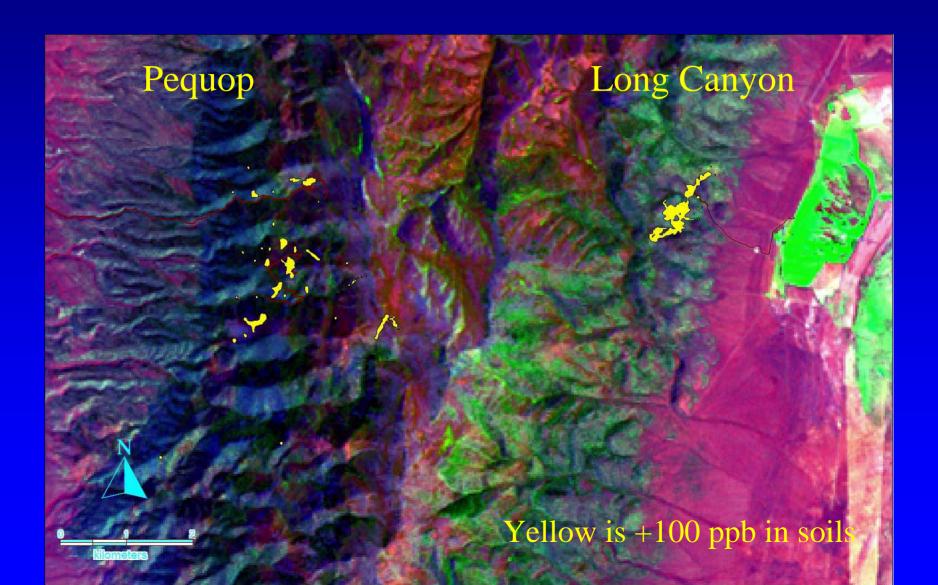
- 16,100 ft (108 holes) drilled last 6 months
- Two new areas of mineralization (Black Stallion and Syncline) partially delineated
- Additional 6,000 ft (40 holes) in progress
- Resource analysis by Mine Development Associates expected in Spring 2006

