

# **Nevada Bureau of Mines and Geology**

## **Special Publication MI-2006**

# **The Nevada Mineral Industry 2006**

**Metals**

**Industrial  
Minerals**

**Oil and Gas**

**Geothermal**

**Exploration**

**Development**

**Mining**

**Processing**

This report, twenty-eighth of an annual series, describes mineral, oil and gas, and geothermal activities and accomplishments in Nevada in 2006: production statistics, exploration and development including drilling for petroleum and geothermal resources, discoveries of orebodies, new mines opened, and expansion and other activities of existing mines. Statistics of known gold and silver deposits, and directories of mines and mills are included.

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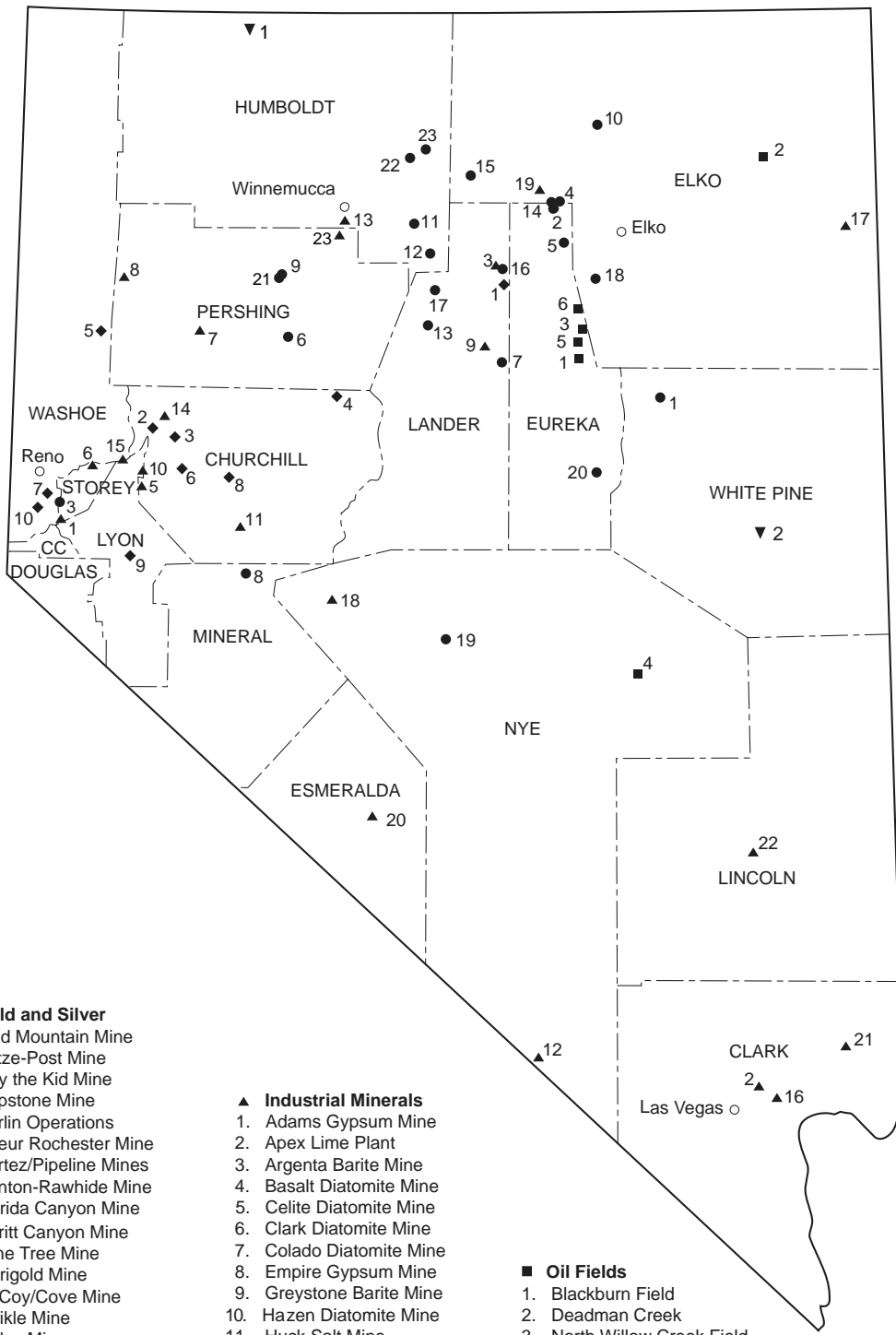
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**Major mines, oil fields, and geothermal plants, 2006.**

# Overview

by Jonathan G. Price and Richard O. Meeuwig

This report highlights activities through 2006 in metals, industrial minerals, geothermal energy, and petroleum. Numerous graphs and charts are incorporated for rapid inspection of trends in production and price. The value of overall mineral and energy production in Nevada reached an all-time high of \$4.98 billion in 2006, primarily as a result of the increase in the prices of gold and nearly all other commodities. Gold production has more or less steadily decreased from a high of 8.86 million ounces in 1998 to 6.3 million ounces in 2006, but 2006 was nonetheless the eighteenth consecutive year with production in excess of 5.0 million ounces. Nevada led the nation in the production of gold and barite, and was the only state that produced magnesite, lithium, and the specialty clays, sepiolite and saponite. Other commodities mined and produced in Nevada in 2006 included copper, construction aggregate (sand, gravel, and crushed stone, including limestone and dolomite), silver, geothermal energy, gypsum, petroleum, lime (produced from limestone and dolomite), cement (produced from limestone, clay, gypsum, and iron ore), silica (industrial sand), clays, molybdenum, perlite, dimension stone, salt, semiprecious gemstones (turquoise and opal), mercury (as a by-product of gold and silver processing), and potassium alum (kalinite).

Nevada ranked second in the United States in terms of value of overall nonfuel (excluding oil, gas, coal, and geothermal) mineral production in 2006 (according to the U.S. Geological Survey, Mineral Commodity Summaries 2007, <http://minerals.usgs.gov/minerals/pubs/mcs/2007/mcs2007.pdf>). Arizona retained first

place because of high copper prices. California, with its large population and commensurate demands for construction raw materials, was third. Utah, a major producer of copper and molybdenum, primarily from one mine near Salt Lake City, was fourth. Texas, another populous state and major producer of construction raw materials, was fifth. Alaska, the nation's top producer of zinc and silver, was sixth. Florida, the leader in phosphate production, was seventh, and Minnesota, the leader in iron-ore production, was eighth.

Nevada's production of gold, valued at \$3.8 billion, was 81% of the U.S. total and helped make the U.S. the third leading gold producer in the world in 2006. Nevada alone accounted for 8% of world production of gold. Only the countries of South Africa, Australia, China, and Peru produced more gold than the State of Nevada in 2006. Second to gold in terms of Nevada's mineral value in 2006 was copper (\$389 million), followed by construction aggregate (\$288 million). Silver, chiefly a by-product or co-product of gold production, ranked as the fourth leading mineral commodity in 2006, with a value of \$98 million. Electrical power from geothermal energy production in Nevada in 2006 was valued at \$74 million.

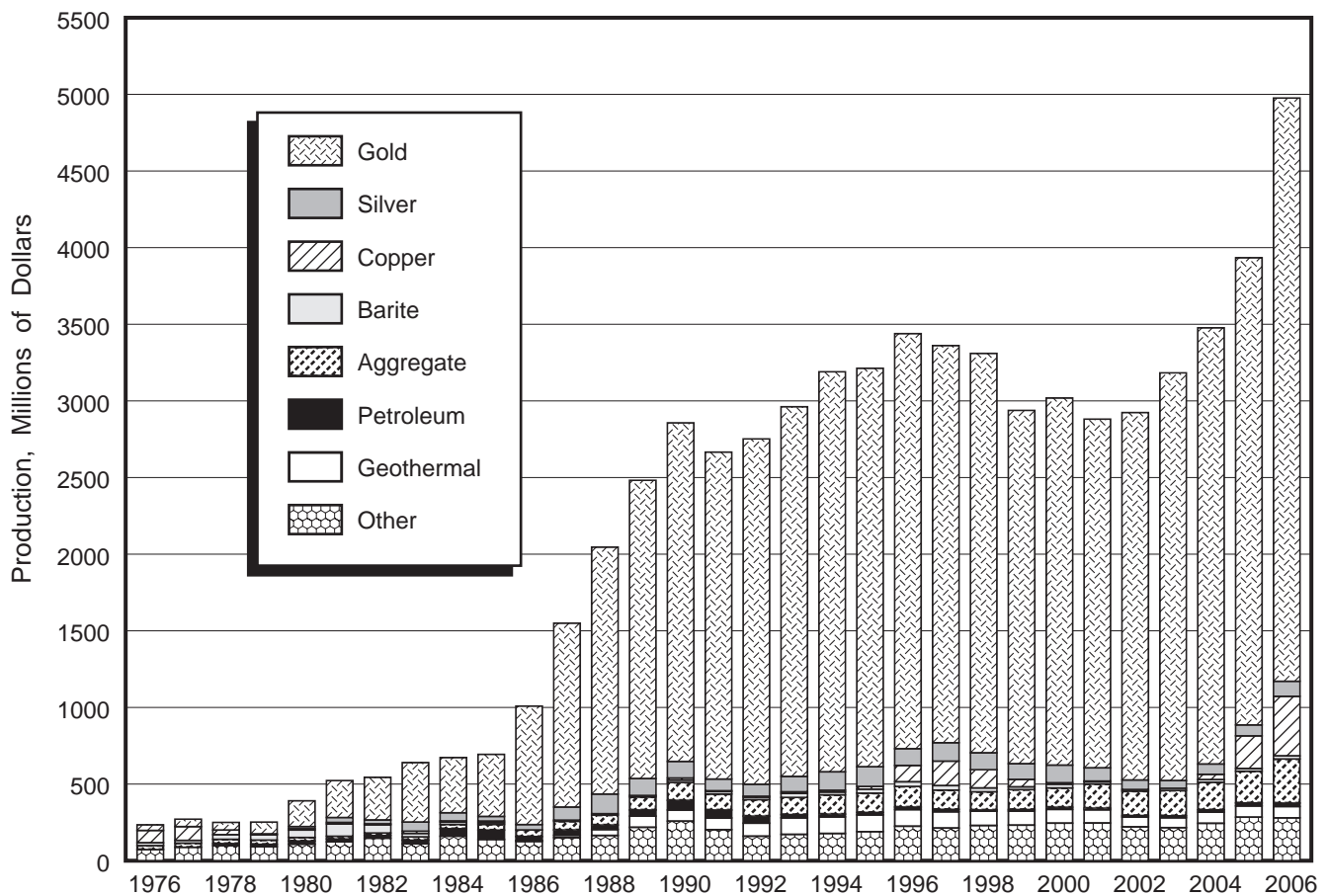
The contributions that mining makes to the economies of Nevada and the U.S. are significant in terms of jobs, commerce, taxes, improvements to the infrastructure, and lowering of the U.S. trade deficit. Because of Nevada's production, the U.S. is a net exporter of gold, most of which is sold on the international market for bullion, jewelry, and arts, and some of which is sold for its conductive and non-corrosive qualities in

## MINERAL, GEOTHERMAL POWER, AND PETROLEUM PRODUCTION IN NEVADA<sup>1</sup>

Minerals	2005		2006		% change from 2005 to 2006	
	Quantity	Value (millions)	Quantity	Value (millions)	Quantity	Value
<b>Gold</b> (thousand troy ounces)	6,852	\$3,048.2	6,310	\$3,805.0	-7.9	+24.8
<b>Silver</b> (thousand troy ounces)	9,946	71.1	8,494	98.0	-14.6	+37.8
<b>Copper</b> (thousand pounds)	126,225	213.3	127,554	389.0	+1.1	+82.4
<b>Aggregate</b> (thousand short tons)	46,000	207.0	48,000	288.0	+4.3	+39.1
<b>Gypsum</b> (thousand short tons)	1,775	24.9	1,598	22.4	-10.0	-10.0
<b>Barite</b> (thousand short tons)	511	17.9	572	20.0	+11.9	+11.7
<b>Geothermal energy</b> (thousand megawatt-hours)	1,269	73.5	1,333	74.4	+5.0	+1.2
<b>Petroleum</b> (thousand 42-gallon barrels)	447	19.3	426	21.6	-4.7	+11.9
<b>Other minerals<sup>2</sup></b>	—	259.2	—	261.3	—	+2.1
<b>Total</b>	—	\$3,934.4	—	\$4,979.7	—	+26.5

<sup>1</sup> Production as measured by mine shipments, sales, or marketable production (including consumption by producers); compiled by the Nevada Division of Minerals and the Nevada Bureau of Mines and Geology. Products milled or processed in Nevada but mined from deposits in California are excluded. Specifically, colemanite from a mill in Amargosa Valley in Nye County and zeolite from the Ash Meadows plant in Nye County are not included in these totals.

<sup>2</sup> Building stone, cement, clay, diatomite, lime, lithium carbonate, magnesite, mercury, perlite, salt, and silica sand.



**Nevada mineral, geothermal power, and petroleum production, 1976–2006.**

computers and other electronics and for use in dental work. The U.S. is a net exporter of few mined commodities and a net importer of many. Among the major products mined in Nevada, the U.S. relies upon imports for barite (83% of total U.S. consumption from imports in 2006, according to the U.S. Geological Survey, used primarily to prevent blowouts in oil and gas drilling), silver (65%, used in photographic and other applications), copper (40%, used primarily to conduct electricity), and gypsum (27%, used in wallboard). Exports of gold from Nevada help offset the staggering U.S. trade deficit (difference between imports and exports of goods and services), which amounted to a record \$759 billion in 2006 (according to the Department of Commerce, Bureau of Economic Analysis, [www.bea.gov](http://www.bea.gov)).

The local economy also benefits from mining. Construction of new homes, casinos, other businesses, schools, and roads requires local sources of sand, gravel, crushed stone, gypsum, and raw materials for cement, all of which are abundant in Nevada. The mining industry directly employed 11,516 people in 2006, and the industry is responsible for another 52,000 jobs related to providing the goods and services needed by the industry and its employees (D. Driesner and A.R. Coyner, 2007, *Major Mines of Nevada 2006*, Mineral

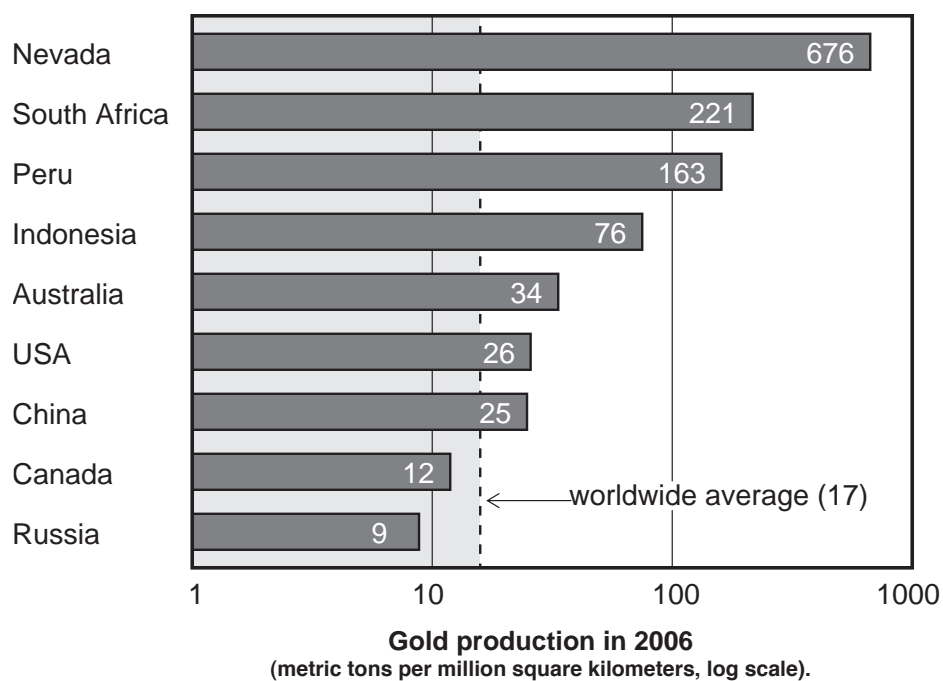
*Industries in Nevada's Economy*, Nevada Bureau of Mines and Geology Special Publication P-18, 28 p.; available at [www.nbmj.unr.edu/dox/mm/mm06.pdf](http://www.nbmj.unr.edu/dox/mm/mm06.pdf)).

Nevada and the U.S. make significant contributions to the world's production of several mineral commodities. Thanks in part to Nevada's production, the U.S. is the world's leading producer, as well as consumer, of gypsum (with the U.S. accounting for 18% of world production in 2006) and industrial sand (27% of world production). In addition to gold, the U.S. is a leading silver producer (6% of world production). The U.S. is essentially self sufficient, as are most countries, in construction aggregate, largely because of the high expense of transportation. Total U.S. production of construction sand, gravel, and crushed stone in 2006 was approximately 2.95 billion metric tons, according to the U.S. Geological Survey. Net imports of aggregate account for only 1% of consumption. The U.S. is also self sufficient in the other major mined material, coal. According to the U.S. Energy Information Administration ([www.eia.doe.gov](http://www.eia.doe.gov)), the U.S. produced and consumed approximately 1.05 billion metric tons of coal in 2006, more than in any previous year. Although no coal is produced in Nevada, coal is a major source of energy for generation of electricity in Nevada and many other states.

## WORLD PRODUCTION OF SELECTED MINERAL COMMODITIES (metric tons) in 2006\*

Country/State	Area (10 <sup>6</sup> km <sup>2</sup> )	Gold	Silver	Copper	Gypsum	Barite	Industrial Sand
Algeria	2.38	0.4	—	—	1,460,000	50,000	—
Australia	7.68	244	2,150	950,000	4,000,000	—	4,000,000
Austria	0.08	—	—	—	1,000,000	—	6,800,000
Belgium	0.03	—	—	—	—	—	1,800,000
Brazil	8.51	41	—	134,000	1,500,000	60,000	1,600,000
Canada	9.96	103	1,310	600,000	9,450,000	—	1,600,000
Chile	0.76	42	1,400	5,400,000	—	—	—
China	9.57	245	2,550	760,000	7,400,000	4,300,000	—
Egypt	1.00	—	—	—	2,000,000	—	—
France	0.57	1	—	—	3,500,000	75,000	6,500,000
Gambia	0.01	—	—	—	—	—	1,400,000
Germany	0.36	—	—	—	1,580,000	89,000	8,200,000
Ghana	0.24	66	—	—	1,580,000	89,000	8,200,000
India	3.28	3	—	24,000	2,500,000	1,000,000	1,600,000
Indonesia	1.90	164	—	800,000	—	—	—
Iran	1.65	0.2	—	217,000	13,000,000	280,000	1,900,000
Italy	0.30	0.6	—	—	1,200,000	—	3,000,000
Japan	0.38	9	—	—	5,900,000	—	4,800,000
Kazakhstan	2.72	18	—	430,000	—	120,000	—
Mexico	1.97	40	3,000	380,000	7,400,000	250,000	2,100,000
Morocco	0.45	1	—	4,000	—	420,000	—
Norway	0.32	—	—	—	—	—	1,600,000
Peru	1.29	203	3,200	1,050,000	—	—	—
Poland	0.31	0.5	1,300	525,000	1,300,000	—	1,500,000
Romania	0.24	0.5	—	12,000	—	—	1,500,000
Russia	17.07	159	—	720,000	2,400,000	65,000	—
Slovakia	0.05	—	—	—	—	—	2,000,000
Slovenia	0.02	—	—	—	—	—	11,000,000
South Africa	1.22	270	90	97,000	—	—	2,800,000
Spain	0.50	5	—	5,000	11,500,000	—	6,500,000
Thailand	0.51	5	—	—	7,100,000	120,000	—
Turkey	0.78	6	—	46,000	—	200,000	1,200,000
United Kingdom	0.24	—	—	—	1,500,000	60,000	4,500,000
Uruguay	0.18	3	—	—	1,130,000	—	—
Zambia	0.75	—	—	540,000	—	—	—
United States	9.37	242	1,100	1,220,000	21,200,000	540,000	31,900,000
<b>Nevada</b>	<b>0.29</b>	<b>196</b>	<b>264</b>	<b>57,900</b>	<b>1,450,000</b>	<b>519,000</b>	<b>680,000</b>
<b>WORLD</b>	<b>149.90</b>	<b>2,452</b>	<b>19,500</b>	<b>15,300,000</b>	<b>119,000,000</b>	<b>8,080,000</b>	<b>120,000,000</b>

\* Production data for all areas except Nevada are from the U.S. Geological Survey (USGS) minerals information publications (<http://minerals.usgs.gov/minerals/>), with revisions from USGS mineral commodity specialists; USGS lacks data for some commodities in some countries; production data for Nevada are from Driesner and Coynor (2007), with modifications as noted in this report; USGS statistics are adjusted to be consistent with Nevada data.



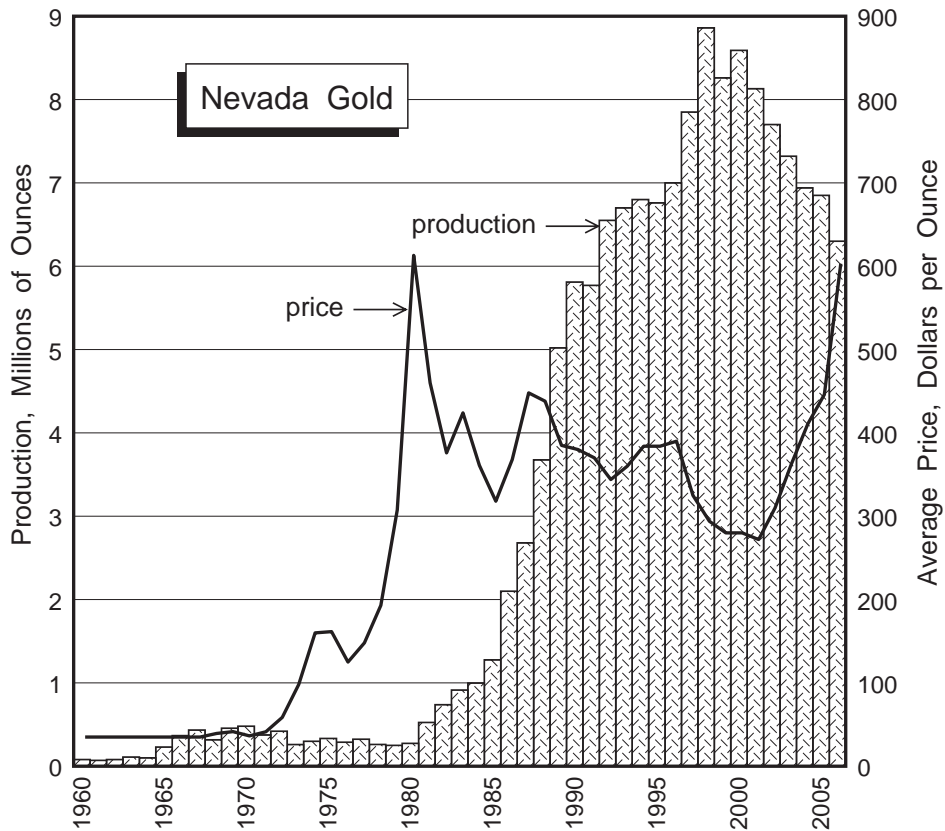
As a result of its favorable geology, Nevada has tremendous potential for the discovery of additional mineral deposits. Areas where prospective rocks are beneath a cover of young, valley-filling sediments and volcanic rocks have only been explored to a limited extent, and ore deposits continue to be discovered in and near Nevada's 526 historical mining districts. Like the Transvaal, the most productive region of South Africa, Nevada is a world leader in terms of gold production per unit area.

Through a survey conducted early in 2007, the Nevada Division of Minerals collected data for Nevada Bureau of Mines and Geology Special Publication P-18, Major Mines of Nevada 2006. This publication includes, in handbook form, location maps, names and telephone numbers of operators, numbers of employees, and nonproprietary production figures for most mines in Nevada. It also contains a section on economic impacts of the industry. The full contents of this 28-page publication are available for free on the World Wide Web ([www.nbmng.unr.edu](http://www.nbmng.unr.edu)), as are the contents of this report. The data from this survey are used in this publication and, along with information from other sources, will be used to update, revise, and check preliminary statistics collected and released by the U.S. Geological Survey.

The section on **Metals** and the table of **Major Precious-Metal Deposits** provide details on new deposit discoveries, new mine openings, mine closures, additions to reserves, and mine expansions. As has been the case in recent years, gold has been the leading commodity produced in Nevada. Production of gold in

2006 came from 22 major mining operations. The Carlin trend in northeastern Nevada accounted for 51% of the total production. Nine additional mining operations, not on the Carlin trend, each produced over 100,000 ounces of gold from mostly multimillion-ounce deposits.

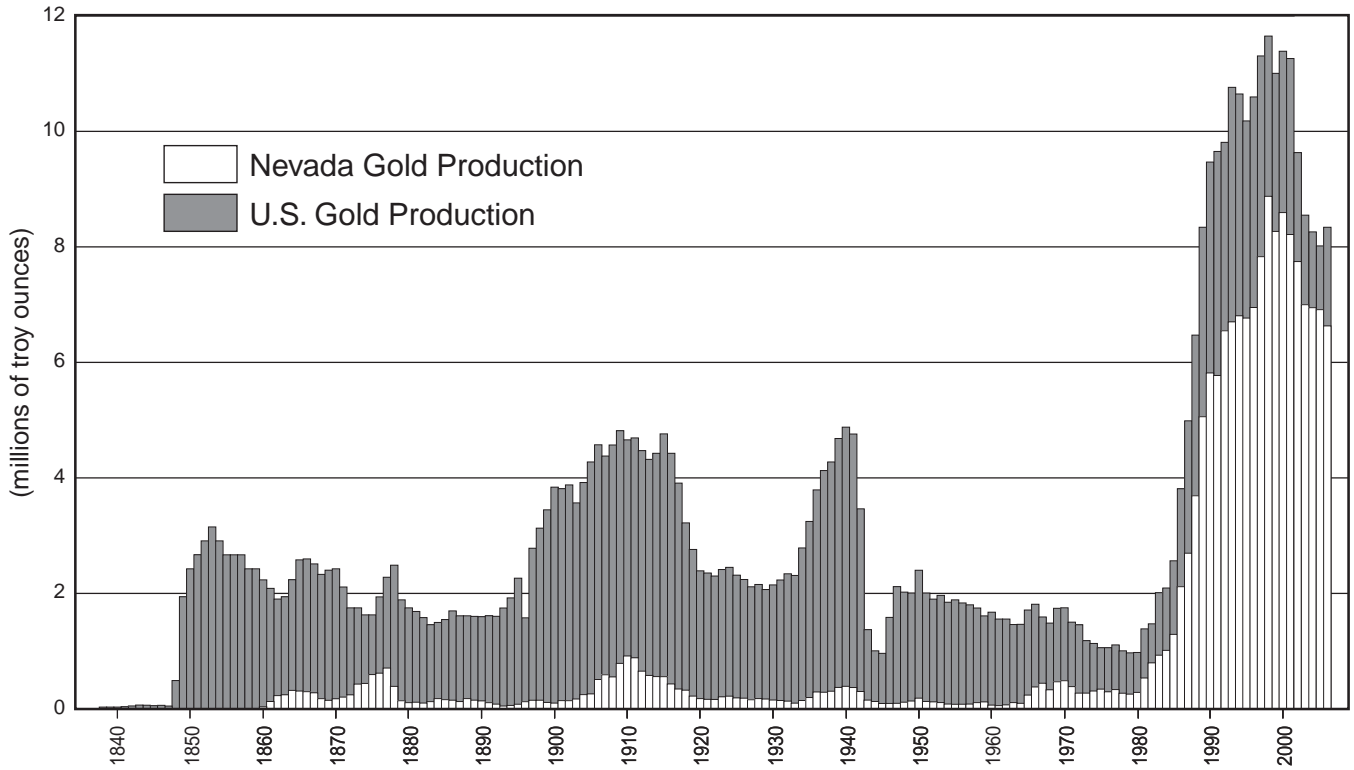
Nevada and the U.S. have produced a significant portion of world gold. The U.S. Geological Survey estimates that total world gold production, since the beginning of civilization, has been 154,490 metric tons (4.97 billion troy ounces). Interestingly, about 85% of that gold is still in use (in bullion, coins, jewelry, electronics, etc.), and most gold currently being mined is recycled. Through 2006, cumulative gold production in Nevada (beginning with the Comstock lode in 1859) stands at 5,276 metric tons (169.63 million ounces). Remarkably, 86% of this total has been produced since the Carlin Mine began production in 1965; 83% of this total has been produced during the current boom from 1981 to the present; and 45% of this total has been produced in the decade from 1997 to 2006. Total U.S. production, primarily since 1835, is approximately 16,200 metric tons (522 million ounces or nearly 11% of total world gold production), and total Nevada production is 3% of total world production. The Carlin trend alone accounts for 1.3% of all the gold ever mined in the world. By the end of 2006, cumulative production from the Carlin trend reached 2,040 metric tons of gold (65.6 million ounces), assuring its place as one of the most productive gold-mining districts in the world.



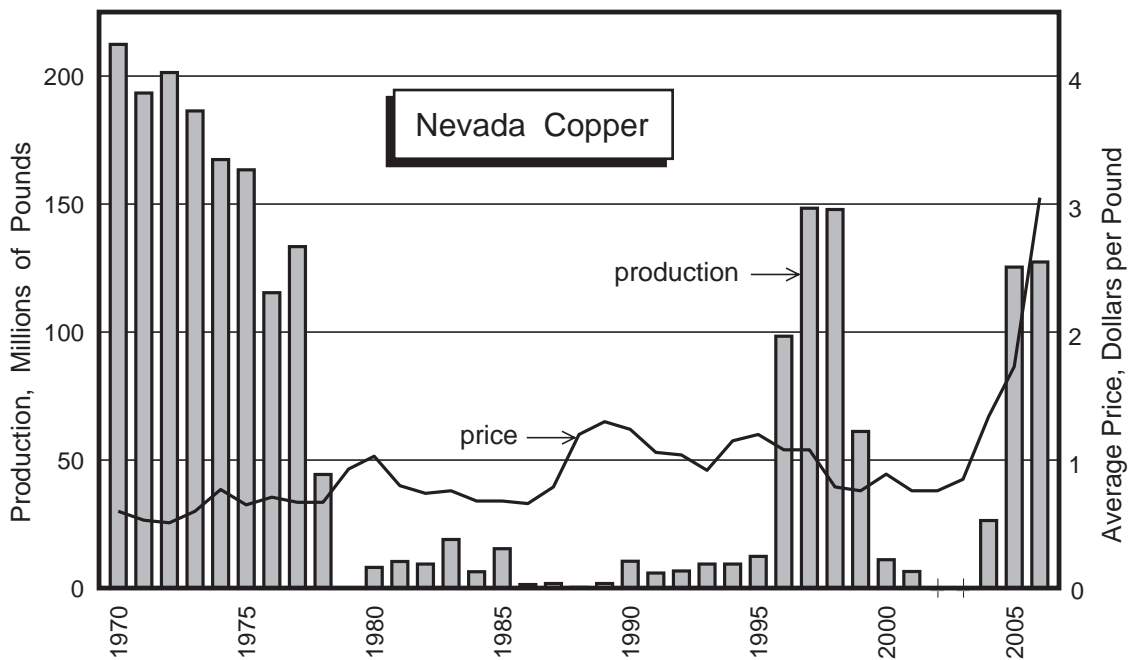


We continue to be in the midst of the biggest gold boom in U.S. history, as the graph of historical U.S. gold production illustrates. The recent surge in production in the U.S. is largely the result of discoveries of Carlin-type gold deposits and other deposits in which gold occurs primarily in grains that are too small to be visible to the naked eye. These deposits are primarily in Nevada. The

U.S. production so far in the current boom, the period from 1981 to 2006, has been 202.6 million ounces. This is significantly greater than the total production during the era of the California gold rush (1849 to 1859, with 29 million ounces, although some estimates of unreported production may bring that figure up to 70 million ounces), the Comstock (Nevada) era from



**United States and Nevada gold production from 1835 through 2006. Data from U.S. Gold Industry 1998 (NBMG Special Publication 25) by J.L. Dobra and from the U.S. Geological Survey.**

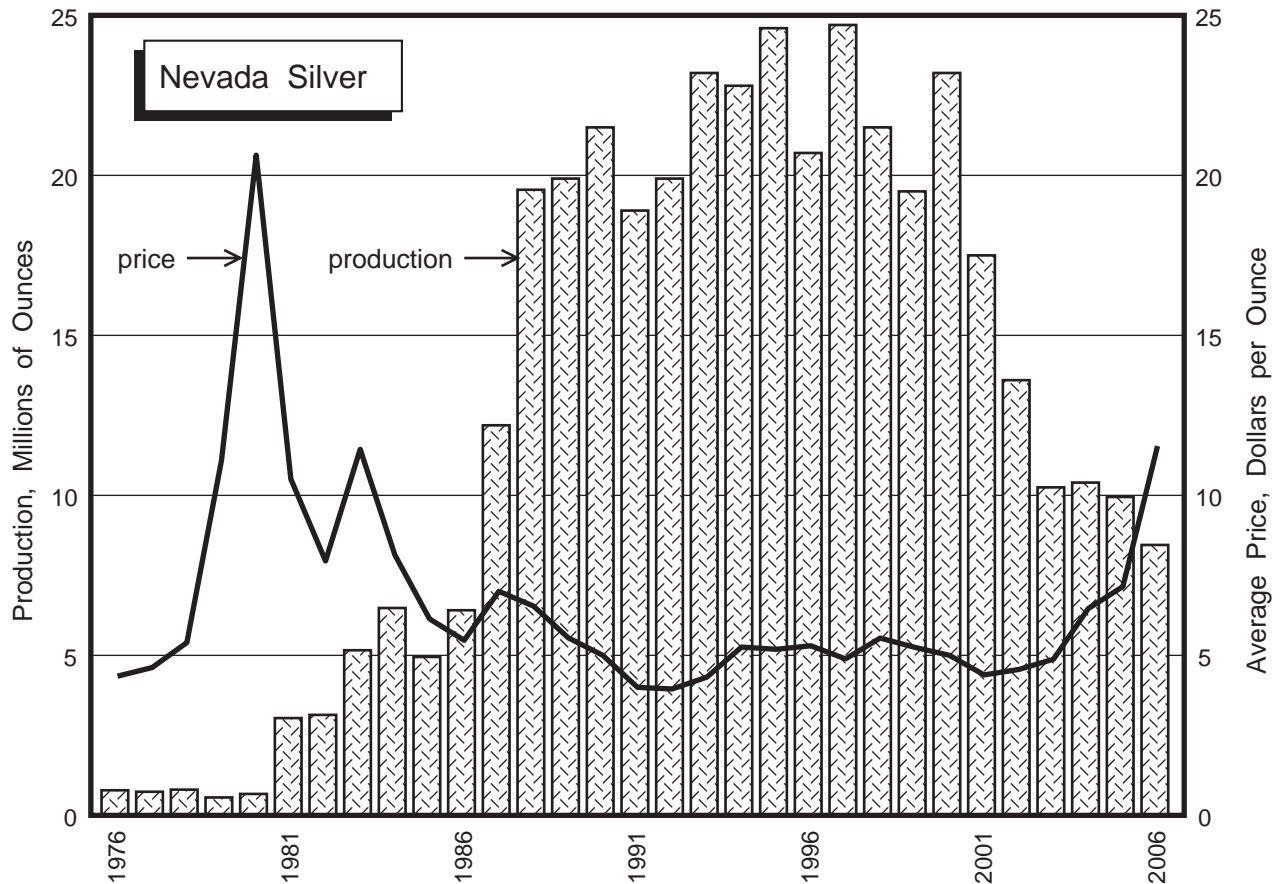


1860 to 1875 (with 34 million ounces), and the period from 1897 to 1920, when Goldfield (Nevada), the Black Hills (South Dakota), Cripple Creek (Colorado), and by-product production from copper mines in Arizona and Utah contributed to cumulative production of 95 million ounces. U.S. production in the decade from 1997 to 2006 alone was 98 million ounces. The current boom is bigger than previous booms not only in terms of cumulative production but also in terms of peak annual production (11.6 million ounces in 1998 versus 4.8 million ounces in 1909, 2.6 million ounces in 1866, and 3.1 million ounces in 1853) and duration (at least 27 years for the current boom versus no more than 24 years for any of the earlier booms).

In 2006, Barrick's Betze-Post Mine in Eureka County produced 1.43 million ounces, making it the largest gold mine in the state, and Barrick's Meikle Mine in Elko County produced 477 thousand ounces, making it the largest underground producer. Barrick was the largest gold producer in Nevada in 2006, both on the Carlin trend and statewide. Barrick acquired Placer Dome near the beginning of 2006. Newmont's production on the Carlin trend, including its Carlin operations and Capstone/Bootstrap and Rain Mines, totaled 1.31 million ounces, helping to make it the second largest gold producer in Nevada. Copper production, dominated by the Robinson copper-gold-silver mine, operated by Quadra Mining Ltd. near Ely in White Pine County, was enhanced by

by-product copper at Newmont's Phoenix project, which substantially ramped up production in 2006 near Battle Mountain in Lander County. Golden Phoenix began production from its Ashdown molybdenum mine in northwestern Humboldt County, and Quadra added a molybdenum-recover circuit to its mill in 2006; this is the first molybdenum production from Nevada since 1991.

Exploration in 2006 (summarized in the section on **Metals**) included high-grade (mostly vein and breccia) targets, which tend to be popular during times of depressed prices for gold, and low-grade, large tonnage deposits, which generally become more profitable when gold prices are higher. Average gold price in 2006 was \$603 per ounce, well above prices in the previous five years (\$440 in 2005, \$410 in 2004, \$363 in 2003, \$310 in 2002, \$280 in 2001). New discoveries were reported in several districts. To help guide exploration for concealed deposits below alluvial or young volcanic cover, geologists are successfully employing various geophysical methods (seismic, electrical, magnetic, gravity). At least 86 companies (36 more than in 2005), ranging from juniors to majors, drilled at least 117 projects in Nevada in 2006. Exploration activity was reported in 14 of Nevada's 17 counties (with none reported in Carson City, Storey or Washoe Counties). One of the more exciting announcements was by Klondex Mines Ltd of a resource of one million ounces of high-grade gold (0.58 ounces per short ton) at the Fire Creek deposit along

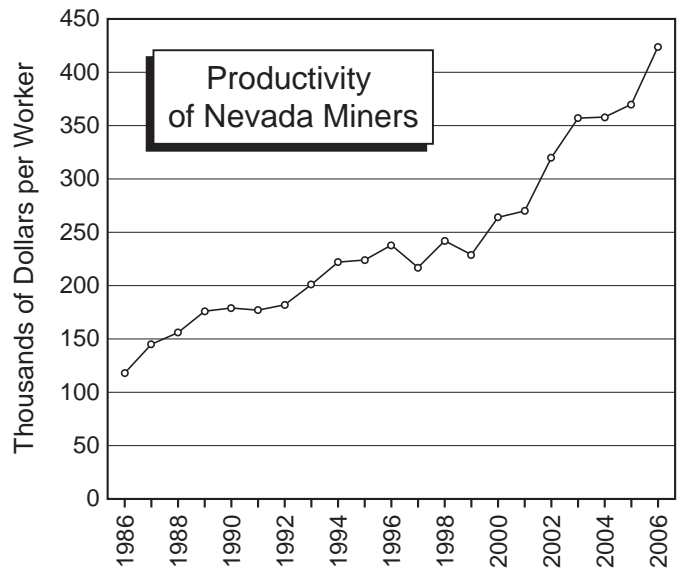


the Northern Nevada Rift in Lander County. The Barrick-Kennecott Cortez Joint Venture is moving forward with underground development of the Cortez Hills deposit in Lander County, driving two declines to the multimillion-ounce gold deposit that was discovered in 2004. Production from the underground workings may begin as early as 2008, thereby offsetting declining production from the company's nearby Pipeline deposit.

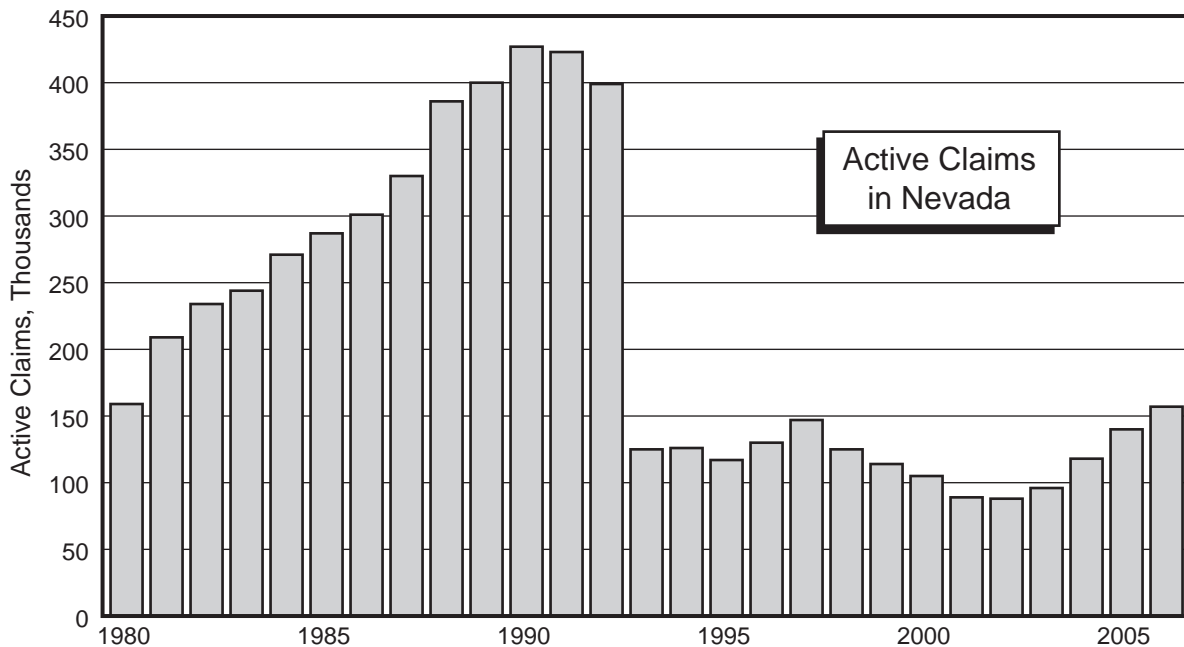
Most exploration focused on gold and silver, but high prices have stimulated exploration for several other commodities, including copper, molybdenum, tungsten, iron, and uranium. Advanced exploration projects at previously delineated deposits, particularly in the Yerington district in Lyon County (at the Ann Mason copper deposit and the Lyon/Pumpkin Hollow copper-iron deposits) and at the Mount Hope molybdenum deposit in Eureka County, show promise for major developments.

According to a survey of exploration activities by the Nevada Division of Minerals (D. Driesner and A.R. Coyner, 2007, Nevada Exploration Survey 2006, available at <http://minerals.state.nv.us/>), exploration activity in Nevada has been steadily increasing since 2001, when companies reported \$51.2 in expenditures in Nevada. The 28 companies responding to the survey reported spending \$164.9 million on exploration in Nevada in 2006, substantially higher than the \$121.3 million reported in 2005 or the \$79.7 million reported in 2004, and well above the level of \$138.8 million in 1995. The companies are so optimistic about Nevada's potential that they project spending \$179.5 million in 2007. Another measure of exploration activity is the number of exploration geologists employed by these

companies: 228 in 2006, compared with 190 in 2005, 123 in 2004, and 309 in 1997. These companies project employing 236 exploration geologists in 2007. Because of its favorable geology and regulatory climate, Nevada continues to attract a large portion of the worldwide exploration expenditures of the companies actively exploring in Nevada. The number of active claims in Nevada rose substantially in 2006 but is still close to the relatively low level reached in 1993 after the introduction of new fees by the federal government.



**Total value of mined product per mine worker in Nevada (excluding petroleum and geothermal energy).**



**Number of active claims in Nevada as of October 1, 1980 through 2006. Data from the Nevada State Office of the U.S. Bureau of Land Management.**

The announced gold resources in Nevada, including mineable reserves and perhaps some subeconomic resources (as reported in announcements by companies and compiled by the Nevada Bureau of Mines and Geology, with deductions for production), are enough to sustain gold production at multimillion-ounce levels for 15 to 20 years, assuming stable prices. The term “reserve” has special meaning with regard to U.S. securities laws. To be called a reserve, the deposit must be able to be mined profitably. With relatively high gold prices and continued technological improvements, some of the subeconomic resources of previous years have been upgraded to reserves.

Productivity of Nevada mining operations is exceptionally high. Measured simply by the value of the commodities produced divided by the number of employees, productivity of Nevada miners is outstanding. On the average, each of the 11,516 workers in the nonfuel mineral industry in Nevada produced approximately \$426,231 in mined products in 2006, an all-time high figure.