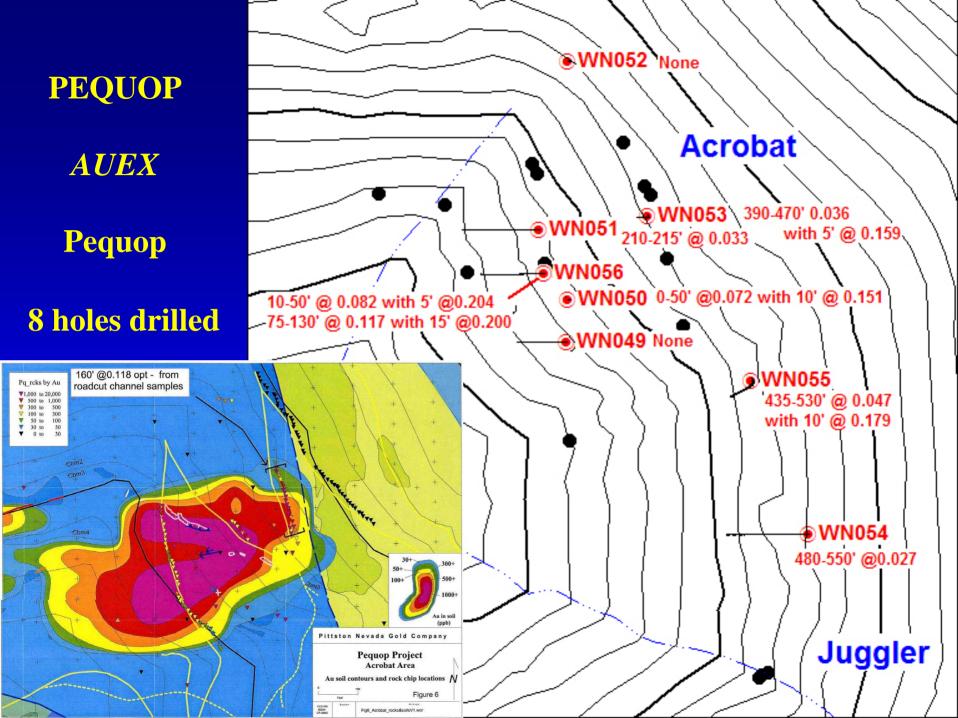
PEQUOP AUEX

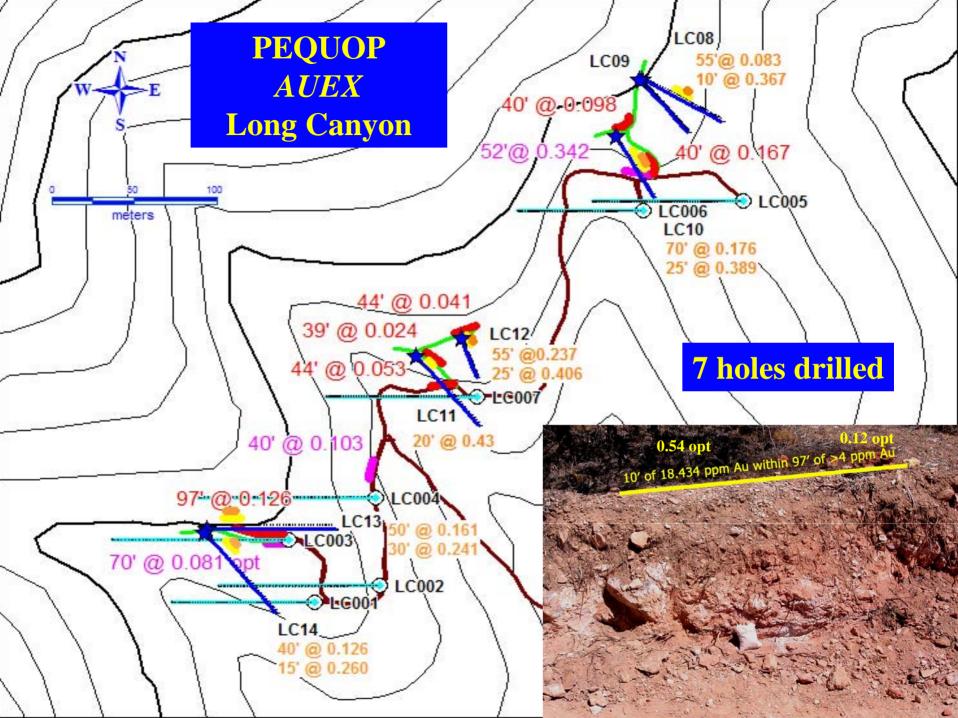
www.auexventures.com



PEQUOP AUEX







PEQUOP AUEX

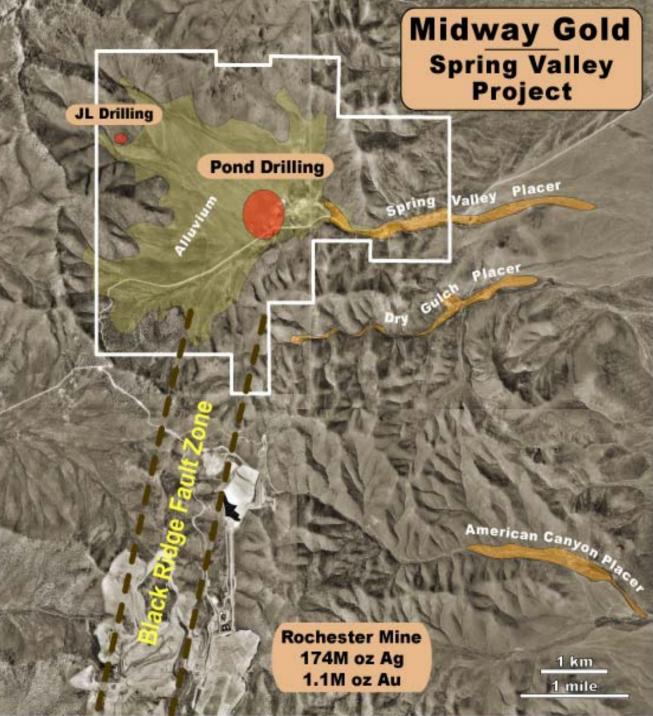
- 15 holes (6,400 ft) drilled in Pequop and Long Canyon areas in 2005
- Confirmed and added mineralization in Acrobat and Juggler zones at Pequop
- Channel samples and drilling tested 1/4th (1,200') of strike length at Long Canyon, and 5 of 7 holes had intercepts >0.15 opt Au