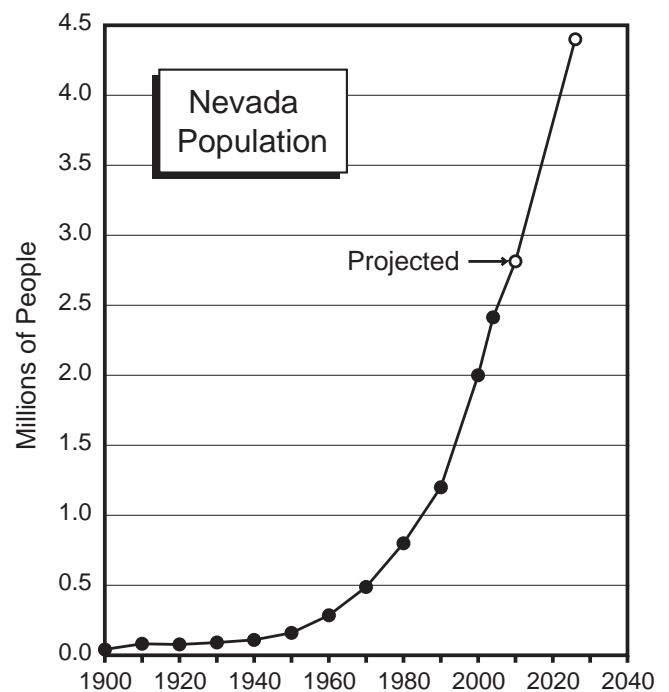
Challenges that face the precious metal mines in Nevada include:

- economic, safety, and environmental concerns, particularly uncertainty in metal prices;
- obtaining financial assurances (bonds) for reclamation and closure;
- sustaining local economies when, sometime in the future, mining ceases;
- hazards of underground mining;
- possible regulatory and mining-law changes;
- the length of time that it typically takes to obtain permits;
- preservation of archaeological and ecological resources;
- treating refractory (iron sulfide and/or carbon-bearing) ores, including innovative ways to oxidize these ores and to recover gold-bearing pyrite by flotation;
- dewatering mines;
- predicting the ultimate chemical compositions of pit lakes;
- procedures for closure of heaps used for leaching gold and silver from ore; and
- treatment and disposal of large volumes of water, some of which may contain potentially toxic elements that need to be removed or may be too warm to introduce directly into streams.

Through research on new technologies and engineering approaches, and through interaction with people in nearby communities, industry is responding well to these challenges.

Much of Nevada’s silver production in 2006, which totaled 8.49 million ounces, was a co-product or by-product of gold mining. With a ratio of value (average price of gold to average price of silver) of 52:1 in 2006, only those deposits with more than 52 times as much silver as gold can be considered primary silver deposits. Only one such deposit operated in Nevada in 2006- the Coeur Rochester Mine in Pershing County (with a silver to gold production ratio of 71:1 and total silver production of 5.1 million ounces). This one mine produced 60% of Nevada’s silver in 2006. Nevada’s production in 2006 accounted for 24% of the U.S. total and 1.4% of the world total. Although the Coeur Rochester Mine is approaching closure, and production in Alaska now makes it the leading silver producer in the country, by-product silver production allows Nevada to justify its nickname, the “Silver State,” on the basis of both historical and present-day production.

The section on **Industrial Minerals** covers developments during 2006 and gives details on important commodities produced from or processed in Nevada, such as aggregate, barite, cement, clays, diatomite, dimension stone, dolomite, gypsum, lime, limestone, lithium, magnesite and brucite, perlite, salt, semiprecious gemstones (opal and turquoise), silica, and zeolites (clinoptilolite and mordenite). Three major operations in Lander and Elko Counties combined to produce over 95% of the barite mined in the U.S.; production increased in 2006, relative to 2005, as a result of increased drilling activity for domestic oil and gas. The Silver Peak lithium operation in Clayton Valley, Esmeralda County, where subsurface brines



Data from the U.S. Census Bureau <[www.census.gov](http://www.census.gov)>. Projection to 2026 by Nevada State Demographer.

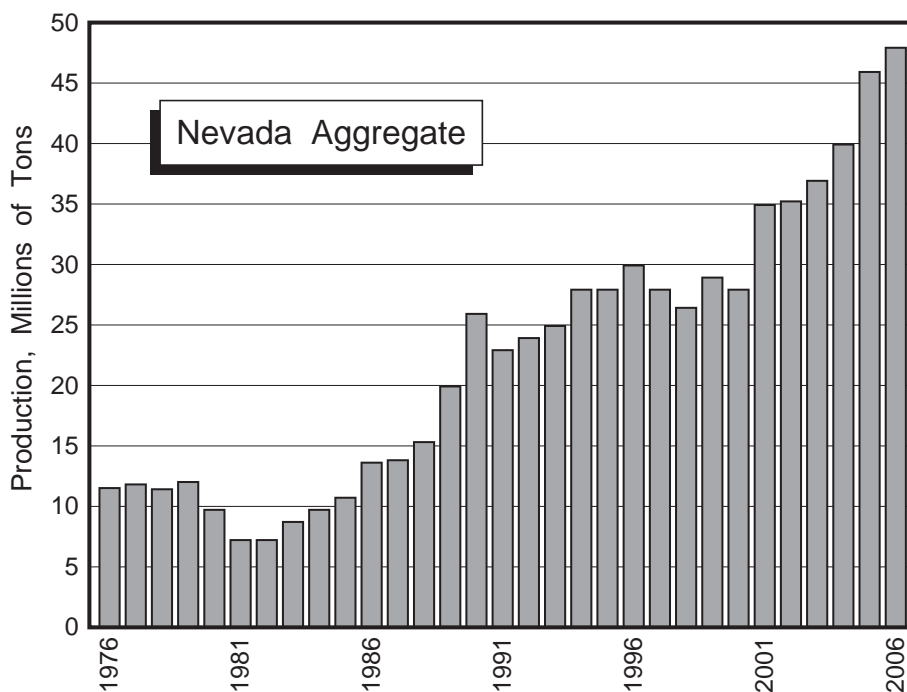
are evaporated on a playa, is the only domestic lithium producer, and the Gabbs Mine in Nye County is currently the nation's only producer of magnesite.

Aggregate production reached an all-time high in 2006 as a result of Nevada's expanding population and need for construction materials for homes, schools, streets, highways, airports, resort hotels, and other businesses. Demand for construction raw materials is likely to remain strong because of Nevada's increasing population. According to the U.S. Census Bureau ([www.census.gov/](http://www.census.gov/)), Nevada's population reached 2.495 million in 2006, up 25% from 1.998 million in the 2000 census. The booming population requires extraordinary amounts of construction raw materials. Population growth is particularly strong in the Las Vegas metropolitan area (Clark County), where the influx of nine to ten new residents per hour resulted in approximately two acres per hour of land development for homes, businesses, and roads (Ronald Lynn, personal commun., 2006). New cement plants are planned for both the greater Las Vegas and Reno markets. Gypsum production declined in 2006, relative to 2005, in part because of the closure of the Blue Diamond mine on the edge of Las Vegas Valley.

An interesting trend that is occurring nationwide as well as in the Las Vegas area is the combination of aggregate quarries with landfill operations. Planning for the eventual uses of quarries is vital in areas where urban expansion encroaches on the mineral resources. Aggregate is mined locally to reduce transportation costs and related concerns regarding highway safety. Post-mining land uses include suburban developments, landfills, and recreation areas. Gypsum mines near the urban growth areas of Las Vegas are now being considered as sites for housing developments.

Developments in the geothermal industry are covered in the section on **Geothermal Energy**. Electric power production and sales increased slightly from 2005 to 2006, and production capacity increased by 5.2%. Fourteen plants operating at ten sites sold \$74.4 million in electricity, surpassing the value of petroleum production by a factor of 3.4. Additionally, geothermal energy is used at numerous places in Nevada for space heating, domestic warm water, recreation, dehydrating vegetables, and other agricultural applications. New programs in the U.S. Department of Energy, energy bills passed by the Nevada and California legislatures, and activities of the Great Basin Center for Geothermal Energy at the University of Nevada, Reno are stimulating geothermal development in Nevada. Five new plants are planned to meet Nevada's renewable energy portfolio standard. Nevada Bureau of Mines and Geology Map 141, Nevada Geothermal Resources, shows the locations of geothermal plants, direct-use locations, hot and warm springs and wells; it demonstrates the fact that Nevada has considerable potential for geothermal development. Nevada Bureau of Mines and Geology Map 151, Geothermal Potential Map of the Great Basin, Western United States, provides regional information for assessing the potential for high-temperature (>150°C) geothermal systems. Considerable information on geothermal energy resources in Nevada is provided on the Web at: [www.nbmgs.unr.edu/geothermal/gthome.htm](http://www.nbmgs.unr.edu/geothermal/gthome.htm).

Geothermal energy experts at a July 25, 2005, meeting of a taskforce set up by the Western Governors' Association to assess geothermal resource potential estimated that within the next 20 years Nevada could add approximately 1,500 to 2,900 megawatts of geothermal power-generating capacity. If this potential were realized, and if energy prices continue to rise, geothermal power



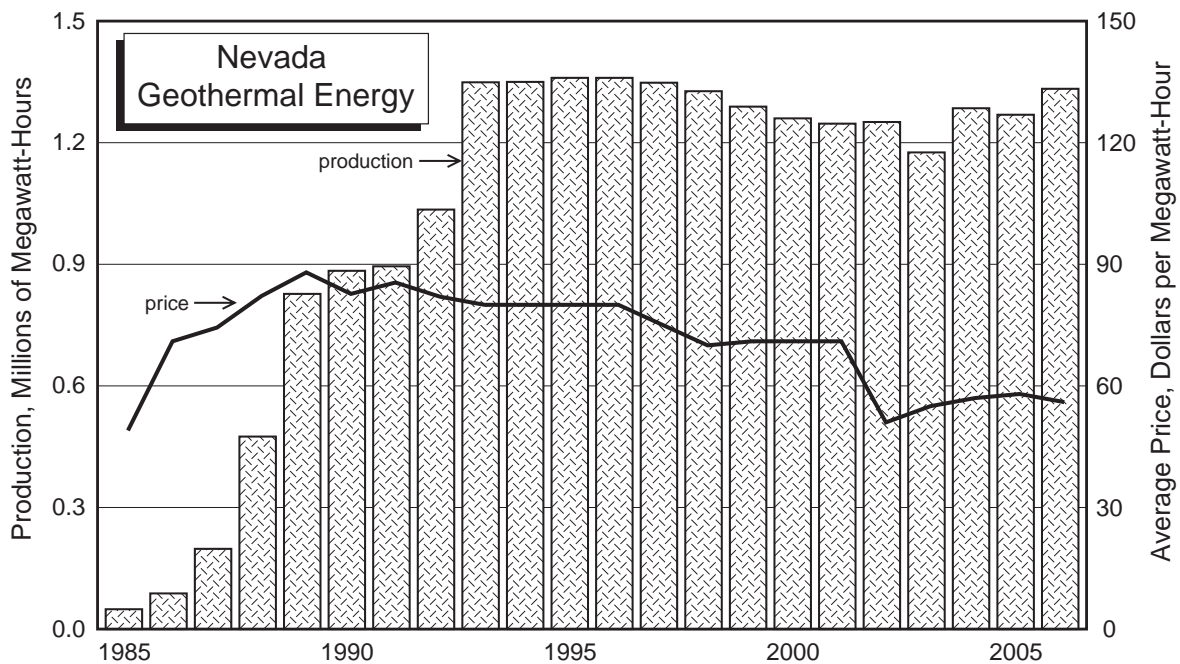
could become a billion-dollar per year business in Nevada. Power plants are currently under construction or in the production-drilling phase to bring an additional 250 megawatts on line soon. In December 2006, the Geothermal Energy Association released a report, available at <http://www.geo-energy.org/publications/reports.asp>, that contends Nevada could be producing over 1,000 megawatts of geothermal power within three to five years (compared with average production in 2006 of 152 megawatts and a current production capacity of 264.7 megawatts). The report attributes the projected growth to several factors, including Nevada's renewable energy portfolio standard, a federal production tax credit, efforts of the Bureau of Land Management to reduce its backlog on leasing land for geothermal exploration and production, and federal funding for cost sharing of drilling, technical assistance, and applied research efforts of the Great Basin Center for Geothermal Energy.

Nevada has great potential for renewable energy (particularly geothermal, wind, and solar energy for electricity). Approximately 92% of Nevada's electricity currently is generated by power plants that burn fossil fuels, with 46.6% from natural gas and 45.7% from coal (2005 statistics from the Energy Information Administration, [http://www.eia.doe.gov/cneaf/electricity/epa/generation\\_state.xls](http://www.eia.doe.gov/cneaf/electricity/epa/generation_state.xls)). Hydroelectric dams account for 4.2%, and geothermal power plants account for about 3%.

Developments in the Nevada petroleum industry are covered in the section on Oil and Gas. Oil is produced primarily in two areas—Railroad Valley in Nye County and Pine Valley in Eureka County. Total annual oil production from Nevada (valued at \$21.6 million in 2006) is a minor part of U.S. production. The amount of oil production declined for the fourteenth consecutive year, and no new fields were discovered in 2006. Small amounts of co-produced natural gas are used to fuel equipment used for oil production. Value of Nevada oil production increased from 2005 to 2006 as a result of higher oil prices.

Relatively high oil prices and the 2003 discovery of oil at the Covenant field near Richfield in south-central Utah, where by the end of 2004 Wolverine Oil and Gas Corporation was producing 1,500 barrels per day from two wells, has stimulated exploration and leasing of federal lands in Nevada. According to the Utah Geological Survey, this oil field is in folded Jurassic Navajo Sandstone within the Sevier overthrust belt. Similar geological settings occur in eastern Nevada.

In 2005, the U.S. Geological Survey released its assessment of undiscovered oil and gas resources of the Eastern Great Basin (available at <http://energy.cr.usgs.gov/oilgas/noga/index.htm>), an area that includes the eastern portion of Nevada, western Utah, and part of southeastern Idaho. The U.S. Geological Survey estimates mean figures of 1.6 billion barrels of oil and 1.8 trillion cubic feet of natural gas remaining to be found in this region.



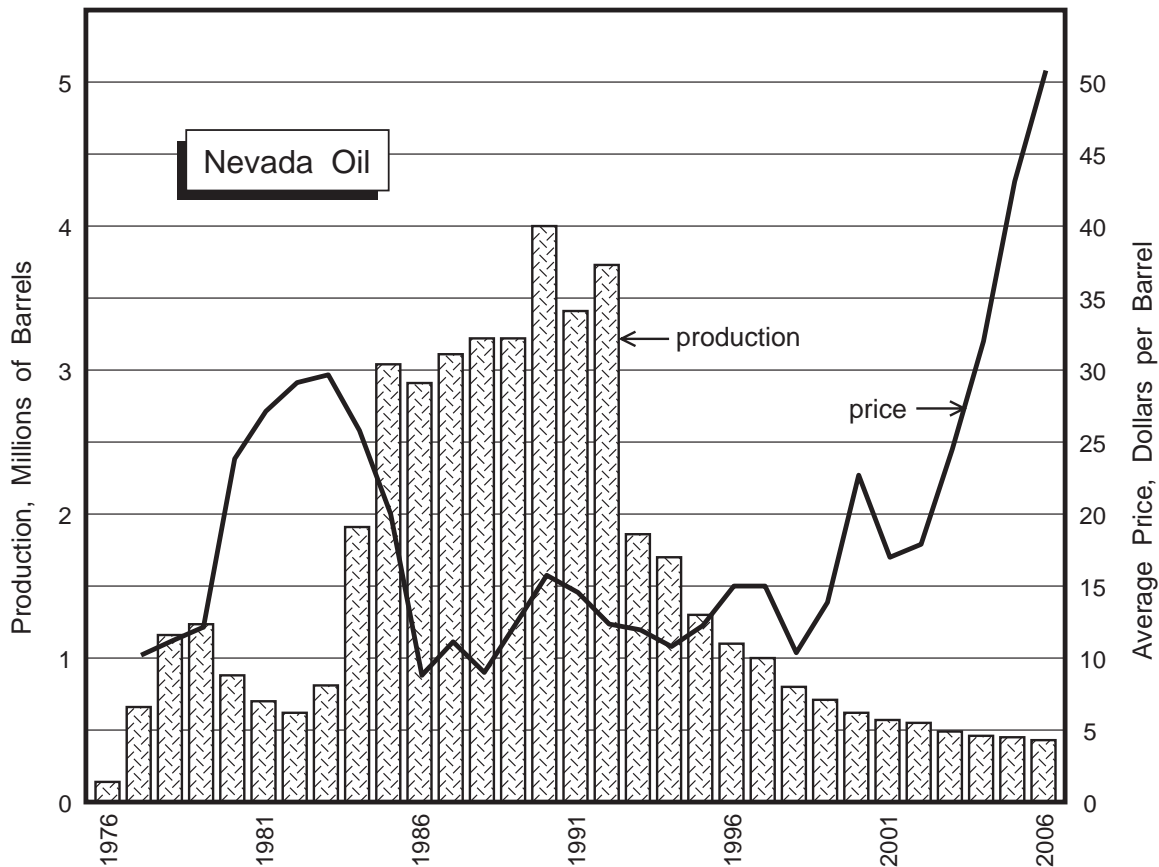
Exploration for oil in Nevada is encouraged by the cumulative production from the two premier fields in Railroad Valley, Grant Canyon and Trap Spring (21 million and 14 million barrels, respectively). Historically, few exploration wells have been drilled in the state (fewer than 1,000 wells, or fewer than one well per 111 square miles or 286 square kilometers). With so much area unexplored, even discounting areas underlain by high-grade metamorphic and granitic rocks, Nevada has the potential for finding more multimillion-barrel fields. Six new exploration wells were spudded in 2006, down from 10 in 2005. In part because of high prices for oil and gas, and in part because of Nevada's small production relative to fields in California, Utah, and elsewhere, operators in Nevada have been unable to find the rigs needed for drilling that is permitted.

Additional information about the Nevada mineral industry and the U.S. gold industry, including the contents of selected publications, is readily available on line through the World Wide Web from the Nevada Bureau of Mines and Geology ([www.nbmng.unr.edu/](http://www.nbmng.unr.edu/)) and the Nevada Division of Minerals (<http://minerals.state.nv.us/>). Useful national and international data on nonfuel minerals can be

obtained from the U.S. Geological Survey (<http://minerals.usgs.gov/minerals/>), and the U.S. Energy Information Administration ([www.eia.doe.gov/](http://www.eia.doe.gov/)) provides data on oil and gas, geothermal, and other energy sources. In 2006, the Nevada Bureau of Mines and Geology released Map 149, Gold and Silver Resources in Nevada (authored by D.A. Davis, J.V. Tingley, and J.L. Muntean), which shows the locations of 943 known deposits and is backed up by a database with coordinates and references. Both the map and database are available on line.

**CONVERSION FACTORS**

- 1 metric ton = 1.1023113 short ton = 1,000 kilograms = 2,204.6226 pounds = 32,150.7 troy ounces.
- 31.1035 metric tons = 1 million troy ounces (31.1035 grams = 1 troy ounce).
- 453.592 grams = 1 pound (avoirdupois) = 16 ounces (avoirdupois) = 14.5833 troy ounces.
- 34.2857 grams per metric ton = 34.2857 parts per million by weight = 1 troy ounce per short ton.



# Metals

by John L. Muntean

Nevada produced 6.32 million ounces of gold, 8.48 million ounces of silver, 127.5 million pounds of copper and 570,500 pounds of molybdenum in 2006. Gold production was down 536,810 ounces from 2005. The decrease of 7.9% marked the sixth consecutive year of declining production. Twenty-four mines in Nevada reported gold production in 2006. Fifty-one percent of production came from mines on the Carlin trend.

Barrick Gold Corp., with production from its Betze-Post, Meikle, Cortez (60% share), and Turquoise Ridge Mines (75% share), plus its 50% share of the Round Mountain Mine's production and 33% share of the Marigold Mine's production produced a total of 2,986,037 ounces of gold, the highest in Nevada. Barrick was able to maintain its top spot by completing its acquisition of Placer Dome Inc. (and its Cortez, Bald Mountain, and Turquoise Ridge Mines) in 2006. Newmont Mining Corp., reporting production from its Carlin trend mines, and from Twin Creeks, Lone Tree, Mule Canyon, Midas, and Phoenix Mines (plus its 25% share of the Turquoise Ridge joint venture) had a total Nevada production of 2,326,717 ounces, the second highest in Nevada.

For the seventh consecutive year, Barrick's Betze-Post Mine was Nevada's most productive gold mine, with an output of 1,432,698 ounces. Newmont's Carlin trend mines produced 1,310,258 ounces, whereas the operations at Round Mountain (50% Kinross Gold Corp., 50% Barrick) produced 657,811 ounces. Barrick's Meikle Mine, the largest underground mine in Nevada, produced 477,035 ounces. A 55% decrease in production (507,634 ounces) from the Cortez Mine (60% Barrick, 40% Kennecott) was the biggest reason for the decline in Nevada's gold productions in 2006. The decrease in production at Cortez was reportedly due to mining of ore that was lower grade than the average grade of the remaining reserves at the Pipeline open-pit complex.

Coeur d'Alene Mines Corp.'s Rochester Mine maintained its place as the largest silver mine in Nevada with a production of 5,113,504 ounces. As in 2005, Newmont's Midas Mine was in second place with 1,694,060 ounces of silver, and the Round Mountain Mine followed in third place with 644,017 ounces. Overall silver production decreased 15%, and will drop off precipitously when mining ends at Rochester in 2007, although leaching will continue until 2011.

Almost all the copper was produced from Quadra Mining Inc.'s Robinson Mine, which was joined in 2006 by Newmont's Phoenix Mine, which produced 6.2 million pounds of copper. Once fully ramped up, Newmont

expects Phoenix to produce 15 to 25 million pounds of copper annually. Nevada produced molybdenum for the first time since the Hall Mine closed in 1991. Quadra completed its molybdenum circuit at Robinson and produced 260,000 pounds of molybdenum. Golden Phoenix Minerals began production at its small underground Ashdown Mine northwest of Winnemucca.

## EXPLORATION

Exploration in Nevada continued in 2006 at an even greater pace than in 2005, and increasingly other metals besides gold were being targeted. Nevada county recorders registered 180,568 claim filings in 2006, an 8.2% increase from 2005 (fig. 1)<sup>1</sup>. These included new claims and annual maintenance of existing claims. The U.S. Bureau of Land Management (BLM) listed 26,512 new claims that were filed in 2006 (fig. 2)<sup>1</sup>. Companies that staked the most claims in 2006 were Victoria Resources (1109), Idaho General Mines Inc. (1045), Newmont (946) and Canyon Copper Corp. (901). Major staking campaigns occurred in the Humboldt Range, around the Union Pass area in the Sulphur Springs Range and in and around the inactive Rosebud and Hycroft Mines north of Lovelock. At least 117 projects were drilled in 2006 (fig. 3). Junior companies—53 different ones—drilled 74 of those projects, with the remainder drilled by 12 major or mid-tier companies<sup>2</sup>. Even more projects would have been drilled if it were not for the shortage of drill rigs. The main exploration objective in Nevada continued to be gold, though an increasing number of projects are being drilled for silver, copper, molybdenum, tungsten, uranium, and gallium. For example, 12 of the 117 projects drilled in 2006 targeted metals other than gold compared to 2005, when only 5 of 110 projects were drilled for metals other than gold.

Most of the drilling, in terms of footage, continues to be done by major or mid-tier companies in and around their active mines. As in 2005, most new mine reserves were the result of drilling that converted resources to reserves. Barrick carried out a major drilling program in and around its Goldstrike Mine, both on the surface and underground. It continued to drill out its South Arturo discovery northwest of Goldstrike, located on the Dee property (60% Barrick, 40% Goldcorp) at the northern end of the Carlin trend. In addition to drilling, Barrick started pre-stripping the East Archimedes deposit; production is planned for 2007. With the acquisition

<sup>1</sup> According to BLM's LR2000 database on 7/7/2007, 170,073 claims were active at the end of the 2006, including claims that were located near the end of 2006 but filed in early 2007. Also, the LR2000 database indicated on 7/7/2007 that 25,309 claims were staked in 2006, including claims that were located near the end of 2006 but filed in early 2007. These numbers from LR2000 were used to make figures 1 and 2.

<sup>2</sup> The classification of companies into major, mid-tier, or junior in this section of the report is arbitrarily based on gold production and market capitalization. The loose criteria are as follows: 1) major companies produce greater than 1 million ounces of gold worldwide, and have market capitalizations of over \$3 billion, 2) mid-tier companies produce between 50,000 and 1 million ounces of gold and/or have market capitalizations less than \$3 billion but more than \$500 million, and 3) junior companies produce less than 50,000 of gold and/or have market capitalizations less than \$500 million.



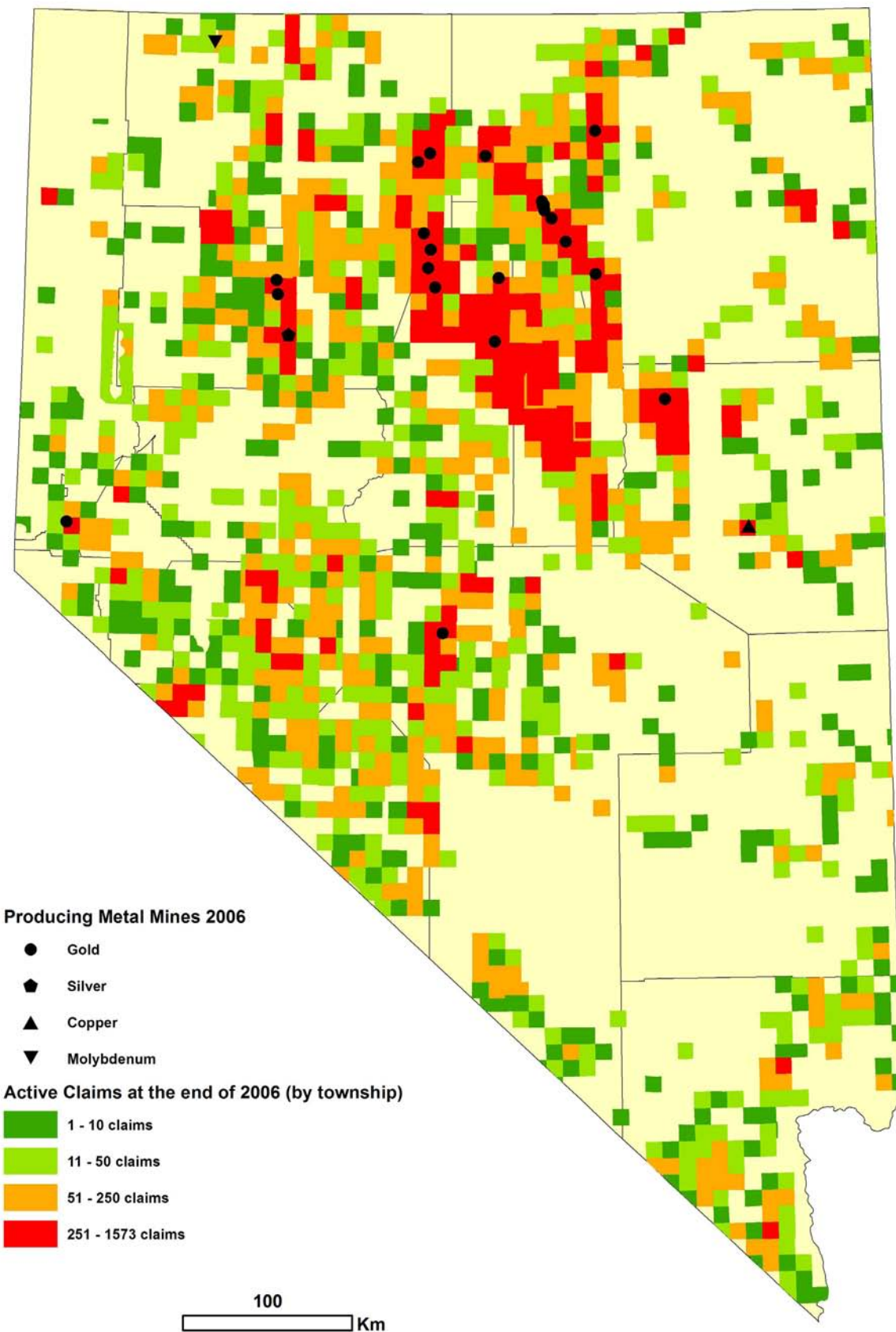


Figure 1. Map showing distribution of active mining claims by township at the end of 2006. Source of data is Bureau of Land Management's LR 2000 database.

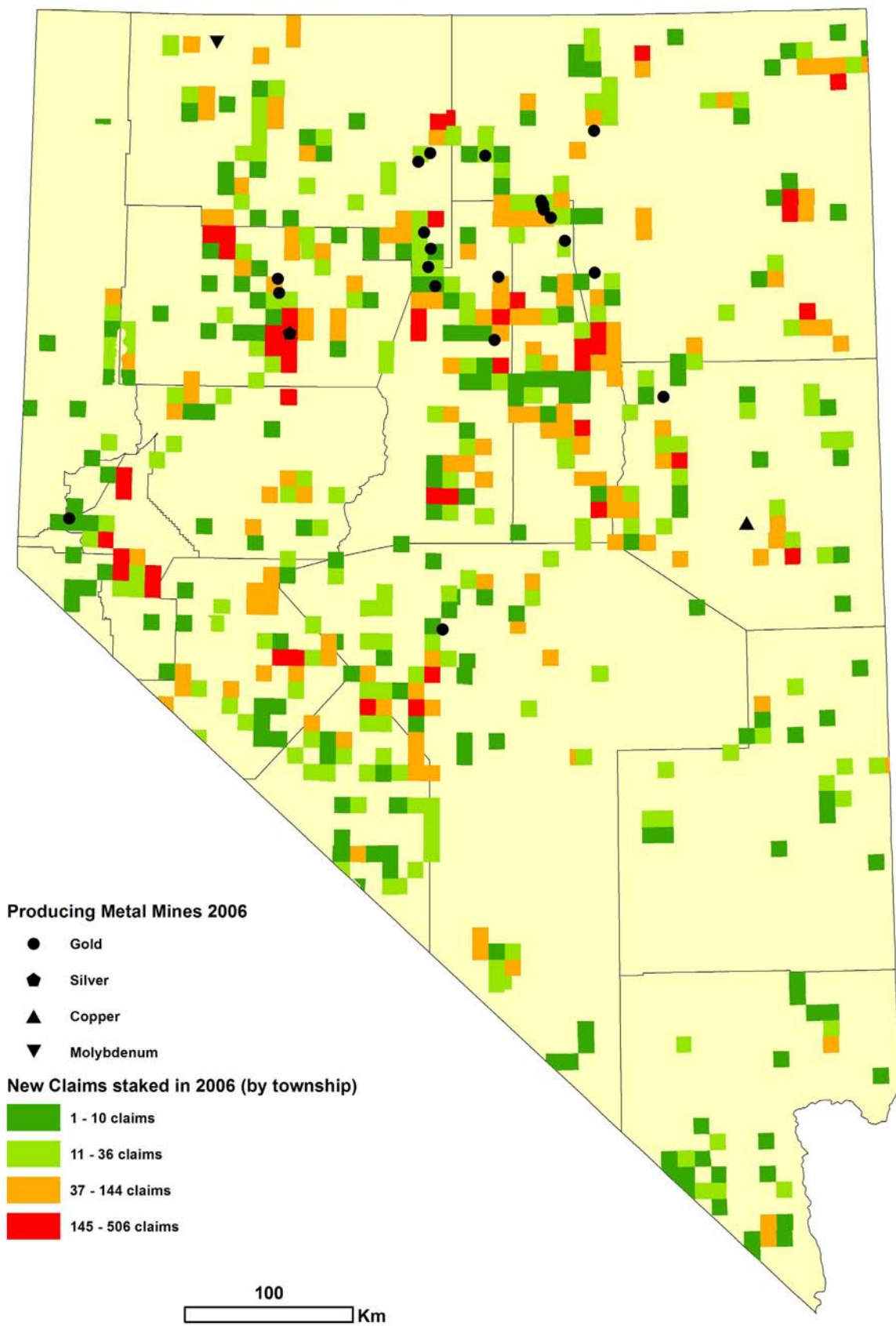


Figure 2. Map showing distribution of new mining claims by township staked in 2006. Source of data is Bureau of Land Management's LR 2000 database.

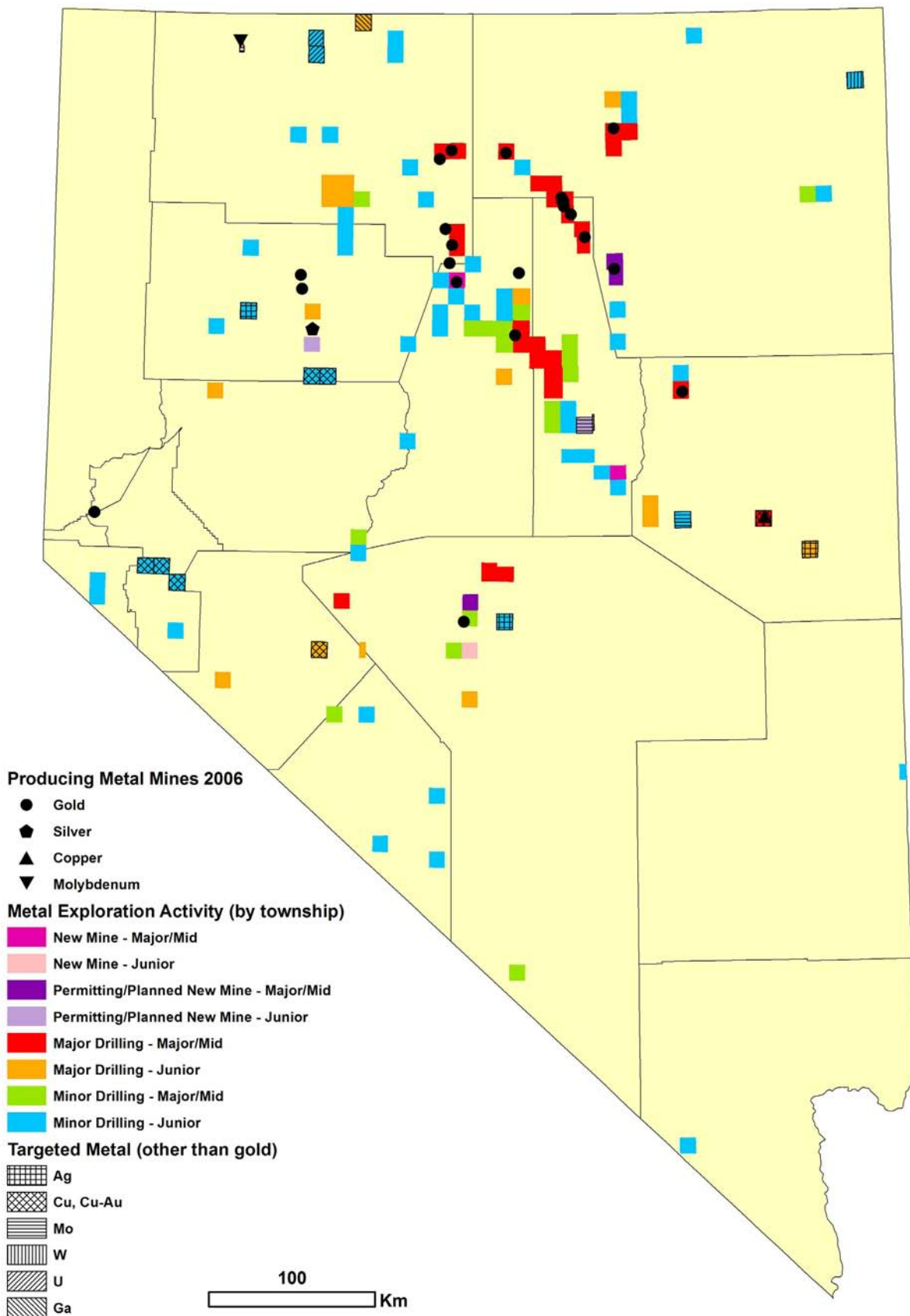


Figure 3. Map summarizing drilling and mine development activity by township in 2006.

of Placer Dome, Barrick also completed major drilling programs at the Cortez Joint Venture and the Bald Mountain Mine, two of the more prospective assets obtained in the takeover of Placer Dome. Though no new discoveries were announced at Cortez in 2006, Barrick continued to expand the Cortez Hills deposit, especially the deep, high-grade Lower Zone. Barrick plans on having Cortez Hills in production in 2009, which will help alleviate declining production from Pipeline. Major drill programs were carried out in 2006 by Newmont at its Leeville, Gold Quarry, Genesis, Carlin, Pete, Phoenix, Twin Creeks, and Midas gold deposits. In addition, Newmont continued the permitting of its Emigrant deposit. Other active mines with major drill programs in 2006 included Turquoise Ridge (75% Barrick, 25% Newmont), Marigold (67% Goldcorp, 33% Barrick), Jerritt Canyon (Queenstake), and Robinson (Quadra).

Substantial drill programs carried out by major or mid-tier companies outside their active mine areas include Northumberland, REN, Hollister, Tonkin Springs, and Gabbs - all gold projects. Newmont continued to evaluate Northumberland, and by the end of 2006, it had spent about \$6 million toward the \$25 million it is obligated to spend by 2010 to earn a 60% interest from its joint venture partner NewWest Gold Corp. A reserve estimate has yet to be announced. Centerra Gold Inc. continued to drill its REN project (joint venture with Barrick) in the northern Carlin trend. Hecla Mining Co. (joint venture with Great Basin Gold Ltd.) completed a total of 7,045 feet of underground development and 55,000 feet of drilling at the Hollister Mine in the Ivanhoe district. Drill results established thickness and continuity of high grades along veins; however, Hecla decided to pull out of the joint venture in early 2007. Great Basin plans to complete a feasibility study and make a decision in 2007 whether to put Hollister into production. Newcrest Mining Ltd. had several interesting intercepts from the large drill program it completed at its Gabbs project, which includes the old Sullivan Mine just north of the Paradise Peak. U.S. Gold began its highly anticipated drill program at Tonkin Springs in 2006 by drilling 55,000 feet. The drilling primarily tested for extensions of known deposits.

Much of the drilling for gold by junior companies in 2006 occurred around known, unmined deposits or inactive mines, commonly with old resource estimates. In addition to expanding a given resource beyond its margins, an important objective of this drilling was to upgrade the resource estimate with infill and confirmation drilling in order to produce a new resource estimate that is compliant with current security and exchange regulations. For example, major drill programs in 2006 breathed new life into old projects, such as Sandman (NewWest), Borealis (Gryphon Gold Corp.), Jessup and Pan (Pan-Nevada Gold Corp.), Robertson (Coral Gold Corp.), Toiyabe (Golden Oasis Gold Corp.) and Fire Creek (Klondex Mines Ltd.). At Fire Creek, Klondex continued to drill and find bonanza-grade vein mineralization at

depths below the historical resource and released a new, indicated mineral resource of just over one million ounces of gold at nearly 0.6 opt (troy ounces per short ton). In addition, new resource estimates were released for Goldfield (Metallic Ventures Gold, Inc.), Lookout Mountain (Stacatto Gold Resources Ltd.), Monte Cristo (Gold Summit Corp.), New Pass (Bonaventure Enterprises Inc.), Pinson (Atna Resources) and Reward (Canyon Resources Corp).

Some junior companies are planning to put small resources into production. For example, Royal Standard Minerals Inc. has fully permitted and is currently test-mining its Gold Wedge underground deposit in the Manhattan district. Firstgold Corp. is currently trying to permit and reopen the Relief Canyon gold mine near Lovelock, which closed in the early 1990s.

Junior companies did not drill as much in areas without historical resources. A major exception was Midway Gold Corp., which continued to drill a new vein discovered in 2005 at its Midway project and announced a resource estimate at its Spring Valley project. The diatreme-hosted Spring Valley deposit, which sparked a staking rush in the Humboldt Range, represents a potentially new type of exploration target in Nevada. In addition, joint venture partners (NewWest and Agnico-Eagle Mines Ltd) continued to drill AuEx's Pequop properties (Long Canyon and Pequop West) near Wells with success. A major implication of the recent discoveries is that the sedimentary rock-hosted mineralization at Pequop is well off any of the known trends of Carlin-type gold deposits and will likely attract companies to this relatively under-explored area of Nevada.

As mentioned above, companies are showing interest in metals other than gold. The projects are focused on areas with historical resources. Silver was the primary target in three exploration projects drilled in 2006. Given that the average price of silver surged 72% in 2006 to \$12.61/ounce, it's surprising that more silver projects were not drilled. Silver projects included the old Trinity Silver and Taylor Mines near Lovelock and Ely, respectively, as well as Corcoran Canyon near Round Mountain.

New York Canyon, a copper-oxide skarn deposit near Luning, remained the most significant copper exploration project in 2006. The Yerington district came to life, as companies drilled the old Pumpkin Hollow and Ann Mason resources in 2006. Boxer Gold Corp. applied an iron oxide-copper-gold deposit model in exploring for copper and gold in and around the old iron deposits of the Buena Vista Hills southwest of Lovelock.

In addition to Quadra completing its molybdenum circuit at Robinson and Golden Phoenix opening of its Ashdown Mine, Idaho General Mines continued to permit the giant Mount Hope porphyry molybdenum deposit north of Eureka. It also acquired the Hall deposit north of Tonopah and is assessing whether remaining resources can be put back into production. Likewise, Augusta Resources drilled a few holes at Mount Hamilton to help evaluate the Shell gold-molybdenum deposit.

Companies are even exploring for tungsten again in Nevada, after almost 20 years of inactivity. Galway Resources is evaluating the Indian Springs tungsten skarn deposit north of Wells. Golden Predator Mines, Inc. acquired the Springer Mining and Milling Complex near Imlay from General Electric Company, who opened and closed the Springer Mine in 1982. Although Golden Predator is assessing whether to put the mine back into production, it is also planning to add a gold circuit to the existing mill, allowing Springer to become the only independent operating gold mill in northern Nevada. This development might encourage junior companies to put small deposits into production.

Western Energy Development Corp. began to drill the large claim block it staked in 2005, looking for uranium in the McDermitt caldera in northern Humboldt County. Nearby, Gold Canyon Resources Inc. continued to explore for gallium near the old Cordero mercury mine close to the town of McDermitt.

Consolidation continued to affect the Nevada metal mining industry in 2006. The biggest event was the finalization of Barrick's takeover of Placer Dome. In addition, Goldcorp acquired Glamis Gold, the operator of the Marigold Mine. Consolidation not only affected large companies. In early 2007, U.S. Gold finalized its acquisition of White Knight Resources Ltd., Nevada Pacific Gold Corp., and Tone Resources Ltd. Moreover, Midway Gold announced plans to acquire Pan-Nevada.

Exploration activity is summarized below by county and district. Projects that were drilled in 2006 are emphasized. Production, reserves and resources of gold and silver are updated in the section "Major Precious-Metal Deposits."

## CHURCHILL COUNTY

### Jessup District

**Jessup.** Pan-Nevada Gold Corp. drilled 46 reverse circulation and seven core holes, most of which were drilled to confirm continuity of intercepts from drilling by previous companies (286 holes). Highlights in the North Jessup area, where a historical resource of 240,000 ounces of gold exists, were 40 feet grading 0.083 opt gold (hole 6-18, 150-190 feet), which included 5 feet of 0.326 opt gold; 75 feet of 0.047 opt gold (hole 6-20, 25-100 feet), which included 10 feet of 0.178 opt; 60 feet of 0.084 opt gold (core hole JP-06047C, 315-375 feet); and 5 feet of 1.62 opt gold in core hole JP-06-50C (60-65 feet). The high-grade intercept in JP-06-50C occurs within a zone of oxidized quartz-pyrite veinlets that are hosted by strongly clay-altered andesite. The 5-foot interval includes veins up to 0.75 inches wide. The interval in JP-06-47C is related to zones of hydrothermal breccia that are similar to and perhaps connected to the San Jacinto breccia pipe, located to the west. Breccia clasts occur within a fine-grained matrix composed of silica and pyrite. (Pan-Nevada Gold Corp. press releases, 5/9/06, 6/21/06, and 9/18/06).

## New Pass District

**New Pass.** Early in 2006, Bonaventure Enterprises Inc. (joint venture with White Knight Resources Ltd.) released an inferred resource estimate of 11,500,000 tons at 0.0226 opt gold (259,900 ounces of gold). Drilling began in October and five reverse circulation holes (2,300 feet) were completed by the end of the year. Four of the five holes had 85- to 115-foot-thick intervals that assayed greater than 0.01 opt gold. The best intercept was 85 feet of 0.038 opt gold (angle hole NP0605, 275-360 feet). Gold occurs mostly in Triassic limestones but also occurs in overlying Tertiary tuffs. (Bonaventure Enterprises Inc. press releases, 4/7/06, 2/9/07; Bonaventure and White Knight websites, [www.bonaventure.us](http://www.bonaventure.us), [www.whiteknightres.com](http://www.whiteknightres.com)).

## CLARK COUNTY

### Goodsprings District

**Boss.** Boxxer Gold Corp. drilled 13 core holes (~2,100 feet), within the Yellowhorse open cut area on the eastern end of their Boss property. The best intercept was 91 feet of 0.037 opt gold (angle hole YH06-2, 11-102 feet). Gold occurs in altered granite-syenite porphyry in a northwest-trending, steeply dipping zone that averages 78 feet wide and has at least 550 feet of strike length. Drilling traced mineralization to depths of at least 200 feet. The highest-grade material occurs as structurally controlled, malachite-stained gossans. Native gold was observed in drill core and also panned from gossanous trench samples. (October 2006 SEG Newsletter; Boxxer Gold Corp press release, 7/20/2006; Boxxer Gold website, [www.boxxergold.com](http://www.boxxergold.com));

## DOUGLAS COUNTY

### Gardnerville District

**Pine Nut.** Redstar Gold Corp. completed eight core holes (7,145 feet), all of which intersected multiple quartz veins and gold mineralization exceeding 0.010 opt gold. Highlights included the highest-grade intersection yet reported for the property. Hole PNR-4 returned 0.799 opt gold over an approximate true width of 2.1 feet, within a massive vein yielding 0.373 opt gold over 5.3 feet. The project covers a low-sulfidation epithermal vein system hosted in Jurassic volcanic rocks. Three major veins have been identified within a system traceable for at least 6,200 feet along strike and having a width of about 1,300 feet. Gold values at surface reach 1.1 opt across about 10 feet. (Redstar Gold Corp. press release, 11/7/2006; Redstar Gold website, [www.redstargold.com](http://www.redstargold.com))

## ELKO COUNTY

### Bootstrap District

**REN.** Drilling on the REN project (62% Centerra Gold Inc., 38% Barrick Gold Corp.) totaled 10,250 meters in about 20 holes, which were a mix of reverse circulation, reverse circulation pre-collar, core wedges, and core tails. Two holes returned significant results. Hole RU-100C, drilled to fill in a 150-meter gap between previous holes in the JB zone, returned assays of 21.7 g/t (grams per metric ton) gold over 4.6 meters and 10.2 g/t gold over 12 meters. The intercepts are located 75 to 105 meters northeast of previous high-grade intercepts in hole RU-50C, and 90 meters from an previous a high-grade intercept in hole RU-38C to the east. The second hole, which returned significant results, RU-105C, was drilled to offset a 2005 intercept of 8.13 g/t gold over 3 meters along the Corona dike near its projected intersection with the MBX fault on the west-central side of the REN property. The hole returned an intercept of 18.5 g/t gold over 19.8 meters from a strongly altered zone of multiple lamprophyre dikes within decarbonated lithologies in the Rodeo Creek and Popovich Formations. Three wedge core holes, which were drilled to follow-up the RU-105C intercept, intercepted 4.6 meters of 4.28 g/t gold, 3 meters of 14.42 g/t, and 20 meters of 1.1 g/t. Four holes have been completed south of the REN open pit on the "BR-03C" target, along the REN fault zone. All four holes intercepted abundant faulting, brecciation, and alteration with the best intercept returning assays of 6.8 g/t gold over 3 meters. (Centerra press releases, 10/26/06, 2/6/07; Centerra website, [www.centerragold.com](http://www.centerragold.com))

**South Arturo.** In August, 2005, Barrick Gold Corp discovered the South Arturo deposit on the Dee property (60% Barrick, 40% Goldcorp) at the northern end of the Carlin trend. Barrick drilled 160 holes (192,000 feet) through September 2006. The discovery hole, drilled in August 2005 from mine dumps 100 feet south of the old Dee open pit, encountered 245 feet of 0.056 opt gold beneath 850 feet of post-mineral Carlin Formation. Though the deposit is relatively deep and will require significant stripping, the mineralization is oxidized. Oxidation locally extends to depths greater than 2,000 feet. Mineralization mostly occurs in breccias along the contact between the Popovich and overlying Rodeo Creek Formations. Highlights from the drilling include intersections of 845 feet of 0.118 opt gold and 673 feet of 0.149 opt gold. In their year-end financial report for 2006, Barrick listed an indicated resource of 12,644,000 tons at 0.060 opt gold (754,000 ounces) and an inferred resource of 786,000 tons at 0.053 opt gold (42,000 ounces). Barrick also intersected new mineralization in a new area called the Hinge zone, a parallel zone to the northeast of South Arturo. (Barrick Gold website, [www.barrick.com](http://www.barrick.com))

**Storm.** Barrick Gold Corp. drilled 36 underground core holes (4,319 meters) and two surface holes (1,260 meters) at its Storm project (60% Barrick Gold,

40% Meridian Gold). Furthermore, Barrick completed engineering studies and permitting in preparation for startup of mining in 2007. (Securities and Exchange Commission website - Meridian Gold's 2006 Annual Information Form, form 40-F, [www.secinfo.com](http://www.secinfo.com))

### Carlin District

**Emigrant.** Permitting continued at Newmont Mining Corp.'s Emigrant deposit at the south end of the Carlin trend. Completion of the Environmental Impact Statement has been delayed pending results of studies to help determine potential water quality impacts. (Bureau of Land Management website, [www.nv.blm.gov](http://www.nv.blm.gov))

### Delano District

**Indian Springs.** Galway Resources is evaluating the Indian Springs tungsten skarn deposit in the Delano district north of Wells in northeastern Nevada. The project had undergone extensive exploration drilling and metallurgical testing during the period of 1968 through 1986, including work by Placer Amex, Union Carbide, and Utah International. Various historical resource and reserve estimates exist. The most recent was determined by Utah International Inc. in 1984, which ranged from 8,850,000 short tons at 0.257% WO<sub>3</sub> to 21,940,000 short tons at 0.179% WO<sub>3</sub> depending upon the cutoff grade used. The deposit contains both high-recovery, scheelite-bearing mineralization and lower-recovery, non-scheelite, iron-oxide bearing tungsten mineralization. Galway believes improvements in metallurgy since the 1980s, such as solvent extraction and pressure-leach hydrometallurgy, along with the current high price of tungsten might improve the economics of the deposit. In 2006 Galway drilled 23 holes (~7,000 feet) that verified ore grade intercepts and extended the known mineralization. (Galway press releases, 7/20/06, 11/3/06, 11/28/06, 12/13/06, 1/18/07; Galway website, [www.galwayresources.com](http://www.galwayresources.com))

### Gold Circle District

**Clover.** Atna Resources Ltd. and Meridian Gold entered into an agreement whereby Meridian can earn a 51% interest in Clover by completing US\$3.3 million in exploration expenditures on the property and making cash payments to Atna totaling US\$635,000 over a 4-year period. (Atna Resources website, [www.atna.com](http://www.atna.com))

**Midas.** Newmont Mining Corp. continued to explore its Midas Mine. Of particular interest was the drilling of a new vein system south of the mine. Highlights of the drill program on the SV1 vein target included 5 feet of 0.291 opt gold and 14.20 opt silver, 5 feet of 0.320 opt gold and 13.90 opt silver, and 5 feet of 0.449 opt gold and 4.60 opt silver in three separate, widely spaced holes. Reserves decreased not only because of production, but also due to a revision of the mine plan. (D. Harris,

Newmont Mining Corp., oral commun., December 2006; Newmont press release, 2/22/2007; Newmont website, www.newmont.com )

## Independence Mountains District

**Big Springs.** Gateway Gold Corp. drilled at least 23 holes in 2006, 19 of which (11,523 feet) were drilled at Big Springs proper. Significant gold-bearing intercepts ranged from 0.029 to 0.085 opt gold over intervals ranging from 5 to 30 feet. Two holes drilled at Deep Sammy both intersected lower-plate rocks, but did not hit the intended target where lower-plate rocks intersect Brien's Fault.<sup>3</sup> The best intercept was 45 feet of 0.039 opt gold. At Lower Mac Ridge, Gateway extended the zone of lower-plate rocks at the surface to a distance of at least 9,000 feet, 1,800 feet of which have anomalous gold in rock chips. Four trenches were dug at Lower Mac Ridge. Trench 1 had 60 feet of 0.063 opt gold; Trench 2 had 0.052 opt over 30 feet; Trench 3 had 0.052 opt over 25 feet; and Trench 4 had 0.029 opt gold over 10 feet. Soil data, based on sampling in 2006, shows a northwest-trending gold anomaly that extends 4,900 feet in length and up to 1,800 feet in width. (Gateway Gold press releases, 11/9/06, 1/31/07; Gateway Gold Website, www.gatewaygold.com)

**Dorsey Creek.** Gateway Gold Corp. drilled one deep hole, which did not encounter lower-plate rocks. No assays have been reported. (Gateway Gold press release, 11/9/06; Gateway Gold Website, www.gatewaygold.com )

**Golden Dome.** Gateway Gold Corp. drilled 11 core holes (24,000 feet). Eight holes returned gold values in excess of 0.015 opt. The best intercept was in hole GD06-20C where 20 feet of 0.081 opt gold was intercepted, including 5 feet that assayed 0.13 opt gold. Hole GD06-9C intersected 50 feet that averaged over 0.015 opt gold, including 5 feet that assayed 0.048 opt gold. Hole GD06-16C returned 5 feet that assayed 0.052 opt gold and four additional zones farther down the hole that ranged from 0.009 opt to 0.020 opt gold. All the intercepts occurred at depths greater than 1,500 feet and are within structural zones in upper-plate rocks. (Gateway Gold press release, 1/18/07; Gateway Gold website, www.gatewaygold.com)

**Jerritt Canyon.** Queenstake Resources Ltd. carried out a major drill program (~\$5 million) in 2006, mainly aimed at converting resources to reserves and extending the underground deposits at SSX, Smith, West Dash, and Steer. The Smith Mine ore zone was extended westward along the Mahala dike trend. Drill intercepts included 40 feet of 1.82 opt gold and 30 feet of 0.91 opt gold that are

within 180 feet of underground development at Smith. The underground SSX and Steer deposits were extended by drill intercepts that included 35 feet of 0.628 opt gold and 50 feet of 0.369 opt gold. Newmont Mining Corp., through its subsidiary Newmont Canada Ltd., made a \$10 million private placement in Queenstake. As part of the deal, Newmont will sell concentrates and ore from its Nevada operations to Queenstake for processing at the roasting and milling facility at Jerritt Canyon. The contract calls for the purchase of at least 500,000 tons per year for two years. Ore was trucked periodically to Jerritt Canyon throughout much of 2006. (Queenstake Resources press releases, 3/30/06, 8/16/06, 9/13/06 11/14/06, 1/18/07; Queenstake Resources website, www.queenstake.com)

**Starvation Canyon.** As of the end of 2006, the probable reserve at Starvation Canyon, estimated by Queenstake Resources, was 369,600 tons at 0.305 opt gold (112,900 ounces), and the measured and indicated resource (including reserves) was 636,500 tons at 0.290 opt gold (184,300 ounces). The deposit lies above the water table in an area of steep topography and could be accessed by development of a drift from the hillside. Starvation Canyon's gold resources, as currently defined, are contained in two northwest-trending zones (East and West zones), which extend 1,700 feet and are open in several directions. Queenstake completed 32 reverse circulation drill holes totaling 23,450 feet in 2006, including 12 infill drill holes totaling 8,465 feet within the 2005 resource boundary. The main objective of the 2006 program was to define high-angle faults containing gold mineralization that link the East and West zones and to better define the known resource shapes. The highlight of the drill program was hole TJ-248, which intercepted 140 feet of 0.46 opt gold, beginning at 280 feet below the surface. This interval included an intercept of 40 feet of 0.87 opt gold. This hole was outside the boundary of the estimated resources and is located between the East and West zones. Another highlight was hole TJ-264, which intercepted 45 feet of 0.33 opt gold (350-395 feet). TJ-264 was drilled outside the resource areas, just south of the West zone. Six high-angle reverse circulation holes were also drilled to test a high-angle structural zone that apparently controls the high-grade intercept in TJ-248. The holes confirmed the northwestward extension of this structure, identifying low-grade gold mineralization. Four holes intersected the structure, with the best intercept being 15 feet of 0.22 opt gold. However, the holes apparently intercepted the structure up-dip from the level of the high-grade gold intercept in hole TJ-248. The two remaining holes did not reach the target depth due to ground conditions. Due to the high demand for drill rigs in Nevada, Queenstake was unable to obtain a core rig for the 2006 program. (Queenstake Resources press releases, 3/5/06, 8/3/06, 1/23/07; Queenstake Resources website, www.queenstake.com)

<sup>3</sup> Lower plate and upper plate refer to the footwall and hanging wall, respectively, of the Roberts Mountains thrust fault. The lower plate is predominantly carbonates, which are more receptive to gold mineralization than upper plate rocks, which are predominantly siliceous and non-calcareous.

## Ivanhoe District

**Hollister.** Hecla Mining Co. (joint venture with Great Basin Gold Ltd.) completed 7,045 feet of underground development, including over 200 feet of drifting along the Gwenivere vein. They also completed a 55,000-foot underground core drilling program (>100 holes), designed to define the mineral resources for a feasibility study. Drill results were promising and established thickness and continuity of grade along the Gwenivere and Clementine veins. Numerous intercepts had vein thicknesses in the range of 2 to 7 feet and gold grades in the range of 1 to 8 opt, with the best intercept being 3.9 feet grading 15.29 opt gold and 32.24 opt silver. Work on other aspects of the feasibility study also progressed on the development of the geological resource model and continuation of underground test mining, which included tests for split blasting, drifting and raising in the different vein systems and investigations of rock mechanics to assess the efficacy of backfilling and to test backfill materials. Mine planning also encompassed evaluation of different access routes, plans for dewatering, evaluation of general infrastructure, completion of metallurgical test work, evaluation of ore treatment alternatives, and permitting strategies. (Hecla Mining and Great Basin press releases, 5/9/06, 6/21/06, 8/23/06, 11/15/06, 12/21/06, 2/21/07; Great Basin Gold website, [www.greatbasingold.com](http://www.greatbasingold.com); Hecla Mining website, [www.hecla-mining.com](http://www.hecla-mining.com))

**Squaw Creek.** Bonaventure Enterprises Inc. (joint venture with White Knight Resources Ltd.) drilled three angled reverse circulation holes with core tails totaling 4,802 feet at its Squaw Creek project located just northwest of Hollister. The drilling found the bounding fault of a large horst block of Paleozoic rocks. The best intercept was 15 feet of 0.033 opt gold (hole SC0603, 985-1,000 feet). (White Knight press releases, 10/11/06, 12/31/07; White Knight website, [www.whiteknightsres.com](http://www.whiteknightsres.com))

## Jarbidge District

**Jarbidge.** Atna Resource Ltd. drilled five core holes (2,260 feet). The drilling intersected numerous silicified structures and veins but no significant gold values. Pervasive, intense argillic alteration intersected in the Longhike area suggests potential for precious metals to occur several hundred feet below. (Atna Resources press release, 1/10/2007; Atna Resources website, [www.atna.com](http://www.atna.com))

## Pequop District

**Long Canyon.** AuEx Ventures Inc. cleaned up land issues at its Pequop properties by taking on NewWest Gold Corp. as a partner on the east side of the property, now called Long Canyon, and Agnico-Eagle Mines Ltd. as a partner on the west side of the property (now called

West Pequop). At Long Canyon, NewWest continued AuEx's 2005 success by drilling additional thick intercepts of oxidized gold mineralization. The 2006 drilling program (16 holes, 10,405 feet) successfully extended the known mineralization approximately 500 feet to the northeast and 1,600 feet to the southwest, defining a current cumulative strike length of approximately 3,400 feet. Gold mineralization remains open in all directions and at depth. The highlight was an intercept of 45 feet averaging 0.585 opt gold. Mineralization is associated with northeast-trending structures and collapse breccias near contacts between dolomite and limestones in the Cambrian Notch Peak Formation. (R. Felder, NewWest Gold Corp., oral commun., December, 2006; NewWest press release, 1/18/2007; NewWest website, [www.newwestgold.com](http://www.newwestgold.com); AuEx website, [www.auexventures.com](http://www.auexventures.com))

**West Pequop.** At West Pequop, Agnico-Eagle Mines Ltd. (joint venture with AuEx Ventures Inc.) drilled 11 holes totaling 7,905 feet, which resulted in the discovery of new gold mineralization, including 55 feet of 0.182 opt gold (hole WN-063, 505-560 feet) in the NE Section 34 target area. Other highlights include holes WN-061 and WN-062, which had multiple 15- to 60-foot intercepts of 0.02 to 0.119 opt gold. The three mineralized holes in NE Section 34 are near an area of drilling conducted in 2000; however, the higher grade results from the recent drilling appear to be from stratigraphic intervals that are deeper and were not tested by the earlier drilling. The new holes are about 300 feet apart with hole WN-063 being the most northeasterly. The high-grade mineralization encountered in hole WN-063 is open to the north, south, and east. All the drill holes in the southwest portion of the Section 34 target area contained anomalous gold values. Drilling in the Acrobat target area suffered from drilling problems, including strong hole deviation and poor sample recovery. (AuEx press releases, 10/12/2006, 1/9/2007; AuEx website, [www.auexventures.com](http://www.auexventures.com)).

## Robinson Mountain District

**Dixie Creek.** Frontier Pacific reportedly drilled one deep (~2,500 feet) core hole, but no results were reported, and the company has apparently dropped the property. (Frontier Pacific press release, 5/25/2006; Frontier Pacific website, [www.frontierpacific.com](http://www.frontierpacific.com))

**Pony Creek.** Grandview Gold Inc. drilled seven core holes (12,414 feet). Objectives of the drill program were to upgrade and confirm the known shallow inferred resource and to explore for higher gold grades at depth. Hole PC-06-03 intersected 90 feet of 0.035 opt gold (310-400 feet) along the eastern edge of the northern lobe of the Pony Creek intrusion, within the existing resource. Hole PC-06-04, which was drilled in the north central portion of the property, intercepted strong pyritic silicification but no significant gold values. Holes PC-06-06 through PC-06-08 were drilled within the South Pony



Creek intrusive target to determine the extent to the north and south of previous intercepts. The best intercept was in hole PC-06-06, where 10 feet containing 0.156 opt gold occurred within 30 feet of 0.079 opt gold (330-360 feet). The last hole of the program, PC-06-09, was drilled east of the northern lobe of the Pony Creek intrusion and intercepted 295 feet of 0.005 opt gold (1,340-1,635 feet). (Grandview press releases, 11/20/2006, 12/20/2006; Grandview website, [www.grandviewgold.com](http://www.grandviewgold.com))

## Union District

**Claim Staking.** Nearly 1,000 claims were staked in the Union Pass, Mineral Hill, Bailey Hills, and Garcia Flat areas, mainly by Platte River Gold, Golden Gryphon and Churnhill Gold (BLM LR2000 database).

**Mexican Hill.** Golden Odyssey Mining Inc. drilled six reverse circulation holes totaling 3,610 feet. Two separate target areas were tested. The eastern area is comprised of three north-northeast-trending fault zones and the western area contains an extensive north-trending fault zone. Alteration along the surface of these zones includes strong iron-oxidation, massive, barite-bearing limestone, brecciated jasperoid, and barite veins. Similar alteration was encountered in all drill holes and geochemically anomalous intervals of arsenic, antimony, zinc, and gold were intersected in two of the drill holes. (Golden Odyssey press release, 2/13/2007; Golden Odyssey website, [www.gomininginc.com](http://www.gomininginc.com))

## ESMERALDA COUNTY

### Gilbert District

**Monte Cristo.** In February of 2006, Gold Summit Corp. released an inferred resource estimate on the McLean lode - 363,760 tons at 0.190 opt gold and 0.583 opt silver (69,000 ounces gold, 203,000 ounces Ag). The lode is 400 meters long, 300 meters down-dip and averages 4.4 meters wide (1-11 m). It is displaced at both ends by crosscutting faults. Gold Summit expanded its Monte Cristo property southward by optioning the South Gilbert property and staking additional claims. Gold Summit drilled two additional core holes in the McLean open pit and intersected silicification and quartz veins, but no gold values above 0.03 opt. (Gold Summit press releases, 2/28/2006, 4/3/2006, 6/12/2006; Gold Summit website, [www.goldsummitcorp.com](http://www.goldsummitcorp.com))

### Gold Point District

**Morningstar.** Golden Odyssey drilled nine reverse circulation holes (4,500 feet). The highest assay was 1.37 g/t gold over 1.5 meters. The targets were high-grade epithermal quartz veins and disseminated, replacement-style gold mineralization in carbonate lithologies of the lower Cambrian Poleta Formation. The

drilling in 2006 hit anomalous gold, up to 0.195 g/t, in several intervals ranging from 25 to 40 feet in width. (Golden Odyssey press release, 8/22/2006; Golden Odyssey website, [www.gomininginc.com](http://www.gomininginc.com))

### Goldfield District

**Gemfield.** Metallic Ventures Gold Inc. completed a 10-hole reverse circulation infill drill program at Gemfield. The best intercept was 80 feet of 0.918 opt gold (105-185 feet) that included 2.5 feet of 9.432 opt gold. A new resource estimate was released in September, 2006. The measured and indicated resource at Gemfield is 12,458,000 tons at 0.031 opt gold (387,567 ounces). The resource is hosted in the Sandstorm Rhyolite. Metallurgical test work indicates that the Gemfield deposit would be amenable to heap leaching. Gold recoveries, depending on grind, rock type, and carbon-in-column or carbon-in-leach methodologies, ranged from 69.3% to 98.0%. (Metallic Ventures press releases, 7/25/2006, 9/25/2006; Metallic Ventures website, [www.metallicventuresgold.com](http://www.metallicventuresgold.com))

**McMahon Ridge.** Metallic Ventures Gold Inc. released a measured and indicated resource of 4,138,000 tons at 0.042 opt gold (175,522 ounces). Metallurgical test work indicates that the McMahon Ridge deposit would be amenable to heap leaching. Gold recoveries, depending on grind, rock type, and carbon-in-column or carbon-in-leach methodologies, ranged from 62.4% to 90.0%. (Metallic Ventures press release, 9/25/2006; Metallic Ventures website, [www.metallicventuresgold.com](http://www.metallicventuresgold.com))

### Palmetto District

**Palmetto.** Golden Odyssey Mining Inc. drilled 13 reverse circulation holes (6,180 feet). The highest gold assay over 5 feet was 0.2 ppm. (Golden Odyssey press release, 10/18/2006; Golden Odyssey website, [www.gomininginc.com](http://www.gomininginc.com))

### Rock Hill District

**Redlich.** Newcrest Mining Ltd. (joint venture with Miranda Gold Corp.) drilled 15 holes (10,975 feet) in 2006. Through 2006, Newcrest had completed 61 drill holes totaling 37,564 feet on the project. The drill campaign continued to focus on a northwest-trending fault corridor hosting high-grade gold in low-sulfidation quartz veins and thick, continuous zones of disseminated or stockwork-related gold mineralization surrounding the high grade veins. Highlights included 5 feet of 0.375 opt gold that occurred within 60 feet of 0.043 opt gold in hole R-77, 5 feet of 0.603 opt gold (hole R76), and 5 feet of 0.44 opt gold (hole R84). (Miranda Gold press releases, 9/27/2006, 11/15/2006; Miranda Gold website, [www.mirandagold.com](http://www.mirandagold.com))

## EUREKA COUNTY

### Antelope District

**Celt.** Teck-Cominco (joint venture with White Knight Resources Ltd.) reportedly carried out a six- to ten-hole, ~8,000-foot drill program. No results were released. Teck-Cominco terminated their agreement with White Knight. (White Knight press releases, 10/10/2006, 3/20/2004; White Knight website, [www.whiteknightres.com](http://www.whiteknightres.com))

**Cottonwood.** White Knight Resources Ltd. drilled two reverse circulation holes (1,280 feet) at the Pot Canyon Target. Both holes intersected low-grade gold mineralization. It also drilled one 900-foot hole at its French Trail target. (White Knight press release, 3/14/2007; White Knight website, [www.whiteknightres.com](http://www.whiteknightres.com))

**Gold Bar Horst.** White Knight Resources Ltd. completed a six-hole program. Lower-plate limestones were encountered as shallow as 390 feet. Anomalous arsenic and trace gold were encountered in all three of the holes for which assays were reported. White Knight infers that lower-plate rocks occur at "reasonable depths" over an area measuring 3,500 feet by 7,000 feet on the portion of their Gold Bar Horst property that is south of the old Gold Bar open pit. (White Knight press release, 11/7/2006; White Knight website, [www.whiteknightres.com](http://www.whiteknightres.com))

**Hunter.** White Knight Resources Ltd. drilled three holes (800 feet) at its Hunter property, about 3 miles southeast of the Gold Pick open pit. No assays were released. (White Knight press release, 11/7/2006; White Knight website, [www.whiteknightres.com](http://www.whiteknightres.com))

**Kobeh.** Tone Resources Ltd. drilled two vertical holes (1,330 feet) in its South Wall target in early 2006. Hole SW06-1 was drilled to 750 feet, and intersected about 60 feet of barite-bearing jasperoid at the targeted contact between the Devils Gate Limestone and overlying Webb Formation. Low to moderate levels of arsenic to 282 ppm, antimony to 78 ppm, and zinc to 573 ppm were encountered in the contact zone. The highest gold assay was only 13 ppb. Hole SW06-2 was drilled to 580 feet, and it intersected 30 feet of jasperoid at the targeted Devils Gate-Webb contact. Low to moderate levels of arsenic to 129 ppm, antimony to 23 ppm, and zinc to 865 ppm were encountered in the contact zone. The highest gold assay was 18 ppb. (Tone Resources press release, 3/18/2006; Tone Resources website, [www.tonerresources.com](http://www.tonerresources.com))

**Roberts Mountains.** Romarco Minerals Inc. drilled ten reverse circulation holes (7,210 feet) on their Roberts Mountain property. The drilling focused on the contact between the Devils Gate and Webb Formations. Holes RM 1 and RM 5 both contain significant anomalous gold intervals which occur at the Webb-Devils Gate contact.

RM 5 intersected 40 feet (180-220 feet) of 0.011 opt gold that appears to be within a prominent northeast-trending structural zone, which was also intercepted by holes RM 6 and 7. RM 6 contains over 500 feet of detectable gold. RM 7 has over 300 feet of detectable gold. (Romarco press release, 12/7/2006; Romarco website, [www.romarco.com](http://www.romarco.com))

### Buckhorn District

**Fuse.** Barrick Gold Corp. (joint venture with Miranda Gold Corp.) drilled one vertical reverse circulation hole to a depth of 1,860 feet. The hole was designed to test a coincident gravity and mercury soil gas anomaly for prospective lower-plate carbonate rocks beneath pediment cover. The hole intersected bedrock at 780 feet and ended in upper plate siliceous rocks. Significant gold was not encountered. (Miranda Gold press release, 2/26/2007; Miranda Gold website, [www.mirandagold.com](http://www.mirandagold.com))

### Eureka District

**East Archimedes/Ruby Hill.** Barrick Gold Corp. continued pre-stripping of the East Archimedes deposit in 2006. Production is slated for early 2007. Exploration was carried out near the Archimedes open pit, focusing on the Deep Blanchard and 426 Fault targets. At the 426 Fault target, Barrick drilled core hole BRH-37C, which intercepted 46 feet of sulfide mineralization grading 0.338 opt gold (1,052-1,098 feet) and 36.4 feet of oxide mineralization grading 0.202 opt gold (1,122.2-1,158.6 feet). Barrick is also looking at deep sulfide bodies of >0.2 opt gold and of silver-rich, base metal mineralization with >5% zinc that occur below the East Archimedes deposit. (K. Russell, Barrick Gold Corp., oral commun., October, 2006; Barrick website, [www.barrick.com](http://www.barrick.com))

**Eureka South.** Stacatto Gold Resources Ltd. drilled 17 core holes (20,291 feet) on their Eureka South property in and around the old Lookout Mountain open pit in the Ratto Canyon area. Highlights included 95.5 feet of 0.218 opt gold and 55 feet of 0.503 opt gold. The drilling program extended and demonstrated the continuity of high-grade breccia-hosted gold mineralization beneath, and southward along strike, from the Lookout Mountain pit. Thick sections containing lower gold grades have also been partially defined west of the high-grade breccia and along its flanks in thinner zones to the east. Based on drilling in 2005 and 2006, Stacatto released a measured and indicated resource of 836,000 tons of 0.24 opt gold, for 200,640 ounces. (Mathewson, 2006; Stacatto Gold press releases, 8/1/2006, 10/26/2006; Stacatto Gold website, [www.staccatogold.com](http://www.staccatogold.com))

**Signal.** Bravo Ventures Group Inc. drilled 12 reverse circulation holes (2,062 meters). Thick zones of oxidized, potentially leach-grade gold (generally <1.0 g/t gold) were intersected at the Main Signal target area, near

the unconformity between Mississippian clastic rocks and underlying Devils Gate Limestone. Mineralization is associated with jasperoid development, decalcification, oxidation of iron minerals, and anomalous trace elements, which are typical of Carlin-style gold mineralization. The best drill intercept was in hole SI060004, which intersected 40 meters of 0.647 g/t gold (91-131 m) including 6 meters of 1.44 g/t gold. (Bravo Ventures press release, 2/1/2007, Bravo Ventures website, www.bravoventuregroup.com)

## Lone Mountain District

**South Lone Mountain.** Bravo Ventures Group Inc. drilled two mud-rotary holes in 2006. The first hole intersected Lone Mountain dolomite below gravel at a depth of 456 meters. No other results have been reported. (Bravo Ventures press releases, 11/24/2006, 2/1/2007; Bravo Ventures website, www.bravoventuregroup.com)

## Lynn District

**Carlin.** Newmont Mining Corp. carried out a major drill program at the east end of the Carlin open pit. Highlights of the drill program include 165 feet of 0.061 opt gold (refractory mineralization), 85 feet of 0.10 opt gold (refractory mineralization) and 50 feet of 0.054 opt gold (oxidized mineralization) (Newmont website, www.newmont.com)

**Genesis.** Newmont Mining Corp. carried out a major program at its Genesis open-pit mine, focusing on extending the pit westward. Highlights include 50 feet of 0.041 opt gold (oxidized), including 10 feet of 0.123 opt; 30 feet of 0.064 opt gold (oxidized); 15 feet of 0.110 opt gold; and 85 feet of 0.413 opt gold (sulfide-bearing). Reserves were reportedly increased significantly, but no figures were released. (D. Harris, Newmont Mining Corp., oral commun., December 2006)

**Goldstrike.** Barrick Gold Corp. continued a major drill program in and around the Betze-Post pit and in their underground mines at their Goldstrike complex in the northern Carlin trend. It was focused mostly on converting resources to reserves in the underground Banshee and North Post deposits. Results at North Post include 200 feet of 0.352 opt gold in hole U12-P06-36 and 70 feet of 0.520 opt gold in hole U10-P05-01A. (E. Cope, Barrick Gold Corp., oral commun., December, 2006; Barrick Gold website, www.barrick.com)

**Leeville.** Newmont Mining Corp. carried out a major underground drill program at Leeville. The primary focus was infill drilling to convert resources to reserves. Highlights include 154.5 feet containing 0.638 opt gold (hole LUC-275), which was along the Packer Fault; 75.5 feet containing 0.640 opt gold (hole LUC-274); and 35.5 feet containing 0.450 opt gold (LUC-276). (Newmont website, www.newmont.com)

**Pete.** Newmont Mining Corp. carried out a major drill program at its Pete deposit. It drilled at least 30 holes, mainly to convert resources to reserves, but also expanded the planned pit northward (Bajo deposit). Highlights include 105 feet of 0.041 opt gold (oxidized, hole PGR-612), 65 feet of 0.381 opt gold (refractory, hole PGR-597) and 75 feet of 0.328 opt gold (refractory, hole PGR-609) (Newmont website, www.newmont.com)

## Maggie Creek District

**Gold Quarry.** Newmont Mining Corp. carried out a major drill program at Gold Quarry, mostly focused on resource to reserve conversion. At the underground Chukar deposit, highlights include 60 feet of 0.318 opt gold along the Chukar anticline (hole CFU-328A) and 89 feet of 0.378 opt gold along the Grizzly fault (hole CFU-332). (D. Harris, Newmont Mining Corp., oral commun., December 2006; Newmont website, www.newmont.com)

**Mike.** Newmont Mining Corp. drilled about a dozen holes aimed at enlarging its Mike gold-copper deposit. Better intercepts included 105 feet of 0.025 opt gold and 355 feet of 0.91% copper in hole REB-135, 70 feet of 0.017 opt gold and 180 feet of 0.69% copper in hole REB-137, 125 feet of 0.024 opt gold and 175 feet of 0.64% copper in hole REB-138, and 280 feet of 0.025 opt gold and 410 feet of 0.21% copper in hole REB-142. (D. Harris, Newmont Mining Corp., oral commun., December 2006)

## Mount Hope District

**Mount Hope.** Idaho General Mines, Inc. submitted a Plan of Operations to the Bureau of Land Management and initiated various baseline studies necessary to complete an Environmental Impact Statement with the objective of putting the Mount Hope molybdenum deposit into production. Idaho General Mines expanded their land position by staking 651 claims around Mount Hope in 2006. (Idaho General Mines press release, 4/3/2007; Idaho General Mines website, www.igmines.com; BLM LR2000 database)

## Northern Simpson Park Mountains

**Coal Canyon.** Golden Aria Corp. (joint venture with Miranda Gold Corp.) drilled two holes (2,020 feet) designed to test resistivity and self-potential anomalies at the intersections of altered fault zones in favorable lower plate carbonate rocks. The holes intersected six 30- to 200-foot-thick zones of moderately decalcified, and variably silicified/clay-altered silty limestone. Neither of the holes intersected significantly anomalous gold mineralization. (Miranda Gold press release, 1/26/2007)

**Coal Canyon.** Greencastle Resources Ltd. drilled two core holes to test a zone in the Grouse Creek fault. Each was drilled to an approximate depth of 1,300 feet. No results were released. (Greencastle Resources press release, 9/14/2006)

**Cornerstone.** In the first half of 2006, Nevada Pacific Gold Inc. completed 3,810 feet of reverse circulation drilling. Better intercepts included 150 feet of 0.01 opt gold (hole CSR06-19, 0-150 feet) and 60 feet of 0.03 opt gold (hole CSR06-20, 0-60 feet), including 10 feet of 0.11 opt gold. In November, they reportedly began a 4,000-foot core drilling program. No results of that program were released. (Nevada Pacific press releases, 7/24/2006, 11/9/2006; Nevada Pacific website, www.nevadapacificgold.com)

**HO.** Bravo Ventures Group, Inc. drilled one mud-rotary hole to 427 meters on pediment near the northeast corner of the Simpson Park Mountains. The hole intersected gravel, lake sediments, and ended in unaltered tuffaceous sandstone. (Bravo Ventures press release, 11/24/2006; Bravo Ventures website, www.bravoventuregroup.com)

**Patty (Indian Ranch).** Barrick Gold Corp. (joint venture with White Knight Resources Ltd.) drilled four deep reverse circulation holes. The holes were drilled in the Northeast Bench area and immediately to the west. Hole depths ranged from 1,400 to 2,900 feet for a total of 9,160 feet of drilling. Three of the holes intersected multiple zones containing anomalous gold (>0.005 opt gold, but less than 0.015 opt gold) ranging from 5 feet to 100 feet thick. (White Knight press release, 3/14/2007)

**Red Hill.** Barrick Gold Corp. carried out a small drill program at their Red Hill property. On the portion of the property that is joint-ventured from Miranda Gold Corp., Barrick drilled four deep reverse circulation holes (9,860 feet) on pediment north of the range. Hole BRH-013 intersected 45 feet of 0.237 opt gold between 1,920 and 1,965 feet. The interval lies within a longer, lower-grade mineralized zone. Mineralization occurs at the contact of two lower plate carbonate units and is associated with altered mafic dikes and high levels of arsenic, antimony, mercury, and thallium. Holes BRH-014 and BRH-015 tested the lower-plate carbonate stratigraphy that hosts the BRH-013 gold intercept. The drill holes intersected the target horizon approximately 230 feet east-northeast and 315 feet west-southwest from the BRH-013 intercept. Although neither of the two offset holes intersected significant gold mineralization, both holes are locally anomalous in trace elements. Silicification and clay alteration occur in both holes and dikes occur in BRH-014. (K. Cunningham, Miranda Gold Corp., oral commun., December, 2006; Miranda Gold press releases, 9/6/06, 12/5/06, 3/9/07; Miranda Gold website, www.mirandagold.com)

**Tonkin Springs.** U.S. Gold began its drill program at Tonkin Springs and completed 37 holes (55,000 feet). The 2006 program was primarily designed to test for extensions of previously identified deposits. The drilling expanded the known deposits, especially the Rooster deposit, albeit at grades similar to those identified in the past (<0.1 opt gold). (U.S. Gold press releases, 9/6/2006, 12/21/2006; U.S. Gold website, www.usgold.com)

## HUMBOLDT COUNTY

### Awakening District

**Sleeper.** X-Cal Resources Ltd. started a drill program in late August, initially on its Range Front target. Hole RF-06-01 intercepted 20 feet of 0.088 opt gold (145-165 feet) and 5 feet of 0.23 opt gold (485-490 feet), which occurred in a breccia with abundant pyrite and marcasite. RF-06-01 is located immediately east of and adjacent to the Sleeper Mine site. A second drill hole RF-06-02, located 3,000 feet to the north of RF-06-01, intercepted 135 feet of 0.007 opt gold (185-320 feet). (X-Cal press releases, 8/28/2006, 10/11/2006, 12/12/2006).

### Battle Mountain District

**Marigold.** Glamis Gold Ltd. (joint venture with Barrick Gold Corp.) carried out a major drill program, mainly aimed at converting resources to reserves. Drilling occurred between the two Target open pits, the Terry Zone North area (just south of the Deep 8 Resource) and on the pediment to the west of the mine area. Goldcorp Inc. completed its acquisition of Glamis Gold in November, 2006. (Glamis press release, 7/31/2006; Goldcorp website, www.goldcorp.com)

### Bottle Creek District

**Bottle Creek.** Phoenix Matachewan Mines Ltd. (under option from Golden Gryphon U.S.A. Corp.) completed 2,161 meters of core drilling on five widely spaced holes within a 6-square-kilometer area. All five holes intersected anomalous gold and silver, and four of them contain multiple intersections of greater than 0.3 g/t gold. The drilling focused on three target areas designated South Halburg, Canyon Dome, and Bluebird. Gold values ranged up to 1.0 g/t over 1.5 meters and silver up to 140 g/t over 3 meters. (Phoenix Matachewan press releases, 4/3/2006, 08/14/2006; Phoenix Matachewan website, www.phoenixmatachewan.com)

### Buffalo Valley

**Buffalo Valley.** Agnico-Eagle Mines Ltd. (joint venture with Lincoln Gold Corp.) drilled five reverse circulation holes (4,850 feet). No results were released. (Lincoln Gold press release, 5/11/2006; Lincoln Gold website, www.lincolngold.com)

## Disaster District

**Kings Valley.** Western Energy Development Corp. (wholly owned subsidiary of Western Uranium Corp.) continued to explore for uranium at its Kings Valley project in the McDermitt caldera in northern Humboldt County. In 2006, the company drilled 20 reverse circulation holes in a large claim block that it acquired and staked in 2005 in the Moonlight Mine-Horse Creek area along the west margin of the caldera, where Chevron Minerals established a uranium resource in the late 1970s. The objective of the 2006 drilling was mainly to confirm historical drill results. Highlights include 15 meters of 0.153%  $U_3O_8$  and 27.4 meters of 0.180%  $U_3O_8$ . The drilling also locally intercepted gold, silver, and molybdenum mineralization, including 10.7 meters of 1.26 g/t gold, 13.7 meters of 38.7 g/t silver and 19.8 meters of 0.021% molybdenum. In addition, the company staked about 120 more claims to the north of this area in 2006. (Western Uranium press releases, 6/28/2006, 10/10/2006; Western Uranium website, www.westernuraniumcorp.com)

## Dutch Flat District

**Dutch Flat.** Columbus Gold Corp. (joint venture with Piedmont Mining Co.) drilled 17 shallow angled, reverse circulation holes (2,550 feet). The holes were drilled in an east-west fence extending about 1,275 feet across part of a previously drilled zone on the property. The objective was to confirm drilling results obtained by AMAX Gold in the late 1980s. Gold grades of 0.01 opt gold or better were intersected in 11 of the 17 holes over intervals ranging from 5 to 40 feet. The two best holes encountered 25 feet of 0.013 opt gold that included 5 feet of 0.032 opt gold, and 10 feet of 0.055 opt gold that included 5 feet grading 0.102 opt gold. These intercepts were all encountered within approximately 100 feet of the surface. The latest drilling results are consistent with previous results obtained by AMAX. (Columbus Gold press release, 01/18/2007; Piedmont and Columbus Gold websites, www.columbusgoldcorp.com, www.piedmontmining.com)

## National District

**Buckskin-National.** Romarco Minerals Inc. drilled two core holes (3,275 feet). The first hole (BN-23) intercepted both the Bell and Lawry veins. The Bell vein was cut from 1,219.2 to 1,225.5 feet, yielding 0.04 opt gold and 6.35 opt silver. The Lawry vein, which is in the footwall of the Bell Vein, was first cut by the 2005 drilling program (5 feet of 0.03 opt gold and 16.13 opt silver). Romarco believes it intercepted the Bell vein below the gold zone. The intercept of the Lawry vein in hole BN-23 exhibited elevated indicator elements but low-grade gold (0.029 opt) and silver (0.467 opt) between 1,401 to 1,421 feet. The second hole (BN-24), drilled

to test the Bobcat breccia vein discovered by the 2005 drill program, intercepted the same breccia interval with 20 feet of 0.007 opt gold (1226-1246 feet) that was enveloped (1206-1266 feet) by high arsenic values that averaged 8110 ppm. Romarco infers the Bobcat breccia interval was intersected above the gold-bearing zone. Another strongly brecciated zone in BN-24 yielded 0.004 opt gold and 1,830 ppm arsenic between 551 and 556 feet. (Romarco press release, 12/12/2006; Romarco website, www.romarco.com)

**National.** Gold Summit Corp. drilled three core holes. All intersected the Cheeffoo Vein over true widths of 20 to 30 meters. Hole NAC-9 intersected 1.1 meters grading 35.5 g/t silver; however, there were no gold assays above 0.1 g/t in the three holes. (Gold Summit press release, 8/15/2006; Gold Summit website, www.goldsummitcorp.com )

## Opalite District

**Cordero.** Gold Canyon Resources Inc. continued to explore for gallium close to the old Cordero mercury mine near the town of McDermitt. They drilled 72 drill holes (15,455 feet) and released an inferred resource of 6,450,400 metric tons grading 52.3 g/t gallium. (Gold Canyon press releases, 4/20/06, 8/9/06, 10/10/06 and 11/6/06; Gold Canyon website, www.goldcanyon.ca)

## Potosi District

**East of Eden.** Barrick Gold Corp. drilled a few holes at its East of Eden project located north of the Turquoise Ridge Joint Venture at the north end of the Osgood Mountains. (E. Cope, Barrick Gold Corp., oral commun., December, 2006).

**Pinson.** Atna Resources continued drilling at its Pinson project in early 2006 until it had spent enough to earn into the project. Drilling in 2006 revealed new mineralization between the Range Front and Ogee Zones along the CX-West fault zone that trends N60°E and dips nearly vertical. The best intercepts were in holes UGCXW-005 and UGCXW-006, which were located near the intersection of the CX-West fault and the Range Front fault zone. Intercepts included 35.2 feet of 0.278 opt gold and 28 feet of 0.399 opt gold. Atna released a new resource estimate in April. The measured and indicated resource, which includes the Ogee, Range Front, and CX zones, is 1,692,300 tons at 0.421 opt gold (712,600 ounces). Atna also reported positive results from test mining in the Ogee zone, which indicated the Ogee zone was amenable to open stope mining methods. In April Barrick Gold Corp. decided to exercise its option to back in and earn a 70% interest in Pinson by spending \$30 million over the next 3 years. Barrick did not do any work in 2006. (Atna Resources press releases, 4/6/2006, 5/15/2006, 6/5/2006; Atna website, www.atna.com)

**Preble.** Victoria Resources drilled two deep core holes. No results have been reported. (Victoria Resources press release, 6/5/2006).

**Turquoise Ridge.** Most exploration activity by Barrick Gold Corp. (joint venture, 70% Barrick, 30% Newmont Mining Corp.) focused on an underground exploration drill program in the footwall of Getchell fault. In addition, about half a dozen surface holes were drilled mainly in the corridor between the Getchell underground and Turquoise Ridge underground deposits. (E. Cope, Barrick Gold Corp., oral commun., December, 2006; Barrick website, [www.barrick.com](http://www.barrick.com))

**Twin Creeks.** Newmont Mining Corp. carried out drill projects in the Fiberline development area, the North Mega development area, Section 30, the Cottontail prospect (west of the Megapit), the Vista Phase 7 development area, and North Chimney (north of the Vista pit). (D. Harris, Newmont Mining Corp., oral commun., December 2006)

## Rose Creek District

**Eden.** Minterra Resource Corp. (joint venture with Mill City Gold Corp.) drilled eight angled reverse circulation holes. Better intercepts included 40 feet of 0.023 opt gold and 65 feet of 0.017 opt gold. (Minterra press release, 2/13/2006; Mill City Gold press release, 11/21/2006; Mill City Gold website, [www.millcitygold.com](http://www.millcitygold.com))

## Sierra District

**Dun Glen.** HuntMountain Resources drilled four core holes that targeted high-grade gold shows associated with quartz veins, adjacent to or beneath workings of the Auld Lang Syne, Black Hole, and Monroe Mines. Significant 1.5-meter assay intervals included 2.73 g/t gold in hole DG-06C-001, 1.23 and 3.18 g/t gold in hole DG-06C-002, and 1.77, 1.25, 0.94, 0.98, 2.21, and 1.87 g/t gold in hole DG-06C-004. Gold spikes seen in DG-06C-004 and DG-06C-002 fell within broader mineralized halos of 155 feet grading 0.34 g/t gold and 75 feet grading 0.45 g/t gold, respectively. Significant silver was also intersected in DG-06C-002, with individual 1.5 meter assay intervals returning 20.1, 26.5, 23.5, and 24.7 g/t silver. (HuntMountain press releases, 10/9/06, 1/16/07; HuntMountain website, [www.huntmountain.com](http://www.huntmountain.com))

## Tenmile District

**Sandman.** NewWest Gold Corp. drilled 109 holes (~40,000 feet) that breathed new life into its Sandman project, an old Kennecott and Santa Fe Pacific project located just west of Winnemucca. The program was designed to expand and test shallow and deep targets at the known mineralized zones of Southeast Pediment, Silica Ridge and North Hill. NewWest also tested three

new targets at Abel Knoll, Windmill, and Sandbowl. The drilling produced new high-grade intercepts within the known mineralized zones. At North Hill, angle hole NH06-66 intercepted 5 feet at 3.956 opt gold that occurred within 40 feet that averaged 1.092 opt gold (10-50 feet). Vertical hole SR06-100 at Silica Ridge encountered 5 feet at 1.167 opt gold that occurred within 75 feet that averaged 0.236 opt gold (135-210 feet). The drilling also resulted in a new discovery called Abel Knoll, where a hole intercepted 420 feet of 0.087 opt gold starting 245 feet below the surface. Further drilling at Abel Knoll has revealed a steeply dipping, pipe-shaped mineralized body that is roughly 400 feet long in an east-west direction, 150 feet wide in a north-south direction, and 600 feet below the surface. (R. Felder, NewWest Gold Corp., oral commun., December, 2006; NewWest press releases, 10/16/2007, 3/5/2007; NewWest website, [www.newwestgold.com](http://www.newwestgold.com)).