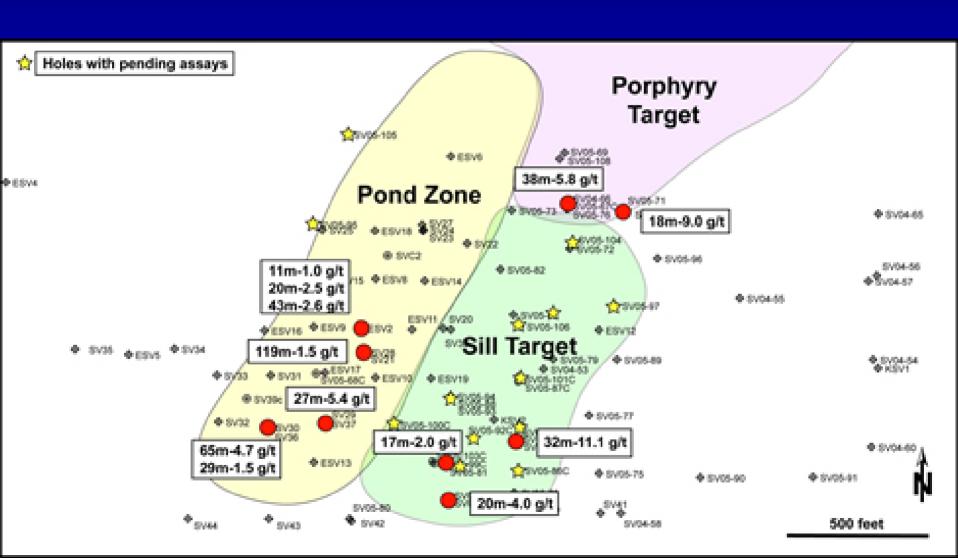
SPRING VALLEY

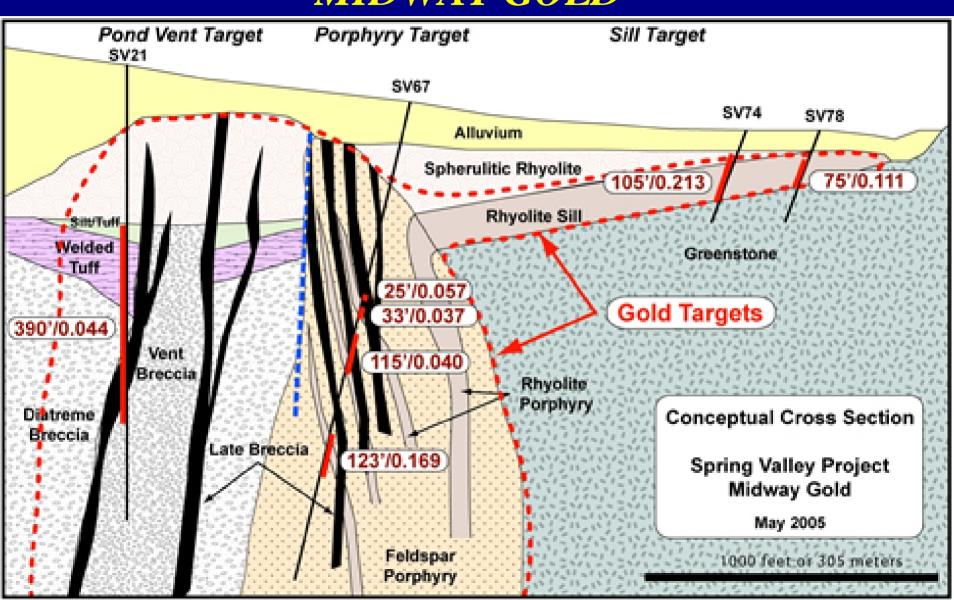
MIDWAY GOLD

www.midwaygold. com



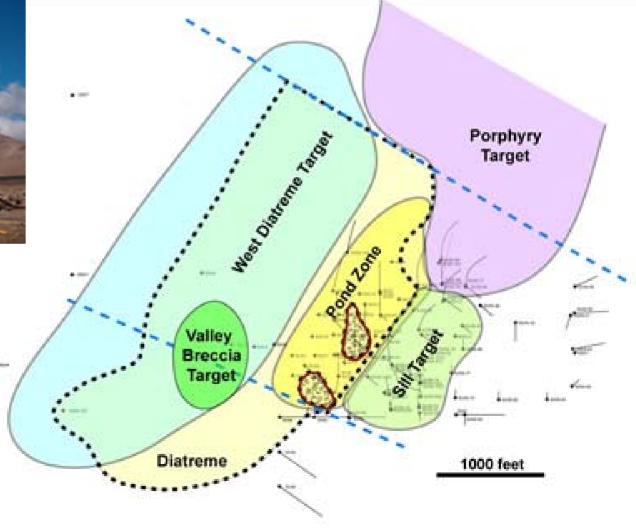








NEW TARGETS
Valley Breccia
West Diatreme



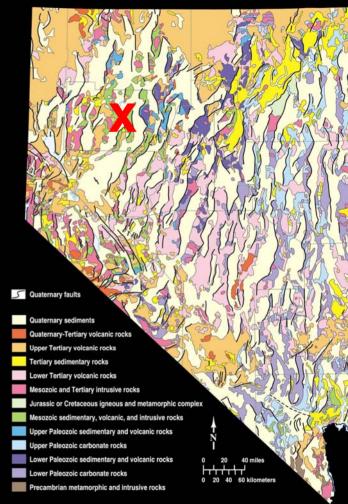
- Four zones of Au mineralization have been discovered: Pond Zone (two breccia pipes), Porphyry Zone, and Sill Zone
- 47 of 72 holes have intercepts >0.01 opt Au
- Best hole to date has 215' of 0.137 opt Au
- Currently drilling on new targets in Valley Breccia Zone and West Diatreme Zone

Nevada Bureau of Mines and Geology

EXPLORATION ANNOUNCEMENTS

Minefinders Corp. – Clear property in Pershing County: 14 holes with intervals from 10 to 100 feet with average grades up to 0.068 opt Au



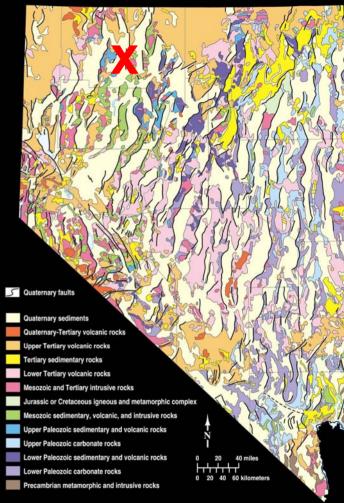


Nevada Bureau of Mines and Geology

EXPLORATION ANNOUNCEMENTS

New Sleeper Gold – Sleeper mine area in Humboldt County: 10 to 20 feet with grades from 0.199 to 0.931 opt Au



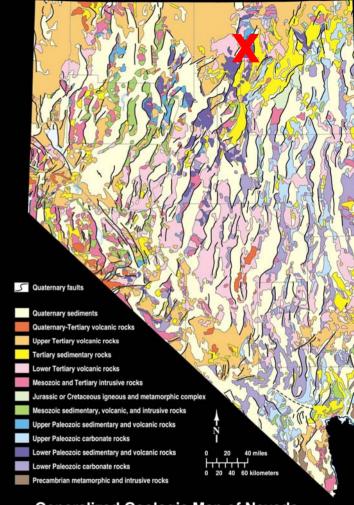


EXPLORATION ANNOUNCEMENTS

Queenstake Resources – outlined a

high-grade zone at least 2000 feet long at Starvation Canyon in the Jerritt Canyon district