## Vicksburg District

**Ashdown.** Golden Phoenix Minerals Inc. put its small, underground Ashdown molybdenum mine, located northwest of Winnemucca, into production and sold its first concentrate in December, 2006. The mineralization is hosted in a narrow quartz vein, the Sylvia vein, characterized by bands of high-grade molybdenite. Masses of nearly pure molybdenite (assaying up to 46% molybdenum and occasionally weighing hundreds of pounds) have been encountered, and the diluted head grades delivered to the mill for processing averaged between 1.75% and 4.75% molybdenum (valued at between \$875 and \$2,374 per ton at \$25 per pound molybdenum). (Golden Phoenix website, [www.golden-phoenix.com](http://www.golden-phoenix.com))

## Winnemucca Mountain District

**Winnemucca Mountain.** Meridian Gold (joint venture with Evolving Gold Corp.) completed 12 reverse circulation holes (7,475 feet). Ten of the 12 drill holes intersected veins, and although gold values were consistently anomalous (0.002-0.048 opt gold), the intersections did not yield the moderate to high-grade intercepts that occurred in previous drill holes by Santa Fe Pacific Mining Corp. The Meridian holes ranged in depth from 320 to 900 feet and targeted the area around a high-grade intersection in hole 83 drilled by Santa Fe, which returned 5 feet of 2.02 opt gold. (Evolving Gold press releases, 12/13/2007, 3/18/2007; Evolving Gold website, [www.evolvinggold.com](http://www.evolvinggold.com))

## LANDER COUNTY

### Aspen District

**Highland.** Newcrest Mining Ltd. (joint venture with Fortune River) drilled 14 reverse circulation holes (2,895 meters). Numerous vein zones containing anomalous gold values, mostly less than 1 g/t gold, were intersected

100 to 200 meters below surface. The best intercept contained 1.5 meters of 1.78 g/t gold and 74.1 g/t gold within a thicker zone of anomalous gold and silver. Near the end of 2006, Newcrest drilled four core holes (1,659 meters). No results from the core holes have been released. Newcrest was logging the holes in detail well into 2007. (Fortune River press releases, 10/3/2006, 1/29/2007; Fortune River website, [www.fortuneriver.ca](http://www.fortuneriver.ca))

## Battle Mountain District

**BMX.** Nevada Pacific Gold Inc. drilled at least eight holes (3,410 feet). The best intercept was 65 feet of 0.031 opt gold (hole BMXR06-04, 110-175 feet) that included 10 feet of 0.072 opt gold and 6.51 opt silver. (Nevada Pacific press release, 7/20/2006)

**Elephant.** Randsburg International Gold Corp. drilled four core holes (6,103 feet). The best intercept: 22 feet of 0.033 opt gold and 0.805 opt silver (hole P-5C, 545-567 feet) that included 2 feet of 0.128 opt gold, 2.363 opt silver, and 1.6% Zn. (Randsburg International press release, 5/23/2006)

**Independence Mine.** General Metals Corp. completed the first stage of drilling on the tailings at its Independence Mine project. The Independence claims are completely surrounded by Newmont Mining's Phoenix Mine, occurring within a 240-acre island with legal access. Holes were drilled to 30-foot depths at 50-foot spacing. Gold averaged between 0.026 and 0.036 opt with higher grades near the surface. Silver averaged about 0.05 opt. In addition to the tailings, a stockpile estimated to contain 65,000 tons was sampled and assayed, which resulted in average grades of 0.046 opt gold and 3.39 opt silver. The drilling of the tailings and stockpile suggests there are 130,000 tons of already mined material that contain over 4,000 ounces of gold and over 250,000 ounces of silver that is potentially ready for a heap-leaching operation. (General Metals press release, 3/13/2006)

**Phoenix.** Newmont Mining Corp. started producing gold and copper from its Phoenix Mine. Exploration drilling occurred mostly near the pit, in the Box Canyon area at the south end of the planned ultimate pit, and included condemnation drilling as well. Better intercepts from the Box Canyon were 200 feet of 0.095 opt gold that included 50 feet of 0.203 opt gold (hole 10120) and 103.8 feet of 0.085 opt gold that included 38.8 feet of 0.177 opt gold (hole 10362). Significant intercepts from the dump sterilization program were 305 feet of 0.28% copper and 50 feet of 0.052 opt gold (hole 10771) and 290 feet of 0.4% copper that included 50 feet of 0.88% copper (hole 10774). (D. Harris, Newmont Mining Corp., oral commun., December, 2006; Newmont website, [www.newmont.com](http://www.newmont.com))

## Buffalo Valley District

**Buffalo Valley.** Newmont Mining Corp. (joint venture with Fairmile Goldtech Inc.) drilled 19 holes (24,600 feet). Most of the holes were drilled along the west side of the old Buffalo Valley open pit, mainly angled to the east and drilled underneath the pit. Significant intercepts included 170 feet of 0.08 opt gold (hole NBV-0001), 85 feet of 0.050 opt gold and 30 feet of 0.124 opt (hole NBV-0005), 25 feet of 0.140 opt gold (hole NBV-0007), and 80 feet of 0.041 opt gold (hole NBV-0019). (D. Harris, Newmont Mining Corp., oral commun., December, 2006).

**Timber Creek.** Nevada Pacific Gold Ltd. drilled 23 holes (11,260 feet) at its Timber Creek project located south of the Buffalo Valley Mine. The drill program was designed to test geophysical and structural targets that extend out and away from the range front onto the pediment. Hole TCR06-03 encountered 20 feet of 0.02 opt gold from 130 to 150 feet, under 130 feet of pediment cover. Assay results for holes TCR06-15 and TCR06-16, located 2 miles northwest of TCR06-03, returned significant base metal assays. Drill hole TCR06-15 was drilled to 500 feet and bottomed in 100 feet of 0.209% zinc and 910 ppm copper from 400 to 500 feet. Drill hole TCR06-16 was drilled to 540 feet and bottomed in 300 feet of 0.19 % zinc and 653 ppm copper. These two holes lie on the southeast edge of what appears to be an area of zoned base metal mineralization related to the copper-molybdenum porphyry exposed in trenching 3,000 feet north of the area drilled. (Nevada Pacific press release, 6/6/2006; Nevada Pacific website, [www.nevadapacificgold.com](http://www.nevadapacificgold.com))

## Bullion District

**Colorback.** Geoinformatics Exploration Inc. drilled four core holes (810 meters) in two prospect areas known as Discovery and Myers Hill in the Mud Springs area east of Granite Mountain. Trenching was also conducted across the Discovery prospect to map and channel-sample mineralized fracture zones at the surface. The drill holes and trench sampling results showed low-grade anomalous gold values throughout the sample areas and define the fracture zone over a width of 150 meters. Drill results include 5.5 meters of 2.98 g/t gold and 5.72 g/t silver (hole CB06-01, 67.67-73.15 meters) that included 3.4 meters of 4.75 g/t gold and 8.08 g/t silver; 6.7 meters of 1.89 g/t gold and 2.53 g/t silver (hole CB06-001 106.68-113.40 meters); and 3.1 meters of 3.66 g/t gold and 23.45 g/t silver (hole CB06-04, 54.56-57.61 meters) that included 1.4 meters of 7.60 g/t gold and 44.30 g/t silver. Trench results included 21.3 meters of 0.47 g/t gold and 2.2 g/t silver and 3.1 meters of 2.48 g/t gold and 2.38 g/t silver. Mineralization in the drill holes and trench occurs in fracture and breccia zones within upper-plate rocks. The recent drilling confirms that the gold and silver zone encountered in the trench extends to a depth of at

least 180 meters. The mineralized fractures and breccia zones are interpreted to be leakage structures that have allowed mineralized fluids to pass from the lower plate. The lower plate is interpreted from a seismic survey to be between 450 and 800 meters from the surface. (Geoinformatics press release, 2/23/2007)

**Fire Creek.** Klondex Mines Ltd. released an indicated mineral resource of 1.6 million metric tons of 19.88 g/t gold, containing 1.0 million ounces of gold, at its Fire Creek deposit in the Northern Nevada Rift. Klondex drilled about 44 holes in 2006. Infill holes drilled in the Main Zone reduced the distance between vein intercepts, resulting in an increase in the continuity of the deposit. The best intercepts were 6.5 feet of 3.12 opt gold (hole FC0619, 773.5-780 feet), 20 feet of 1.64 opt gold (hole FC0619, 470-490 feet), 7.5 feet of 1.87 opt gold (hole FC0618, 747.5-755 feet). Holes FC0618 and FC0619 were drilled off the same pad and reduced the distance between previous high grade intercepts to 80-100 feet. Hole FC0621 intercepted 35 feet of 0.714 opt gold from the Main Zone. Hole FC0611 extended the Main Zone mineralization an additional 330 feet to the north with an intercept of 0.146 opt gold over 10 feet. Hole FC0632 intersected 10 feet of 0.247 opt gold and 10 feet of 0.203 opt gold from a new zone located by drilling geophysical anomalies generated in 2006. Drilling was also conducted outside the known mineralization on the extremities of the Far North Zone without returning positive results, indicating that the resource estimate for this area may be limited. Since the Main Zone can be accessed relatively easily by a decline, Klondex is amending its Plan of Operations to permit underground development to begin initial testing and bulk sampling activity in 2007. (Klondex press releases, 7/20/06, 9/05/06, 12/11/06, 3/02/07; Klondex website, www.klondexmines.com)

**Gold Acres Window.** After taking over Placer Dome Inc., Barrick Gold Corp. carried out a major drill program in the Gold Acres window (joint venture, 60% Barrick, 40% Kennecott Minerals) that included drilling around the Pipeline pit, the Gap resource, the Gold Acres pit and the North Gap/Hanson Thrust areas. Highlights include 80 feet of 0.16 opt gold (hole GAD06-03, 400-480 feet) southwest of the Gold Acres pit, 40 feet of 0.33 opt gold (hole DP-1232, 1,400-1,440 feet) in the North Gap/Hanson Thrust area that included 20 feet of 0.502 opt gold, and 100 feet of oxidized material that graded 0.089 opt gold (hole PR-927, 450-500 feet) just northwest of the Pipeline pit. (Barrick website, www.barrick.com)

**Granite Mountain.** Agnico-Eagle Mines Ltd. (joint venture with Bravo Ventures Group Inc.) was not able to drill a deep reverse-circulation hole to the planned depth of 730 meters due to stuck drill pipe. Agnico-Eagle notified Bravo that it will not continue to explore the property. (Bravo Ventures press release, 7/19/2006)

**Horse Mountain.** Barrick Gold Corp. (joint venture with Miranda Gold Corp.) drilled three holes (8,650 feet). The holes targeted lower-plate carbonate rocks beneath strong upper-plate alteration, anomalous surface gold mineralization, northeast-striking faults and altered dikes at the Rum Dreams prospect. Favorable lower-plate rocks were intercepted in all of the holes. As part of its 2006 program, Barrick followed up anomalous gold and alteration in hole BHM-001, which was drilled in 2005 and intercepted 98.2 feet of 0.023 opt gold. Holes BHM-003 and BHM-005 were drilled 1,440 feet and 1,835 feet southeast of BHM-001, respectively. BHM-005 intersected six separate zones averaging 0.011 to 0.022 opt gold. The best intercept was 90 feet of 0.022 opt gold. BHM-003 intersected 20 feet grading 0.013 opt gold. Arsenic, antimony, mercury, and thallium values are strongly enriched in these gold zones. (Miranda Gold press release, 12/12/2006; Miranda website, www.mirandagold.com)

**Lander Ranch.** Agnico-Eagle Mines Ltd. (joint venture with Coral Gold Corp.) began a drill program in May, 2006. No results have been released. Agnico-Eagle terminated its deal with Coral Gold. (Coral Gold press releases, 05/19/2006, 2/23/2007; Coral Gold website, www.coralgold.com )

**Norma Sass.** Agnico-Eagle Ltd. (joint venture with Coral Gold Corp.) had planned a drill program. No results have been released. Agnico-Eagle terminated its deal with Coral Gold. (Coral Gold press releases, 05/19/2006, 2/23/2007; Coral Gold website, www.coralgold.com )

**Reese River.** X-Cal Resources Ltd. began a drill program in November, 2006. No results have been released. (X-Cal press releases, 11/14/2006, 11/27/2006).

**Robertson.** Coral Gold Corp. drilled 46 holes (35,615 feet) at its Robertson project. Drilling focused on infill drilling in the 39A, Distal Zone, and Altenburg Hill resource areas. Drilling also tested the area between Altenburg Hill and the Porphyry Zone for possible extensions to mineralization and the projected strike of a northeast-striking structural zone within the historical Tenabo town site. Drilling in the 39A zone resulted in a modest expansion of the resource, mainly to the southeast. Hole CR06-4, which was drilled between existing holes AT-57 and CR05-16, a distance of over 200 feet, intercepted 180 feet of 0.055 opt gold (480-660 feet) that included 60 feet of 0.092 opt gold. This intercept confirmed continuity of grade and thickness of mineralization between the existing holes. Offset drilling along the north edge of the 39A Zone returned significant values in hole CR06-26, which intercepted 120 feet of 0.065 opt gold (785-905 feet) that included 75 feet of 0.107 opt gold. This mineralization remains open for expansion to the southeast. However, drilling up to 400 feet north of 39A failed to encounter significant gold values, suggesting that mineralization is diminishing in



that direction. With the addition of the five drill holes in 2006, the Distal Zone is now defined by 10 holes spaced from 150 to 300 feet apart. These holes define a tabular mineralized zone, as defined by a 0.01-opt cutoff grade, that extends 1,000 feet in a north-south direction and 400 feet east-west, with an average thickness of 80 feet. The highest grades in the Distal Zone were intercepted by holes collared along the west side of the zone. Higher grade intervals included 50 feet of 0.163 opt gold, 80 feet of 0.086 opt gold, 45 feet averaging 0.104 opt gold, and 40 feet of 0.145 opt gold. Mineralization in the Distal Zone remains open to the north, south and west, but appears to weaken to the east. The Distal Zone is associated with stratiform mineralization that is confined to a distinctive fine-grained, buff-colored hornfels (with minor interlayered biotite hornfels) containing less than 5% total sulfides, which include pyrite-marcasite-pyrrhotite-arsenopyrite as very fine-grained disseminations and fracture fillings. Previous grid drilling on Altenburg Hill defined a near-surface low-grade inferred mineral resource estimated to contain 3.5 million tons at 0.018 opt gold. The 2006 drilling results indicate that this mineralized zone extends at least 800 feet northeast beyond the edge of the existing resource. This expansion is currently defined by six holes. The best intercepts were 145 feet of 0.028 opt gold and 75 feet of 0.055 opt gold. Four holes were drilled in the gravel-covered area south of the Porphyry Zone. Of the four holes, only hole CR06-30 returned significant gold values, which included 140 feet averaging 0.040 opt gold (95-235 feet). This hole is located about 800 feet south of the existing Porphyry Zone resource and remains open for expansion both to the north and east. Six holes, drilled along the northeast edge of the Porphyry Zone to test the potential of several north and northeast-trending structural zones, found a series of narrow low-grade mineralized zones. Metallurgical testing indicates recoveries averaging 90.9%. (Coral Gold press releases 5/2/06, 5/30/06, 6/14/06, 7/13/06, 12/13/06, 2/7/07; Coral Gold website, www.coralgold.com)

## Cortez District

**Cortez Hills/Cortez Corridor.** After its takeover of Placer Dome, Barrick began a major drill program in and along the edges of the Cortez lower-plate window (joint venture, 60% Barrick, 40% Kennecott Minerals). Barrick drilled about 170,000 feet at the Cortez Hills deposit alone. Production for Cortez Hills is slated for first half of 2009. Cortez Hills' average annual production (100% basis) is expected to be about 425,000-440,000 ounces of gold at total cash costs of \$290 to \$300 per ounce in the first ten years. Cortez Hills ore will be processed at the existing Cortez Pipeline Mine facility. Estimated capital costs are between \$480 million and \$500 million (100% basis), excluding capitalized interest. At the Cortez Hills Lower Zone, the high-grade, relatively flat-lying, tabular-shaped mineralization along the contact between the Wenban and Roberts Mountains Formations

was expanded significantly. Highlights of surface drilling of the lower zone include 280 feet of 0.503 opt gold and 143 feet of 0.531 opt gold. The Lower Zone is becoming more oxidized to the south and has yet to be closed off by drilling to the south. Twin exploration declines to better delineate mineralization at Cortez Hills were started from the F Canyon open pit. About 10,000 feet of development were completed in 2006. An unknown amount of drilling also occurred in the Horse Canyon and ET Blue areas and elsewhere in the Cortez Corridor. (Barrick website, www.barrick.com)

## Hilltop District

**Hilltop/Slaven.** Victoria Resources drilled two core holes on their large Hilltop/Slaven property, which includes 32 complete sections and 18 partial sections. No results have been released. (Victoria press release, 6/5/2006)

## McCoy District

**Cove.** Victoria Resources drilled three deep core holes northwest of the old Cove open-pit mine. The first hole (NW-1), drilled 550 meters northwest of the pit, encountered multiple zones of mineralization, including several high-grade, structurally controlled intervals at depths ranging from 435.9 to 661.4 meters. The most significant intercept was 38.4 meters of 10.95 g/t gold that included 10.4 meters of 21.98 g/t gold. The intercept was approximately 150 meters below the deepest holes drilled by previous companies. Another hole (NW-3), which was drilled 245 meters west of the first hole and about 800 meters west of the pit, encountered 12.2 meters containing 4.96 g/t gold (564.2-574.4 meters) that included 3 meters of 8.98 g/t gold. The high-grade intervals were in strongly decalcified limestone within the Triassic Favret Formation. The third hole was lost (NW-2) and redrilled (NW-2A); both holes contained similar alteration and mineralization, but did not contain significant gold assays. The drilling in 2006 indicates that a steeply south-plunging, cigar-shaped body controlled by a structural intersection was encountered in NW-1. (Victoria Resources press releases, 1/9/2007, 3/36/2007)

## Mountain Springs District

**Red Rock.** Centerra Gold Inc. (joint venture with Luna Gold Corp.) drilled two reverse circulation holes, RRC06-06C and RRC06-08. Hole RRC06-06C was then deepened using a core rig. Hole RRC06-06C was drilled on the eastern side of the property. It intersected the Roberts Mountains Formation at a depth of 439 meters and remained in the formation for 176 meters. A 195-meter-thick zone of anomalous mercury in upper-plate rocks in hole RRC06-06C is partially overlapped by a 58-meter-thick zone of anomalous gold (to 65 ppb). Hole RRC06-08 was drilled in the central portion of the property. It was drilled to a depth of 396 meters and did

not penetrate the Roberts Mountains thrust fault. The upper-plate rocks show intermittent alteration and have been cut by several faults. The best gold assay (232 ppb) of the two holes occurred in a fault zone between 26- and 34-meter depth. (Luna Gold press release, 12/19/2006; Luna Gold website, [www.lunagold.com](http://www.lunagold.com))

## Toiyabe Mine Area

**Toiyabe.** Golden Oasis Exploration Corp. drilled 31 angled (-45°) reverse circulation holes (11,120 feet). The objective of the 2006 drill program was to test existing high-grade gold mineralization, gold in soil anomalies, and structures identified by mapping, drilling or inferred from geophysical surveys. No deep drilling was done. The 2006 results indicate the drilling intersected at least two north-northwest-trending mineralized fault zones. Results include 5 feet of 0.423 opt gold and 5 feet of 0.456 opt gold in hole T-601 and 10 feet averaging 0.550 ounces/ton in hole T-603. These two holes were drilled on the Courtney A Fault target in the southern portion of the project area. Approximately 600 feet northeast of the A fault is the parallel Courtney B Fault, which contained thicker but lower grade zones of gold mineralization. Other reported intercepts that were significant were between 5 and 20 feet of 0.03 to 0.17 opt gold. (Golden Oasis press releases, 10/16/2006, 2/2/2007; Golden Oasis website, [www.goldenoasis.ca](http://www.goldenoasis.ca))

## LINCOLN COUNTY

### Eagle Valley District

**Gold Springs.** Astral Mining Corp. drilled 10 reverse circulation holes (1,762 meters). The drilling intersected narrow high-grade structures and wide zones of anomalous gold mineralization. The aim of the 2006 drill program was to test three main geological/geophysical targets; the Jumbo vein and stockwork zone (8 holes), the Jennie North anomaly (one hole), and the Etna stockwork zone (one hole). Hole GS-06-1 intersected a north-northeast-striking quartz vein in the hanging wall (east side) of the main Jumbo vein, which assayed 7.24 g/t gold and 28.9 g/t silver over 6.1 meters and contained a 1.5 meter interval which assayed 20.74 g/t gold and 53.4 g/t silver. Holes GS-06-1 to GS-06-3 span a north-south distance of 225 meters. Hole GS-06-2 intersected the Jumbo vein at a depth of 131.1 meters, where it assayed 1.59 g/t gold and 37.4 g/t silver over 3.0 meters. Elevated gold mineralization occurs in the immediate footwall of the Jumbo vein and lower in the hole between 150.9 and 157.0 meters, where stockwork mineralization averaged 0.55 g/t gold and 3.8 g/t silver over 6.1 meters. Hole GS-06-3 intersected anomalous gold-silver mineralization over most of the hole, with results ranging up to 0.386 g/t gold and 23.7 g/t silver. Hole GS-06-4 was drilled north of the Jennie Mine to test

a high resistivity CSAMT anomaly that occurs beneath a thick layer of rhyolite tuff that caps an andesite unit, which hosts mineralization elsewhere on the property. The hole intercepted weak quartz stockworks and silicification from 149.4 to 152.4 meters, which assayed 1.39 g/t gold and 13.0 g/t silver. Further down the hole, an interval from 214.9 to 222.6 meters assayed 1.24 g/t gold and 6.6 g/t silver. This was a blind discovery in an area with no previous drilling. All of the other holes intersected zones with anomalous gold and silver. (Astral press releases, 8/3/2006, 10/12/2006; Astral website, [www.astralmining.com](http://www.astralmining.com))

## LYON COUNTY

### Wilson District

**Pine Grove.** Romarco Minerals Inc. (joint venture with Carlin Gold Corp.) drilled four angled reverse circulation holes (5,425 feet) aimed at testing epithermal veins that crop out along the eastern margin of a rhyolitic dome complex. Romarco tested two target areas in the drill program: (1) vein targets that crop out on surface and have never been drill tested (PG-30, 31); and (2) follow-up drilling on the positive results from drilling by Inmet in the late 1990s (PG-32, 33). The best results were from hole PG-32, which included 110 meters averaging 0.959 g/t gold (329-439 meters), within which 3 meters averaged 2.60 g/t gold (416-419 meters). In addition, a 3-meter interval above the thicker intercept averaged 5.025 g/t gold (294-297 meters). Hole PG-33 intercepted 183 meters that averaged 0.402 g/t gold (232-415 meters), within which a 4-meter interval averaged 1.712 g/t gold. Hole PG-30 intercepted the mapped veins at depth with elevated gold values (up to 0.150 g/t). Hole PG-31 had better vein intercepts at depth, including 5 meters of 1.311 g/t gold (245-250 meters) and 3 meters averaging 0.652 g/t gold, (287-290 meters). (Romarco press release, 5/4/2006; Romarco website, [www.romarco.com](http://www.romarco.com))

### Yerington District

**Ann Mason.** Pacific Magnesium Corp. drilled three core holes (5,602 feet) in and around Anaconda's old Ann Mason resource in the Yerington district. Hole Ann06001 demonstrated continuity of copper mineralization from near surface to the end of the hole with an intersection of 1,580 feet of 0.51% copper, 0.01% molybdenum, and 1 g/t silver. The hole was terminated in a higher grade zone of 250 feet of 0.68% copper, 0.02% molybdenum, and 1 g/t silver that occurred with the 1,580-foot intersection. Hole Ann06002 was drilled to test a large geophysical chargeability anomaly southwest of the known Ann Mason deposit. It intersected abundant pyrite with intervals containing chalcopyrite zones. The best result was 10 feet of 0.6% copper within 30 feet of 0.37% copper. Hole Ann06003 was drilled 750 meters

southwest of known mineralization, testing the western margin of the chargeability anomaly coincident with an aeromagnetic low with a similar character to the Ann Mason deposit. The hole intersected moderate amounts of pyrite over its entire length with no significant copper results. Pacific Magnesium released a new inferred resource estimate of 890 million tons of 0.40% copper, 0.004% molybdenum, at a cutoff grade of 0.30% copper. (Pacific Magnesium press releases, 5/5/06, 7/4/06, 10/5/06, 11/2/06; Pacific Magnesium website, [www.pacmag.com.au](http://www.pacmag.com.au))

**Pumpkin Hollow.** Nevada Copper Corp. drilled five core holes in 2006. Drill hole NC06-01 was drilled as an in-fill hole in the Northwest Deposit more than 30 meters from the nearest drill hole. It intercepted 213 meters of 1.04% copper. The intercept included 104 meters grading 2.03% copper, which, in turn, included 51 meters of 3.16% copper. Copper grades and thickness are comparable to or better than adjacent drill hole intercepts, confirming the high copper grade and continuity of the Northwest Deposit. Hole NC06-02, designed as an in-fill hole in the North zone and more than 20 meters from the nearest drill hole, intercepted 38.4 meters grading 1.73% copper. NC06-04, a 20-meter step-out drill hole, also in the North zone, encountered 30.5 meters grading 1.79%. Both holes included higher grade intervals of 24.7 meters of 2.01% copper and 12.2 meters of 2.58% copper, respectively. Step-out hole NC06-03 was drilled over 300 meters north of the E-2 deposit and 500 meters south of the East deposit. NC06-03 encountered several zones of copper mineralization with the most significant intercept being 16.5 meters averaging 2.00% copper and 0.2 g/t gold. Hole NC06-05 was designed as an infill hole 35 meters from the nearest drill holes, and defined the southeastern boundary of the E-2 mineralization. The best intercept was 4.3 meters averaging 1.9% copper, 0.4 g/t gold, and 41.1% iron. Nevada Copper press releases, 11/23/2006, 1/16/2007, 2/21/2007, 3/29/2007, 4/17/2007; Nevada Copper website, [www.nevadacopper.com](http://www.nevadacopper.com))

## MINERAL COUNTY

### Bell District

**Golden Mile.** Columbus Gold drilled 28 holes (4,321 meters) at its Golden Mile project. Initial intercepts included 7.6 meters averaging 4.2 g/t gold and 9.1 meters averaging 13.8 g/t gold. The gold mineralization occurs within irregularly distributed, structurally controlled zones in skarn and intrusive rock for 350 meters in a northeasterly direction, and to a depth of 100 meters along a contact between a Cretaceous quartz monzonite and calcareous sediments of the Triassic Luning and Jurassic Dunlop Formations. Better intercepts from subsequent drill holes, aimed at following up the initial intercepts, were all hosted in intrusive rock where much

greater thicknesses of continuous low-grade material were encountered, including 57.9 meters of 0.65 g/t gold and 80.8 meters of 0.39 g/t gold. (Columbus Gold press releases, 8/14/06, 2/23/07; Columbus Gold website, [www.columbusgoldcorp.com](http://www.columbusgoldcorp.com))

### Borealis District

**Borealis.** Gryphon Gold Corp. received its mining permits, finished its feasibility study, and announced new reserves and resources based on drilling through February, 2006. Following reviews of the resource model and mine planning, it determined that revisions were required due to miscalculations made in the reserve and resource calculations contained in the Feasibility Study for the Borealis heap-leach mine, which resulted in an anticipated reduction in recoverable gold and silver (-16% and -70% drop in measured and indicated resource ounces, respectively). Golden Gryphon decided not to proceed with the construction and related financing of the Borealis heap-leach mine. Golden Gryphon drilled more than 25 holes in 2006, mainly to better define oxide reserves as well as the sulfide resource at the Graben deposit, where significant new sulfide gold resources were added (not included in the most recent resource estimate). (Gryphon Gold press releases, 8/18/06, 11/16/06, 11/30/06; January 11, 2007 43-101 feasibility report; Gryphon Gold website, [www.gryphongold.com](http://www.gryphongold.com))

### Santa Fe District

**New York Canyon.** Canyon Copper Corp.'s (formerly Aberdene Mines) New York Canyon project remained the most significant copper exploration project in 2006. It is a copper-oxide skarn deposit located in the Gabbs Valley Range near Luning. Canyon Copper drilled 33 holes, mostly in the Longshot Ridge area. Highlights included 230 feet grading 0.612% copper, 95 feet grading 1.08% copper, and 190 feet grading 0.87% copper. Drilling confirmed and expanded the known extent of the copper oxide mineralization, which is exposed at the surface and has been tested to depths up to 400 feet. A resource estimate is planned for 2007. Canyon Copper staked over 900 new claims in 2006, including the much of the pediment on the west side of the Gabbs Valley Range. (Canyon Copper press releases, 9/1/2006, 11/15/2006, 12/5/2006, 12/19/2006; Canyon Copper website, [www.canyoncc.com](http://www.canyoncc.com); BLM LR2000 database)

## NYE COUNTY

### Barcelona District

**Corcoran Canyon.** Silver Quest Resources Ltd. (joint venture with Bullion River Gold Corp.) drilled three core holes (1,338 meters) at its Corcoran Canyon project east of Round Mountain and discovered a new zone where there had been no previous drilling. Intercepts from the

"discovery" hole include 2.2 meters of 795 g/t silver and 3.5 meters of 411 g/t silver. Silver Quest initiated a program of permitting in preparation for a larger drill program directed at the new discovery and the area of the known silver resource. The known resource estimate of 1.61 million metric tons grading 175 g/t silver and 0.86 g/t of gold was determined by Echo Bay Exploration in 1988. (Silver Quest press releases, 06/26/2006, 11/24/2006, 1/17/2007; Silver Quest website, [www.silverquest.ca](http://www.silverquest.ca))

## Bare Mountain District

**Reward.** Canyon Resources Corp. completed an infill drill program, drilling 21 reverse circulation holes (6,140 feet). Highlights from this program include: 1) Hole RC-03 with 275 feet of 0.036 opt gold; 2) Hole RC-10 with 70 feet of 0.035 opt gold; 3) Hole RC-13 with 360 feet of 0.024 opt gold; 4) Hole RC-15 with 145 feet of 0.051 opt gold; and 5) Hole RC-21 with 185 feet of 0.031 opt gold. Canyon developed a new geologic model and estimate of mineralized material that currently indicates an in-situ ore volume of 12.7 million tons at an average grade of 0.025 opt gold utilizing a cutoff grade of 0.010 opt. Leach pad design work has been completed as part of the ongoing feasibility study and geotechnical slope angle studies are underway. Canyon consolidated the land position and leased water rights for operations. A Plan of Operations has been submitted. (Canyon Resources press releases, 1/11/06, 10/23/06, 11/13/06, 3/2/07; Canyon Resources website, [www.canyonresources.com](http://www.canyonresources.com))

## Bruner District

**Bruner.** Cougar Gold LLC (joint venture with American International Ventures, Inc.) drilled nine core holes (6,962 feet). Cougar believes results indicate that the intended target may be deeper than previously interpreted, and it intends to continue drilling the project. No assays have been released. (American International press release, 01/03/2007; American International website, [www.aivnotc.com](http://www.aivnotc.com)).

## Fairplay District

**Gabbs.** Newcrest Mining Ltd. drilled about 28 holes at its Gabbs project, which includes the old Sullivan Mine just north of Paradise Peak. Better intercepts included 15.3 meters of 5.2 g/t gold (hole G-2, 25.9-41.2 meters), which contained an interval of 3.1 meters of 23 g/t gold; 16.8 meters of 7.1 g/t gold (hole G-13, 166.1-182.9 meters), which contained an interval of 1.5 meters of 34 g/t gold; and 41.2 meters of 1.1 g/t gold (hole G-28, 0-41.2 meters). (Newcrest Mining website, [www.newcrest.com.au](http://www.newcrest.com.au))

## Manhattan District

**Gold Wedge.** Royal Standard Minerals Inc. has fully permitted and is currently test-mining its Gold Wedge underground deposit in the Manhattan district. Ore

is hosted predominantly by the Ordovician Zanzibar Limestone. The first gold pour is planned for 2007 with a planned throughput of 500-700 tons per day. The current resource estimate (including measured and inferred) is 330,000 tons of 0.310 opt gold (102,300 ounces). New crosscuts made during the current test mining intersected possibly as many as three structures that represent previously unknown mineralized trends. These zones are up to 20 feet wide with grades of a few tenths an ounce per ton gold. (July, 2006 SEG Newsletter; Royal Standard press releases, 3/20/06, 7/24/06, 9/7/06, 12/21/2006; Royal Standard website, [www.royalstandardminerals.com](http://www.royalstandardminerals.com))

**Manhattan Pediment.** Newmont Mining Corp.'s Plan of Operations for 10 drill sites on the pediment west of Manhattan was approved by the U.S. Forest Service in October, 2006. It is unknown if Newmont drilled in 2006. Newmont and Round Mountain Gold (joint venture between Kinross Gold Corp and Barrick Gold Corp.) staked several hundred claims on the pediments west and southwest of Manhattan, including the Palo Alto Hills area and areas at the south end of the Toquima Range. It is unknown if Round Mountain Gold drilled its Palo Alto Hills project in 2006. (Humboldt-Toiyabe National Forest Schedule of Proposed Actions, [www.fs.fed.us/sopa/components/reports/sopa-110417-2007-01.html](http://www.fs.fed.us/sopa/components/reports/sopa-110417-2007-01.html); BLM LR2000 database)

## Northumberland District

**Northumberland.** At Northumberland, Newmont drilled 54 drill holes (55,357 feet), and by the end of 2006 had spent about \$6 million towards the \$25 million it is obligated to spend by 2010 to earn a 60% interest from its joint venture partner NewWest Gold Corp. Newmont: 1) expanded the known Zanzibar deposit, 2) drilled intercepts that approached underground-mineable grades - 0.246 to 0.448 opt gold at depths greater 1400 feet, and 3) tested outlying early-stage targets on the eastern and western range fronts - the Orocopter and Ziggarrut targets, respectively. Drilling of those outlying targets did not result in any significant gold intercepts. (NewWest Gold press releases, 11/21/06, 3/19/07; NewWest Gold website, [www.newwestgold.com](http://www.newwestgold.com))

## Round Mountain District

**Gold Hill.** In 2006, Kinross Gold Corp. (joint venture with Barrick Gold Corp.) was in the permitting stage and doing metallurgical work for a planned heap leach operation at Gold Hill north of Round Mountain. (D. Emmons, Kinross Gold Corp., oral commun., September 2006; Barrick Gold website, [www.barrick.com](http://www.barrick.com))

**Round Mountain.** Kinross Gold Corp. (joint venture with Barrick Gold Corp.) carried out surface drilling to evaluate old dumps as potential resources. An

underground decline, aimed at testing the Deep NW Zone, progressed in 2006. (D. Emmons, Kinross Gold Corp., oral comun., September 2006; Barrick Gold website, [www.barrick.com](http://www.barrick.com))

## Rye Patch District

**Midway.** Midway Gold Corp. drilled 52 holes, including 23 in the Dauntless zone, a new vein zone that was discovered in 2005. The best intercept was 13.4 meters of 8.99 g/t gold (hole MW-06-39D). The average of all the gold intercepts encountered in the Dauntless zone was 7 meters of 2.64 g/t gold, with intercepts up to 40 g/t gold. The Dauntless vein is open along strike but narrows to 1 to 2 meters wide at each end, based on current drilling. The widest part of the vein zone (7.6 meters) persists for approximately 30 meters along a roughly north-northwest trend. Barrick Gold Corp. took a \$5 million private placement in Midway. (Midway Gold press releases, 2/27/2006, 5/4/2006 10/5/2006, 3/20/2007; Midway Gold website, [www.midwaygold.com](http://www.midwaygold.com))

## San Antone District

**Hall-Tonopah.** In 2006 Idaho General Mines, Inc. acquired its second large molybdenum project, the Hall-Tonopah project. The Hall-Tonopah property includes the former Hall molybdenum deposit, which was operated as an open-pit mine between 1982 and 1991 by the Anaconda Company and Cyprus Minerals, Inc. Extensive diamond drilling during the Anaconda era resulted in finding and delineating a deposit estimated to contain 200 million tons at a grade of 0.091% molybdenum. During this period approximately 50 million tons of ore were mined and processed at an approximate grade of 0.11% molybdenum. Idaho General Mines expanded its land position by staking 417 claims around Hall in 2006. (Idaho General Mines press releases, 1/24/2006, 3/27/2006, 12/12/2006; Idaho General Mines website, [www.igmines.com](http://www.igmines.com); BLM LR2000 database)

## PERSHING COUNTY

### Antelope Springs District

**Antelope Springs.** Victoria Resources staked nearly 500 claims in the Antelope Springs district south of the Relief Canyon Mine in and around the old Nevada and Pershing Quicksilver Mines and on the pediment to the west. (BLM LR2000 database)

**Relief Canyon.** NewGold Inc. (now known as Firstgold Corp.) was attempting to permit the Relief Canyon Mine with intentions of putting it back into production. (NewGold and Firstgold press releases, 9/19/2006, 2/12/2007; Firstgold website, [www.firstgoldcorp.com](http://www.firstgoldcorp.com))

## Jersey Valley District

**Jersey Canyon.** Geologix Explorations Inc. drilled four core holes, three of which encountered broad anomalous gold-bearing zones (50-300 ppb gold). (Geologix press release, 3/2/2006; Geologix website, [www.geologix.ca](http://www.geologix.ca))

## Mill City District

**Springer Mine/Mill.** Golden Predator Mines Inc. (a fully owned subsidiary of Energy Metals Corp.) acquired the Springer Mining and Milling Complex in November, 2006 from General Electric Company through a loan facility with Energy Metals Corporation. The Springer Mine and mill opened in early 1982 at a cost of \$55 million through a joint venture between General Electric and Utah International. It was soon closed in October, 1982 due to falling tungsten prices, and the facilities have been held on a care and maintenance basis since that time. Historical tungsten resources as calculated by General Electric are 3.59 million tons grading 0.446% WO<sub>3</sub>. Although acquisition of Springer allows Golden Predator the opportunity to potentially produce tungsten, a planned addition of a separate gold processing circuit and utilizing its water rights and tailings infrastructure could make the Springer complex the only independent operating gold mill in northern Nevada. (Energy Metals Corp. press release, 12/4/2006; Golden Predator website, [www.goldenpredator.com](http://www.goldenpredator.com))

## Mineral Basin District

**Buena Vista.** Boxxer Gold Corp. explored the iron deposits in the Buena Vista hills for copper and gold, employing an iron-oxide-copper gold deposit model. It drilled one core hole in 2006. Hole BV06-1 was drilled to a total depth of 431 feet and tested the down-dip extension of a copper-bearing magnetite replacement body exposed on surface that assayed 0.75% copper over 3 feet. This hole intersected the magnetite body at downhole depths of 310.5 to 338 feet. The body assayed 0.052% copper and 2.3 ppm silver. The interval exhibited chloritic alteration, up to 10% specular hematite as replacement blebs, disseminated chalcopyrite mineralization and anomalous values of cobalt (up to 126 ppm), lanthanum (up to 50 ppm), arsenic (up to 168 ppm), molybdenum (up to 175 ppm) and lead (up to 120 ppm). (Boxxer Gold Corp press release, 3/5/2007; Boxxer Gold website, [www.boxxergold.com](http://www.boxxergold.com))

## Rosebud and Sulphur Districts

**Rosebud/Hycroft.** Hycroft Resources and Development, Inc. (a fully owned subsidiary of Vista Gold Corp.) staked over 700 claims in the Rosebud and Sulphur districts, including the pediment north of the Hycroft Mine and railroad tracks. (BLM LR2000 database)

## Scossa District

**Lantern.** Quincy Energy Corp. drilled seven reverse circulation holes in early 2006. Three holes were drilled to test a resistivity anomaly with no significant results. Four holes tested the mineralized Auld Lang Syne Group at the south end of SP Ridge near a previously drilled vertical hole (DPL-18) that assayed 0.017 opt gold over 45 feet. Holes L-4, L-5, and L-7 were drilled across the southern part of a zone of subparallel, epithermal veins and veinlets that crop out to the north on the summit and east slope of the ridge. Its minimum dimensions, based on historical and recent drilling, are approximately 760 meters along strike and 300 meters perpendicular to strike. Significant gold and silver mineralization was encountered in holes L-4 and L-5. L-4 intersected two significant zones of mineralization. The first from approximately 180 to 200 feet yielded 20 feet grading 4.1 opt silver, and the second from 580 feet to the bottom of the hole at 592 feet also assayed 4.1 opt silver. The upper zone intersected in L-4 was again intersected deeper in drill hole L-5 from approximately 475 to 510 feet, and although silver values were generally low in this interval, it assayed 20 feet of 0.04 opt gold from 490 to 510 feet. Additional silver mineralization was intersected in L-5: 25 feet of 4.91 opt silver (85-110 feet) and 20 feet grading 37.63 opt silver (185-205 feet) that included 5 feet of 137.24 opt silver. Quincy Energy subsequently merged with Energy Metals Corp., who later spun off its Nevada assets into a fully owned subsidiary named Golden Predator Mines Inc. (Energy Metals Corp. press release, 3/13/2006; Golden Predator website, [www.goldenpredator.com](http://www.goldenpredator.com))

**Scossa.** Romios Gold Resources Inc. drilled 11 holes (9,847 feet). The principal targets were the Scossa, North Star No. 2, and Angel Wing veins between 500 and 1,200 feet down dip from the surface exposures of the veins. The best assay was 5 feet of 0.179 opt gold. The drilling intersected several narrow 5-foot intervals ranging from 0.012 to 0.088 opt gold. (Romios Gold Resources press release, 10/16/2006; Romios Gold Resources website, [www.romios.com](http://www.romios.com))

## Spring Valley District

**Spring Valley.** Midway Gold continued to experience success at its diatreme-hosted Spring Valley property. It released a measured and indicated resource estimate in early 2006: 10,030,000 short tons of 0.024 opt gold (239,143 ounces). It drilled 79 holes (19,115 meters) in 2006. Most of the drilling focused around the 1.5-kilometer-long by 1 kilometer-wide Spring Valley diatreme, which is covered by 15 to 150 meters of gravel. Highlights of the drilling included 10.7 meters of 7.27 g/t gold, which extended the gold mineralization beyond the modeled resource by an area that is 300 meters by 460 meters. At the West Diatreme target, 29 meters of 4.77 g/t gold and 44.2 meters of 1.27 g/t gold were intercepted. Twenty of the holes were drilled in the Limerick Basin area, 4 kilometers west of the Spring

Valley diatreme. Intercepts in Limerick Basin include 1.5 meters of 68.1 g/t gold and 6.1 meters of 1.68 g/t gold. The drilling also revealed placer gold in three different gravel horizons that cover the Spring Valley diatreme. These gold-bearing gravels range from 1.5 meters to 18 meters in thickness with grades ranging from 0.27 to 11.25 g/t gold. Gold, commonly coarse-grained, is hosted mainly in quartz-tourmaline veinlets in altered Permian-Triassic rhyolite breccias, flows, tuffs, porphyry dikes, and sills that intruded a diatreme. Barrick Gold Corp., recognizing the success, took a \$5 million private placement in Midway Gold. As expected, Midway Gold's success resulted in major staking campaigns. Over 700 claims were staked in the Spring Valley and Rochester districts, including several hundred by Midway. (Midway Gold press releases, 5/27/05, 8/8/05, 8/31/05, 10/11/05, 10/12/05, 10/28/05, 11/28/05, 12/6/05, 1/20/06; Midway Gold website, [www.midwaygold.com](http://www.midwaygold.com); BLM LR2000 database)

## Trinity District

**Trinity Silver.** Piedmont Mining Co. (joint venture with AuEx Ventures Inc.) began core drilling at the old Trinity Silver Mine in early May 2006, and 10 angled core holes totaling approximately 3,700 feet were completed by mid-June. These holes were designed to confirm the presence of relatively high-grade silver values encountered in previous conventional and reverse circulation rotary drilling conducted on the property in the middle 1980s and to provide geological information on the nature of faults controlling the high grade mineralization. Assay results show four of the ten new core holes contained 5- to 10-foot-thick intercepts of 10.0 opt silver or greater with a high value of 25.99 opt silver. These high grade zones are commonly enclosed within or accompanied by broader zones of lower grade mineralization grading approximately 1.0 opt silver or more. (AuEx Ventures press release, 8/3/2006)

## Velvet District

Bunce. In April 2006 AuEx Ventures Inc. completed a single 1,200-foot-deep reverse circulation drill hole testing the margin of one of its new targets. The hole contained 750 feet of anomalous gold mineralization averaging over 100 ppb gold with associated pathfinder geochemistry. Later in 2006 AuEx signed up a joint venture partner, North Range Ltd., who will be the operator. (AuEx Ventures press release, 6/7/2006)

## WHITE PINE COUNTY

### Bald Mountain District

**Bald Mountain.** Barrick Gold Corp. had about seven drill rigs active throughout the year and projected that about 58,000 feet of drilling would be completed in 2006. Almost all the drilling occurred in the north area, rather than the Alligator Ridge area. The RBM and Bida

deposits were in production in November. Mining ceased at Top pit in September, awaiting the start of Stage 8. (K. Bettles, oral commun., October 2006; Barrick website, [www.barrick.com](http://www.barrick.com))

**Overland Pass.** Sniper Resources Ltd. (joint venture with Columbus Gold Corp.) completed a drill program in late 2006 and early 2007. It drilled 13 widely spaced, vertical and angled reverse circulation holes (7,290 feet) designed to evaluate previously untested parts of the property. Anomalous values of gold were present in most of the holes, with the best-mineralized holes being OP-6 and OP-10. OP-6 encountered 20 feet of 0.011 opt gold at depths of 150 to 170 feet, within a 50-foot zone averaging 0.008 opt gold. Hole OP-10 was drilled from the same collar, but at a 30-degree difference in azimuth, and encountered 10 feet at 0.040 opt gold at a depths of 205-215 feet, within a 55-foot zone that averaged 0.015 opt gold. Oxidation was extensive, suggesting favorable metallurgical characteristics. This mineralized zone appears to have been truncated by a faulted contact. Previous grab samples from surface at Overland Pass returned assays up to 0.44 opt gold. The stratigraphy that hosts mineralization includes the Pilot Shale, the Joanna Limestone, and the Chainman Shale. (Columbus Gold press releases, 11/27/2006, 5/2/2007; Columbus Gold website, [www.columbusgoldcorp.com](http://www.columbusgoldcorp.com))

### **Pancake District**

**Pan.** Pan-Nevada Gold Corp. drilled 97 shallow- to moderate-depth (100-1,060 feet) holes totaling 28,400 feet. Sixty-one reverse circulation holes were drilled in the Black Stallion Zone. A total of 32 of these holes encountered potentially economic intercepts of gold mineralization, which enlarged the footprint of the Black Stallion deposit and deepened it in several places. In addition to the drilling at Black Stallion, work was completed in the Syncline, South Pan, and Pilot Ridge sectors. A resource estimate will be released in 2007. In December 2006, Midway Gold began a process of acquiring Pan-Nevada. (Pan-Nevada Gold Corp. press release, 9/26/2006; Midway Gold press release, 12/12/2006; Pan-Nevada Gold website, [www.pannevada.com](http://www.pannevada.com))

### **Robinson District**

**Robinson.** Exploration drilling by Quadra Mining Ltd. is reportedly identifying new copper and molybdenum resources. Quadra completed its molybdenum circuit and began producing molybdenum, in addition to copper, gold and silver. (Quadra website, [www.quadramining.com](http://www.quadramining.com))

### **Taylor District**

**Taylor.** Fury Explorations Ltd. drilled approximately 50 holes (~3,000 meters) in 2006. Results reportedly demonstrate continuity within the high-grade fault zone, which remains open at depth and on strike and that known open-pit style mineralization appears expandable beyond historically established limits. The drilling delineated over 500 meters of strike length on the fault zone, with widths consistently reaching over 10 feet of high-grade silver. The highlight was 71 meters of 135.6 g/t silver (hole FT1C, 21.6-92.7 meters). The drilling also successfully extended previously known mineralization limits in places. The best intercept of the expansion drilling was 18.3 meters of 60.6 g/t Ag hole (FT-15, 0-18.3 meters), which successfully extended the northeast pit northeastward. (Fury Explorations press releases, 12/11/2006, 2/6/2007; Fury Explorations website, [www.furyexplorations.com](http://www.furyexplorations.com))

### **White Pine District**

**Mount Hamilton.** Augusta Resources Corp. drilled three holes at the Shell gold-molybdenum deposit at Mount Hamilton. No results have been released. Pincock, Allen and Holt is conducting a pre-feasibility study at Mount Hamilton for Augusta. (Augusta website, [www.augustaresource.com](http://www.augustaresource.com))

# Major Precious-Metal Deposits

by John L. Muntean

The information in this compilation was obtained from the Nevada Division of Minerals and from published reports, articles in mining newsletters, and company websites, annual reports, and press releases. Locations of most of these deposits are shown on NBMG Map 149, and most active mines are shown on page 2 of this publication. opt = troy ounces per short ton.

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>CHURCHILL COUNTY</b>				
<b>Bell Mountain (Bell Mountain district)</b>	1982: 1 million tons, 0.055 opt Au, 1.4 opt Ag 1989: reserves—30,000 oz Au, 125,000 oz Ag 1997: 2.5 million tons, 0.059 opt Au equiv. oz		rhyolitic tuff	Miocene
<b>Buffalo Valley gold property (Eastgate district)</b>	1996: 96,000 oz Au		rhyolitic ash-flow tuff	Tertiary
<b>Dixie Comstock (Dixie Valley district)</b>	1991: 2.4 million tons, 0.049 opt Au 1995: 100,000 oz Au		Tertiary rhyolite	Miocene?
<b>Fondaway Canyon (Shady Run district)</b>	1988: 400,000 tons, 0.06 opt Au 1990: 400,000 tons, 0.06 opt Au 2001: 396,000 tons, 0.428 opt Au (indicated resource) 372,849 tons, 0.409 opt au (inferred resource)	1989: 1,065 oz Au, 87 oz Ag 1990: 12,000 oz Au	Triassic slate and phyllite	
<b>Jessup (Jessup district)</b>	1998: 8,376,564 tons, 0.024 opt Au, 0.25 opt Ag ("global resource")			
<b>New Pass property (New Pass district)</b>	1994: 3.4 million tons, 0.042 opt Au 1997: 3.1 million tons, 0.055 opt Au 2006 (inferred resource): 11.5 million tons, 0.0226 opt Au, 0.0041 opt Ag		Triassic siltstone	
<b>CLARK COUNTY</b>				
<b>Crescent property (Crescent district)</b>	1992: 390,000 tons, 0.05 opt Au; 3.3 million tons, 0.022 opt Au			
<b>Keystone (Goodsprings district)</b>	1990: <i>estimated geologic resource</i> 64 million tons, 0.05 opt Au 1992: 110,000 tons, 0.11 opt Au	1990: ~1,000 oz Au 1993: idle	lower Paleozoic carbonate rocks	Triassic
<b>ELKO COUNTY</b>				
<b>Big Springs (Independence Mountains district)</b>	1987: 3.76 million tons, 0.148 opt Au 1989: 1.55 million tons, 0.172 opt Au 2005 (inferred resource, 0.025 opt Au cut-off): 15.145 million tons, 0.078 opt Au 2005 (inferred resource, 0.3 opt Au cut-off): 468,000 tons, 0.45 opt Au	1987–88: ~106,000 oz Au 1989–92: 274,000 oz Au, 48,000 oz Ag 1993: 52,752 oz Au 1994–95: 30,095 oz Au, 2,877 oz Ag	Mississippian to Permian overlap assemblage clastic and carbonate rocks	Eocene
<b>Bootstrap/Capstone/ Tara (Bootstrap district)</b>	1989: <i>geologic resource</i> —25.1 million tons, 0.039 opt Au 1996: 20.2 million tons, 0.046 opt Au proven and probable reserves; 1 million tons, 0.086 opt Au mineralized material	1988–90: included in Newmont Gold production, page 62 1996: 19,800 oz Au 1999: 147,088 oz Au, 28,395 oz Ag 2000: 131,979 oz Au, 13,402 oz Ag 2001: 92,775 oz Au, 21,093 oz Au 2002: 23,415 oz Au, 4,717 oz Ag 2003: 29,742 oz Au, 5,480 oz Ag 2004: 154,521 oz Au, 43,566 oz Ag 2005: 3,849 oz Au, 322 oz Ag 2006: 2,019 oz Au, 436 oz Ag	dacitic dikes, Paleozoic siltstone and laminated limestone/chert	Eocene
<b>Burns Basin (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 29,700 tons, 0.13 opt Au (measured and indicated resource) 30,700 tons, 0.19 opt Au (underground measured and indicated resource), 50,600 tons, 0.23 opt Au (underground inferred resource)		Hanson Creek and Roberts Mountains Formations	

continued



**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ELKO COUNTY (continued)</b>				
<b>California Mountain (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 8,000 tons, 0.11 opt Au (measured and indicated resource) 32,100 tons, 0.38 opt Au (underground measured and indicated resource), 9400 tons, 0.33 opt Au (underground inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Coyote Zone (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 45,200 tons, 0.21 opt Au (underground measured and indicated resource) 2700 tons, 0.18 opt Au (underground inferred resource) 2006: 20,100 tons, 0.104 opt Au (open pit inferred resource)		Roberts Mountains Formations	Hanson Creek and
<b>Cobb Creek (Mountain City district)</b>	1988: <i>geologic resource</i> —3.2 million tons, 0.045 opt Au			
<b>Cord Ranch (Robinson Mountain district)</b>	1991: 3.5 million tons, 0.037 opt Au 1994: 350,000 oz Au in 3 deposits (see Piñon)		Webb Formation Devils Gate Formation Tomera Formation Diamond Peak Formation	
<b>Dee (Bootstrap district)</b>	1982: 2.5 million tons, 0.12 opt Au 1990: 4.5 million tons, 0.059 opt Au 1999: 1.4 million tons, 0.157 opt Au, proven and probable reserves	1985–88: 189,983 oz Au 1989–92: 172,745 oz Au, 142,000 oz Ag 1993–95: 97,860 oz Au 1996: 45,070 oz Au, 50,322 oz Ag 1997–98: 72,595 oz Au 1999: 36,329 oz Au, 68,400 oz Ag 2000: 61,171 oz Au, 110,900 oz Ag 2001: 2,351 oz Au, 6,028 oz Ag	Vinini Formation Devonian carbonates, dacitic dikes	Eocene
<b>Doby George (Aura district)</b>	1995: 3.7 million tons, 0.060 opt Au 1997: 250,000 oz Au		Schoonover	
<b>Hollister (Ivanhoe district)</b>	1989 oxide—18.4 million tons, 0.035 opt Au, estimated mineral inventory 83.5 million tons, 0.034 opt Au, with 52.8 million tons of oxide and 30.7 million tons of sulfide 1995: <i>geologic resource</i> —1,300,000 oz Au; 42 million tons of 0.031 opt au (combined oxide and sulfide) 2001: 719,000 tons, 1.29 opt Au, 7 opt Ag	1990: 6,000 oz Au 1991: 60,000 oz Au	rhyolitic tuff, flows,	Miocene
<b>Jerritt Canyon Property (Independence Mountains district)</b>	1981: 12.5 million tons 0.231 opt Au 1989: 21.6 million tons, 0.143 opt Au mill ore; 6.5 million tons, 0.043 opt Au leachable 1999: 1.5 million oz Au, proven and probable reserves; 3.8 million oz Au other 2000: 1.3 million oz Au proven and probable; 3.7 million oz Au other mineralized material 2001: 2.058 million oz Au proven and probable; 893,000 oz Au other 2002: 580,913 oz Au, proven and probable reserves; 1.296 million oz Au measured and indicated resources; 1.035 million oz Au inferred resources 2003: 820,104 oz Au, proven and probable reserves; 2.295 million oz Au measured and indicated resources; 1.034 million oz Au inferred resources 2004: 9.988 million tons, 0.241 opt Au measured and indicated resources; 4.1 million tons, 0.219 opt Au inferred resources 2005: 3.723 million tons, 0.24 opt Au (proven and probable reserves); 8.812 million tons, 0.24 opt Au (measured and indicated resources, includes proven and probable reserves), 2.6465 million tons, 0.23 opt Au (inferred resource) 2006: 1.9849 million tons, 0.245 opt Au (proven and probable reserves); 8.2032 million tons, 0.232 opt Au (measured and indicated resources, includes proven and probable reserves), 2.4148 million tons, 0.226 opt Au (inferred resource)	1981–90: ~2.6 million oz Au 1991–94: 1,380,000 oz Au, 25,000 oz Ag 1995–98: 1,296,492 oz Au 1999: 363,000 oz Au 2000: 334,747 oz Au 2001: 295,328 oz Au, 7,752 oz Ag 2002: 338,660 oz Au, 8,154 oz Ag 2003: 302,095 oz Au 2004: 243,333 oz Au 2005: 202,911 oz Au, 6322 oz Ag 2006: 169,862 oz Au, 7154 oz Ag	Hanson Creek and Roberts Mountains Formations	Eocene
<b>Kinsley Mountain (Kinsley district)</b>	1988: 2.1 million tons, 0.048 opt Au 1996: 3.4 million tons, 0.032 opt Au	1993: evaluation 1995–97: 127,065 oz Au, 24,452 oz Ag 1998: 9,543 oz Au 1999: 1,543 oz Au	upper Paleozoic carbonate rocks	Oligocene?

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ELKO COUNTY (continued)</b>				
<b>Maverick Springs (Maverick Springs area)</b>	2002: 350,000 oz Au, 32.3 million oz Ag, indicated resources; 747,000 oz Au, 68.8 million oz Ag inferred resources 2004: 69.63 million tons, 0.01 opt Au, indicated resources; 85.55 million tons, 0.008 opt Au, inferred resources			
<b>Meikle (Lynn district)</b>	1992: <i>geologic resource</i> —7.9 million tons, 0.613 opt Au 1999: 5.9 million tons, 0.647 opt Au proven and probable reserves; 3.3 million tons, 0.457 opt Au mineralized material 2000: 4.9 million tons, 0.540 opt Au proven and probable reserves; 2.9 million tons, 0.450 opt Au mineral resource 2001: 9 million tons, 0.439 opt Au proven and probable reserves; 13.5 million tons, 0.433 opt Au mineral resource 2002: 9.8 million tons, 0.398 opt Au proven and probable reserves; 12.9 million tons, 0.396 opt Au mineral resource 2003: 3,316,000 tons, 0.467 opt Au proven reserves 5,862,000 tons, 0.326 opt Au probable reserves 1,580,000 tons, 0.435 opt Au measured resources 4,261,000 tons, 0.423 opt Au indicated resources 7,725,000 tons, 0.366 opt Au inferred resource 2004: 7,575,000 tons, 0.392 opt Au proven and probable reserves; 6,268,000 tons, 0.379 opt Au mineral resource 2005 (includes all underground resources at Goldstrike): 7.319 million tons, 0.379 opt Au proven and probable reserves 3.234 million tons, 0.386 opt Au measured and indicated resources 3.034 million tons, 0.386 opt Au inferred resource 2006 (includes all underground resources at Goldstrike): 7.662 million tons, 0.370 opt Au proven and probable reserves 4.143 million tons, 0.338 opt Au measured and indicated resources 2.159 million tons, 0.301 opt Au inferred resource	1996: 78,442 oz Au 1997–98: 1,421,621 oz Au, 426,030 oz Ag 1999: 977,356 oz Au, 263,225 oz Ag 2000: 805,718 oz Au, 205,000 oz Ag 2001: 712,688 oz Au, 213,370 oz Ag 2002: 640,337 oz Au, 203,574 oz Ag 2003: 551,664 oz Au, 99,614 oz Ag 2004: 561,345 oz Au, 129,520 oz Ag 2005 (includes all underground production at Goldstrike): 509,568 Au, 133,979 Ag (1.488 million tons at 0.38 opt Au) 2006 (includes all underground production at Goldstrike): 477,035 Au, 58,345 Ag	Popovich and Roberts Mountains Formations	Eocene
<b>MCE (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 4400 tons, 0.20 opt Au (underground measured and indicated resource) 7800 tons, 0.19 opt Au (underground inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Midas (Ken Snyder) Mine (Gold Circle district)</b>	1995: 13 million tons, 0.16 opt Au, 2.7 opt Ag, announced resource, proven Au reserve <500,000 oz 1996: 1.1 million tons, 1.324 opt Au, 14.95 opt Ag 1999: 3.0 million tons, 0.816 opt Au, 9.835 opt Ag proven and probable reserves 2000: 3.4 million tons, 0.63 opt Au, 7.77 opt Ag proven and probable reserves 2002: 3.4 million tons, 0.65 opt Au proven and probable reserves; 400,000 tons 0.46 opt Au measured and indicated mineralized material; 200,000 tons 0.55 opt Au inferred mineralized material 2003: 700,000 tons, 0.83 opt Au proven reserves; 2,700,000 tons, 0.51 opt Au probable reserves; 900,000 tons 0.42 opt Au indicated material 2004: 2.9 million tons, 0.510 opt Au proven and probable reserves; 200,000 tons, 0.58 opt Au indicated resources; 700,000 tons, 0.31 opt Au inferred resources 2005: 1.5 million tons, 0.58 opt Au, proven and probable reserves 600,000 tons, 0.42 opt Au, inferred resource 2006: 1.2 million tons, 0.47 opt Au, proven and probable reserves (which includes 6,800,000 ounces Ag) 800,000 tons, 0.33 opt Au, inferred resource	1998: 4,357 oz Au, 55,329 oz Ag 1999: 189,081 oz Au, 1,938,470 oz Ag 2000: 197,800 oz Au, 1,941,989 oz Ag 2001: 198,518 oz Au, 2,393,246 oz Ag 2002: 232,949 oz Au, 2,870,164 oz Ag 2003: 218,966 oz Au, 2,647,374 oz Ag 2004: 219,778 oz Au, 2,471,135 oz Ag 2005: 167,297 oz Au, 2,166,396 oz Ag 2006: 140,884 oz Au, 1,694,060 oz Ag	Tertiary volcanic rocks	Miocene
<b>Mill Creek (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 78,400 tons, 0.12 opt Au (measured and indicated resource)		Hanson Creek and Roberts Mountains Formations	

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ELKO COUNTY (continued)</b>				
<b>Murray (incl. Zone 9) (Jerritt Canyon, Independence Mountains district)</b>	2005: 243,300 tons, 0.26 opt Au (proven and probable reserve) 789,200 tons, 0.29 opt Au (measured and indicated resource, includes reserves) 2006: 18,400 tons, 0.266 opt Au (proven and probable reserve) 393,300 tons, 0.290 opt Au (measured and indicated resource, includes reserves) 152,000 tons, 0.220 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Pie Creek (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 190,200 tons, 0.16 opt Au (measured and indicated resource) 28,300 tons, 0.14 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Piñon (South Bullion and Dark Star) (Robinson Mountain district)</b>	1996: 38.3 million tons, 0.026 opt Au geologic mineral inventory 2002: 30.6 million tons, 0.026 opt Au, measured, indicated, and inferred resources		Webb Formation siltstone Devils Gate Limestone	
<b>Pony Creek (Robinson Mountain district)</b>	1994: <i>geologic resource</i> —1.1 million tons, 0.057 opt Au 2004: 32.41 million tons, 0.044 opt Au (inferred resource)			
<b>Railroad Property (POD zone) (Railroad district)</b>	1997: 1.5 million tons, 0.085 opt Au drill-indicated resource			
<b>Rain Property (Carlin district)</b>	1982: 3.4 million tons, 0.147 opt Au and 8.3 million tons, 0.083 opt Au			
<b>Gnome deposit</b>	1988: 2.7 million tons, 0.048 opt Au		Webb Formation	Eocene
<b>Emigrant Springs deposit</b>	2005: 1,531,165 oz Au (proven and probable reserve)		Webb Formation	Eocene
<b>Rain deposit</b>	1999: 13,467,000 tons, 0.026 opt Au proven and probable open-pit ore, 411,000 tons, 0.316 proven and probable underground ore	1999: 23,477 oz Au 2000: 25,004 oz Au, 2,539 oz Ag 2001: 43,488 oz Au, 9,887 oz Ag 2002: 20,065 oz Au, 4,042 oz Ag 2003: 5,039 oz Au, 928 oz Ag 2004: 1,956 oz Au, 551 oz Ag 2005: 404 oz Au, 90 oz Ag		
<b>SMZ deposit</b>	1989: <i>geologic resource</i> —1.6 million tons, 0.019 opt Au			
<b>Rain district</b>	2000: 13.5 million tons, 0.026 opt Au proven and probable open-pit ore; 308,000 tons, 0.267 opt Au proven and probable underground ore 2001: 13.5 million tons, 0.026 opt Au proven and probable open-pit ore; 21,000 tons, 0.024 opt Au proven and probable underground ore; 1.3 million tons, 0.048 opt Au mineralized material			
<b>Ren (Bootstrap district)</b>	2003: 2.1 million tons, 0.43 opt Au (inferred resource) 2005: 2.1 million tons, 0.38 opt Au (measured and indicated resource) 1.4 million tons, 0.37 opt Au (inferred resource) 2006: 2,713,000 tons, 0.37 opt Au (measured and indicated resources) 758,000 tons, 0.470 opt Au (inferred resource)			
<b>Road Canyon (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 148,600 tons, 0.14 opt Au (measured and indicated resource) 74,300 tons, 0.13 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ELKO COUNTY (continued)</b>				
<b>Rossi Mine (Storm resource) (Bootstrap district)</b>	1998: 3.1 million tons, 0.371 opt Au resource 2000: 2.7 million tons, 0.345 opt Au resource 2002: 1.9 million tons, 0.335 opt Au measured and indicated resources; 1 million tons, 0.0335 opt Au inferred resources 2005 and 2006: 500,000 tons, 0.449 opt Au (measured and indicated resource) 800,000 tons, 0.376 opt Au, inferred resource		Popovich Formation Bootstrap Limestone Rodeo Creek Formation	
<b>SSX-Steer (Jerritt Canyon, Independence Mountains district)</b>	2005: 1,333,300 tons, 0.25 opt Au (proven and probable reserve) 2,597,500 tons, 0.28 opt Au (measured and indicated resource, includes reserves) 1,052,200 tons, 0.23 opt Au (inferred resource) 2006: 739,400 tons, 0.266 opt Au (proven and probable reserve) 2,332,500 tons, 0.266 opt Au (measured and indicated resource, includes reserves) 929,700 tons, 0.23 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Saval (Jerritt Canyon, Independence Mountains district)</b>	2005: 104,400 tons, 0.23 opt Au (proven and probable reserve) 460,500 tons, 0.25 opt Au (measured and indicated resource, includes reserves) 270,000 tons, 0.25 opt Au (inferred resource) 2006: 120,200 tons, 0.246 opt Au (proven and probable reserve) 369,300 tons, 0.254 opt Au (measured and indicated resource, includes reserves) 191,200 tons, 0.238 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Smith (Jerritt Canyon, Independence Mountains district)</b>	2005: 949,300 tons, 0.29 opt Au (proven and probable reserve) 1,863,300 tons, 0.28 opt Au (measured and indicated resource, includes reserves) 677,000 tons, 0.24 opt Au (inferred resource) 2006: 269,000 tons, 0.332 opt Au (proven and probable reserve) 1,064,400 tons, 0.290 opt Au (measured and indicated resource, includes reserves) 541,600 tons, 0.231 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>Smith East (Jerritt Canyon, Independence Mountains district)</b>	2006: 997,400 tons, 0.281 opt Au (measured and indicated resource, includes reserves) 120,400 tons, 0.264 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
<b>South Arturo (Bootstrap district)</b>	2006: 12,644,000 tons, 0.060 opt Au (indicated resource) 786,000 tons, 0.053 opt Au (inferred resource)		Popovich Formation Bootstrap Limestone Rodeo Creek Formation	
<b>Starvation Canyon (Jerritt Canyon, Independence Mountains district)</b>	2005: 400,500 tons, 0.30 opt Au (probable reserve) 676,400 tons, 0.28 opt Au (measured and indicated resource, includes reserves) 51,400 tons, 0.31 opt Au (inferred resource) 2006: 369,600 tons, 0.305 opt Au (probable reserve) 636,500 tons, 0.290 opt Au (measured and indicated resource, includes reserves) 51,200 tons, 0.278 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ELKO COUNTY (continued)</b>				
<b>Trout Creek (Contact district)</b>	1988: 1.5 million tons, 0.04 opt Au	1988: exploration	Miocene sedimentary rocks	
<b>Tuscarora (Dexter) (Tuscarora district)</b>	1987: 2 million tons, 0.039 opt Au, 1.9 opt Ag 1988: 1.8 million tons, 0.037 opt Au, 0.74 opt Ag	1896–1902: 29,940 oz Au, 28,543 oz Ag 1987–90: 34,163 oz Au, 189,865 oz Ag	Eocene rhyolitic ignimbrite and andesite	Eocene
<b>Waterpipe II (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 37,400 tons, 0.21 opt Au (underground inferred resource)		Roberts Mountains Formation	
<b>West Mahala (Jerritt Canyon, Independence Mountains district)</b>	2005 and 2006: 368,100 tons, 0.22 opt Au (underground measured and indicated resource) 141,900 tons, 0.21 opt Au (underground inferred resource)		Roberts Mountains Formations	Hanson Creek and
<b>Winters Creek (Jerritt Canyon, Independence Mountains district)</b>	1986: 1.4 million tons, 0.146 opt Au 2005 and 2006: 148,900 tons, 0.22 opt Au underground measured and indicated resource, 37,200 tons, 0.2 opt Au, underground inferred resource		lower Paleozoic carbonate rocks	Eocene
<b>Wright Window (Jerritt Canyon, Independence Mountains district)</b>	1986: 1.3 million tons, 0.095 opt Au 2005 and 2006: 32,600 tons, 0.23 opt Au, probable reserve, 97,800 tons, 0.16 opt Au, (measured and indicated resource, includes reserves) 19,000 tons, 0.23 opt Au (inferred resource)	1992: 3,500 oz Au	lower Paleozoic carbonate rocks	Eocene
<b>ESMERALDA COUNTY</b>				
<b>Boss (Gilbert district)</b>	1987: 500,000 tons, 0.07 opt Au 1990: reserves–637,500 tons, 0.023 opt Au geologic resource–31,000 oz Au 1996: see Castle		Ordovician sedimentary rocks	Miocene?
<b>Castle (includes Boss) (Gilbert district)</b>	1996: 3.7 million tons, 0.03 opt Au 1997: 10 million tons, 0.03 opt Au resource 2000: 215,000 oz Au indicated resource and 93,000 oz Au inferred resource		Ordovician Palmetto Formation	
<b>Gemfield (Goldfield district)</b>	1996: 9.5 million tons, 0.04 opt Au 1998: 500,000 oz, 0.04 opt Au 2003: see Goldfield project 2004: 16,853,000 tons, 0.032 opt Au (measured and indicated resources) 1,001,000 tons, 0.022 opt Au (inferred resource) 2006: 12,459,000 tons, 0.031 opt Au (measured and indicated resources) 88,000 tons, 0.116 opt Au (inferred resource)		Sandstorm Rhyolite	21 Ma?
<b>Goldfield Project (Goldfield district) (see Gemfield, Goldfield Main, and McMahon Ridge)</b>	1983: 1.75 million tons, 0.087 opt Au 1994: 3.48 million tons, 0.071 opt Au 2003: 23,410,200 tons, 0.031 opt Au (measured and indicated resources) 10,239,100 tons 0.024 opt Au inferred resources (includes Goldfield Main, McMahon Ridge, and Gemfield) 2006: 16,856,000 tons, 0.034 opt Au (measured, indicated, and inferred resources, includes McMahon Ridge and Gemfield)	1903–45: 4.19 million oz Au, 1.45 million oz Ag 1989-97: 28,373 oz Au	andesite, rhyodacite, rhyolite	21 Ma
<b>Goldfield Main (Goldfield district)</b>	2004: 6,651,000 tons, 0.036 opt Au measured and indicated resources; 2,129,000 tons, 0.038 opt Au inferred resources			

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>ESMERALDA COUNTY (continued)</b>				
<b>Hasbrouck (Divide district)</b>	1982: 5 million tons 0.06 opt Au, 1.5 opt Ag 1986: 12.9 million tons, 0.0291 opt Au, 0.59 opt Ag 1998: 7.7 million tons, 0.036 opt Au, 0.7 opt Ag 2003: 20,300,00 tons, 0.023 opt Au (indicated resource) 8,160,000 tons, 0.021 opt Au (inferred resource)		Siebert Formation tuff and volcanoclastic rocks	16 Ma
<b>Hill of Gold deposit (Divide district)</b>	1988: 500,000 tons, 0.04 opt Au, 0.40 opt Ag 1996: 1.6 million tons, 0.026 opt Au		Miocene silicic tuff	16 Ma
<b>Mary-Drinkwater (Silver Peak district)</b>	1991: 531,300 tons, 0.124 opt Au	1991: 25,000 oz Au, 8,000 oz Ag	Wyman Formation	Mesozoic?
<b>McMahon Ridge (Goldfield district)</b>	2004: 8,200,000 tons, 0.035 opt Au (measured and indicated resources) 171,000 tons, 0.019 opt Au (inferred resources) 2006: 4,138,000 tons, 0.042 opt Au (measured and indicated resources) 172,000 tons, 0.038 opt Au (inferred resource)			
<b>Mineral Ridge (Silver Peak district)</b>	1995: 5.2 million tons, 0.068 opt Au proven and probable reserves (includes Mary-Drinkwater) 1998: 4 million tons, 0.06 opt Au; 241,000 oz Au 2000: 2.84 million tons, 0.074 opt Au minable reserve 2002: 2.66 million tons, 0.079 opt Au total reserves 2003: 8.3 million tons, 0.061 opt Au resources (includes 2.66 million tons, 0.079 opt Au reserves)	1997: 13,793 oz Au, 7,907 oz Ag 1998: 8,582 oz Au, 4,877 oz Ag 1999: 27,145 oz Au, 19,915 oz Ag 2000: 2,200 oz Au, 1,000 oz Ag 2001: 1,399 oz Au, 424 oz Ag 2002: 397 oz Au, 396 oz Ag 2003: 675 oz Au, 704 oz Ag 2004: 3,638 oz Au, 3,062 oz Ag 2005: 1,589 oz Au, 1,073 oz Ag	Wyman Formation	Mesozoic?
<b>Monte Cristo (Gilbert district)</b>	2006: 363,760 tons, 0.190 opt Au, 0.583 opt Ag (inferred resource)	late 1980s: 300,000 tons grading 0.072 opt Au	Tertiary andesite, lithic tuff	Tertiary
<b>Tip Top (Fish Lake Valley district)</b>	1997: 109,000 tons, 0.103 opt Au, 0.88 opt Ag indicated resource 1998: 168,000 tons, 0.088 opt Au inferred geologic resource		Tertiary quartz latite	
<b>Three Hills (Tonopah district)</b>	1996: 3.2 million tons, 0.036 opt Au 1997: 6.3 million tons, 0.023 opt Au 2003: 5,736,000 tons, 0.023 opt Au (indicated resource)		Miocene Siebert Formation and Oddie Rhyolite	
<b>Weepah (Weepah district)</b>	1986: 200,000 tons, 0.1 opt Au, 0.4 opt Ag	1986-87: 58,000 oz Au	Wyman Formation	Cretaceous
<b>EUREKA COUNTY</b>				
<b>Afgan (Antelope district)</b>	1996: 80,000 oz Au drill indicated resource 1999: 2.8 million tons, 0.037 opt Au oxide resource 2004: 1.85 million tons, 0.027 opt Au (indicated resource) 1.29 million tons, 0.026 opt Au (inferred resource)		Webb Formation	

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>EUREKA COUNTY (continued)</b>				
<b>Betze-Post (Lynn district)</b>	1988: 128.4 million tons, 0.095 opt Au 1999: 135.6 million tons, 0.153 opt Au proven and probable reserves; 23.3 million tons, 0.099 opt Au mineralized material 2000: 116.4 million tons, 0.155 opt Au proven and probable; 55.9 million tons, 0.063 opt Au mineral resource 2001: 108.9 million tons, 0.151 opt Au proven and probable; 49.9 million tons, 0.069 opt Au mineral resource 2002: 107.1 million tons, 0.150 opt Au proven and probable reserves; 47.6 million tons, 0.070 opt Au mineral resource 2003: 61,551,000 tons, 0.128 opt Au proven reserves; 48,191,000 tons, 0.162 opt Au probable reserves; 14,077,000 tons, 0.059 opt Au measured resources; 23,326,000 tons, 0.061 opt Au indicated resource; 323,000 tons, 0.065 opt Au inferred resource 2004: 123,334,000 tons, 0.131 opt Au proven and probable reserves; 22,318,000 tons, 0.050 opt Au mineral resource 2005: 114,512,000 tons, 0.128 opt Au (proven and probable reserve) 21,115,000 tons, 0.050 opt Au (measured and indicated resource) 417,000 tons, 0.089 opt Au (inferred resource) 2006: 105,206,000 tons, 0.125 opt Au (proven and probable reserve) 20,184,000 tons, 0.050 opt Au (measured and indicated resource) 489,000 tons, 0.078 opt Au (inferred resource)	1974: 302,807 oz Au 1980–88: 440,000 oz Au 1989–92: 2,214,508 oz Au, 92,347 oz Ag 1993: 1,439,929 oz Au 1994–98: 8,920,871 oz Au, 372,403 oz Ag 1999: 1,130,094 oz Au, 65,804 oz Ag 2000: 1,646,640 oz Au, 52,000 oz Ag 2001: 1,549,975 oz Au, 261,261 oz Ag 2002: 1,409,984 oz Au, 135,716 oz Ag 2003: 1,559,401 oz Au, 115,473 oz Ag 2004: 1,381,315 oz Au, 130,609 oz Ag 2005: 1,514,320 oz Au, 114,248 oz Ag 2006: 1,432,698 oz Au, 121,032 oz Ag	Ordovician to Devonian chert, shale, siltstone, and impure carbonates; in part, Vinini Formation	Eocene
<b>Buckhorn property (Buckhorn district)</b>	1984: 5 million tons, 0.044 opt Au, 0.585 opt Ag 1990: 700,000 tons, 0.05 opt Au; <i>geologic resource</i> –200,350 oz Au 1993: <i>geologic resource</i> –1.1 million tons, 0.11 opt Au	1988–93: 109,422 oz Au, 409,887 oz Ag	basaltic andesite, sinter, silicified sedimentary rocks	14.6 Ma
<b>Buckhorn South/ Zeke deposit (Buckhorn district)</b>	1989: 2 million tons, 0.056 opt Au, 0.224 opt Ag 1998: 2.4 million tons, 0.046 opt Au		lower Paleozoic rocks	
<b>Carlin North, Newmont (Lynn district)</b>				
<b>Blue Star</b>	1987: 1.95 million tons, 0.066 opt Au 1989: <i>geologic resource</i> –22.2 million tons, 0.030 opt Au	1974–84: intermittent 1988–2006: included in Newmont Gold production, page 62	lower Paleozoic sandy siltstone and carbonate rocks, granodiorite	Eocene
<b>Bobcat</b>	1988: <i>geologic resource</i> –17.7 million tons, 0.029 opt Au		lower Paleozoic rocks	Eocene
<b>Bullion Monarch</b>	1987: 1 million tons, 0.10 opt Au	1977–84: 17,779 oz Au	lower Paleozoic sedimentary rocks	Eocene
<b>Deep Star</b>	1996: 1.4 million tons, 0.8765 opt Au proven and probable reserves	1995: 2,800 oz Au 1996: 93,400 oz Au 1997–2005: included in Newmont Gold production, page 62	Popovich Formation	Eocene
<b>Genesis</b>	1989: <i>geologic resource</i> –35.8 million tons, 0.044 opt Au 1990: 32 million tons, 0.047 opt (includes Blue Star) 2004: 1,065,000 oz Au (proven and probable reserve)	1986: production commenced 1988–2006: included in Newmont Gold production, page 62	Ordovician-Devonian limestone, argillite chert	Eocene
<b>Genesis/North Star</b>	1996: 22.7 million tons, 0.034 opt Au proven and probable reserves; 11 million	1994–95: 684,600 oz Au 1996–2006: included in Newmont Gold production, page 62	Ordovician-Devonian limestone, argillite chert	Eocene

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>EUREKA COUNTY (continued)</b>				
<b>Carlin North, Newmont (Lynn district) continued</b>				
<b>Genesis Complex</b>	2000: 14.1 million tons, 0.026 opt Au proven and probable open-pit reserves 2004: 1,065,000 oz Au (proven and probable reserve) 2005: 1,193,058 oz Au (proven and probable reserve)			
<b>Leeville</b>	2004: 2,612,000 oz Au (proven and probable reserves) 2005: 2,433,000 oz Au (proven and probable reserves)	2005–2006: included in Newmont Gold production, page 62	Roberts Mountains Formation	Eocene
<b>North Lantern</b>	2004: 199,940 oz Au			
<b>North Star</b>	1989: <i>geologic resource</i> –6.9 million tons, 0.052 opt Au 1990: 3.9 million tons, 0.052 opt Au	1988: 4,250 oz Au 1989–2005: included in Newmont Gold production, page 62	lower Paleozoic sedimentary rocks	Eocene
<b>Post/Goldbug</b>	1996: 25.6 million tons, 0.190 opt Au proven and probable reserves; 43.6 million tons, 0.079 opt Au mineralized material	1999–2005: included in Newmont Gold production, page 62	lower Paleozoic sedimentary rocks	Eocene
<b>Deep Post</b>	2000: 3.1 million tons, 0.814 opt Au proven and probable underground reserves 2004 (includes Deep Star) 1,462,000 oz Au (proven and probable reserve) 2005 (includes Deep Star) 942,000 oz Au (proven and probable reserve)	2005–2006: included in Newmont Gold production, page 62		
<b>Turf</b>	1996: 2.5 million tons, 0.367 opt Au mineralized material	included in Newmont Gold production, page 62	Roberts Mountains Formation	Eocene
<b>West Leeville (Newmont)</b>	1996: 2 million tons, 0.377 opt Au proven and probable reserves; 581,000 tons 0.354 opt Au mineralized material	1995–96: 272,000 oz Au 1997–2000: included in Newmont Gold production, page 62	Roberts Mountains Formation	Eocene
<b>West Leeville (Newmont-Barrick)</b>	1996: 7.1 million tons, 0.425 opt Au proven and probable reserves; 500,000 tons 0.328 opt Au mineralized material		Roberts Mountains Formation	Eocene
<b>Carlin Mine</b>	1965: 11 million tons, 0.32 opt Au	1965–86: 3.8 million oz Au		
<b>Carlin/Pete/Lantern</b>	1995: 14.8 million tons, 0.031 opt Au 1996: 13.7 million tons, 0.046 opt Au proven and probable reserves; 14.7 million tons, 0.046 opt Au mineralized material 2004: 940,040 oz Au (proven and probable reserves) 2005: 1,044,841 oz Au (proven and probable reserves)	1994–96: 68,700 oz Au 1997–2006: included in Newmont Gold production, page 62	Roberts Mountains Formation	Eocene
<b>Carlin Underground</b>	2004: 163,000 oz Au 2005: 123,000 oz Au (proven and probable reserves)			
<b>Carlin North-other</b>	2000: 19.8 million tons, 0.052 opt Au, proven and probable open-pit reserves			
<b>Carlin North area total</b>	2000: 8.2 million tons, 0.495 opt Au, proven and probable underground reserves			
<b>Carlin North area, total open-pit</b>	2001: 32.6 million tons, 0.044 opt Au, proven and probable reserves; 13.0 million tons, 0.039 opt Au mineralized material			
<b>Carlin North area, total underground</b>	2001: 10.9 million tons, 0.56 opt Au, proven and probable reserves; 2.1 million tons, 0.55 opt Au mineralized material			

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>EUREKA COUNTY (continued)</b>				
<b>Carlin South, Newmont (Maggie Creek district)</b>				
<b>Gold Quarry/Mac/Tusc</b>	1982: 25.1 million tons, 0.106 opt Au and 150 million tons, 0.036 opt Au 1987: 197.8 million tons, 0.042 opt Au 1990: 212.6 million tons, 0.042 opt Au, <i>geologic resource</i> —534.3 million tons, 0.037 opt Au 1996: 174.8 million tons, 0.046 opt Au proven and probable reserves; 51.9 million tons, 0.058 opt Au mineralized material 2004: 5,984,000 oz (proven and probable reserve) 2005: 6,554,297 oz (proven and probable reserve)	1981: 6,000 oz Au, 1982: 19,000 oz Au 1983: 74,000 oz Au, 1984: 68,200 oz Au 1985: 136,200 oz Au, 1986: 309,800 oz Au 1987: 446,600 oz Au 1988–93: included in Newmont Gold production, page 62 1994–96: 2,978,000 oz Au 1997–2006: included in Newmont Gold production, page 62	Ordovician to Devonian chert, shale, siltstone, and impure carbonates; in part, Vinini Formation	Eocene
<b>Mike</b>	1999: 408,000,00 tons, .006 opt Au 151,000,000 tons, 0.10 % Cu 19,000,000 tons, 1.00 % Zn ("drill-indicated mineral inventory)			
<b>Tusc</b>	1988: <i>geologic resource</i> —15.8 million tons, 0.059 opt Au 1990: 13.3 million tons, 0.062 opt Au	included in Newmont Gold production, page 62	lower Paleozoic sedimentary rocks	Eocene
<b>Carlin South area</b>	2000: 75.2 million tons, 0.059 opt Au proven and probable open-pit reserves			
<b>Carlin South open-pit</b>	2001: 61.3 million tons, 0.062 opt Au proven and probable reserves; 24.6 million tons, 0.028 opt Au mineralized material			
<b>Chukar Footwall underground</b>	2001: 278,000 tons, 0.49 opt Au proven and probable reserves; 115,000 tons, 0.46 opt Au mineralized material 2004: 172,000 oz Au (proven and probable reserves) 2005: 256,000 oz Au (proven and probable reserves)			
<b>Carlin North and South combined (includes all Newmont's Carlin properties)</b>				
<b>Carlin open pit</b>	2002: 181.8 million tons, 0.042 opt Au proven and probable reserves; 9.5 million tons, 0.028 opt Au measured and indicated mineralized material; 9.3 million tons, 0.035 opt Au inferred mineralized material 2003: 17,500,000 tons, 0.052 opt Au proven reserve; 203,300,000 tons, 0.044 probable reserve; 1,000,000 tons 0.035 measured material; 11,200,000 tons 0.024 indicated material; 10,400,000 tons 0.034 opt Au inferred material 2004: 201,600,000 tons, 0.047 opt Au proven and probable reserves; 13,200,000 tons, 0.022 opt Au indicated material; 7,700,000 tons, 0.034 opt Au inferred material 2005: 238.3 million tons, 0.043 opt Au (proven and probable reserve) 28.1 million tons, 0.04 opt Au (measured and indicated resources) 4.2 million tons, 0.024 opt Au (inferred resource) 2006: 271.6 million tons, 0.042 opt Au (proven and probable reserves) 35.1 million tons, 0.035 opt Au (measured and indicated resources) 6.3 million tons, 0.022 opt Au (inferred resource)	2004–2006: included in Newmont Gold gold production, page 62	Eocene	
<b>Carlin underground</b>	2002: 10 million tons, 0.57 opt Au proven and probable reserves; 2.6 million tons, 0.50 opt Au measured and indicated mineralized material; 200,000 tons, 0.53 opt Au inferred mineralized material 2003: 2,700,000 tons, 0.670 opt Au proven reserves; 6,100,000 tons, 0.500 opt Au probable reserves; 3,700,000 tons 0.480 opt Au inferred material 2004: 8,700,000 tons, 0.510 opt Au proven and probable reserves; 100,000 tons, 0.260 opt Au indicated material; 3,900,000 tons, 0.470 opt Au inferred material 2005: 7.7 million tons, 0.49 opt Au (proven and probable reserve) 300,000 tons, 0.33 opt Au (measured and indicated resources) 3.7 million tons, 0.46 opt Au (inferred resource) 2006: 7.4 million tons, 0.44 opt Au (proven and probable reserve) 1.1 million tons, 0.28 opt Au (measured and indicated resources) 3.0 million tons, 0.47 opt Au (inferred resource)	2004–2006: included in Newmont Gold gold production, page 62	Eocene	

continued

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>EUREKA COUNTY (continued)</b>				
<b>Gold Bar (Antelope district)</b>	1984: 2.8 million tons, 0.09 opt Au 1990: mined out in December 1994: 240,000 oz Au 1995: 190,000 oz Au 2001: 473,000 oz Au in 6 deposits 2002: 3.6 million tons, 0.100 opt Au resource	1987–90: 238,262 oz Au 1991: 80,727 oz Au, 3,000 oz Ag 1992–94: 155,080 oz Au	Devonian Nevada Formation	Eocene?
<b>Gold Canyon (Antelope district)</b>	1992: reserves—86,500 oz Au, geologic resource—131,000 oz Au 1993: 770,000 tons, 0.080 opt Au 2001: see Gold Bar 2002: 2.5 million tons, 0.056 opt Au resource	(reported with Gold Bar)	Devonian Upper Denay Limestone Formation	Eocene?
<b>Gold Pick (Antelope district)</b>	1988: 10 million tons, 0.06 opt Au 1993: 1.4 million tons, 0.079 opt Au 2001: see Gold Bar 2002: 5 million tons, 0.057 opt Au measured mineral resource 2005: 7,874,000 tons, 0.041 opt Au (indicated resource)	(reported with Gold Bar)	Devonian McColley Canyon Formation	Eocene?
<b>Gold Ridge (Antelope district)</b>	1988: 4 million tons, 0.06 opt Au 1993: 426,000 tons, 0.059 opt Au 2001: see Gold Bar 2002: 584,164 tons, 0.046 opt Au resource	(reported with Gold Bar)	Devonian McColley Canyon Formation	Eocene?
<b>Goldstone (Antelope district)</b>	1988: 1.7 million tons, 0.08 opt Au 1993: 130,928 tons, 0.104 opt Au 2001: see Gold Bar	(reported with Gold Bar)	Devonian Upper Denay Limestone Formation	Eocene?
<b>Horse Canyon (Cortez district)</b>	1984: 3.94 million tons, 0.055 opt Au 1988: included in Cortez Joint Venture figures	1984: 40,000 oz Au 1988–93: included with Cortez Joint Venture	Wenban Limestone	≤35 Ma?
<b>Ratto Canyon (Lookout Mountain) (Eureka district)</b>	1984: ~200,000 oz Au (entire Ratto Ridge area): 2006: 836,000 tons, 0.24 opt Au (measured and indicated resource)	1987–88: 17,000 oz Au	Dunderberg Shale, Hamburg Dolomite	Eocene
<b>Rock Creek (Eureka-Lander Co. line)</b>	1997: 800,000 tons, 0.045 opt Au		Tertiary latite tuff	
<b>Rodeo Projects (Rodeo, Griffin, Goldbug, North Betze) (Lynn district)</b>	1998: 2.9 million tons, 0.487 opt Au proven and probable reserves; 5.8 million tons, 0.302 opt Au mineralized material 1999: 5.8 million tons, 0.466 opt Au, proven and probable reserves; 13.0 million tons, 0.270 opt Au mineralized material 2000: 9.2 million tons, 0.414 opt Au proven and probable; 7.4 million tons, 0.333 opt Au mineral resource 2005–2006: reserves are combined with Meikle reserves, p. 31	see Meikle (p. 40) for production		Eocene
<b>Ruby Hill (Eureka district)</b>	1994: geologic resource—20 million tons, 0.08 opt Au 1995: 7.62 million tons, 0.099 opt Au 1999: 3.77 million tons, 0.110 opt Au proven and probable; 7.33 million tons, 0.072 opt Au mineralized material 2000: 2.7 million tons, 0.105 opt Au proven and probable reserves; 7.3 million tons, 0.072 opt Au mineralized material 2004: (East Archimedes) 17,093,000 tons, 0.059 opt Au proven and probable reserves; 3,049,000 tons, 0.061 opt Au mineral resource 2006: (East Archimedes) 19,479,000 tons, 0.055 opt Au (proven and probable reserves) 601,000 tons, 0.088 opt Au (measured and indicated resources)	1997–98: 133,100 oz Au, 8,686 oz Ag 1999: 123,841 oz Au, 7,688 oz Ag 2000: 125,193 oz Au, 7,984 oz Ag 2001: 134,737 oz Au, 9,315 oz Ag 2002: 135,448 oz Au, 9,750 oz Ag 2003: 18,134 oz Au, 2,441 oz Ag 2004: 6,057 oz Au, 1,868 oz Ag	Goodwin Limestone	

continued

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>EUREKA COUNTY (continued)</b>				
<b>Tonkin Springs (Antelope district)</b>	1983: 1.84 million tons, 0.089 opt Au, 0.204 opt Ag 1987: <i>oxide</i> –1.5 million tons, 0.05 opt Au; <i>sulfide</i> –2.5 million tons, 0.09 opt Au 1991: 9 million tons, 0.05 opt Au 1999: 30.7 million tons, 0.045 opt Au resource	1987–88: 10,265 oz Au 1989–90: 3,821 oz Au, 1,872 oz Ag	Vinini Formation,	Eocene?
<b>Windfall (Eureka district)</b>	1988: 3 million tons, 0.03 opt Au 1995: mined out	1908–16: 24,000 oz Au 1975–84: 90,000 oz Au 1988: 6,380 oz Au, 59 oz Ag	Hamburg Dolomite	Eocene or Oligocene
<b>HUMBOLDT COUNTY</b>				
<b>Adelaide Crown (Gold Run district)</b>	1989: <i>south pit</i> –585,000 tons, 1.313 opt Ag, 0.043 opt Au; <i>additional area</i> : 165,000 tons, 0.015 opt Au, 1.10 opt Ag	1990–91: 4,917 oz Au, 53,474 oz Ag	Preble Formation	Tertiary
<b>Ashdown (Vicksburg district)</b>	1987: 1.16 million tons, 0.125 opt Au 1992: 1.1 million tons, 0.12 opt Au 2002: 100,000 oz Au		Mesozoic granite	Mesozoic
<b>Buckskin (National district)</b>	1997: 50,221 oz Au, 466,243 oz Ag estimated resource		Miocene rhyolite flows and flow breccias	16 Ma
<b>Chimney Creek (Potosi district)</b>	1988: <i>proven, probable</i> –26.9 million tons, 0.068 opt Au; <i>inferred in south pit</i> – 2.1 million oz Au 1993: see Twin Creeks	1987–88: 300,000 oz Au 1989: 222,556 oz Au, 55,953 oz Ag 1990: 220,000 oz Au 1991–92: 476,034 oz Au, 213,463 oz Ag 1993: see Twin Creeks, page 51	upper Paleozoic sedimentary rocks	
<b>Converse/Redline (Buffalo Valley district)</b>	2003: 77,459,000 tons, 0.020 opt Au measured and indicated resources 2004: 263 million tons, 0.0150 opt Au, 0.0582 opt Ag (measured and indicated resource) 35 million tons, 0.0143 opt Au, 0.0524 opt Ag		Havallah Formation granodiorite	Tertiary
<b>Getchell (Potosi district)</b>	1989: 8.1 million tons, 0.154 opt Au mill grade and 1.43 million tons, 0.049 opt Au heap-leach ore; additional geologic resource: 5.7 million tons, 0.092 opt Au sulfide and 2.6 million tons, 0.055 opt Au oxide 1999: 18.1 million tons, 0.359 opt Au 2000: 2.8 million oz Au measured resources, 5.5 million oz Au indicated resources, and 6.7 million oz inferred resources 2002: 2.69 million oz Au proven and probable reserves; 1.51 million oz Au measured and indicated mineral resources 2003: (Turquoise Ridge) 6,000,000 tons, 0.570 opt Au proven reserve; 2,400,000 tons, 0.620 opt Au probable reserve; 4,400,000 tons, 0.300 opt Au measured material; 2,800,000 tons, 0.400 opt Au indicated material; 4,800,000 tons, 0.490 opt Au inferred material 2005: Turquoise Ridge Mine, include Turquoise Ridge and Getchell Footwall deposits: 7.6 million tons, 0.56 opt Au (proven and probable reserve) 5.6 million tons, 0.42 opt Au (measured and indicated resource) 400,000 tons, 0.54 opt (inferred resource) 2006: Turquoise Ridge Mine, include Turquoise Ridge and Getchell Footwall deposits: 8.436 million tons, 0.544 opt Au (proven and probable reserve) 4.801 million tons, 0.432 opt Au (measured and indicated resource) 1.961 million tons, 0.493 opt (inferred resource)	1938–50, 1962-67: 788,875 oz Au 1987–88: ~35,000 oz Au 1989: 120,730 oz Au, 9,407 oz Ag 1990–91: 372,987 oz Au 1992–95: 790,600 oz Au, 258,700 oz Ag 1996–97: 348,517 oz Au 1998: 175,302 oz Au, 52,490 oz Ag 1999: 111,000 oz Au 2002: 54,600 oz Au, 5,400 oz Ag 2003: 93,337 oz Au 2004: 162,637 oz Au 2005: 208,492 oz Au, 54,419 oz Ag 2006: 233,127 oz Au, 30,473 oz Ag	Comus and Preble Formations, granodiorite dikes, granodiorite	37-41 Ma