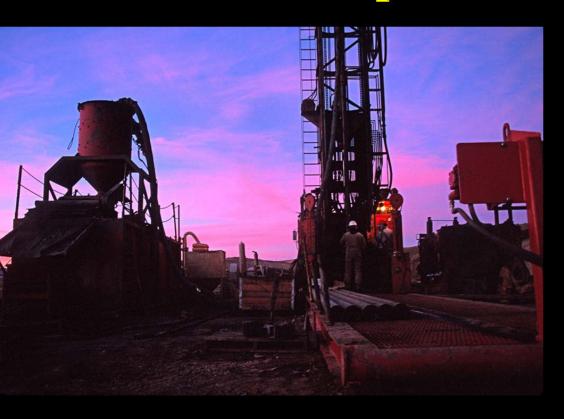
Generalized Geologic Map of Nevada

50 ft of 0.513 opt Au

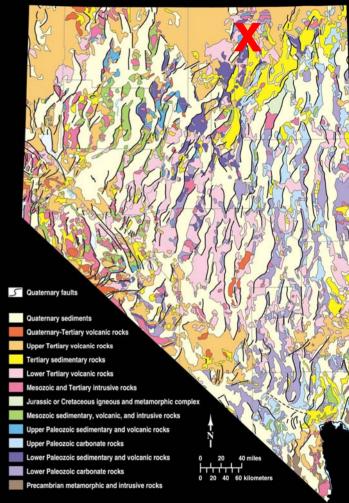
EXPLORATION ANNOUNCEMENTS

Tone Resources – Red Ridge property in Elko County:

80 feet of 0.037 opt Au



Nevada Bureau of Mines and Geology



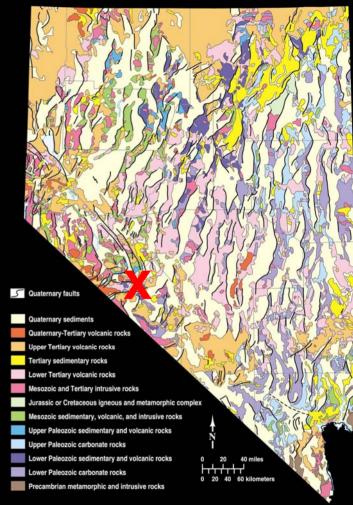
Nevada Bureau of Mines and Geology

EXPLORATION ANNOUNCEMENTS

Miranda Gold-Newcrest JV – Redlich project in Esmeralda County:

10 feet of 0.68 opt Au





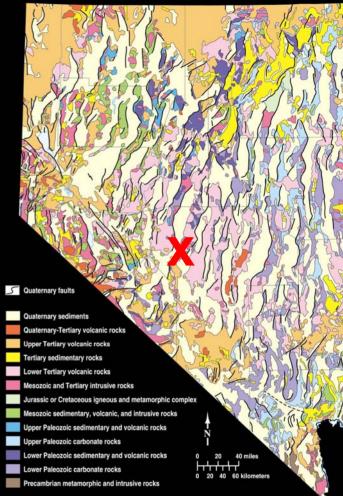
Nevada Bureau of Mines and Geology

EXPLORATION ANNOUNCEMENTS

Royal Standard – Goldwedge property in the Manhattan district of Nye County: underground crosscut with

15 feet of 0.329 opt Au



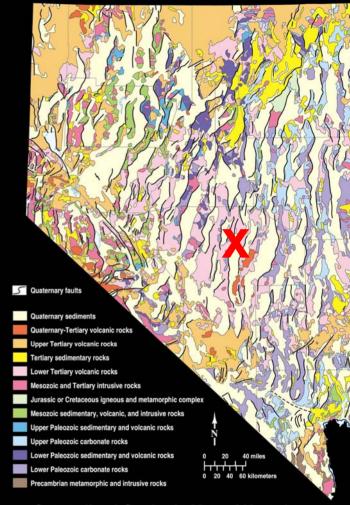


EXPLORATION ANNOUNCEMENTS

Bullion River Gold – Antone Canyon in Nye County:

45 feet of 0.22 opt Au



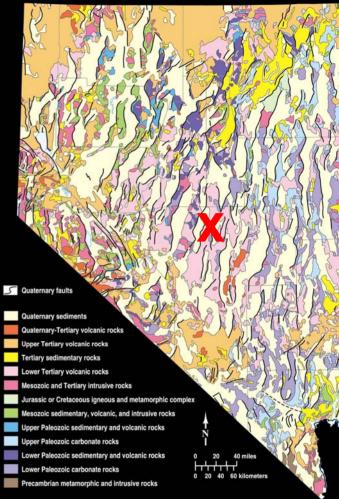


EXPLORATION ANNOUNCEMENTS

Rare Earth Metals Corp. –
Longstreet property in Nye County:
40 feet of 0.085 opt Au



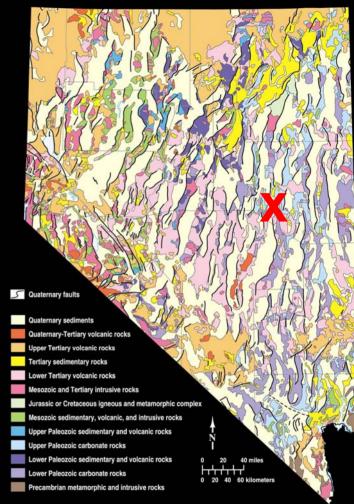
Nevada Bureau of Mines and Geology



EXPLORATION ANNOUNCEMENTS

Augusta Resources – Mt. Hamilton area in White Pine County: Shell deposit with 1.1 million tons @ 1.2% MO, plus 0.5 million tons with 0.25 opt Au with Mo and W