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>HUMBOLDT COUNTY (continued)</b>				
<b>Hycroft formerly Crofoot/Lewis (Sulphur district)</b>	1988: 25 million tons, 0.025 opt Au 1999: 23.8 million tons, 0.0204 opt Au proven and probable reserves; 2.3 million tons, 0.0177 opt Au indicated reserves 2000: 41.9 million tons, 0.0196 opt Au measured and indicated resources; 14.1 million tons, 0.0152 opt Au inferred resources 2004: 47,479,000 tons, 0.016 opt Au measured and indicated; 12,029,000 tons, 0.011 opt Au inferred resources 2005: 33.32 million tons, 0.02 opt Au (proven and probable reserve) 52.7 million tons, 0.019 opt Au (measured and indicated resource) 8.7 million tons, 0.015 opt Au (inferred resource)	1988: 75,800 oz Au 1989-98: 868,544 oz Au, 2,717,170 oz Ag 1999: 40,075 oz Au, 183,190 oz Ag 2000: 13,493 oz Au, 38,418 oz Ag 2001: 3,232 oz Au, 2,000 Ag 2002: 1,771 oz Au, 217 oz Ag 2003: 644 oz Au, 100 oz Ag 2004: 61 oz Au	Camel conglomerate, rhyolite dikes	1-2 Ma
<b>Lone Tree (Buffalo Mountain district)</b>	1990: 5.4 million tons oxide mill ore, 0.159 opt Au, 5.7 million tons heap-leach ore, 0.025 opt Au and 1.2 million oz Au in sulfide ore 1994: 4 million oz Au 2000: 40.8 million tons, 0.060 opt Au proven and probable reserves (Lone Tree Complex) 2001: 29.2 million tons, 0.065 opt Au proven and probable reserves; 7.9 million tons, 0.032 opt Au mineralized material 2002: 21 million tons, 0.069 opt Au proven and probable reserves; 2 million tons, 0.057 opt Au measured and indicated mineralized material; 1 million tons, 0.047 opt Au inferred mineralized material 2003: 3,300,000 tons, 0.092 opt Au proven reserves 13,000,000 tons, 0.084 opt Au probable reserves 2,100,000 tons, 0.054 opt Au indicated material 600,000 tons, 0.054 opt Au inferred material 2004: 14,000,000 tons, 0.063 opt Au proven and probable reserves; 3,400,000 tons, 0.044 opt Au indicated material; 200,000 tons, 0.116 opt Au inferred material 2005: 4 million tons, 0.080 opt Au (proven and probable reserve) 3 million tons, 0.032 opt Au (measured and indicated resource)	1991-99: 546,335 oz Au 1995: 240,000 oz Au, 11,000 oz Ag 1996-97: 536,820 oz Au 1998: 257,702 oz Au, 27,484 oz Ag 1999: 191,975 oz Au, 35,617 oz Ag 2000: 281,022 oz Au, 38,346 oz Ag 2001: 260,518 oz Au, 29,974 oz Ag 2002: 327,160 oz Au, 65,905 oz Ag 2003: 434,704 oz Au, 80,094 oz Ag 2004: 497,065 oz Au, 140,144 oz Ag 2005: 339,187 oz Au, 46,934 oz Ag 2006: 357,787 oz Au, 26,601 oz Ag	Havallah Formation, Antler sequence and dacite porphyry	38 Ma
<b>Marigold (Battle Mountain district)</b>	1987: 8 million tons, 0.0935 opt Au 1990: 4.3 million tons, 0.105 opt Au mill ore, 7.6 million tons, 0.026 opt Au heap-leach ore 1999: 19.09 million tons, 0.032 opt Au 2000: 30.2 million tons, 0.035 opt Au proven and probable reserves; 20.7 million tons, 0.029 opt Au measured and indicated resources 2001: 75.5 million tons, 0.027 opt Au proven and probable reserves; 109.9 million tons, 0.014 opt Au measured and indicated resources 2002: 79.1 million tons, 0.026 opt Au proven and probable reserves; 129.7 million tons, 0.014 opt Au mineral resource 2003: 9,366,000 tons, 0.031 opt Au proven reserve; 83,909,000 tons, 0.023 opt Au probable reserves; 19,937,000 tons, 0.020 opt Au measured reserve; 20,069,000 tons, 0.020 opt Au indicated resource; 177,450,000 tons, 0.014 opt Au inferred resource 2004: 71,218,500 tons, 0.023 opt Au proven and probable reserves; 18,043,500 tons, 0.022 opt Au measured and indicated resources; 21,000,000 tons, 0.014 opt Au inferred resource 2005: 98.21 million tons, 0.021 opt Au (proven and probable reserve) 157.48 million tons, 0.020 opt Au (measured and indicated resource, includes reserve) 163.23 million tons, 0.013 opt Au (inferred resource) 2006: 102.87 million tons, 0.021 opt Au (proven and probable reserve) 94.587 million tons, 0.018 opt Au (measured and indicated resource) 88.212 million tons, 0.011 opt Au (inferred resource)	1989-93: 322,219 oz Au, 9,784 oz Ag 1994-98: 363,771 oz Au 1999: 74,000 oz Au 2000: 68,000 oz Au 2001: 84,784 oz Au, 401 oz Ag 2002: 83,321 oz Au, 1,281 oz Ag 2003: 142,100 oz Au, 2,080 oz Ag 2004: 141,304 oz Au, 2,354 oz Ag 2005: 205,663 oz Au, 1,723 oz Ag 2006: 149,805 oz Au, 1,986 oz Ag	Paleozoic chert, argillite, and carbonate rocks	

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>HUMBOLDT COUNTY (continued)</b>				
<b>North Stonehouse (Buffalo Mountain district)</b>	1991: 2.5 million tons, 0.103 oz Au mill ore		Havallah Formation and porphyry dikes	39 Ma
<b>Pinson (Potosi district)</b>	1980: 3.245 million tons, 0.119 opt Au 1989: 480,000 oz Au 1996: 2.6 million tons, 0.072 opt Au 2005: 1,692,000 tons, 0.421 opt Au (measured and indicated resource) 3,097,000 tons, 0.34 opt Au (inferred resource) 2006: (includes Range Front, Ogee and CX-West zones) 2,505,000 tons, 0.454 opt Au (measured and indicated resource) 3,374,500 tons, 0.340 opt Au (inferred resource)	1980: 56,000 oz Au 1986–88: 189,864 oz Au 1989: 72,489 oz Au (includes Preble) 1990–91: 112,022 oz Au 1992–94: 145,210 oz Au, 12,700 oz Ag 1995: 44,854 oz Au 1996–98: 128,935 oz Au, 7,990 oz Ag 1999: 11,975 oz Au, 442 oz Ag 2000: 1,116 oz Au, 31 oz Ag 2001: 679 oz Au	Comus Formation	Eocene?
<b>Preble (Potosi district)</b>	1985: 1.8 million tons, 0.062 opt Au 1986: 3.16 million tons, 0.093 opt Au heap leach, 80,000 tons, 0.242 opt Au mill grade 1989: 15,110 oz Au	1985: 17,000 oz Au 1987: 28,000 oz Au 1988: 18,828 oz Au 1989: included with Pinson 1990: 1,161 oz Au	Preble Formation	Eocene?
<b>Rabbit Creek (Potosi district)</b>	1989: 4.1 million oz Au; additional geologic resource—1 million Au in refractory material 1992: reserves-3.26 million oz Au 1993: see Twin Creeks	1990–92: 296,000 oz Au 1993: see Twin Creeks, p. 51	Ordovician	Eocene?
<b>Sleeper (Awakening district)</b>	1985: 4.2 million tons, 0.13 opt Au, 0.73 opt Ag 1989: 1,975,000 oz Au 1990: 44.1 million tons, 0.038 opt Au, 0.152 opt Ag 1999: 2.1 million oz Au at average grade of 0.025 opt Au; 18.1 million oz Ag at average grade of 0.208 opt Ag	1986: 128,000 oz Au, 94,000 oz Ag 1987–88: 389,106 oz Au 1989–96: 1,149,054 oz Au, 1,838,791 oz Ag 2001: 90 oz Au, 197 oz Ag 2002: 130 oz Au, 263 oz Ag	Miocene "latite" flows and dikes, silicic ash-flow tuff, Triassic slate and phyllite	16.1 Ma
<b>Trenton Canyon (includes Valmy and North Peak) (Buffalo Valley district)</b>	1994 oxide resource: 14.6 million tons, 0.035 opt Au, (517,000 oz Au) 1999: 995,000 tons, 0.021 opt Au (North Peak); 10.8 million tons, 0.022 opt Au (Valmy)	2000: included with Lone Tree 2001: 24,228 oz Au, 2,996 oz Ag 2002: 3,685 oz Au, 742 oz Ag 2006: 1,937 oz Au, 38 oz Ag		
<b>Trout Creek (Battle Mountain district)</b>	1989: 50,000 oz Au			
<b>Twin Creeks (Chimney and Rabbit Creeks) (Potosi district)</b>	1993: 5.7 million oz Au 1999: 87.1 million tons, 0.079 opt Au proven and probable 2000: 75.2 million tons, 0.086 opt Au proven and probable 2002: 47.6 million tons, 0.081 opt Au proven and probable reserves; 55 million tons, 0.057 opt Au measured and indicated mineralized material; 1.8 million tons, 0.046 opt Au inferred mineralized material 2003: 14,000,000 tons, 0.085 opt Au proven reserve 48,200,000 tons, 0.074 opt Au probable reserve 8,000,000 tons, 0.051 opt Au measured material 34,800,000 tons, 0.051 opt Au indicated material 1,700,000 tons, 0.041 opt Au inferred material 2004: 61,800,000 tons, 0.075 opt Au proven and probable reserves; 15,300,000 tons, 0.077 opt Au indicated material; 800,000 tons, 0.043 opt Au inferred material 2005: 61.2 million tons, 0.074 opt Au (proven and probable reserve) 19.9 million tons, 0.049 opt Au (measured and indicated resource) 3.1 million tons, 0.033 opt Au (inferred resource) 2006: 64.8 million tons, 0.077 opt Au (proven and probable reserve) 25.0 million tons, 0.058 opt Au (measured and indicated resource) 3.1 million tons, 0.033 opt Au (inferred resource)	1993–98: 3,338,026 oz Au, 1,317,456 oz Ag 1999: 879,453 oz Au, 119,191 oz Ag 2000: 779,075 oz Au, 103,909 oz Ag 2001: 831,962 oz Au, 95,721 oz Ag 2002: 786,313 oz Au, 158,401 oz Ag 2003: 697,607 oz Au, 128,535 oz Ag 2004: 352,810 oz Au, 99,472 oz Ag 2005: 267,620 oz Au, 144,172 oz Ag 2006: 354,484 oz Au, 43,467 oz Ag	Paleozoic	41-43 Ma
<b>Winnemucca Mountain (Winnemucca district)</b>	1998: 130,000 to 140,000 oz Au proven, 300,000 oz Au indicated			

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>LANDER COUNTY</b>				
<b>Austin Gold Venture (Birch Creek district)</b>	1986: 1.75 million tons, 0.16 opt Au 1989: mined out 1999: 154,000 oz Au resource	1986–88: 141,000 oz Au 1989: 50,000 oz Au	Antelope Valley Limestone	Cretaceous or Tertiary
<b>Battle Mountain Complex (Battle Mountain district)</b>	1992: 500,000 oz Au 1995: resource (overall Battle Mountain complex)-60.2 million tons, 0.036 opt Au, including reserves-46.6 million tons, 0.040 opt Au 1999 (Phoenix): 5,680,000 oz Au proven and probable; 1.5 million oz Au additional mineralization 2000: 175.2 million tons, 0.034 opt Au proven and probable reserves	1994–98: 274,741 oz Au, 632,739 oz Ag 1999: 8,322 oz Au, 19,526 oz Ag 2000: 1,509 oz Au, 1,756 oz Ag 2001: see Phoenix		Eocene
<b>Buffalo Valley Gold Project (Buffalo Valley district)</b>	1988: 1.5 million tons, 0.05 opt Au 1994: 4.8 million tons, 0.07 opt Au 1997: 600,106 oz Au resource; 100,797 oz Au, other mineralized material	1988–90: 39,668 oz Au		Eocene?
<b>Cortez Joint Venture (Bullion district) CJV includes original Cortez Mine, Pipeline, South Pipeline, Gold Acres, Cortez Hills</b>	1968: 3.6 million tons, 0.279 opt Au (Cortez deposit) 1987: 4.8 million tons, 0.105 opt Au 1999: 189.4 million tons, 0.050 opt Au proven and probable; 119.1 million tons, 0.035 opt Au mineralized material 2000: 151.3 million tons, 0.047 opt Au proven and probable; 60.0 million tons, 0.047 opt Au mineralized material 2001: 191.1 million tons, 0.044 opt Au proven and probable; 76.6 million tons, 0.040 opt Au resources 2002: 229.3 million tons, 0.034 opt Au proven and probable reserves; 281.7 million tons, 0.025 opt Au measured and indicated mineral resources 2003: 88,131,000 tons, 0.061 opt Au proven reserve 49,623,000 tons, 0.045 opt Au probable reserve 44,617,000 tons, 0.046 opt Au measured resource 130,580,000 tons, 0.027 opt Au indicated resource 18,023,000 tons, 0.047 opt Au inferred resource 2004: 193,560,000 tons, 0.046 opt Au proven and probable reserves; 188,860,000 tons, 0.028 opt Au measured and indicated; 20,500,000 tons, 0.024 opt Au inferred resource 2005 (Sept 1): 275.8 million tons, 0.040 opt Au (proven and probable reserve) 309 million tons, 0.033 opt Au (measured and indicated resource) 39.2 million tons, 0.058 opt Au (inferred resource) 2006: 184.0 million tons, 0.061 opt Au (proven and probable reserve) 44.47 million tons, 0.041 opt Au (measured and indicated resource) 6.54 million tons, 0.131 opt Au (inferred resource)	1942–84: 2.4 million tons, 0.13 oz Au/ton; 2 million tons, 0.041 opt Au leached. Little Gold Acres: 800,000 tons, 0.124 opt Au 1988: 42,322 oz Au (includes Horse Canyon) 1989: 39,993 oz Au, 12,234 oz Ag (includes Horse Canyon) 1990–91: 107,445 oz Au, 16,750 oz Ag 1992–93: 141,850 oz Au 1995–98: 1,817,273 oz Au, 31,332 oz Ag 1999: 1,328,525 oz Au 2000: 1,009,992 oz Au 2001: 1,184,732 oz Au 2002: 1,081,677 oz Au 2003: 1,065,402 oz Au 2004: 1,051,197 oz Au 2005: 915,889 oz Au, 52,160 oz Ag 2006: 408,255 oz Au, 25,065 oz Ag	Roberts Mountains Formation, Wenban Limestone, Valmy Formation, quartz porphyry dikes	
<b>Cortez Hills</b>	2005 (Sept 1): 71.3 million tons, 0.079 opt Au, 5,545,000 oz Au (proven and probable reserve) 5.75 million tons, 0.42 opt Au, 2,421,667 oz Au (measured and indicated resource, underground) 13.8 million tons, 0.13 opt Au, 1,856,667 oz Au (inferred resource, open pit and underground) 2006: 8.5 million oz Au (proven and probable reserves)			
<b>Crescent Pit</b>	1994: 1.97 million tons mill grade, 0.125 opt Au, 2.2 million tons heap-leach, 0.029 opt Au 1997: included in Cortez Joint Venture			
<b>Crescent Valley (Bullion district)</b>	1994: <i>placer reserve</i> –8 million cu yd, 0.031 oz Au/cu yd 1995: <i>placer resource</i> –6 million cu yd, 0.03 oz Au/cu yd			
<b>Dean (Lewis district)</b>	1995: <i>proven reserve</i> –11,000 oz Au <i>possible to probable resource</i> –240,000 oz Au			
<b>Elder Creek Project/Shoshone (Lewis district)</b>	1989: 91,500 oz Au 1990: 1.5 million tons, 0.041 opt Au	1990–91: 20,102 oz Au	Valmy Formation	Cretaceous or Eocene

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>LANDER COUNTY (continued)</b>				
<b>Fire Creek (northeast of Bullion district)</b>	1982: 350,000 tons, 0.06 opt Au 2005 (May): 1,779,196 tons, 0.328 opt Au (indicated resource) 2006: 1,961,195 tons, 0.576 opt Au (indicated resource)	1983–84: 767 oz Au	basaltic andesite	Miocene
<b>Fortitude Complex (Battle Mountain district)</b>	1984: 16 million tons, 0.15 opt Au, 0.57 opt Ag	1986: 253,000 oz Au, 902,000 oz Ag 1987: 255,000 oz Au 1988–93: 985,616 oz Au, 1,707,992 oz Ag (includes Surprise) 1994: 50,000 oz Au, 95,000 Ag (Reona Mine) 1995: see Battle Mountain Complex 2001: see Phoenix	Battle Formation Antler Peak Limestone Pumpnickel Formation	37 Ma
<b>Fortitude Extension (Battle Mountain district)</b>	1992: 500,000 oz Au 1993: <i>geologic resource</i> –900,000 oz Au 1996: included in Battle Mountain Complex			
<b>Hilltop (Hilltop district)</b>	1984: 10.3 million tons, 0.073 opt Au 1989: 10 million tons, 0.049 opt Au 2005: 121 million tons, 0.019 opt Au (measured and indicated resource)		Valmy Formation	Oligocene?
<b>Klondike property</b>	1989: 100,000 oz Au equivalent			
<b>McCoy/Cove (McCoy district)</b>	1981: 2.5 million tons, 0.08 opt Au, 1 opt Ag (McCoy) 1987: 14 million tons, 0.05 opt Au (McCoy); 4 million oz Au, 250 million oz Ag (Cove) 1989: proven and probable reserves 2.9 million oz Au, 128 million oz Ag <i>geologic resource</i> –3.5 million oz Au, 1.50 million oz Ag 1999: 11.8 million tons, 0.043 opt Au, 2.387 opt Ag proven and probable reserves; 100,000 tons, 0.350 opt Au, 2.0 opt Ag other mineralization 2000: 4.7 million tons, 0.034 opt Au, 2.309 opt Ag proven and probable reserves 2001: 430,000 tons, 0.031 opt Au, 2.624 opt Ag proven and probable reserves	1986: 50,000 oz Au 1987–98: 3,046,660 oz Au, 85.79 million oz Ag 1999: 124,500 oz Au, 8.43 million oz Ag 2000: 162,784 oz Au, 12,328,297 oz Ag 2001: 94,633 oz Au, 6,451,425 oz Ag 2002: 33,142 oz Au, 1,987,421 oz Ag 2003: 4,699 oz Au, 706 oz Ag 2004: 8,454 oz Au, 64,335 oz Ag 2005: 2,740 oz Au, 776 oz Ag 2006: 2,939 oz Au, 596 oz Ag	Panther Canyon Formation (conglomerate, sandstone), Augusta Mountain Formation (limestone), granodiorite	39.5 Ma
<b>Mud Springs (Bald Mtn. Zone) (Bullion district)</b>	1993: <i>geologic resource</i> –42,000 oz Au			
<b>Mule Canyon (Argenta district)</b>	1992: 8.5 million tons, 0.136 opt Au 1996: 9 million tons, 0.112 opt Au	1996: 6,743 oz Au 1999: 55,392 oz Au, 10,022 oz Ag 2000: 40,027 oz Au, 5,856 oz Ag 2001: 33,616 oz Au, 3,100 oz Ag 2002: 13,444 oz Au, 2,708 oz Ag 2003: 8,086 oz Au, 1,490 oz Ag 2004: 2,289 oz Au, 645 oz Ag 2005: 47,896 oz Au, 5,449 oz Ag 2006: 30,732 oz Au, 3,248 oz Ag	basalt and basaltic andesite	15-16 Ma
<b>Phoenix (Battle Mountain district)</b>	2001: 174.2 million tons, 0.034 opt Au proven and probable reserves; 156.3 million tons, 0.17% Cu proven and probable reserves; 73.8 million tons, 0.026 opt Au mineralized material; 99.6 million tons, 0.14% Cu mineralized material 2002: 174.2 million tons, 0.034 opt Au probable reserves; 156.3 million tons, 0.16 % Cu probable reserves; 1.5 million tons, 0.033 opt Au measured and indicated mineralized material; 72.3 million tons, 0.026 opt Au inferred mineralized material; 63.5 million tons, 0.14 % Cu inferred mineralized material	2001: 5,641 oz Au, 6,468 oz Ag 2002: 6,134 oz Au, 1,236 oz Ag 2003: 5,444 oz Au, 1,003 oz Ag 2004: 7,887 oz Au, 2,224 oz Ag 2005: 6,406 oz Au, 1,156 oz Ag 2006: 67,394 oz Au, 38,112 oz Ag		Eocene

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>LANDER COUNTY (continued)</b>				
<b>Phoenix (Battle Mountain district) continued</b>				
	2003: 175,700,000 tons, 0.035 opt Au probable reserves; 94,700,000 tons, 0.022 opt Au indicated material; 18,900,000 tons, 0.029 opt Au inferred material; 85,200 tons, 0.12% Cu indicated material; 14,300 tons, 0.11% Cu inferred material			
	2004: 248,000,000 tons, 0.034 opt Au proven and probable reserves; 33,900,000 tons, 0.022 opt Au indicated material; 34,900,000 tons, 0.028 opt Au inferred material; 216,700,000 tons, 0.15% Cu probable; 32,000,000 tons, 0.21% Cu indicated; 29,800,000 tons, 0.17% Cu inferred			
	2005: 308.4 million tons, 0.029 opt Au (proven and probable reserve) 22.2 million tons, 0.023 opt Au (measured and indicated resource) 16.5 million tons, 0.026 opt Au (inferred resource)			
	2006: 295.2 million tons, 0.027 opt Au (proven and probable reserve) 92.8 million tons, 0.017 opt Au (measured and indicated resource) 23.2 million tons, 0.022 opt Au (inferred resource)			
<b>Pipeline (Bullion district)</b>	1991: <i>geologic resource</i> —11.3 million tons, 0.237 opt Au 1996: 136.7 million tons, 8.7 million oz Au measured resource, includes South Pipeline 1997: included in Cortez Joint Venture	included in Cortez Joint Venture	Roberts Mountains Formation	Eocene?
<b>Robertson (Bullion district)</b>	1988: 11 million tons, 0.04 opt Au 1999: Porphyry zone, 254,678 oz Au proven and probable reserves; Lucky Boy, 33,000 oz Au measured; Altenburg Hill, 21,300 oz Au measured; Widows Mine, 37,300 oz Au inferred; Gold Pan, 91,400 oz Au measured 2005–2006: 22.9 million tons, 0.031 opt Au (measured and indicated resource) 9,408,000 tons, 0.046 opt Au (inferred resource)	1989: 3,700 oz Au	Valmy Formation	early Oligocene
<b>Slaven Canyon property (Bateman Canyon district)</b>	1994: 50,000 oz Au 2002: 1.6 million tons, 0.043 opt Au			
<b>South Pipeline (Bullion district)</b>	1992: 9 million tons, 0.082 opt Au 1994: <i>geologic resource</i> —76.5 million tons, 0.048 opt Au 1996: see Pipeline 1997: included in Cortez Joint Venture		Roberts Mountains Formation	Eocene?
<b>Surprise (Battle Mountain district)</b>	1987: 225,000 oz Au 1988–91: production and reserve included in Fortitude figures 1994: mined out	1987: 2,000 oz Au	skarn	37 Ma
<b>Toiyabe</b>	1988: 813,400 tons, 0.066 opt Au	1988: 32,000 oz Au, 10,300 oz Ag 1990–91: 20,480 oz Au, 15,125 oz Ag	lower Paleozoic calcareous siltstone	Eocene?
<b>Victorine (Kingston district)</b>	1992: 915,000 tons, 0.304 opt Au 1995: <i>proven and probable reserves</i> —256,000 tons, 0.36 opt Au, plus <i>additional geologic resource</i> —31,160 oz Au 2000: 120,000 oz Au proven and probable reserves; 200,000 oz Au possible reserves		Cambrian to Ordovician Broad Canyon sequence	



**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>LINCOLN COUNTY</b>				
<b>Atlanta gold property (Atlanta district)</b>	1980: 1.1 million tons, 0.08 opt Au, 1.6 opt Ag 1996: 300,000 oz Au, 3 million oz Ag	1980: 88,000 oz Au, 1,710,000 oz Ag	Pogonip Group, Ely Springs and Laketown Dolomites, Oligocene silicic tuff, dacite dikes	early Miocene
<b>Caliente property (Pennsylvania district)</b>	1997: <i>geologic reserves</i> –50,000 tons, 0.03 opt Au, 0.80 opt Ag; <i>geologic resource</i> –700,000 tons, 0.039 opt Au		Tertiary diorite Tertiary andesite	
<b>Easter and Delamar Project (Delamar district)</b>	1994: <i>geologic resource</i> –3.36 million tons, 0.069 opt Au 1995: 1.5 million tons, 0.069 opt Au		Cambrian quartzite	Miocene
<b>LYON COUNTY</b>				
<b>Fire Angel (Como district)</b>	1989: 5,600 oz Au, <i>geologic resource</i> –148,500 oz Au			
<b>Hydra-Hercules (Como district)</b>	1997: 259,329 oz Au, 1,956,511 oz Ag		Tertiary andesite	
<b>Pine Grove (Pine Grove district)</b>	1994: 2.5 million tons, 0.061 opt Au		Cretaceous granodiorite	
<b>South Comstock Joint Venture (Silver City district)</b>	1994: 3 million tons, 0.05 opt Au 1995: 100,000 oz Au			
<b>Talapoosa (Talapoosa district)</b>	1988: 2.5 million tons, 0.041 opt Au, 0.53 opt Ag oxide 14.9 million tons, 0.03 opt Au, 0.49 opt Ag sulfide 1995: <i>geologic resource</i> –45 million tons, 0.025 opt Au and 0.33 opt Ag, including proven and probable reserves of 29.9 million tons, 0.026 opt Au and 0.4 opt Ag		Kate Peak Formation	Miocene
<b>MINERAL COUNTY</b>				
<b>Aurora Mine (Aurora district)</b>	1989: 347,000 tons, 0.253 opt Au 1996: 900,000 tons, 0.1 opt Au 2003: see Esmeralda	1989–90: 25,656 oz Au, 34,562 oz Ag 1991: 15,000 oz Au 1992–93: 23,600 oz Au, 52,200 oz Ag 1995: 15,000 oz Au, 35,000 oz Ag 1996: 10,374 oz Au 1997–98: 15,414 oz Au, 7,287 oz Ag	andesite, rhyolite	10 Ma
<b>Aurora Partnership (Aurora district)</b>	1983: 1.5 million tons, 0.129 opt Au, 0.3 opt Ag 1995: 230,000 tons, 0.208 opt Au (in portion of Humboldt vein system) 2003: see Esmeralda	1930s: 100,000 oz Au 1983: 10,000 oz Au 1988: 10,302 oz Au 1989: 27,825 oz Au, 26,000 oz Ag 1991–96: 157,796 oz Au, 318,933 oz Ag	andesite, rhyolite	10 Ma
<b>Borealis (Borealis district)</b>	1981: 2.1 million tons, 0.08 opt Au, 0.5 opt Ag 1988: 1.792 million tons, 0.046 oz Au/ton 2000: 33.4 million tons, 0.044 opt Au, 0.22 opt Ag cumulative resource 2005 (May): 44.7 million tons, 0.03 opt Au (measured and indicated resource) 34.8 million tons, 0.02 opt Au (inferred resource) 2006: 8.235 million tons, 0.022 opt Au, 0.158 opt Ag (measured and indicated resources, oxide) 35.157 million tons, 0.032 opt Au, 0.164 opt Ag (measured and indicated resources, oxide, partially oxidized, sulfides) 16.909 million tons, 0.028 opt Au, 0.106 opt Ag (inferred resource, oxide, partially oxidized, sulfides)	1981–84: 170,000 oz Au 1986–88: 116,256 oz Au 1989–90: 107,495 oz Au 52,401 oz Ag	rhyolite flow dome, andesite flows, breccias, volcaniclastic rocks	5 Ma

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>MINERAL COUNTY (continued)</b>				
<b>Candelaria Mine (Candelaria district)</b>	1982: 18.5 million tons, 1.09 opt Ag, 0.009 opt Au 1988: 24 million tons, 1.267 opt Ag, 0.011 opt Au 1999: 27.3 million tons, 3.4 opt Ag unmined resource; additional 8 million oz Ag in low-grade stockpile 2000: 48,000 oz Au and 45.4 million oz Ag indicated reserves	1982: 1.7 million oz Ag, 9,000 oz Au 1987: total production was 10 million oz Ag as of June 1987 1988–98: 30.67 million oz Ag, 95,218 oz Au 1999: 96,896 oz Ag, 237 oz Au	Candelaria Formation serpentinite, granitic dikes	Cretaceous
<b>Denton-Rawhide (Rawhide district)</b>	1986: 24.1 million tons 0.045 opt Au, 0.47 opt Ag 1989: reserves–29.4 million tons, 0.040 oz Au and 0.368 opt Ag; <i>geologic resource</i> –59.3 million tons, 0.0274 opt Au, 0.298 opt Ag 1997: 447,000 oz Au, 3.9 million oz Ag	1990–98: 916,800 oz Au, 7,438,000 oz Ag 1999: 115,900 oz Au, 665,000 oz Ag 2000: 104,349 oz Au, 817,787 oz Ag 2001: 100,747 oz Au, 727,095 oz Ag 2002: 82,584 oz Au, 695,248 oz Ag 2003: 63,283 oz Au, 525,809 oz Ag 2004: 43,390 oz Au, 446,000 oz Ag 2005: 33,820 oz Au, 311,760 oz Ag 2006: 26,334 oz Au, 235,870 oz Ag	rhyolite plugs, flows, tuffs, breccias	16 Ma
<b>Esmeralda (Aurora district)</b>	2003: 30,710,500 tons, 0.031 opt Au bulk-minable measured and indicated resources 9,206,300 tons, 0.025 opt Au bulk-minable inferred resources 192,152 tons, 0.50 opt Au underground-minable resources (Martinez & Prospectus)		andesite rhyolite	10 Ma
<b>Mina Gold (Bell district)</b>	1997: 1.77 million tons, 0.055 opt Au geologic resource	1997: exploration	Tertiary feldspar porphyry	
<b>Mindora (Garfield district)</b>	1988: 1.0 million tons, 0.037 opt Au and 1.78 opt Ag	1988: exploration		
<b>Santa Fe (Santa Fe district)</b>	1984: 8 million tons, 0.032 opt Au, 0.26 opt Ag 1990: 6.8 million tons, 0.035 opt Au and 0.241 opt Ag	1989–95: 345,499 oz Au, 710,629 oz Ag	Luning Formation	Miocene
<b>NYE COUNTY</b>				
<b>Baxter Springs (Manhattan district)</b>	1988: 1 million tons, 0.050 opt Au 1990: <i>geologic resource</i> –5 million tons 0.050 opt Au			
<b>Bruner property, Duluth zone (Bruner district)</b>	1992: <i>geologic resource</i> –15 million tons, 0.026 opt Au	1993: exploration	Tertiary volcanic rocks	Miocene
<b>Bullfrog (Bullfrog district)</b>	1989: 18.6 million tons, 0.097 opt Au 1996: 10.2 million tons, 0.062 opt Au proven and probable reserves; 3.7 million tons, 0.040 opt Au mineralized material	1989–98: 2,237,484 oz Au, 2,935,484 oz Ag 1999: 76,159 oz Au, 90,967 oz Ag	rhyolitic ash-flow tuff	9.5 Ma
<b>Cimmaron (San Antone district)</b>	2004: 1,730,600 tons, 0.035 opt Au inferred material			
<b>Corcoran Canyon (Barcelona district)</b>	2004: 1,774,700 tons, 0.025 opt Au, 5.11 opt Ag indicated and inferred material		rhyolitic ash-flow tuff	
<b>Daisy (Bare Mountain district)</b>	1993: 4.7 million tons, 0.024 opt Au <i>geologic resource</i> –430,000 oz Au 1998: 4.2 million tons, 0.033 opt Au proven and probable reserves	1997–98: 64,504 oz Au 1999: 30,660 oz Au 2000: 8,740 oz Au 2001: 347 oz Au	Cambrian Bonanza King, Nopah, and Carrara Formations	11-13 Ma(?)
<b>Gold Bar (Bullfrog district)</b>	1987: 1.23 million tons Au ore 1993: idle		silicic volcanic rocks	Miocene
<b>Golden Arrow (Golden Arrow district)</b>	1997: 12.4 million tons, 0.039 opt Au resource		Tertiary rhyolite tuff	

*continued*

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>NYE COUNTY (continued)</b>				
<b>Gold Hill property (Round Mt. district)</b>	1998: 306,620 oz Au, 4,871,890 oz Ag potential resource 2003: (included in Round Mt.)		rhyolite ash-flow tuff	26 Ma(?)
<b>Gold Wedge property (Manhattan district)</b>	2002: 104,706 oz Au, 0.494 opt Au measured resource; 47,052 oz Au, 0.583 opt Au indicated resource; 394,626 oz Au, 0.494 opt Au inferred resource 2005: 333,000 tons, 0.310 opt Au (measured and indicated resource)			
<b>Longstreet property (Longstreet district)</b>	1989: 4 million tons, 0.024 opt Au, <i>geologic resource</i> —9.6 million tons, 0.024 opt Au		rhyolitic volcanic rocks	Oligocene
<b>Manhattan property (Manhattan district)</b>	1989: <i>geologic resource</i> —100,000 tons, 0.50 opt Au 1997: 1.7 million tons, 0.13 opt Au proven and probable		Cambrian Gold Hill Formation	
<b>Midway (Rye Patch district)</b>	1997: 270,000 oz Au preliminary resource 2005: 5,526,000 tons, 0.039 opt Au (inferred resource)		Ordovician Palmetto Formation Tertiary volcanic rocks	
<b>Montgomery Shoshone (Bullfrog district)</b>	1988: 3.1 million tons, 0.072 opt Au, 0.240 opt Ag		rhyolitic ash-flow tuff	9.5 Ma
<b>Nevada Mercury (Bare Mountain district)</b>	1994: <i>geologic resource</i> —50,000 oz Au			
<b>Northumberland (Northumberland district)</b>	1988: 12 million tons, 0.06 opt Au 2005 (July): 30,910,000 tons, 0.067 opt Au (measured and indicated resource) 4,381,000 tons, 0.091 opt Au (inferred resource)	1939–42: 327,000 oz Au 1981–84: 950,000 tons/year 1988: 29,667 oz Au, 130,394 oz Ag 1981–1990: ~230,000 oz Au, 485,000 oz Ag	Roberts Mountains and Hanson Creek Formations, granodiorite, tonalite, quartz porphyry dikes	
<b>Paradise Peak/ Ketchup Flats pit (Fairplay district)</b>	1984: 10 million tons, 0.1 opt Au, 3 opt Ag 1989: 5.22 million tons, 0.09 opt Au, 3.62 opt Ag, mill ore; 11.52 million tons, 0.036 opt Au, 0.445 opt Ag, leachable 1996: 5 million tons, 0.022 opt Au, 0.2 opt Ag (Ketchup Flats)	1986–88: 560,000 oz Au, 8.5 million oz Ag 1989–94: 1,054,084 oz Au, 15.6 million oz Ag	rhyolite and andesite flows, ash-flow and air-fall tuffs	Miocene
<b>Reward property (Bare Mountain district)</b>	1998: 77,500 oz Au		Cambrian Wood Canyon Formation	
<b>Round Mountain (Smoky Valley) (Round Mountain district)</b>	1977: 12 million tons, 0.061 opt Au, 0.07 opt Ag 1989: <i>geologic resource</i> —271 million tons, 0.032 opt Au 1999: 320 million tons, 0.018 opt Au proven and probable reserves; 126 million tons, 0.016 opt Au mineralized material 2000: 273.2 million tons, 0.019 opt Au proven and probable reserves; 18.7 million tons, 0.022 opt Au mineralized material 2002: 192.1 million tons, 0.020 opt Au proven and probable reserves; 54.6 million tons, 0.012 opt Au mineral resource 2003: 129,866,000 tons, 0.017 opt Au proven reserve; 49,838,000 tons, 0.020 opt Au probable reserve; 21,000,000 tons, 0.013 opt Au measured resource; 54,440,000 tons, 0.018 opt Au indicated resource; 19,580,000 tons, 0.018 opt Au inferred resource (includes Gold Hill) 2004: 433,400,000 tons, 0.018 opt Au proven and probable reserves; 64,000,000 tons, 0.015 opt Au mineral resource 2005: 275,608,000 tons, 0.017 opt Au (proven and probable reserve) 35,412,000 tons, 0.017 opt Au (measured and indicated resource) 35,374,000 tons, 0.013 opt Au (inferred resource)	1977–84: 313,480 oz Au, 160,419 oz Ag 1987–88: 424,300 oz Au 1989: 386,227 oz Au, 211,297 oz Ag 1990: 483,192 oz Au, 236,600 oz Ag (includes Manhattan) 1991–98: 3,248,946 oz Au, 2,607,892 oz Ag 1999: 541,808 oz Au, 464,415 oz Ag 2000: 640,133 oz Au, 424,530 oz Ag 2001: 746,949 oz Au, 509,121 oz Ag 2002: 755,493 oz Au, 627,579 oz Ag 2003: 784,587 oz Au, 761,333 oz Ag 2004: 762,966 oz Au, 773,950 oz Ag 2005: 736,886 oz Au, 636,361 oz Ag 2006: 657,911 oz Au, 644,017 oz Ag	rhyolite ash-flow tuff	26 Ma

continued

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>NYE COUNTY (continued)</b>				
<b>Round Mountain (Smoky Valley) (Round Mountain district) continued</b>				
	2006: 226,084,000 tons, 0.017 opt Au (proven and probable reserve) 26,134,000 tons, 0.019 opt Au (measured and indicated resource) 32,898,000 tons, 0.013 opt Au (inferred resource)			
<b>Sterling (Bare Mountain district)</b>	1983: 200,000 tons, 0.20 opt Au 1989: 469,000 tons, 0.21 opt Au 1996: 129,000 tons, 0.245 opt Au	1983–88: 75,900 oz Au 1990–91: 24,841 oz Au 1995–98: 36,811 oz Au 1999: 3,093 oz Au	Wood Canyon and Bonanza King Formations	14 Ma
<b>South Monitor (west of Ellendale district)</b>	1996: 250,000 oz Au 1997: 14 million tons, 0.026 opt Au, 0.12 opt Ag		Tertiary volcanic rock	
<b>Sullivan (Fairplay district)</b>	1987: 10.2 million tons, 0.039 opt Au, 0.086 opt Ag and 0.37% Cu 1995: <i>proven and possible</i> –17 million tons of 0.34% Cu, 0.0255 opt Au, + 8.5 million tons of 0.32% Cu		Mesozoic granodiorite and metavolcanic rocks	Mesozoic
<b>PERSHING COUNTY</b>				
<b>Bunce (Velvet district)</b>	1989: <i>geologic reserve</i> –600,000 tons, 0.04 opt Au 1990: 500,000 tons, 0.04 opt Au		rhyolite	Miocene?
<b>Colado Gold (Willard district)</b>	1997: 15 million tons, 0.022 opt Au resource		Triassic-Jurassic metasedimentary rocks	
<b>Florida Canyon (Imlay district)</b>	1987: 22 million tons, 0.023 opt Au 1988: 37 million tons, 0.023 opt Au 1997: <i>reserves</i> –45.5 million tons, 0.024 opt Au proven and probable mineralized material, 122.8 million tons, 0.022 opt Au 2002: 20 million tons, 0.017 opt Au proven and probable reserves 2003: 374,393 oz Au proven and probable reserves 2004: 16,792,000 tons, 0.016 opt Au proven and probable reserves	1987–88: 109,300 oz Au 1989–98: 1,146,148 oz Au, 610,326 oz Ag 1999: 139,590 oz Au, 111,232 oz Ag 2000: 173,623 oz Au, 129,361 oz Ag 2001: 121,206 oz Au, 98,645 oz Ag 2002: 121,516 oz Au, 72,567 oz Ag 2003: 101,811 oz Au, 60,065 oz Ag 2004: 73,082 oz Au, 60,405 oz Ag (includes Standard) 2005 (Florida Canyon): 29,186 oz Au, 17,571 oz Ag 2005 (Standard): 21,522 oz Au, 51,751 oz Ag 2006 (Florida Canyon): 16,061 oz Au, 12,423 oz Ag 2006 (Standard): 46,070 oz Au, 64,497 oz Ag	Grass Valley Formation	2 Ma
<b>Goldbanks Project (Goldbanks district)</b>	1994: 900,000 oz Au 1996: 80.8 million tons, 0.019 opt Au proven and probable reserves; 7.4 million tons, 0.014 opt Au possible reserves; 106.8 million tons, 0.028 opt Au drill indicated resources 2000: 569,000 oz Au and 1.7 million oz Au indicated reserves			
<b>Relief Canyon (Antelope Springs district)</b>	1983: 9 million tons, 0.032 opt Au 1988: ~ 1.3 million tons, 0.03 opt Au 1996: 8.6 million tons, 0.022 opt Au	1984: 24,500 oz Au 1987–88: 82,000 oz Au 1989–90: 34,266 oz Au, 39,235 oz Ag	Natchez Pass Limestone, Grass Valley Formation	Tertiary
<b>Rochester (Rochester district)</b>	1981: 75 million tons, 1.5 opt Ag 1989: geologic resource–94.5 million tons, 0.012 opt Au, 1.40 opt Ag 1997: 74.2 million oz Ag, 603,000 oz Au 2000: 50 million oz Ag, 410,000 oz Au (includes Nevada Packard) 2001: 51.4 million tons, 0.85 opt Ag, 0.007 opt Au proven and probable reserves; 61.8 million tons, 0.75 opt Ag, 0.005 opt Au mineralized material 2002: 46.9 million tons, 0.008 opt Au, 0.85 opt Ag proven and probable reserves; 33.8 million tons, 0.009 opt Au, 0.77 opt Ag mineralized material (includes Nevada Packard)	1986–98: 810,329 oz Au, 59.3 million oz Ag 1999: 70,396 oz Au, 6.2 million oz Ag 2000: 75,886 oz Au, 6,678,274 oz Ag 2001: 81,200 oz Au, 6,478,916 oz Ag 2002: 71,905 oz Au, 6,417,792 oz Ag 2003: 52,363 oz Au, 5,585,385 oz Ag 2004: 69,456 oz Au, 5,669,073 oz Ag 2005: 70,298 oz Au, 5,720,489 oz Ag 2006: 71,891 oz Au, 5,113,504 oz Ag	Koipato Group, Weaver Rhyolite Rochester Rhyolite	Late Cretaceous