Nevada Bureau of Mines and Geology





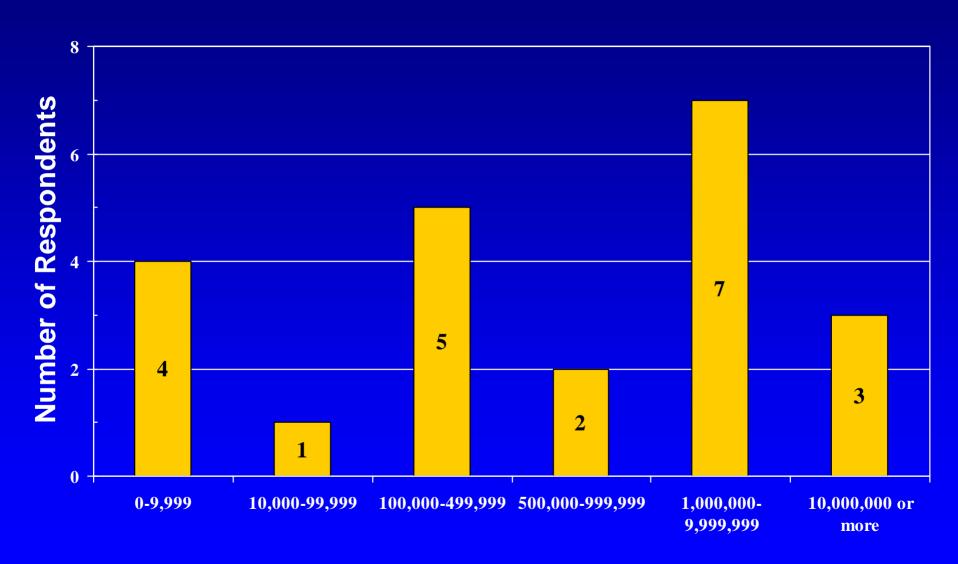
NEVADA EXPLORATION SURVEY 2004

- NDOM eleventh annual survey
 - Level of exploration activity
 - Factors influencing these levels
- Exploration and mining companies with projects or claims in Nevada
- 22 respondents from 100 questionnaires
 - All 22 exploring for precious metals

SURVEY TOPICS

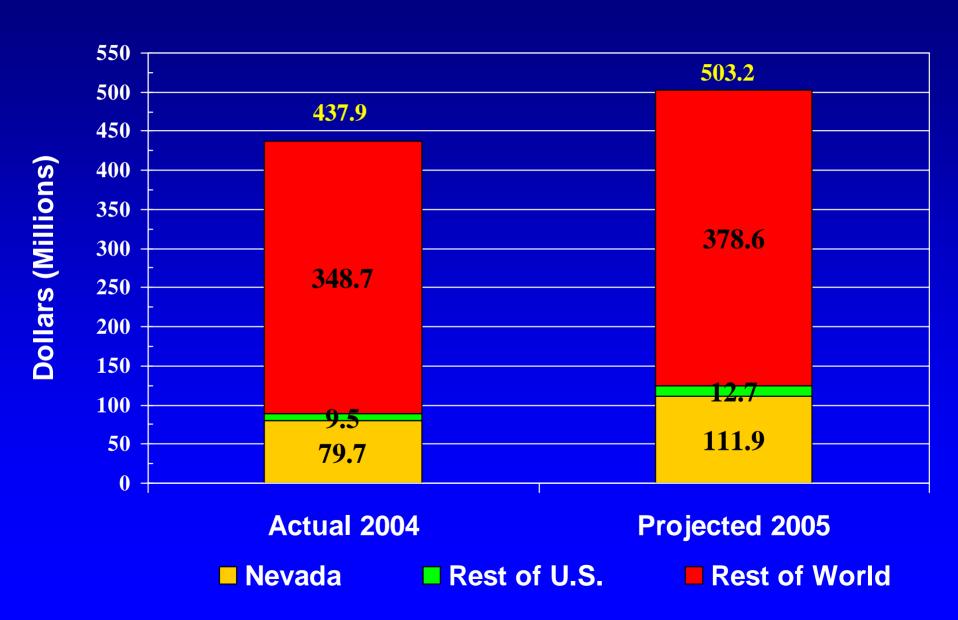
- Exploration expenditures
- Geologists employed
- Number of claims held
- Breakdown of exploration expenditures
- Factors influencing activity
- Type of reserve replacement
- Overall attitude toward exploration