**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>PERSHING COUNTY (continued)</b>				
<b>Rochester (Rochester district) continued</b>				
	2003: 32.7 million tons, 0.01 opt Au, 0.91 opt Ag proven and probable reserves; 40.3 million tons, 0.01 opt Au, 0.77 opt Ag mineralized material 2004: 21,453,000 tons, 0.010 opt Au, 0.87 opt Ag proven reserves; 2,545,000 tons, 0.010 opt Au, 0.81 opt Ag probable reserves; 26,205,000 tons, 0.010 opt Au, 0.81 opt Ag measured resources; 8,551,000 tons, 0.010 opt Au, 0.96 opt Ag indicated resources; 308,000 tons, 0.003 opt Au, 1.73 opt Ag inferred resources 2005: 10,168,000 tons, 0.011 opt Au, 0.86 opt Ag (probable reserve) 15,646,000 tons, 0.010 opt Au, 1.03 opt Ag (measured and indicated resource) 2006: 3,720,000 tons, 0.007 opt Au, 0.66 opt Ag (proven reserve) 15,235,000 tons, 0.010 opt Au, 0.94 opt Ag (measured and indicated resource)			
<b>Rosebud Project (Rosebud district)</b>	1992: 570,000 oz Au (0.362 opt), 5.5 million oz Ag (5.5 opt) 1999: 216,000 tons, 0.323 opt Au	1997–98: 225,651 oz Au, 815,123 oz Ag 1999: 112,652 oz Au, 247,900 oz Ag 2000: 47,944 oz Au, 191,919 oz Ag	Tertiary volcanic rocks	Miocene
<b>Spring Valley (Spring Valley district)</b>	2005–2006: 10,030,000 tons, 0.024 opt Au (measured and indicated resource) 7,753,000 tons, 0.025 opt Au (inferred resource)			
<b>Standard (Imlay district)</b>	2002: 17.2 million tons, 0.019 opt Au proven and probable reserves 2003: 404,100 oz Au proven and probable reserves 2004: 25,776,000 tons, 0.017 opt Au proven and probable reserves	1939–42, 1946–49: 45,743 oz Au, 127,451 oz Ag 2004: included with Florida Canyon 2005: 21,522 oz Au, 51,751 oz Ag 2006: 46,070 oz Au, 64,497 oz Ag	Natchez Pass Limestone, Grass Valley Formation argillite	
<b>Tag-Wildcat (Farrel district)</b>	1989: <i>geologic resource</i> –1.5 million tons, 0.043 opt Au; <i>reserves</i> –416,000 tons, 0.076 opt Au 2003: see Wildcat		Tertiary volcanic rocks	Miocene
<b>Trinity (Trinity district)</b>	1987: 1 million tons, 5.25 opt Ag Sulfide resource: ~4 million tons, 2.5 opt Ag	1987–89: ~5-6 million oz Ag	rhyolite porphyry, rhyolite tuff	26 Ma
<b>Wildcat (Farrel district)</b>	2003: 38.1 million tons, 0.018 opt Au indicated resources; 28.4 million tons, 0.015 opt Au inferred resources		Tertiary volcanic	Miocene
<b>Willard (Willard district)</b>		~90,000 oz Au (late 1980s to early 1990s)	Jurassic-Triassic Grass Valley Formation	6 Ma

**STOREY COUNTY**

<b>Hartford Hill Complex (includes Billie the Kid Mine) (Silver City district)</b>		2004: 2,836 oz Au, 12,695 oz Ag 2005: 5,715 oz Au, 26,488 oz Ag 2006: 5,000 oz Au, 20,000 oz Ag (estimated)		
<b>Comstock heap leach project (Comstock district)</b>	1992: 475,000 tons, 0.072 opt Au, 0.60 opt Ag 1996: 100,000 oz Au, 1.2 million oz Ag			
<b>Flowery (Golden Eagle) (Comstock district)</b>	1989: 1 million tons, 0.037 opt Au 1993: 362,000 tons, 0.064 opt Au, 0.97 opt Ag, <i>geologic resource</i> –88,128 oz Au and 1 million oz Ag	1988: 836 oz Au, 9,473 oz Ag 1990: 6,000 oz Au, 70,000 oz Ag 1992–97: 16,949 oz Au, 195,701 oz Ag	Alta Formation	12 Ma
<b>Oliver Hills (Comstock district)</b>	1990: 3.37 million tons, 0.054 opt Au, 1.2 opt Ag 1993: 4 million tons, 0.05 opt Au, 0.5 opt Ag, <i>geologic resource</i> –225,000 oz Au and 2.25 million oz Ag	1991: 573 oz Au, 6,947 oz Ag		

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>WASHOE COUNTY</b>				
<b>Mountain View Gold Project (Deephole district)</b>	1995: 19.5 million tons, 0.027 opt Au 1998: 10.7 million tons, 0.055 opt Au 2002: 23.2 million tons, 0.013 opt Au indicated resources; 4.5 million tons, 0.039 opt Au inferred resources		rhyolite	Miocene
<b>Olinghouse (Olinghouse district)</b>	1994: <i>geologic resource</i> —500,000 opt Au, 0.057 opt Au 1997: 512,800 oz Au proven and probable reserves, 0.042 opt Au	1998: 2,912 oz Au, 1,879 oz Ag 1999: 28,655 oz Au, 17,598 oz Ag	Miocene andesite	Miocene
<b>Hog Ranch (Leadville district)</b>	1984: 2.5 million tons, 0.085 opt Au 1988: 5.5 million tons, 0.064 opt Au proven and probable reserves; 20.1 million tons, 0.029 opt Au <i>geologic resource</i> 2003: 1,598,350 tons, 0.033 opt Au indicated; 440,924 tons, 0.054 opt Au inferred	1986–87: 80,000 oz Au 1988–95: 118,045 oz Au, 25,400 oz Ag	rhyolite, explosion breccia sinter	15-16 Ma
<b>Wind Mountain (San Emidio)</b>	1988: 15 million tons, 0.021 opt Au, 0.42 opt Ag	1989: 30,900 oz Au, 335,000 oz Ag 1991: 91,000 oz Au, 405,000 oz Ag 1992: 54,690 oz Au, 297,403 oz Ag 1993: 19,570 oz Au, 92,630 oz Ag	Tertiary sedimentary rocks	late Tertiary or Quaternary
<b>WHITE PINE COUNTY</b>				
<b>Alligator Ridge (Bald Mountain district)</b>	1983: 5 million tons, 0.09 opt Au 1989: 1 million tons, 0.064 opt Au 1992: 11.5 million tons, 0.046 opt Au; <i>geologic resource</i> —661,888 oz Au, includes Casino/Winrock	1981–90: 632,057 oz Au, 84,188 oz Ag 1991–92: 27,450 oz Au 1993: included with Bald Mountain 1994: 40,000 oz Au 1995: idle 1996: included with Bald Mountain	Pilot Shale	Mesozoic or early Tertiary
<b>Bald Mountain (Bald Mountain district)</b>	1989: 6.7 million tons, 0.069 opt Au 1999: 32.6 million tons, 0.041 opt Au, proven and probable reserves; 31.7 million tons, 0.044 opt Au, mineralized material 2000: 509,000 oz Au proven and probable; 2.03 million oz Au measured and indicated resources 2002: 508,000 oz Au proven and probable reserves; 2.03 million oz Au measured mineral resources 2003: 10,143,000 tons, 0.033 opt Au proven reserves; 8,549,000 tons, 0.040 opt Au probable reserve; 10,371,000 tons, 0.027 opt Au measured resource; 10,836,000 tons, 0.043 opt Au indicated resource; 19,224,000 tons, 0.029 opt Au inferred resource 2004: 21,530,000 tons, 0.044 opt Au proven and probable reserves; 53,586,000 tons, 0.027 opt Au measured and indicated resource; 10,808,000 tons, 0.018 opt Au inferred resource 2005: 105,050,700 tons, 0.032 opt Au (proven and probable reserve) 35,000,000 tons, 0.023 opt Au (measured and indicated resource) 14,868,000 tons, 0.026 opt Au (inferred resource) 2006: 109,922,000 tons, 0.031 opt Au (proven and probable reserve) 23,289,000 tons, 0.035 opt Au (measured and indicated resource) 17,290,000 tons, 0.023 opt Au (inferred resource)	1986: 50,000 oz Au 1988–89: 103,731 oz Au 1990–93: 287,110 oz Au, 76,745 oz Ag 1994: 80,000 oz Au 1995–96: 221,908 oz Au, 62,460 oz Ag 1997–98: 243,500 oz Au, 63,416 oz Ag 1999: 105,475 oz Au, 18,058 oz Ag 2000: 134,469 oz Au, 14,400 oz Ag 2001: 108,392 oz Au, 18,321 oz Ag 2002: 172,328 oz Au, 21,547 oz Ag 2003: 90,602 oz Au, 26,810 oz Ag 2004: 46,685 oz Au, 27,635 oz Ag 2005: 77,767 oz Au, 32,652 oz Ag 2006: 277,615 oz Au, 32,121 oz Ag	quartz porphyry, Cambrian shale and limestone	Jurassic?
<b>Bellview (White Pine district)</b>	1988: 277,000 tons, 0.04 opt Au, <i>geologic resource</i> —1 million tons, 0.036 opt Au			
<b>Casino/Winrock (Bald Mountain district)</b>	1989: <b>Casino</b> —804,000 tons, 0.054 opt Au; <b>Winrock</b> 1.3 million tons, 0.037 opt Au 1990: <b>Winrock</b> —993,000 tons, 39,000 oz Au 1992: see Alligator Ridge	1990–92: 46,800 oz Au	late Paleozoic sedimentary rocks	Eocene

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**MAJOR PRECIOUS-METAL DEPOSITS (continued)**

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
<b>WHITE PINE COUNTY (continued)</b>				
<b>Easy Junior (Nighthawk Ridge) (White Pine district)</b>	1989: 5.68 million tons, 0.031 opt Au 1991: 137,000 oz Au	1990: 11,500 oz Au, 900 oz Ag 1997: 510 oz Au, 76 oz Ag	Devonian and Mississippian rocks	Eocene
<b>Golden Butte (Cherry Creek district)</b>	1989: 4.23 million tons, 0.031 opt Au	1989–91: 43,519 oz Au, 16,911 oz Ag	Chainman Shale	Cretaceous or Eocene
<b>Griffon Gold property (White Pine district)</b>	1993: <i>geologic resource</i> —60,000 oz Au 1994: <i>geologic resource</i> —50,454 oz Au, 0.039 opt Au 1995: <i>proven and probable reserves</i> —2,737,000 tons, 0.025 opt Au 1997: 100,000 oz Au	1998: 37,921 oz Au, 269 oz Ag 1999: 24,740 oz Au	upper Joana Limestone	
<b>Horseshoe (Bald Mountain district)</b>	1991: 1.5 million tons, 0.039 opt Au		Pilot Shale and intrusive quartz porphyry	36-38 Ma
<b>Illipah (Illipah district)</b>	1987: 57,000 oz Au	1987: ~25,000 oz Au/year 1988: 25,324 oz Au, mining ended 1989: 3,874 oz Au, heap-leached	Paleozoic sedimentary rocks	Eocene?
<b>Little Bald Mtn. (Bald Mountain district)</b>	1986: 1 million tons, 0.10 opt Au 1989: 200,000 tons, 0.13 opt Au; <i>geologic resource</i> —260,000 tons, 0.127 opt Au 1993: 140,000 tons, 0.13 opt Au, <i>geologic resource</i> —21,800 oz Au	1985–88: 21,700 oz Au 1989: 5,500 oz Au, 1,500 oz Ag	Antelope Valley Formation	35-38 Ma
<b>Mt. Hamilton (White Pine district)</b>	1988: 7.7 million tons, 0.05 opt Au, 0.5 opt Ag 1994: <i>reserve</i> —9.04 million tons, 0.052 opt Au, 0.38 opt Ag 1996: 10.8 million tons, 0.038 opt Au, 0.24 opt Ag 1997: 7.72 million tons, 0.035 opt Au	1995–97: 99,500 oz Au, 207,500 oz Ag	Dunderberg Shale	Cretaceous
<b>Pan (White Pine district)</b>	1989: 241,000 oz Au 1998: 10.86 million tons, 0.022 opt Au drill indicated and inferred 2003: 17,890,000 tons, 0.019 opt Au indicated resources; 7,986,000 tons, 0.016 opt Au inferred resources		Mississippian rocks	
<b>Robinson (Robinson district)</b>	1989: 46.0 million tons, 0.019 opt Au; <i>geologic resource</i> —1 million oz Au 1991: <i>geologic resource</i> —200 million tons 0.012 opt Au 1999: 194 million tons, 0.59% Cu, 0.007opt Au, proven and probable reserves 2003: 146.3 million tons, 0.687% Cu, 0.008 opt Au, proven and probable reserves 2005: 160,400,000 tons, 0.69% Cu, ) 0.073 opt Au (proven and probable reserve) 610,979,000 tons, 0.55% Cu, 0.0064 opt Au (measured resource, 0.2% Cu cut-off) 171,858,000 tons, 0.44% Cu, 0.0041 opt Au (indicated resource, 0.2% Cu cut-off) 98,166,000 tons, 0.32% Cu, 0.0015 opt Au (inferred resource, 0.2% Cu cut-off) 2006: 122,401,000 tons, 0.69% Cu, 0.0076 opt Au (proven and probable reserve)	1986: 48,000 oz Au, 96,000 oz Ag 1987–88: 88,957 oz Au 1989–90: 153,828 oz Au, 121,340 oz Ag 1991: 21,674 oz Au 1992: 35,581 oz Au, 55,000 oz Ag 1993: 13,432 oz Au 1996–98: 196,000 oz Au, 783,500 oz Ag, 370 million lbs Cu 1999: 26,250 oz Au, 153,104 oz Ag, 62 million lbs Cu 2004: 12,228 oz Au, 27 million lbs Cu 2005: 80,941 oz Au, 191,479 oz Ag, 126 million lbs Cu 2006: 75,074 oz Au, 156,839 oz Ag, 121,319,197 lbs Cu	Rib Hill Sandstone Riepe Spring Limestone intrusions	Cretaceous
<b>Taylor (Taylor district)</b>	1980: 10 million tons, 3 opt Ag 1988: 5.92 million tons, 2.7 opt Ag (resource)	1980: 1,200 tons/day	Guilmette and Joana Limestones, rhyolite dikes	Eocene or Oligocene
<b>White Pine (White Pine district)</b>	1989: 63,000 oz Au, 0.04 opt Au	1989: 20,654 oz Au	Pilot Shale	Oligocene?
<b>Yankee (Bald Mountain district)</b>	1992: 683,000 oz Au 1993: see Bald Mountain	1990: ~15,000 oz Au 1992: 10,800 oz Au	Pilot Shale	36–38 Ma?

### **Newmont Gold and Silver Production in the Carlin Trend**

Production data for individual mines owned by Newmont Gold Co. in the Carlin trend are not available in many cases. Annual production of Newmont operations in the Carlin trend is as follows:

<u>Year</u>	<u>Gold (oz)</u>	<u>Silver (oz)</u>
1988	895,500	NA
1989	1,467,800	117,400
1990	1,676,000	NA
1991	1,575,700	NA
1992	1,588,000	98,000
1993	1,666,400	175,000
1994	1,554,000	158,000
1995	1,634,500	188,000
1996	1,700,000	322,000
1997	1,819,000	118,000
1998	1,575,391	150,400
1999	1,536,401	255,011
2000	1,865,648	108,111
2001	1,547,247	292,241
2002	1,378,782	277,753
2003	1,122,208	206,767
2004	1,287,674	363,052
2005	1,397,583	227,158
2006	1,310,258	169,212

NA= not available



# Industrial Minerals

*by Stephen B. Castor*

The total value of industrial minerals produced in Nevada in 2006, an estimated \$586 million, was considerably higher than in 2005; however, most of this increase is due to a higher price used to calculate the 2006 value for construction aggregate than in the past several years. This change in price is overdue, and NBMG estimates of the dollar value of Nevada's construction aggregate for the past several years are probably too low. In order of estimated value, the most important Nevada industrial minerals in 2006 were construction aggregate, lime, diatomite, cement, gypsum, barite, silica, magnesia, clay, and lithium, each valued at more than \$10 million. Commodities with values of less than \$10 million were dolomite, perlite, dimension stone, salt, zeolite, and gemstones. Borate and zeolite were processed in Nevada but mined in California, and were not included in the estimate of total industrial mineral value reported above. Data used for these estimates, and data reported for individual commodities below, were obtained from the Nevada Division of Minerals, the U.S. Bureau of Land Management, or directly from companies that produced the commodities. Data are given in short tons unless otherwise noted. U.S. Geological Survey data cited are from commodity reports on the agency's web site.

## **Aggregate (Sand and Gravel, Crushed Stone)**

According to the U.S. Geological Survey, the U.S. produced about 2.95 billion metric tons (3.25 billion short tons) of crushed stone and construction sand and gravel in 2006, up slightly from 2005. The average price for this material was \$7.05 per metric ton (\$6.41 per short ton). Some of the crushed stone reported by the U.S. Geological Survey was used in the manufacture of commodities such as cement and lime; such material is not included in our aggregate figures because the processed commodities are listed separately.

For 2006, Nevada's statewide construction aggregate production was an estimated 48 million tons, 4% more than production in 2005. This production had an approximate value of \$288 million, making construction aggregate the third most valuable commodity produced in the state in 2006—well below the value of Nevada's gold production and about 20% less than the value of copper produced in the state. Production from sand and gravel deposits accounted for about 65% of aggregate production statewide, with crushed stone and lightweight aggregate making up the balance.

Construction aggregate produced in the Las Vegas area in 2006, estimated at 33 million tons, was slightly lower than in 2005. Sand and gravel operations accounted for about 75% of the aggregate used in

the Las Vegas metropolitan area in 2006. As in past years, the Lone Mountain area in northwest Las Vegas remained the most important source of sand and gravel aggregate, accounting for more than 10 million tons in 2006. Significant production also came from sand and gravel pits and stone quarries south and northeast of Las Vegas, and in the El Dorado Valley area west of Boulder City. Sand and gravel from portable crushers at construction sites were also important producers of base aggregate in Las Vegas.

Companies in the Las Vegas area that produced more than one million tons of aggregate in 2006 were Las Vegas Paving Corp., Nevada Ready Mix Corp., Frehner Inc., CTC Crushing, Rinker Materials, American Sand and Gravel, and Wells Cargo. Companies with production in excess of 500,000 tons per year were Granite Construction and Hollywood Sand and Gravel.

Las Vegas Paving, a major producer of asphalt concrete, mostly produced sand and gravel from its Blue Diamond and Lone Mountain pits. The company also produced crushed stone from the Apex landfill about 10 miles northeast of Las Vegas. Nevada Ready Mix, a subsidiary of the Mitsubishi Corporation, mined most of its aggregate from a complex of pits in alluvium in the Lone Mountain area, with minor production coming from quarries in adjacent bedrock. Frehner Inc., a subsidiary of the Swiss company Holcim, mined and crushed limestone from its Sloan property a few miles south of Las Vegas. Rinker Materials, a subsidiary of the Australian-based CSR Group, produced crushed granite from the El Dorado pit near Railroad Pass. Community pits and other aggregate mining facilities administered by the U.S. Bureau of Land Management and operated by several companies contributed about 8 million tons to the Las Vegas area total in 2006. American Sand and Gravel and Hollywood Sand and Gravel mostly produced aggregate from community pits. The Southern Nevada Lightweight operation near Jean produced aggregate for lightweight concrete block and sand for use in stucco. Lightweight aggregate was also shipped to the Las Vegas market by the Cind-R-Lite Block Company from a cinder operation near Amargosa Valley in Nye County.

The booming Las Vegas construction industry has recently fueled some controversial mining claim acquisitions. This began in 2001 when Rinker Materials Inc. acquired claims on carbonate rock in the Sloan area south of Las Vegas. In 2005, the BLM challenged the claims in federal court. In 2006, the case was still under consideration, and finalization of judgement and appeal for this case may take years.

Nevada Aggregate Holdings continued to build a large claim block in an area mostly underlain by carbonate rock about 15 miles northeast of Las Vegas and east of Interstate 15. In 2006, the company recorded more than 400 one-member placer claims in this area, and by the end of the year it had more than 15 sections of land under claim. These claims are south of the Apex Landfill, which, in addition to accepting the Las Vegas Metro area's refuse, is the site of aggregate production for sale into Las Vegas. Las Vegas Paving Corp. staked a small number of 8-member placer claims to the north of the landfill. In 2006, Frehner Inc. added 12 mill site claims to its patented claim block in the Sloan area south of Las Vegas, where it produces crushed carbonate aggregate.

Companies that held claims on carbonate rock or other aggregate material in the Las Vegas area in 2006 include Frehner Inc. in the Sloan area, Sierra Ready Mix in the Ivanpah area about 20 miles south of Las Vegas, Las Vegas Paving in the Dry Lake area northeast of Las Vegas, and Diamond Generating Corp. in the Ivanpah area.

More than 9 million tons of construction aggregate was produced in the Reno-Sparks-Carson City area in 2006, about 15% more than in 2005. Companies in the area that produced more than one million tons of aggregate were Granite Construction Co., RMC Nevada, and Martin Marietta Materials Inc. Granite Construction produced aggregate from several pits in the area, but the bulk of the company's production was of crushed andesite and crushed granitic rock from its Lockwood and Hidden Canyon pits, respectively. RMC Nevada owns the former All-Lite Aggregate crushed rhyolite and Paiute Pit Aggregates sand and gravel operations. Most of Martin Marietta's production comes from the Rocky Ridge Quarry north of Sparks, which produces crushed granitic rock. A & K Earthmovers also produced more than one million tons, but much of this was fill. Rilite and Frehner Construction were also important producers. Crushed rock accounted for about 60% of the aggregate used in 2006 in the Reno-Sparks-Carson City area. Lightweight aggregate, an important component of crushed rock production in the area, was produced by RMC Nevada, Rilite, and Basalite.

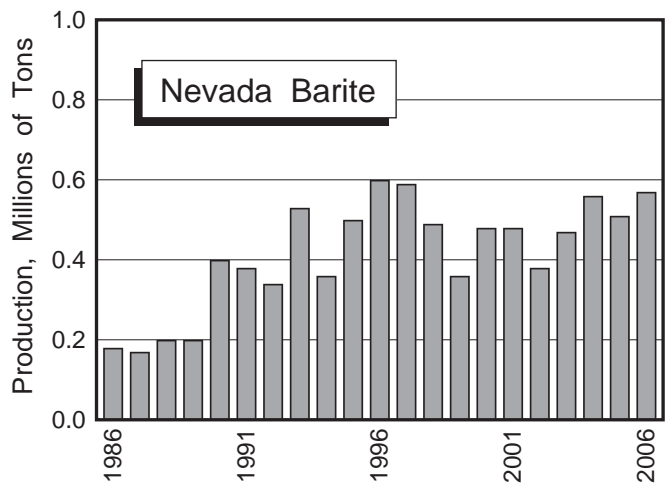
More than 5 million tons of aggregate were probably produced outside of the major metropolitan areas in Nevada in 2006. Operators in Nye County together produced more than 2,000,000 tons of aggregate in 2006, mostly in the Pahrump area. Elko and Lyon County each produced more than 300,000 tons, Lincoln and Churchill County each produced more than 200,000 tons, and Lander and Douglas County each produced more than 100,000 tons. Other rural Nevada counties are thought to have produced less than 100,000 tons of aggregate each in 2006.

## Barite

Nevada barite mines account for most of the barite produced domestically, and increased production from 511,000 tons in 2005 to 572,000 tons in 2006. Although this is a considerable increase over the recent low production of 377,000 tons in 2002, it is far below the 2.48-million-ton high in 1981. About 95% of the barite sold domestically is used as a weighting agent in oil and gas well drilling fluids. On the basis of data from Schlumberger, the U.S. oil and gas drill rig count rose by about 8% during 2006, while the Canadian rig count fell by nearly 40%. Although 2006 saw an overall decline of about 2% for the U.S. and Canada combined, this followed a rig count increase of 12% in 2005. According to the U.S. Geological Survey, shipments of ground barite from Nevada mostly went to Colorado and Wyoming gas drilling customers. On the basis of U.S. Geological Survey data, the U.S. imported more than 2.7 million metric tons of barite in 2006, a slight increase over 2005. It was mostly imported into the Gulf Coast for use in oil and gas drilling offshore in the Gulf of Mexico and onshore drilling in the southeastern and southwestern U.S.

M-I SWACO, which is jointly owned by Smith International and Schlumberger, was the largest Nevada barite producer in 2006, with production of about 297,000 tons of crude and ground barite from the Greystone Mine and Battle Mountain plant, both in Lander County. M-I SWACO introduced a new grade of barite with lower specific gravity of 4.1 (compared with the American Petroleum Institute specific gravity specification of 4.2) following cost and performance analyses. This was done in an effort to extend barite reserves in Nevada and to hold down future price increases. The company started producing the new product in July 2006, and has reported no negative feedback from customers.

Baroid Drilling Fluids, a subsidiary of Halliburton Co., was the second largest producer in Nevada, shipping 204,000 tons. The company mined barite from the Rossi Mine in Elko County and processed it at the



Dunphy Mill in Eureka County. Baker Hughes INTEQ shipped about 72,000 tons of barite from its Argenta operation near Battle Mountain in Lander County. Standard Industrial Minerals made no shipments from the P and S Mine in Nye County in 2006.

After a sharp decline of barite mining in the 1980s and many years of weak barite sales, barite is once again being actively explored for in Nevada. Excaliber Minerals Inc., a division of Newpark Resources Inc., which has become an important player in the barite grinding industry in Louisiana and Texas, staked nine claims near the south end of the Independence Mountains in Elko County in 2006. The claims are in the vicinity of the Heavy Spar barite prospect, which was explored by Eisenman Chemical Co. in the 1970s, and are near the busy Maggie Creek portion of the Carlin gold trend. Excalibur had staked 30 claims in another Elko County barite district in 2005. Spirit Minerals, LP has filed an application for a reclamation permit to explore the Big Ledge Mine area in the Snake Mountains of Elko County, an area that was explored by Chromalloy American Corp. in the late 1970s and later mined by Circle A Construction Inc. in the 1990s. Spirit Minerals also plans to begin milling 75,000 tons of stockpiled ore mined in the 1980s by Old Soldier Minerals from another property in the area, and has staked 38 mill site claims on the east side of the Snake Range. Heemskirk Canada Ltd., which operates a barite processing plant in Alberta using Nevada barite, has leased the Monitor barite property in the Northumberland District of Nye County. Milchem produced barite from the Monitor Mine in the late 1970s.

## **Borate**

American Borate Co. processes borate minerals at the Lathrop Wells mill in Nye County. Until 2005, the feed was colemanite mined from the Billie Mine in Death Valley, California. In 2006, the material processed was from overseas. The Nevada plant has a 22,000-ton annual capacity (B<sub>2</sub>O<sub>3</sub> basis), but its production is not included in the estimate of total value of Nevada minerals because the ore is from out of state.

## **Cement**

Based on U.S. Geological Survey estimates, about 100 million metric tons of cement were produced in the U. S. in 2006 at an average mill price of about \$98 per metric ton. The only Nevada producer, the Nevada Cement Co. (part of Eagle Materials Inc. of Dallas, Texas) in Fernley, Lyon County, has annual production of about 600,000 tons of cement. The cement is manufactured from Tertiary lacustrine limestone mined a few miles south of Fernley, and from other raw materials that come from northern Nevada. In 2006 the company staked claims in several areas near its Fernley plant. The largest group consists of 25 claims staked on limestone deposits along the southwest edge of the Trinity Range in Pershing County.

These deposits, which are about 40 miles northeast of the cement plant, were shown on maps produced by the Southern Pacific Railroad in the 1960s and are in public sections within the checkerboard pattern of railroad and public lands in the area. The company located a similar, but smaller, group of seven claims in the Hot Creek Range of Churchill County about 20 miles northeast of its plant. A third group of four claims was also staked about 20 miles south of Fallon in Churchill County by Nevada Cement in 2006. On the basis of a plan of operations submitted to the U.S. Bureau of Land Management in January, 2007, Nevada Cement prepared plans in 2006 for a limestone mine on claims staked in the early 1990s near Rye Patch Reservoir in Pershing County, about 70 miles northeast of the Fernley plant. It is not known how the limestone properties located in 2006 will be integrated with this plan; however, in the past the company has considered a new cement plant in the Rye Patch area.

Ash Grove Cement Co., a Kansas corporation, announced plans for a major cement plant northeast of Las Vegas on the Moapa Indian Reservation in 2004. Plant construction is now slated to begin in late 2007. Proposed annual capacity of the plant, which is projected to cost \$250 million, is 1.5 million tons of cement. The limestone feed for the plant will come from a quarry on the reservation. Although the plant site is on an Indian reservation, which is not subject to as many state and federal laws as other lands, Ash Grove will adhere to environmental regulations required by the Environmental Protection Agency (EPA), and has applied for an air quality permit. The EPA has determined that the use of proposed control devices and emission limits for the plant meet the requirements of 40 CFR 52.21 and that the proposed project will not violate any of the National Ambient Air Quality Standards. Initiation of production at the new cement plant is eagerly awaited by Las Vegas concrete suppliers and construction firms who have been plagued by temporary cement shortages since the 1990s and as recently as 2005.

## **Clay**

Nevada clay production was an estimated 32,000 short tons in 2006, about 6% less than in 2005. This production does not include halloysite clay mined in Washoe County for Nevada Cement (which is included in the cement figure).

IMV Nevada, owned by Mud Camp Mining Company, LLC, produced about 30,000 tons of sepiolite, saponite, and bentonite from deposits in lacustrine sediments in the Ash Meadows-Amargosa Flat area of Nye County. The clay occurs in shallow, flat-lying deposits in Pliocene lacustrine rocks. It is processed at a plant in Amargosa Valley, and clay products are exported worldwide. The sepiolite and saponite deposits have unusual geology, they are considered to have originated in a Pliocene playa with an area of at least 22 square miles. The sepiolite, which yields most of the profits for the operation, occurs in an almost continuous bed with an average thickness of about 7 feet.

Two companies mine and ship relatively minor amounts of Nevada clay from several sites for use in high-value specialty products. At its White Caps Mill near Beatty in Nye County, Vanderbilt Minerals Co. processes small amounts of clay stockpiled from several deposits in Nevada, Arizona, and California. In 2006, the company shipped clay from the New Discovery Mine near Beatty, the Blanco Mine in Esmeralda County, and the Buff and Satin Mines in Pershing County. The American Colloid Co. mines white bentonite from its Nassau property in Coal Canyon in Pershing County for use in specialty clay products. It is not known whether the company shipped any clay from Nevada in 2006.

The Moltan Company staked nine placer claims over the San Emidio clay deposit near Empire in Washoe County in 2006.

## Diatomite

The U.S. is the largest producer of diatomite worldwide, and Nevada and California account for most of this production. According to the U.S. Geological Survey, domestic production of diatomite, which is chiefly used in filter aids, increased slightly from 653,000 metric tons in 2005 to 655,000 metric tons in 2006. Nevada accounts for more than 30% of domestic diatomite production. About two-thirds of the diatomite produced in Nevada is used in filtration and the remainder is largely used in absorbents, fillers, and cement. Emerging small-scale uses include pharmaceutical processing and nontoxic insecticides.

EP Minerals, the second largest diatomite producer in the world, produces most of Nevada's diatomite. Eagle-Picher Holdings, the former parent company, filed to reorganise under Chapter 11 of the U.S. Bankruptcy Code in April 2005. In 2006, the company emerged from restructuring under the name EaglePicher Incorporated. EP Minerals' Colado operation in Pershing County is the company's most productive Nevada operation. It consists of a plant at Lovelock that mostly makes filtration products from diatomite mined about 15 miles to the northwest. The company also produces diatomite used in fillers and absorbents at its Clark plant and mine in Storey County about 20 miles east of Reno, and diatomite used in insulation from a pit near Hazen in Lyon County. EP Minerals filed 35 placer claims over the Trinity diatomite deposit about 30 miles northeast of Fernley in Churchill County in 2006.

The Celite Corp. operates a mine at Hazen and plant in Fernley that produce diatomite fillers. Celite is a subsidiary of World Minerals Inc., the world's largest diatomite producer and a subsidiary of Imerys, a large French industrial minerals company. The Moltan Company ships absorbent products, cat litter, and soil conditioner under several labels from a mine and plant complex in Churchill County about 20 miles northeast of Fernley. In 2006, Moltan filed a block of about 100 claims, mostly placer claims, over diatomite in the Desert Peak area in Churchill County near Interstate 80

about 25 miles northeast of Fernley. The company also staked 18 claims over the Black Butte diatomite deposit near Hazen. The Grefco diatomite operation near the Esmeralda/Mineral County line is small relative to other Nevada diatomite companies but has been producing diatomite for many years. American Diatomite Inc. holds claims in the Esmeralda County in the vicinity of the Shu Fly diatomite deposit about ten miles north of Coaldale.

## Dimension Stone

Mt. Moriah Stone Quarries, LLC, quarries flaggy quartzite of several colors from the Cambrian Prospect Mountain Quartzite at a quarry about 15 miles north of Baker in White Pine County. This material, which naturally splits into large slabs, is used for flagstone, ashlar (uncut facing stone), and other types of uncut building stone.

Las Vegas Rock produces flagstone, ashlar, boulders, and crushed landscape rock from its Rainbow Quarries near Goodsprings, about 20 miles southwest of Las Vegas. The stone is mined from the Jurassic Aztec Sandstone.

Two small claim groups were staked in 2006 in Nevada for the probable purpose of dimension stone mining. State Stone Corp., a Salt Lake City wholesale construction materials supplier, staked three lode claims in Lincoln County about 30 miles southeast Caliente. Nevada Rock LLC of Carson City, Nevada, staked seven claims in Nye County about 20 miles east of Tonopah. The Nevada Rock claims are in the vicinity of the McKinney Tanks zeolite occurrence, and may have been located for that commodity instead of stone.

## Gemstones

Precious opal is produced from several mines in the Virgin Valley area of northern Humboldt County. The best known are the Royal Peacock, Rainbow Ridge, Bonanza, and Hidden Valley Mines. The Rainbow Ridge and Royal Peacock Mines reported production in 2006 to the Nevada Division of Minerals. Virgin Valley is a well-known source of gem stones in North America, but much of the opal comes from pay-to-dig operations and is unreported. In addition, Nevada has probably produced more than \$30 million worth of turquoise, mostly during the first half of the twentieth century when as much as 10,000 pounds were produced in a single year. In 2006, less than 50 pounds of turquoise were shipped from the Blue Ridge Mine, a family-owned property in the Bullion district of Lander County.

## Gypsum

According to the U.S. Geological Survey, Nevada was the third leading gypsum producer and accounted for about 11% of domestic gypsum production in 2006. In 2006, Nevada's gypsum production, at an estimated 1.6 million short tons, declined for the third year in a row.

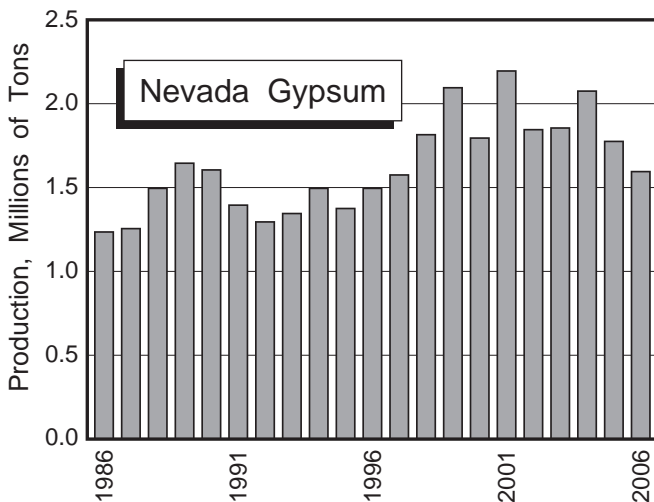
This decline was mainly the result of cessation of mining in 2004 at the BPB Blue Diamond operation south of Las Vegas, one of the state's largest producers. The two largest Nevada producers, PABCO Gypsum and USG, utilize most of the gypsum mined in Nevada in wallboard plants adjacent to their mining operations.

PABCO Gypsum in Clark County northeast of Las Vegas was the largest Nevada producer in 2006, mining about 1.4 million tons of gypsum ore in 2006. Processing yields about 70% by weight gypsum from the ore, which is in a nearly flat-lying late Miocene gypsite blanket atop a 5-square-mile mesa. Drilling indicates the gypsum is at least 120 feet thick in the area of current mining.

USG, the nation's largest wallboard producer, was the second largest Nevada producer in 2006, at about 370,000 tons. The company mines gypsum in western Pershing County and processes it into wallboard and plaster at a plant at Empire in Washoe County. The gypsum is of Triassic or Jurassic age and forms several masses in a 2-square-mile area. The largest mass, the Selenite orebody, contains 85 to 95% gypsum.

The Art Wilson Company of Carson City ships gypsum and anhydrite from the Adams Mine in Lyon County, and the D. L. Denman Construction Company mines gypsum at the Pioneer Mine about 10 miles east of Las Vegas. Material from these relatively small operations is used in cement and agricultural applications. The Adams deposit is a folded body associated with limestone in Triassic metavolcanic rocks. The Pioneer Mine exploits the same late Miocene gypsite deposit as the PABCO operation about 5 mi to the north.

The Blue Diamond area has been the site of gypsum mining since 1925, but is now in the path of Las Vegas metropolitan growth, and the former BPB mine site is slated to become an upscale housing development. The adjacent Blue Diamond plant continued to produce wallboard in 2006, using gypsum imported from northern Arizona, and BPB filed on five mill site claims adjacent to the wallboard plant.



Ready Mix Inc., a Las Vegas construction material supplier, staked 8 placer claims in 2006 in the area of the White Star gypsum prospect near Logandale, about 50 miles northeast of Las Vegas in Clark County. It is unclear if gypsum is the commodity sought here because decorative sandstone is known to be mined in the area.

## Lime, Limestone, and Dolomite

According to the U.S. Geological Survey, Nevada was one of seven states that produced more than 1 million tons of lime in 2006. Domestic lime markets have been strong for the past five years, during which the price has increased at an average of about 7% per year. Limestone is mined for lime production at two sites in Nevada that are nearly at opposite ends of the state, but the high-calcium limestone that is utilized at both sites is from the same Devonian limestone unit (although it is assigned to different stratigraphic formations). In addition to lime, relatively minor amounts of crushed limestone are also shipped from both sites, and dolomite is mined at one of the sites. In addition, two active mines near Winnemucca produce dolomite only.

The Pilot Peak high-calcium lime operation of Graymont Western US, Inc. (formerly Continental Lime, Inc.) 10 miles northwest of Wendover in Elko County is Nevada's largest producer, mainly marketing lime to gold-mining operations for use in cyanide-solution pH control. The Pilot Peak plant has three kilns with a combined capacity of more than 700,000 tons of quicklime per year and a hydrated lime plant capable of producing 350 tons per day.

Chemical Lime Co. produces lime at Apex about 20 miles northeast of Las Vegas. The operation makes high-calcium quicklime used in metallurgical processing, paper manufacturing, and environmental markets. The company also produces dolomitic lime and hydrated high calcium lime at Apex, mainly for construction uses. The company's Henderson plant processes Type S hydrated dolomitic lime for building and home construction.

In addition to lime, both Graymont Western U. S. and Chemical Lime ship crushed limestone. Other carbonate rock producers in Nevada are Min-Ad, Inc., and Nutritional Additives Corp., producers of agricultural and nutritional dolomite products near Winnemucca. The Min-Ad operation, a subsidiary of Inter-Rock Minerals Inc. of Toronto, Canada, has increased production by about 70% over the past ten years. The dolomite is mostly sold into the midwestern U.S. and as far as New York State and Alberta, Canada, for use in beef and dairy feed.

## Lithium

Nevada is the only state with domestic production of lithium raw materials. Subsurface brines have become the dominant raw material for lithium carbonate production worldwide because of low production costs

as compared with the mining and processing costs for hard-rock ores. Lithium was produced as a by-product from brine in California since 1938; however, a Nevada operation, initiated at Silver Peak in Esmeralda County in 1966 by Cyprus Mines, was the first to extract lithium as the sole commercial product from brine. This operation was the world's dominant lithium producer until the late 1980s, when a Chilean lithium brine operation started up. South American sources, two brine operations in Chile and one in Argentina, now dominate the world market. U.S. lithium imports have increased about 75% over the past five years, mostly because of growth in lithium-based rechargeable battery sales. The U.S. price for lithium carbonate was about \$2.00 per pound. until the late 1990s, when large shipments of lithium carbonate began to be sold from the South American operations at about half list price. However, prices have risen recently due to increased demand for lithium for battery production. The price for lithium carbonate delivered in the U.S. rose from \$1.80–2.50 per pound. to \$2.70–3.00 per pound. during 2006 according to the journal *Industrial Minerals*. However, on the basis U.S. Geological Survey data the value of lithium carbonate exports from the U.S. in 2006 was about \$1.50 per pound. Potential increases in South American production may again force prices lower.

Chemetall Foote Co., a subsidiary of Chemetall GmbH, now owns and operates the Silver Peak facility. The company produces lithium carbonate, lithium hydroxide monohydrate, and lithium hydroxide anhydrite. The lithium chemicals are produced by solar evaporation preconcentration and subsequent refining techniques from brine that is pumped from beneath Clayton Valley playa. Production figures are confidential; the most recent public information, from 1998 Securities and Exchange Commission data, showed production of about 12 million pounds of lithium carbonate and 5 million pounds of lithium hydroxide.

## Magnesia

More than 50% of U.S. magnesia production comes from seawater and natural brines, but magnesia is also produced from magnesite and brucite. A mine at Gabbs, Nevada, is the only place in the country where magnesite is mined. Brucite, which is shipped in relatively small amounts from the Gabbs operation, is also mined in Texas. On the basis of U.S. Geological Survey data, U.S. production of magnesium compounds has remained relatively flat at about 300,000 metric tons for the past five years.

Premier Chemicals LLC of Cleveland, Ohio, owns the Gabbs magnesia operation in Nye County. Magnesium minerals have been mined at Gabbs since 1935, and in the 1940s were processed in Henderson, Nevada, to make magnesium metal. From the 1950s to the 1980s, mining and processing was by Basic Industries, a major

producer of refractory magnesia. During the 1990s, the availability of cheap foreign refractory magnesia caused production at Gabbs to be switched to light-burned (caustic) magnesia that is mainly marketed for wastewater treatment and agricultural uses. Although production of magnesia at Gabbs is still substantially below its peak in 1981, magnesia shipments from the Gabbs operation increased steadily between 1996 and 2005. Production in 2006 was somewhat lower than in 2005.

Magnesite and brucite at Gabbs occur as complex replacement bodies in Triassic dolomite in a large area. The resource is thought to be sufficient for more than 50 years of production at present mining rates.

## Perlite

On the basis of U.S. Geological Survey data, production of domestic perlite decreased from over 700,000 metric tons in 1999 to about 457,000 tons in 2006, probably due to decreased usage in construction and to increased imports. Until 2005 the U.S. was the world's largest producer of perlite, but Greece is now the largest producer. Perlite mines have been shut down recently in New Mexico and Utah, and imports reached record levels in 2006. The cost of rail transportation from western U.S. mines to some areas of the eastern U.S. have burdened domestic perlite producers with strong cost disadvantages compared with Greek perlite exporters.

Nevada has large perlite resources and several deposits of perlite that have been mined extensively; however, the state now produces only minor amounts of perlite. Current perlite production in Nevada is restricted to relatively small-scale mining of two deposits for niche markets, and the state produces less than 1% of the domestic total.

Wilkin Mining and Trucking Inc. mines perlite from the Tenacity Perlite Mine about 25 miles west of Caliente in Lincoln County. The company has been mining perlite in the area for more than 25 years. The company has a small popping plant in Caliente, and present sales are almost exclusively of expanded perlite that is used for horticultural purposes. The company shipped about 1,800 tons of expanded perlite in 2006.

EP Minerals produces expanded perlite that is marketed as a filter aid from its Colorado diatomite plant in Pershing County. Plant capacity is reportedly about 8,000 tons per year, but 2006 production is not available. The crude perlite comes from the Popcorn Mine about 15 miles south of Fallon in Churchill County.

## Potassium Alum

A small amount of potassium alum (kalinite) was reportedly shipped in 2006 from a deposit in Esmeralda County about 10 miles north of Silver Peak by Rulco. The kalinite, which occurs with sulfur as veins and stringers in rhyolitic rock, is being marketed for horticultural use.