NEVADA EXPLORATION EXPENDITURES 2004

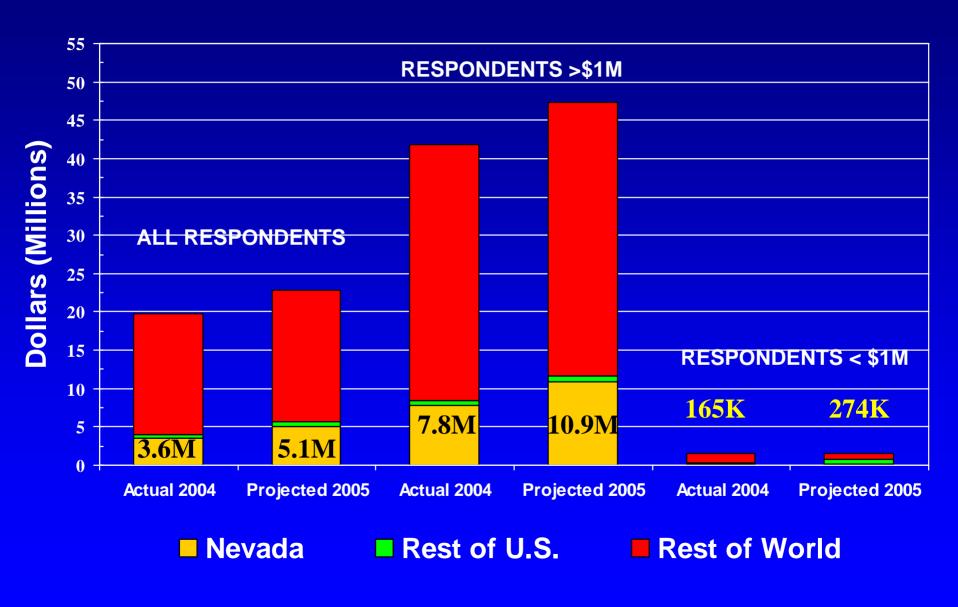


Expenditures in Dollars

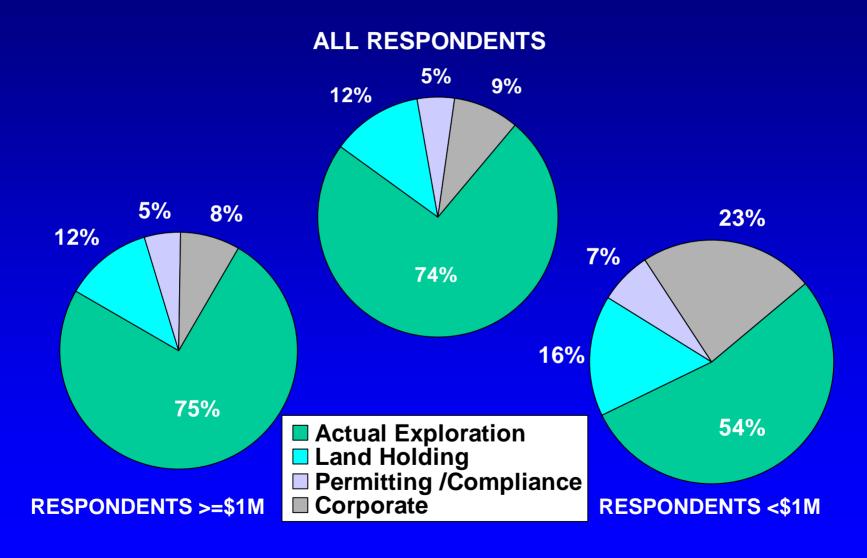
TOTAL EXPLORATION SPENDING 2004/2005



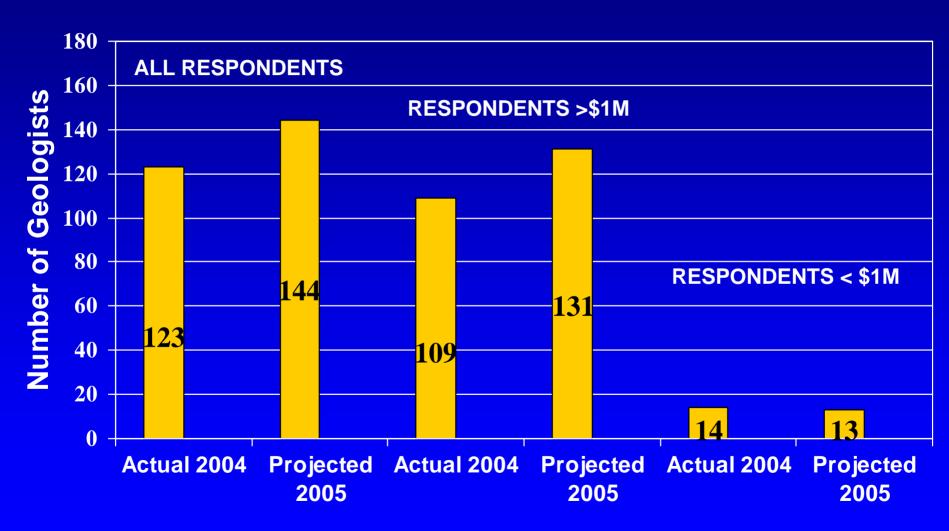
AVERAGE SPENDING 2004/2005



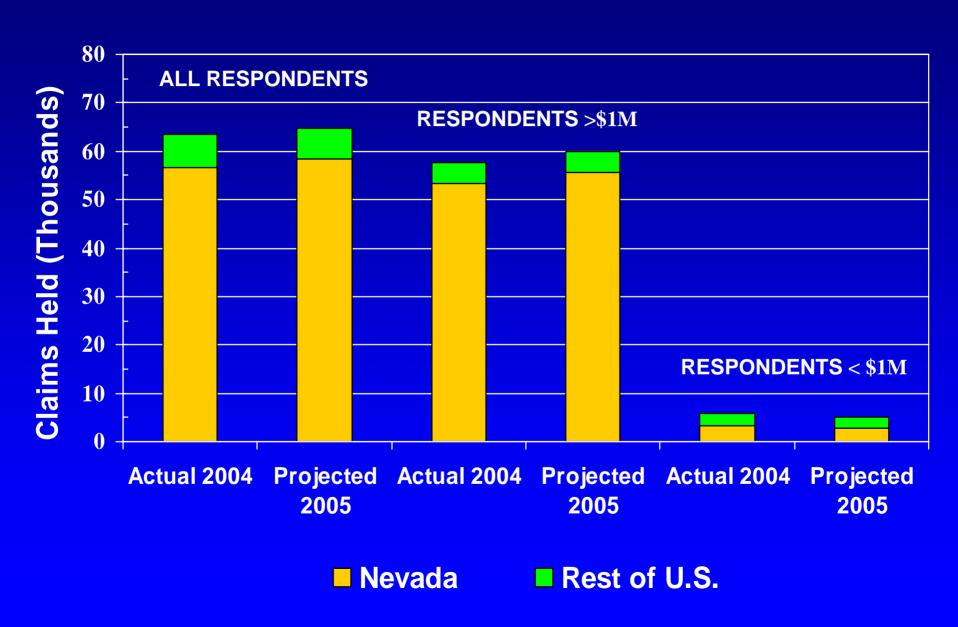
BREAKDOWN OF NEVADA EXPENSES 2004



EXPLORATION GEOLOGISTS EMPLOYED IN NEVADA 2004/2005



NUMBER OF CLAIMS HELD 2004/2005

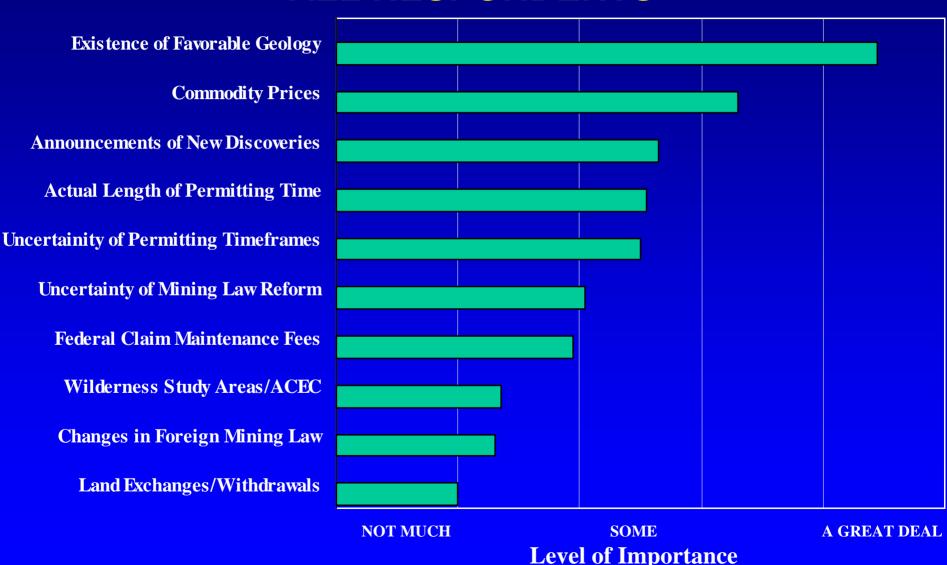


ACTIVE CLAIMS & GOLD PRICES, 1982-2004

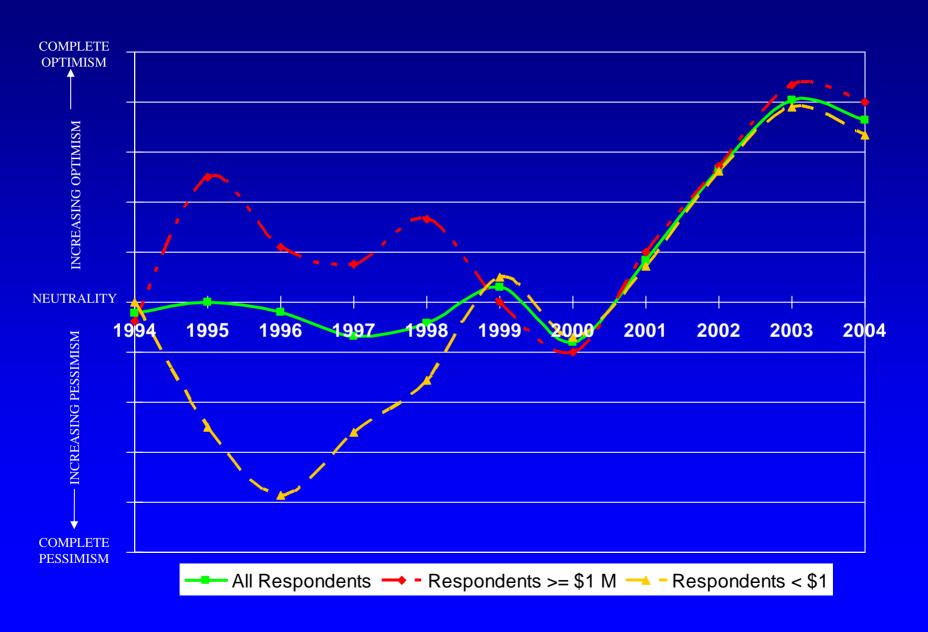


NOTE: Claim data from the BLM Public Land Statistics

FACTORS INFLUENCING ACTIVITY 2004 ALL RESPONDENTS



OPTIMISM INDEX 1994-2004



EXPLORATION SURVEY SUMMARY

- Higher spending (+15%) and more new claims filed (+39%) in 2004 over 2003
- Nevada exploration projected to increase 40% -\$79.7M (04) to \$111.9M (05)
- Worldwide exploration projected to increase
 15% \$437.9M (04) to \$503.2M (05)
- Exploration geologists employed projected to rise from 123 (04) to 144 (05)

EXPLORATION SURVEY SUMMARY

- 75% of budgets spent on direct exploration
- Active claims rose 19% from 2003 to 119,050 in 2004, and new claims filed rose by 39%
- Most important factors influencing activity continue to be favorable geology and commodity prices
- Domestic exploration 75% optimistic, 25% neutral, and none pessimistic



Nevada is a <u>really great</u> place in which to explore for and mine gold, silver, and other mineral commodities

The Fraser Institute, in its 2004/2005 survey of mining companies, rates Nevada first in terms of both mineral potential and policy potential. Its composite policy and mineral potential index has:

Nevada = 98 out of a maximum of 100

Western Australia, Quebec, Ontario = 81

 $\overline{\text{Chile}} = 77$

Alaska, Peru = 74 Mexico = 71

British Columbia, China = 66 Manitoba = 63

Arizona = 62 Yukon = 57

Nunavut = 55 Utah = 52

Saskatchewan = 50 Montana = 47

Wyoming, Washington = 38 New Mexico = 33

Minnesota = 31 South Dakota = 27

Wisconsin = 21 Zimbabwe = 13 Oregon – not listed

Nevada Bureau of Mines and Geology Quaternary faults Quaternary sediments Quaternary-Tertiary volcanic rocks Upper Tertiary volcanic rocks Tertiary sedimentary rocks Lower Tertiary volcanic rocks Mesozoic and Tertiary intrusive rocks urassic or Cretaceous igneous and metamorphic complex lesozoic sedimentary, volcanic, and intrusive rocks Upper Paleozoic sedimentary and volcanic rocks Jpper Paleozoic carbonate rocks Lower Paleozoic sedimentary and volcanic rocks ower Paleozoic carbonate rocks Precambrian metamorphic and intrusive rocks **Generalized Geologic Map of Nevada**

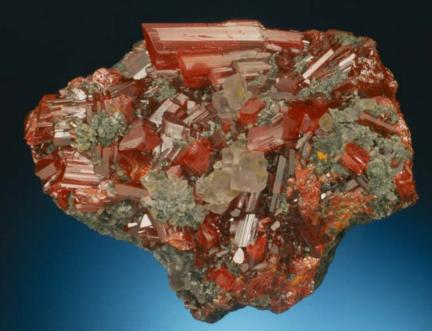
Ten Top Reasons to Explore in Nevada

- 1. Great geology and potential
- 2. Many large producing mines, including high-grade, underground mines
- 3. Mines operated by the leading international companies



- 4. Regulatory system with recent examples of rapid permitting
- 5. Excellent infrastructure (roads, drillers, supplies, assayers, hotels, etc.)
- 6. Large areas open to exploration on BLM lands





- 7. Dry climate and year-round access in many areas
- 8. Network of knowledgeable exploration geologists, organizations, and agencies (Geological Society of Nevada, Nevada Mining Association, Nevada Division of Minerals, Nevada Bureau of Mines & Geology, Ralph J. Roberts Center for Research in Economic Geology and other units of the Mackay School of Earth Sciences and Engineering, building on the tradition of the Mackay School of Mines)
- 9. Recent discoveries and new mines

Ten Top Reasons to Explore in Nevada (continued)

10. No malaria, black flies, moose, polar bears, desert death adders, or crocodiles (just

elephants).



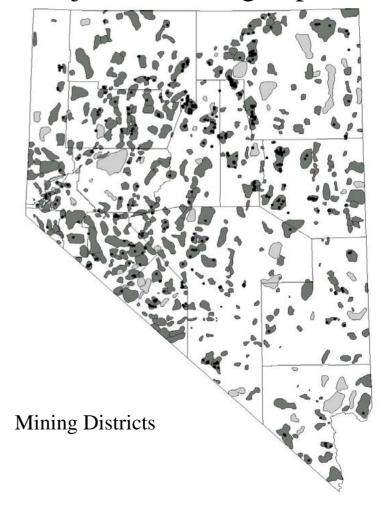


There is no truth to the rumor that Mormon crickets have been cloned to search for copper and gold.



Lizards, on the other hand, are more intelligent than crickets.

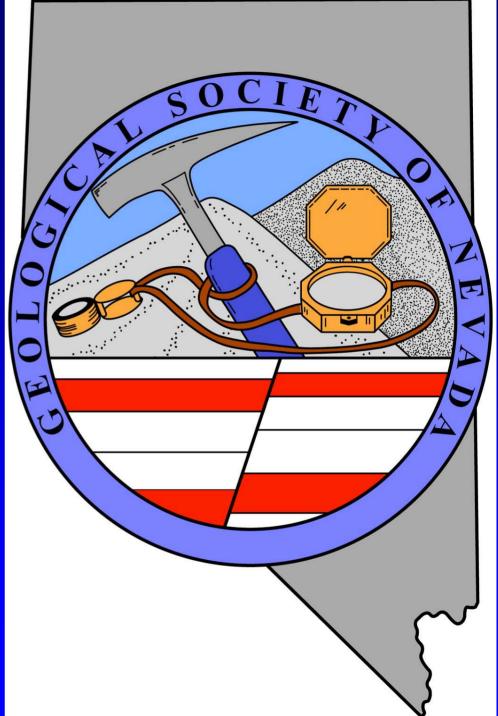
Major Au and Ag deposits







The 2005 Symposium Volume will be published soon. The next GSN Symposium will be May 16-20, 2010.



Thank You!