## Salt

The Huck Salt Company produced about 15,000 tons of salt in 2006, down about 50% from the 2005 production. The salt is mainly used for deicing roads, and production levels are dependent on weather. The decrease is probably due to higher road salt stockpiles. The salt is mined from a playa on Fourmile Flat about 25 miles southeast of Fallon in Churchill County, where it has been harvested almost continuously since the 1860s when it was hauled to the mills that processed Comstock silver and gold ore.

## Silica

The U.S. is by far the world's largest producer of silica sand. In 2006, domestic production rose about 4% over 2005 to nearly 32 million metric tons according to the U.S. Geological Survey. Nevada's major silica producer, Simplot Silica Products at Overton, Clark County, shipped about 750,000 tons of silica sand in 2006, about the same as in 2004 and 2005. The sand is mined from a large open pit in the relatively friable Cretaceous Baseline Sandstone, washed in the pit, and transported via a 5-mile slurry pipeline to a plant where it is screened and bagged. The company plans to upgrade its processing facilities in the near future, with a view toward increasing production to as much as 850,000 tons per year.

American Cement and Aggregate produces silica sand from the Ordovician Eureka Quartzite about 3 miles southeast of Mercury in Nye County. A Plan of Operations submitted to the U.S. Bureau of Land Management in 2001 called for annual production of as much as 80,000 tons. The product, which contains about 98%  $\text{SiO}_2$ , is mainly used as construction sand. The company also holds claims that cover an abandoned quarry in Eureka Quartzite that contains more than 99%  $\text{SiO}_2$  in Clark County about 30 miles northeast of Las Vegas.

In 2005, James Hardie Building Products Inc. developed an environmental assessment for the expansion of a small mineral-materials-sale operation at the Kramer Hill quartzite quarry 1.5 miles south of Golconda in Humboldt County. The material was mined

for testing and is under consideration as feed for the company's fiber-cement siding manufacturing plant in the Tahoe-Reno Industrial Park east of Sparks, Nevada. The expansion proposal covers the removal of as much as 4,000,000 short tons over a 20-year period from the property, which includes both public and private land.

## Vermiculite

In 2006, Rio Tinto Industrial Minerals took an option to acquire the IBI Corp. (Toronto) interest in vermiculite deposits near Mica Peak in Clark County. Under the agreement, Rio Tinto may acquire IBI's interest until 2008 for \$1.25 million and is required to spend \$250,000 on exploration and property development during the option period. The vermiculite occurs in altered Precambrian mafic and ultramafic rock in three claim blocks that include claims originally staked in 1993 and 1994. However, the presence of the vermiculite deposits has been known since the 1930s, and a mill was constructed in the 1940s.

## Zeolites

Nevada contains large known resources of zeolite; however, zeolite production has been small and no zeolite is currently mined in Nevada. Ash Meadows Zeolite LLC, a subsidiary of Badger Mining Corp., ships 1,000 to 5,000 tons annually of clinoptilolite used in water filtration, odor control, and nuclear clean-up from a plant in Amargosa Valley in Nye County. The clinoptilolite is mined from a small open pit in California in a large area of zeolite deposits that extends into Nevada. In 2006, Badger Mining was reportedly looking for a buyer for the Ash Meadows operation.

The Moltan Company, which produces diatomite-based cat litter and absorbents in a plant near Fernley, has mined small amounts of zeolite in the past for use in absorbent products. The company filed 15 lode claims in 2006 near a zeolite deposit in Churchill County about 35 miles northeast of Fernley. In addition, Moltan staked 12 lode claims near the Ash Meadows Zeolite LLC mill in Nye County.

# Geothermal Energy

by Ronald H. Hess

Forty-three geothermal well permits were issued during 2006 by the Nevada Division of Minerals: one project area permit, 12 industrial production well permits, one commercial production well permit, one commercial injection well permit, three domestic well permits, 10 gradient well permits, and 15 observation well permits. A total of 14 geothermal wells of all types were reported as drilled during 2006. (Nevada Division of Minerals, 2007)

In Nevada, during 2006, there were 236 federal noncompetitive leases covering approximately 344,375 acres, an increase from 2005 of 76 leases and 100,114 acres. In 2006 there were 66 federal competitive leases covering 84,614 acres in Nevada, the number of competitive leases were unchanged from 2005. Total lease rental revenue value for 2006 was \$370,000, an increase from the previous year of \$114,175. In comparison, during 2006 there were 552 geothermal leases nationwide covering 593,200 acres of which 302 leases covering 428,989 acres were in Nevada. (Rich Hoops, BLM, oral commun., 2007)

Total gross electrical production during 2006 from geothermal resources on public lands was 1.16 million megawatt-hours (MWh), a decrease of 17,000 MWh from 2005; net production was approximately 995,800 MWh, an increase of 1,891 MWh over 2005. Gross electrical sales from federal lands in 2006 were \$55.6

million, a decrease of \$2 million from 2005. Geothermal production royalties for Nevada was \$2 million in 2006. By regulation, half of all Federal geothermal lease rental fees and production royalties are returned to the state. For 2006, \$185,000 in lease rental fees and \$1,000,000 in royalty production fees should be returned to Nevada. (Rich Hoops, BLM, oral commun., 2007)

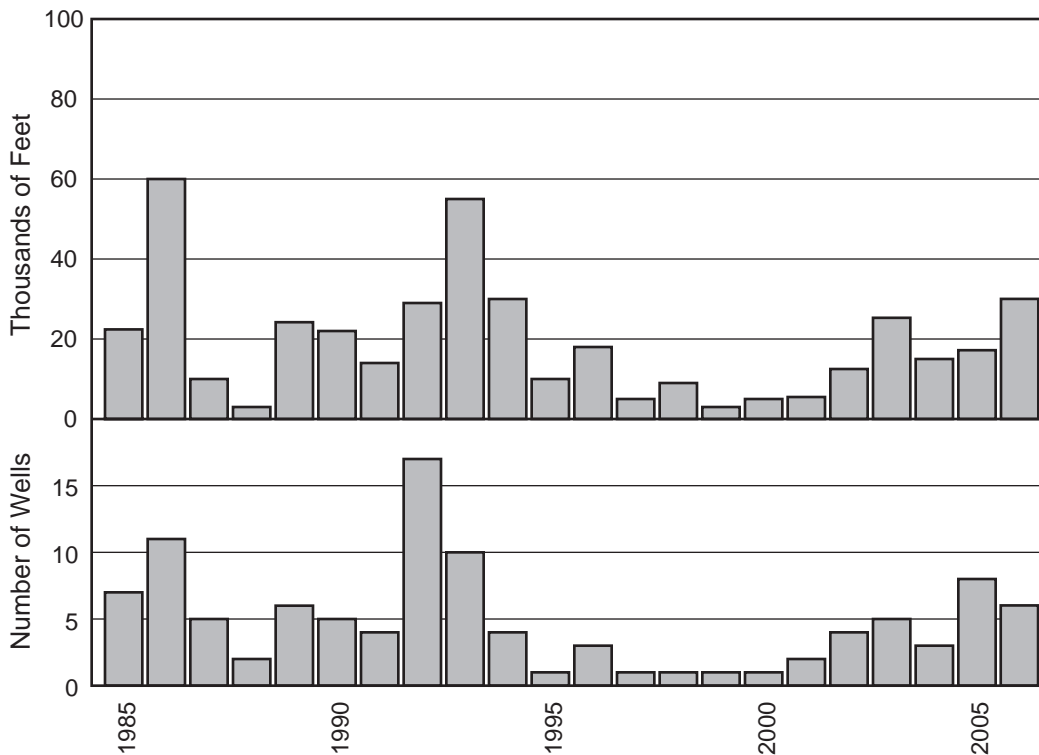
Total Nevada geothermal electrical production in 2006 from federal and fee lands combined was 1,683,585 MWh gross and 1,332,997 MWh net (Nevada Division of Minerals, 2007) with an approximate sales value of \$74.4 million. This was an increase in gross production of 92,645 MWh and net production of 64,206 MWh from 2005. Production capacity from the currently developed geothermal resources at ten existing geothermal power production sites in Nevada is 264.7 megawatts (MW), a 13.2 MW increase from 2005. Currently installed equipment, or nameplate, capacity for the same sites totals 284.9 MW. The table on page 77 lists operators, plant locations, and energy production for individual Nevada geothermal power producers at the end of 2006. Nevada is second only to California in total installed geothermal generating capacity.

The geothermal resources map of the United States on page 72, based on estimated subterranean temperatures at a depth of 6 kilometers, indicates that

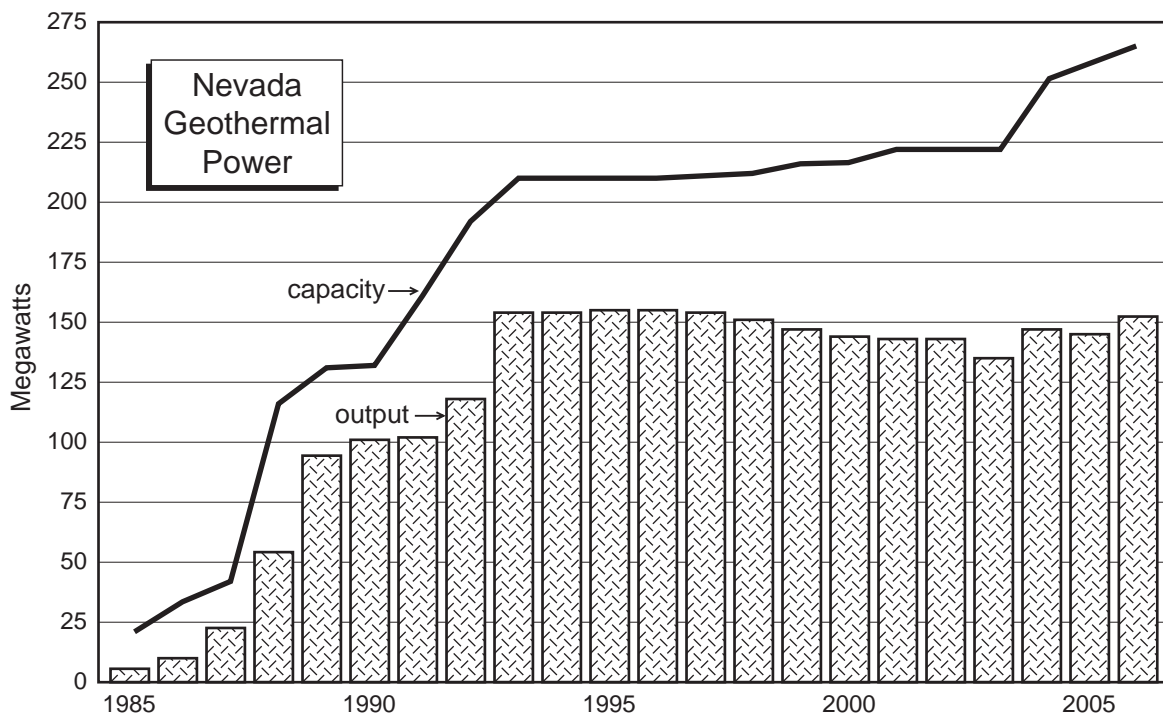
## NONDOMESTIC GEOTHERMAL WELLS REPORTED AS DRILLED, REDRILLED, OR COMPLETED IN NEVADA DURING 2006

Area	Company Name	Well name	Permit#	Location	Type	Permitted Depth (feet)
<b>Humboldt County</b>						
Blue Mountain	Noramex Corp. (NV Geothermal Power)	Thermal Gradient TG-7	613	NW¼, NW¼, S14, T36N, R34E	Gradient	1640
	Noramex Corp. (NV Geothermal Power)	Thermal Gradient TG-12	614	SW¼, SE¼, S22, T36N, R34E	Gradient	1640
	Noramex Corp. (NV Geothermal Power)	Industrial Production Well 26A-14	617	NW¼, SW¼, S14, T36N, R34E	Production	6000
	Noramex Corp. (NV Geothermal Power)	Industrial Production Well 38-14	618	SW¼, SW¼, S14, T36N, R34E	Production	6000
	Noramex Corp. (NV Geothermal Power)	Industrial Production Well 34-23	639	SE¼, NW¼, S23, T36N, R34E	Production	6000
	Noramex Corp. (NV Geothermal Power)	Industrial Production Well 66-14	640	NW¼, SE¼, S14, T36N, R34E	Production	6000
<b>Elko County</b>						
Humboldt Wells	Vosika King Limited Partnership	Commercial Production Well	622	Wells, Nevada	Production	600
Hot Sulphur Springs (Tuscarora Geothermal Area)	TG Power, LLC	Observation Well 87-5	674	SE¼, SE¼, S5, T41N, R52E	Observation	3500
<b>Esmeralda County</b>						
Fish Lake Valley	Esmeralda Energy Company	Observation Well Emigrant 17-31	643	SW¼, SW¼, S31, T1N, R37E	Observation	4000
<b>Washoe County</b>						
Steamboat Hot Springs	Steamboat Development Corp.	Industrial Production Well 38B-28	567	SE¼, SW¼, S28, T18N, R20E	Production	850
Gerlach	Gerlach Green Energy, LLC	Industrial Production Well 68-3	633	SW¼, SE¼, S3, T32N, R23E	Production	6000





**Industrial-class (power generating) wells drilled in Nevada, 1985–2006. Depth taken from original drilling permit.**



**Currently developed resource capacity and average net output of Nevada geothermal plants, 1985–2006. Average net output is annual sales in megawatt-hours divided by the number of hours in a year (8,760). No commercial geothermal power was produced in Nevada before 1985.**

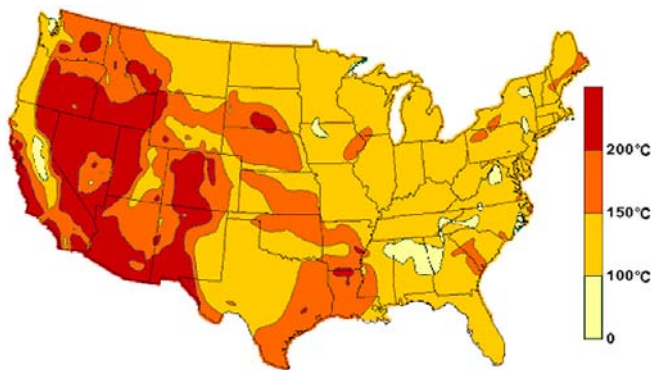
Nevada will continue to be a prime location for the development of various types of energy production facilities that will utilize naturally occurring steam, hot water, and hot dry rocks. (U.S. Department of Energy - Energy Efficiency and Renewable Energy Geothermal Technologies Program; [www.eere.energy.gov/geothermal/printable\\_versions/geomap.html](http://www.eere.energy.gov/geothermal/printable_versions/geomap.html))

The availability of this resource will ensure that the geothermal industry in Nevada will continue to grow and develop a wide variety of clean renewable energy projects for the foreseeable future.

The table on proposed power generation plants in Nevada (from the Public Utilities Commission of Nevada, May 2007) includes both conventional and renewable power generation projects. For the 21 projects listed, it shows the project proposed size, location, permitting status, and if project construction has started.

### Desert Peak Geothermal Area, Churchill County

Ormat Nevada, Inc. has constructed a new 23-MW binary power plant near the old 9.9-MW dual flash geothermal power plant at Desert Peak. The original geothermal power plant at Desert Peak came online in 1985 and was decommissioned in May 2006. The new plant came online in August 2006. Power generated from this project will be sold to Nevada Power Co. (The Public Utilities Commission of Nevada, Docket No. 05-3024, April 27, 2005 and Nevada Division of Minerals, 2007)



Geothermal resources map of the United States (2006) showing the estimated subterranean temperatures at a depth of 6 kilometers. To determine the Earth's internal temperature at any depth below the capabilities of normal well drilling, multiple data sets are synthesized. The data used for this figure are: thermal conductivity, thickness of sedimentary rock, geothermal gradient, heat flow, and surface temperature. (U.S. Department of Energy - Energy Efficiency and Renewable Energy Geothermal Technologies Program)

### Eight Mile Flat (Salt Wells), Churchill County

Prior to AMP Resources, LLC taking over the Salt Wells project, the Nevada Division of Minerals issued a geothermal project area permit (#564PA) to Nevada Geothermal Specialists, LLC for this project. It anticipated development of six production wells with an estimated depth of 1,000 feet, four injection wells with an estimated depth of 3,000 feet, and ten observation wells with an estimated depth of 1,000 feet. One of the first wells drilled under this geothermal project area permit was the Industrial Production Well PW-2 (permit #568) drilled by Amp Resources, LLC in the spring of 2005 to a depth of 471 feet (143.6 m). Static temperature surveys showed a peak temperature of 145°C and a flowing temperature of 140°C. The well was flowed at a rate of 2,500 gallons per minute for 46 hours with no drawdown. (Nevada Division of Minerals, 2005, and Geothermal Resources of Nevada as updated on the Web at [www.nbm.unr.edu/geothermal/site.php?sid=Eightmile%20Flat](http://www.nbm.unr.edu/geothermal/site.php?sid=Eightmile%20Flat))

A transmission line to the site of the proposed 26-MW power plant has been completed. (Great Basin Center for Geothermal Energy, Current Geothermal Exploration Activity: [www.unr.edu/geothermal/explactivity.htm](http://www.unr.edu/geothermal/explactivity.htm)) On March 20, 2007, Enel North America, Inc. purchased AMP Resources, LLC. from AMP Capital Partners and a minority investor. Enel North America, Inc. is a subsidiary of Enel S.p.A., Italy. The Nevada Division of Minerals has issued a geothermal project area permit (#698PA) to Enel Salt Wells, LLC, to drill up to eight production wells each with an estimated depth of 1,000 feet, eight injection wells with an estimated depth of 3,000 feet each, and 10 observation wells. The project area is located in Sections 23, 24, 25, 26, 35, and 36 of T17N, R30E.



Desert Peak geothermal area, Churchill County, Ormat Nevada, Inc. The water cooling tower and fan cooling towers to the right in the picture and the equipment around them are part of the new Desert Peak geothermal power plant. The larger structures in the center rear of the photo are parts of the old Desert Peak power plant that is now decommissioned. (Ron Hess photo)

**PROPOSED ELECTRICAL GENERATION PLANTS IN NEVADA - 2007**  
**Public Utilities Commission of Nevada, 2007**

<b>Name/Owner</b>	<b>Gross Megawatts</b>	<b>Plant Type</b>	<b>Location</b>	<b>Date Announced</b>	<b>Construction Status</b>	<b>Proposed On-line Date</b>
Galena 2/Ormat	10	Geothermal	Steamboat KGRA, Washoe County	Nov. 2002	Under Construction	Late 2006
Nevada Solar One/ Solargenix Energy	50	Solar	El Dorado Valley, Clark County	Dec. 2002	Under Construction	Early 2007
Ely Wind Generation Facility/ Carlson & Associates	50	Wind	Ruth, White Pine County	Nov. 2002		2007
Harry Allen Unit 4/ Nevada Power Company	80	CombustionTurbine Peaking Plant	Harry Allen Plant, Clark County	July 2003	Under Construction	Summer 2006
Tracy Combined Cycle GT Sierra Pacific Power Company	514	Combined Cycle	Tracy Power Plant, Storey County	July 2004	Under Construction	June 2008
Falkner 1/ Nevada Geothermal Power	25	Geothermal	Blue Mountain, Humboldt County	Oct. 2002	Drilling	December 2009
Granite Fox Power Project/ Sempra Energy	1450	Coal Fired	Gerlach, Washoe County	Winter 2004		
Galena 3/Ormat	20	Geothermal	Steamboat, Washoe County	May 2006	Under Construction	Early 2008
Salt Wells Geothermal Project/ Nevada Geothermal Specialists	17	Geothermal	Salt Wells, Churchill County	Spring 2004		August 2008
White Pine Project/ LS Power Associates	1600	Coal Fired	White Pine County	Winter 2004		2010
Ely Energy Project/ Sierra Pacific Power Company	1500	Coal Fired	White Pine County	Jan. 2006		2011-2013
Ely Energy Project - Phase 2/ Sierra Pacific Power Company	1000	Coal Fired	White Pine County	Jan. 2006		TBD
TS Power Plant/ Newmont Mining Corporation	206	Coal Fired	Eureka County	Spring 2004	Under Construction	May 2008
Toquop Energy Project/ Sithe Global	750	Coal Fired	Lincoln County	Mar. 2003		2010
Carson Lake - Fallon Naval Air Station/Ormat	30	Geothermal	Churchill County	July 2006	PPA Contract signed	Mid 2008 Phase 1
N. Nevada Corrections Center/ State of Nevada, Department of Corrections	1	Biomass	Carson City	Nov. 2005	Under Construction	Early 2007
Buffalo Valley (ORNI 15)/Ormat	32	Geothermal	Lander County	July 2006	PPA Contract signed	Mid 2008
Stillwater/AMP Resources	34	Geothermal	Churchill County	2006	Contract filed for approval	August 2008
Hot Sulphur Springs/ TG Power	25	Geothermal	Elko County	Late 2006		2008
Carson Lake (ORNI 16)/Ormat	24	Geothermal	Churchill County	2006	Contract filed for approval	December 2009
Vulcan Power/Fish Creek	30	Geothermal	Esmeralda County	2006	SCE contract approval	TBA

## Stillwater Geothermal Area, Churchill County

AMP Resources, LLC. purchased the Stillwater Power Plant and associated geothermal resources from Stillwater Holdings, LLC., effective 12/31/2004. In August 2005, Amp Resources applied to the Nevada Public Utilities Commission (PUC) for a permit to construct a 37-MW binary geothermal power plant adjacent to the existing Stillwater power plant. In May 2006 the Nevada PUC approved a permit to build a 26-MW power plant. Upon completion the new power plant will replace the existing Stillwater plant, online since 1989, which will be dismantled. When the new plant is completed in late 2007, it will be known as Stillwater 2 Geothermal Power Plant. On March 20, 2007, Enel North America, Inc. purchased AMP Resources, LLC. from AMP Capital Partners and a minority investor. Enel North America, Inc. is a subsidiary of Enel S.p.A., Italy. In 2006 electrical production at the Stillwater plant was 84,727 MWh gross with 49,352 MWh net generation. (Nevada Division of Minerals, 2007)

## Blue Mountain Geothermal Area, Humboldt County

Nevada Geothermal Power, Inc. (NGP), has started its initial production well drilling program. Four 13-inch-diameter wells will be drilled to a depth of 4,000 feet to a moderate temperature geothermal target that was identified in earlier drilling. One of these wells will go to 6,500 feet to explore for a hotter (450°F) reservoir that is predicted based on shallow geothermal fluid chemistry data. The current drilling program is aimed at developing a 30-MW power plant. If a suitable geothermal resource is identified in the deep well, the production potential for this site could be as high as 100 MW. NGP has increased its leased ground to approximately 9,600 acres. (Blue



**Blue Mountain geothermal area, Humboldt County, Nevada Geothermal Power Co. industrial production well 23-14 (Nevada state permit number 635) being flow tested. Approximate flow rate of 1,800 gallons per minute at +/-375° F at the well head. (Ron Hess photo)**

Mountain Geothermal Project, Nevada Geothermal Power, Inc., press release, May 15, 2006, and Bulletin Geothermal Resources Council, May/June 2006, v. 35, no. 3) The Blue Mountain area is located at T36N, R34E in south-central Humboldt County, Nevada.

## Hot Springs (Tipton) Ranch, Pumpernickel Valley, Humboldt County

Nevada Geothermal Power, Inc. (NGP) and ORMAT Technologies, Inc. have entered into an agreement to construct a binary geothermal power plant at NGP's Pumpernickel Valley project area. Part of this agreement included acquiring a 933.5-acre lease from ORMAT to consolidate NGP's land holdings in the project area. NGP has also acquired an additional 1,920-acre lease directly from the BLM. These leases are a significant increase to the previous holdings the company has in Pumpernickel Valley.

Upcoming development work will include drilling up to three 820-foot gradient wells to better define the geothermal resource and then drill a deep production test well to confirm the potential of the geothermal field. (Bulletin Geothermal Resources Council, July/October 2006, v. 35, no. 4)

## Beowawe Geothermal Area, Lander/Eureka Counties

Beowawe Power LLC/Caithness Operating signed a 29-year power sales contract with Sierra Pacific Power Co., which took effect January 2006. Their existing contract with Southern California Edison expired in December 2005. The Beowawe power plant came online in December 1985 and has an equipment generating capacity of 16.6 MW. In 2006 electrical production at the plant was 132,747 MWh gross and 113,935 MWh net. (Nevada Division of Minerals, 2007)

## Buffalo Valley Hot Springs, Lander County

Ormat Nevada, Inc. submitted applications to drill 10 temperature gradient wells and four observation wells spread through Sections 22, 24, 25, 26, 27, 34, and 35 of T29N, R41E. (Nevada Geothermal Update, April 2006, Nevada Division of Minerals) The Buffalo Valley Hot Springs are located in the southeast part of Buffalo Valley in Section 23, T29N, R41E. They have historically reported surface temperatures up to 79°C mainly from 11 springs over an area of 1.2 hectares. The estimated thermal reservoir temperature using the silica geothermometer is 125°C. In 2002 temperatures ranged from 12 to 77.3°C in the 58 springs measured. The Na-K-Ca temperature from 2002 data is 130°C. Thermal groundwater is present over an area of about 5 square kilometers, with temperatures up to 89°C encountered in shallow test holes. (Geothermal Resources of Nevada as updated on the web at [www.nbmng.unr.edu/geothermal/site.php?sid=Buffalo%20Valley%20Hot%20Springs](http://www.nbmng.unr.edu/geothermal/site.php?sid=Buffalo%20Valley%20Hot%20Springs)).

## **Grass Valley Area, Lander County**

A subsidiary of Ormat Technologies, Inc. announced that it had signed a 20-year Power Purchase Agreement (PPA) with Nevada Power Company for energy that will be produced from the Grass Valley Geothermal Power Plant, which will be built in Lander County Nevada. The plant will have a gross output of between 18 and 30 MW. ([www.ormat.com/investor-relations/news-releases/5/24/07](http://www.ormat.com/investor-relations/news-releases/5/24/07)) The site is in the vicinity of Hot Springs at Hot Springs Point, on the west side of Grass Valley, Lander County. A series of gradient and observation well permits have been issued with some having already been drilled. The wells are in Sections 15, 16, and 21 of T24N, R47E. In 2005 Ormat ran chemical analyses on 90.5°C hot spring discharge that indicated a potential 177°C reservoir temperature based on silica geothermometry. Ormat developed a geologic model that indicates that a concealed fault may exist 760 meters northeast of the hot springs. It is probable that hot water circulating up this fault is providing source fluids for the nearby hot springs. (Geothermal Resources of Nevada, Hot Springs at Hot Springs Point (Grass Valley), on the Web at [www.nbmng.unr.edu/geothermal/site.php?sid=Hot%20Spring%20at%20Hot%20Springs%20Point](http://www.nbmng.unr.edu/geothermal/site.php?sid=Hot%20Spring%20at%20Hot%20Springs%20Point)).

## **Wabuska Hot Springs, Lyon County**

Homestretch Geothermal, operator of the Wabuska Geothermal Power Plant, and Infinifuel Biodiesel entered into an agreement to form Infinifuel Wabuska, LLC. Using a reconditioned former ethanol plant, Infinifuel Wabuska is currently producing under 1 million gallons per year of biodiesel but has the capacity to produce 4–5 million gallons per year as sources for the raw materials are developed. Biodiesel is a diesel fuel replacement that can be created from vegetable and other plant oils, and will run in unmodified diesel engines. The company is working with the University of Nevada Reno Agricultural Extension office and the Desert Research Institute to experiment with and promote the planting of various oilseed crops as a rotation crop with hay and alfalfa in Nevada. If successful it would produce a cost-effective local source of raw material for the biodiesel plant. Algae is also being considered as a source crop for the plant. The algae, using warm geothermal water, could be grown and harvested on site. The plant is using electricity and hot water produced from the existing Wabuska Geothermal Power Plant to power the biodiesel conversion process. (Geothermal Heat Center Bulletin, March 2007 and Infinifuel Biodiesel announcement: [www.infinifuel.com/wabuska.htm](http://www.infinifuel.com/wabuska.htm))

The Wabuska power plant came on-line in 1984 and has an equipment generating capacity of 2.2 MW. In 2006 electrical production at the plant was 8,234 MWh gross with 5,120 MWh net generation. (Nevada Division of Minerals, 2007)

## **Pyramid Lake Geothermal Area, Washoe County**

The Pyramid Lake Paiute Tribe is undertaking the Pyramid Lake Energy Project to develop geothermal resources on their reservation. The project includes geophysical, gravity, and magnetic surveys in addition to a thermal gradient drill-hole program. Drilling of the gradient holes started in November of 2005, and three had been completed by March 2006 (Nevada Geothermal Update, April 2006, Nevada Division of Minerals, [http://minerals.state.nv.us/forms/ogg/ogg\\_NGU/NVGeothermalUpdate2006.04.pdf](http://minerals.state.nv.us/forms/ogg/ogg_NGU/NVGeothermalUpdate2006.04.pdf)). Part of the exploration and geophysical work is being done in collaboration with the University of Nevada, Reno, Great Basin Center for Geothermal Energy.

## **Steamboat Hot Springs, Washoe County**

On May 9, 2006, Sierra Pacific Resources and ORMAT Technologies Inc. jointly announced that Sierra Pacific Power Co., Sierra Pacific Resources northern Nevada utility, and ORNI 14 LLC, a subsidiary of ORMAT Nevada, Inc., signed a 20-year 20-MW Power Purchase Agreement (PPA) for Galena No. 3, a new binary geothermal power plant being built as part of the Galena Geothermal Project. This plant is expected to increase the output currently supplied from the Steamboat Hot Springs to Sierra Pacific Power Co. by between 15 and 25 MW. The design of the Galena No. 3 plant will be similar to the existing Richard Burdette Power Plant. This is the tenth PPA signed between ORMAT and Sierra Pacific Power in Nevada and the fourth signed since Nevada's renewable energy portfolio standard has been enacted by the Nevada State Legislature in 2001. (ORMAT press release, Reno, Nevada, May 9, 2006, and Bulletin Geothermal Resources Council, May/June 2006, v. 35, no. 3)

## **Steamboat Hot Springs - Redfield Campus, Washoe County**

The Redfield Campus and the UNR Renewable Energy Center, a partnership between the University of Nevada, Reno, Truckee Meadows Community College, Desert Research Institute, the Regional Transportation Commission, Sierra Pacific Power, and Ormat Nevada, has the potential to become a world-class research facility in the field of renewable energy resources.

In 1995 the Nell J. Redfield Foundation donated land for the campus, southwest of the junction of the Mount Rose Highway and U.S. 395. A year later, the foundation pledged \$5 million to help construct the inaugural building. In 1999 the Nevada Legislature allocated \$5.2 million for the project.

The Redfield Campus is located at the south end of Reno, adjacent to the Steamboat Springs geothermal area. Ormat Nevada, which operates the geothermal power plants at Steamboat Springs, has agreed to contribute one megawatt of electricity from geothermal energy, 600 gallons per minute of 180°F water (enough to heat the campus buildings), and 100 gallons per minute of 300°F water at no cost, for research purposes.

In addition to geothermal energy research and education, the Redfield Campus will focus on other renewable energy technology including solar thermal energy, solar photovoltaic energy, wind energy, hydrogen energy, heat exchange development, and waste materials energy. (Great Basin Center for Geothermal Energy, UNR Renewable Energy Center: [www.unr.edu/geothermal/UNRREC.htm](http://www.unr.edu/geothermal/UNRREC.htm))

## Nevada Geothermal Resources Map

The map entitled *Nevada geothermal resources*, NBMG Map 141 (Second Edition), by Lisa Shevenell and Larry J. Garside, shows active direct-use applications and power plants as of 2005, and all known thermal springs and wells on a topographic base map. This map may be purchased at the Nevada Bureau of Mines and Geology publications office or on the Web at [www.nbmng.unr.edu/sales.htm](http://www.nbmng.unr.edu/sales.htm). An Acrobat pdf file of this map can also be viewed and downloaded for free from the Web at [www.nbmng.unr.edu/dox/m141.pdf](http://www.nbmng.unr.edu/dox/m141.pdf).

A Web-enabled interactive version of this map can be accessed at [www.nbmng.unr.edu/geothermal/gtmap.pdf](http://www.nbmng.unr.edu/geothermal/gtmap.pdf). You can pan around on the interactive map, click on a geothermal area, and it will present detailed information on the particular geothermal resource, with many sites having additional links to maps and photos.

## Geothermal Bibliography

An online searchable bibliography of approximately 1,400 geothermal references can be accessed on the Nevada Bureau of Mines and Geology Web site at [www.nbmng.unr.edu/geothermal/biblio/find.htm](http://www.nbmng.unr.edu/geothermal/biblio/find.htm). The full list of references can also be downloaded as a Microsoft Word file.

The Geothermal Resources map and the online bibliography are just two of the many online resources and links that are available under the general geothermal information Web page at the Nevada Bureau of Mines and Geology Web site [www.nbmng.unr.edu/geothermal/](http://www.nbmng.unr.edu/geothermal/).

The U.S. Department of Energy (DOE) Geothermal Technologies Program and the DOE Office of Scientific and Technical Information (OSTI) have scanned approximately 3,300 agency and national lab technical reports. These files are in a PDF, full text searchable, format and accessible online at [www.osti.gov/energycitations/](http://www.osti.gov/energycitations/).

## Web Links to Other Geothermal Information

For further information on geothermal resources in Nevada, check the following Web sites or contact Ron Hess at 775-784-6692 or via Email at [rhess@unr.edu](mailto:rhess@unr.edu):

- Nevada Commission on Minerals, Nevada Division of Minerals (<http://minerals.state.nv.us/> or <http://minerals.state.nv.us/programs/ogg.htm>).
- Great Basin Center for Geothermal Energy at [www.unr.edu/geothermal/index.html](http://www.unr.edu/geothermal/index.html). This site contains geothermal exploration data, interactive maps, lease and incentive program information, and numerous geothermal digital data sets.
- GEO-HEAT CENTER, Oregon Institute of Technology, Klamath Falls, Oregon (<http://geoheat.oit.edu/>).
- DOE/INEEL Geothermal Resource Location Maps for 13 Western States (<http://geothermal.id.doe.gov/maps-software>).
- Geothermal biz.com (<http://www.geothermal-biz.com/>) is part of the U.S. Department of Energy-led GeoPowering the West (GPW) initiative to dramatically increase the use of geothermal energy in the western United States, Alaska, and Hawaii.
- GeoPowering the West Web site ([www.eere.energy.gov/geopoweringthewest/](http://www.eere.energy.gov/geopoweringthewest/)).
- Southern Methodist University Geothermal ([www.smu.edu/geothermal/](http://www.smu.edu/geothermal/)).
- *Geothermal Site Identification and Qualification Report*, prepared for: California Energy Commission, Public Interest Energy Research (PIER) Program. Report prepared by GeothermEx, Inc. This report provides summary information on potential power producing geothermal resources within California and Western Nevada that could supply additional power to the California market. The report can be found at [www.geothermex.com/CEC-PIER\\_Reports.htm](http://www.geothermex.com/CEC-PIER_Reports.htm).
- *Summary of Supporting Data for USGS Regional Heat-flow Studies of the Great Basin, 1970-1990*, by John H. Sass, Susan S. Priest, Arthur H. Lachenbruch, S. Peter Galanis, Jr., Thomas H. Moses, Jr., John P. Kennelly, Jr., Robert J. Munroe, Eugene P. Smith, Frederick V. Grubb, Robert H. Husk, Jr., and Charles W. Mase; USGS Open-File Report 2005-1207 online version 1.0 on the Web at <http://pubs.usgs.gov/of/2005/1207/>.

- *Geothermal Industry Temperature Profiles from the Great Basin*, by John H. Sass, Susan S. Priest, Arnold J. Blanton, Penelope C. Sackett, Stephanie L. Welch, and Mark A. Walters; USGS Open-File Report 99-425 online version 1.0 on the Web at <http://wrgis.wr.usgs.gov/open-file/of99-425/webmaps/home.html>.
- Nevada Public Utilities Commission ([www.puc.state.nv.us/](http://www.puc.state.nv.us/)).
- The Bureau of Land Management Land and Mineral Records-LR2000 system ([www.blm.gov/lr2000/](http://www.blm.gov/lr2000/)).
- GeoCommunicator is the publication site for the Bureau of Land Management's National Integrated Land System (NILS). GeoCommunicator provides searching, accessing and dynamic mapping of data for federal land stewardship, land and mineral use records, and land survey information. GeoCommunicator provides spatial display for land and mineral cases from BLM's LR2000 system ([www.geocommunicator.gov/](http://www.geocommunicator.gov/)).

NEVADA GEOTHERMAL POWER PLANTS 2006					
Plant name (year on line)	Production capacity <sup>1</sup> (MW)	2006 Production (MWh)		Location	Operator
		Gross	Net (sales)		
Beowawe (1985)	16.7 (16.6)	132,747	113,935	S13,T31N,R47E	Caithness Operating Beowawe Power, LLC 9790 Gateway Dr., Suite 200 Reno, NV 89521 (775) 850-2266
Bradys Hot Springs (1992)	26.1 (26.1)	179,464	119,842	S12,T22N,R26E	Brady Power Partners/ORMAT P.O. Box 649 Fernley, NV 89408 (775) 423-5800
Desert Peak (1985)/ Desert Peak II (2006) <sup>2</sup>	23 (23)	64,740	52,683	S21,T22N,R27E	Brady Power Partners/ORMAT P.O. Box 649 Fernley, NV 89408 (775) 423-5800
Dixie Valley (1988)	66.0 (62.0)	550,140	500,449	S7,T24N,R37E S33,T25N,R37E	Caithness Dixie Valley, LLC 9790 Gateway Dr., Suite 200 Reno, NV 89521 (775) 850-2266
Empire (1987)	4.6 (4.8)	35,571	25,604	S21,T29N,R23E	Empire Energy, LLC P.O. Box 40 Empire, NV 89405 (775) 557-2015
Soda Lake No. 1 (1987) and Soda Lake No. 2 (1991)	16.6 (26.1)	100,831	67,880	S33,T20N,R28E	AMOR IX 5500 Soda Lake Road Fallon, NV 89406 (775) 867-5093
Steamboat I, I-A (1986) and Steamboat II, III (1992) and Galena (2005)	83.0 (88.6)	455,225	334,867	S29,T18N,R20E	ORMAT Nevada 1010 Power Plant Road Reno, NV 89502 (775) 852-1444
Stillwater (1989)	13.0 (21.0)	84,727	49,352	S1,T19N,R30E S6,T19N,R31E	Amp Resources Stillwater Holdings, LLC 4785 Lawrence Lane Stillwater, NV 89406 (775) 329-0700
Wabuska (1984)	1.2 (2.2)	8,234	5,120	S15,16,T15N,R25E	Homestretch Geothermal 1147 N. Daybreak Dr. Washington, UT 84780 (435) 668-6003
Steamboat Hills formerly Yankee Caithness (1988)	14.5 (14.5)	71,906	63,265	S5,6,T17N,R20E	ORMAT Nevada 1010 Power Plant Road Reno, NV 89502 (775) 852-1444
<b>TOTAL</b>	<b>264.7 (284.9)</b>	<b>1,683,585</b>	<b>1,332,997</b>		

1. Production capacity from currently developed geothermal resources (equipment capacity in parentheses).  
Sources: Plant operators, Nevada Division of Minerals, and NBMG files.

2. Desert Peak II is a new binary power plant that was built to replace the original steam turbine power plant at Desert Peak, which was permanently shut down on May 1, 2006. The new power plant came on-line on August 1, 2006 with a generation capacity of 23 MW, twice that of the original power plant.

# Oil and Gas

by David A. Davis

## PRODUCTION

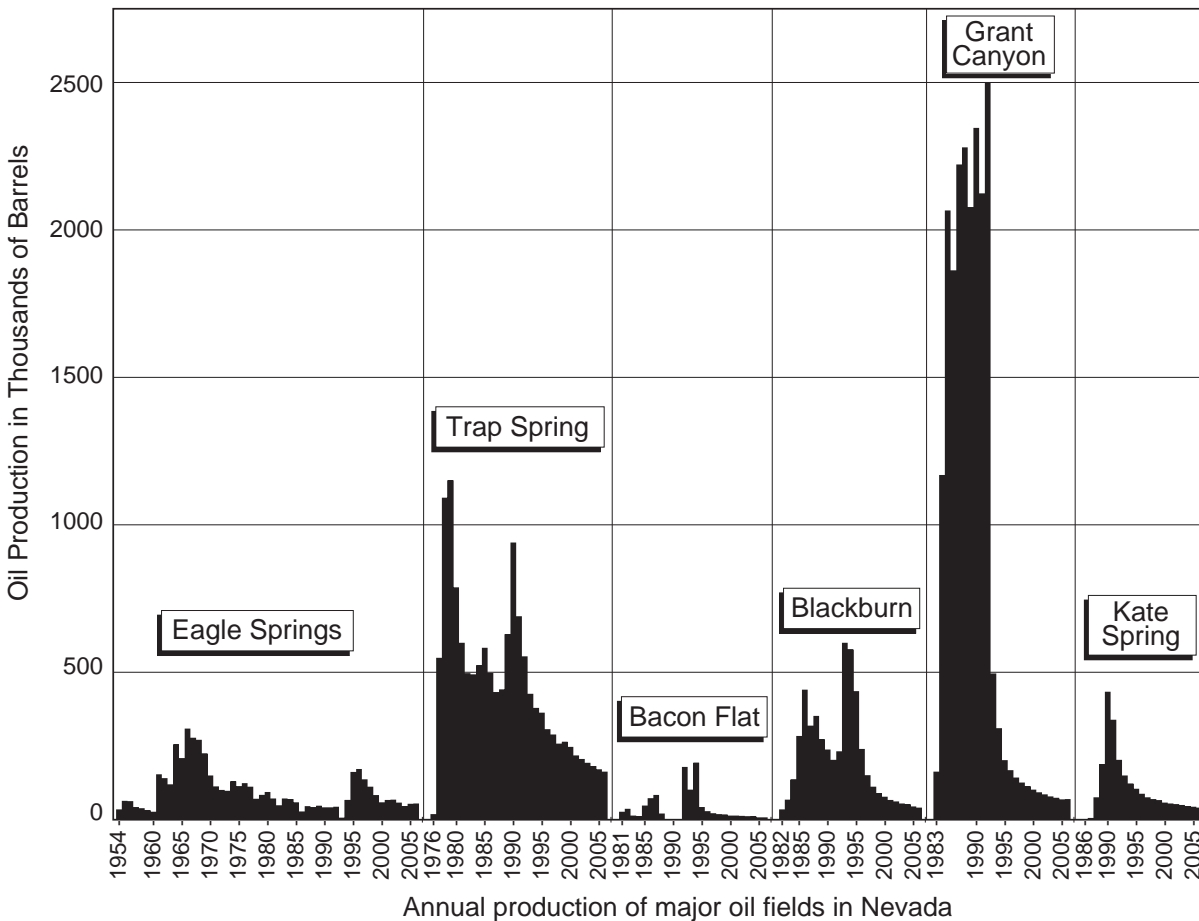
According to the Nevada Division of Minerals, Nevada's net oil production in 2006 was 425,705 barrels (0.023% of total U.S. production), which was down almost 5% from 2005. Production came from 61 actively producing wells in nine fields in Railroad Valley (Nye County, 89.7%) and six wells in two fields in Pine Valley (Eureka County, 10.3%). Three other minor fields were shut in throughout 2006. Nevada ranked 26 out of the 31 oil producing states in the country in 2006 ([www.eia.doe.gov](http://www.eia.doe.gov)). According to the Department of Taxation, the per barrel net wellhead price for Nevada crude oil ranged between \$14.85 and \$56.27, and the average of \$50.77 was an increase of 18% from \$43.18 in 2005. The sales volume (or gross yield) increased 12% to \$21,613,073 in 2006 from \$19,276,411 in 2005.

The production of Nevada's 67 actual producers ranged between 3 and 166 barrels of oil per day and 0 and 2,503 barrels of water per day. They averaged 18 barrels of oil per day and 254 barrels of water per day. Thirty wells were strippers, and 18 produced more than

20 barrels of oil per day. Twenty-six wells produced less than 50 barrels of water per day, and eight produced more than 500 barrels of water per day.

One hundred wells in 14 fields were listed as producers in 2006. Of these, 33 were shut in for the entire year. At year's end, two wells had been shut in for 6 to 12 months, two wells had been shut in for 1 to 2 years, two wells had been shut in for 2 to 3 years, one well had been shut in for 3 to 4 years, one well had been shut in for 4 to 5 years, and 27 wells had been shut in for more than 5 years.

Nevada's highest volume producer was Grant Canyon No. 9, which averaged 166 barrels of oil and 659 barrels of water per day during 2006, increases of 3% and 33% respectively. Grant Canyon No. 9 has held this ranking since 1996. Kate Spring No. 1A fell behind Trap Spring No. 9 as Nevada's second highest volume producer in 2006. Trap Spring No. 9 averaged 57 barrels of oil and 1,695 barrels of water per day in 2006. Kate Spring No. 1A averaged 56 barrels of oil and 390 barrels of water per day in 2006, a decrease of 7% and an increase of less than 1% respectively.





The Bacon Flat Field, which produces from the Devonian Guilmette Formation (carbonate) between about 4,960 and 5,350 feet, averaged about 22 barrels of oil and about 13 barrels of water per day in 2006 and accounted for 2% of Nevada's total oil production. Oil and water production both increased 7% and 4% respectively. Only one of its three producers was active. One well has been shut in since 1993 and the other since 1988.

The Blackburn Field, which produces from the Oligocene Indian Well Formation (tuff and tuffaceous sandstone), Mississippian Chainman Shale (sandstone), and Devonian Nevada Formation (carbonate) between about 6,700 and 6,750 feet, averaged about 114 barrels of oil and about 4,212 barrels of water per day in 2006 and accounted for about 10% of Nevada's total oil production. Oil and water production decreased 19% and 16% respectively. Of the five active producers, oil production increased in two and decreased in three. One of the two inactive producers has been shut in since 2001. The other, except for a brief production period in November 2005, has been shut in since 1998.

The Eagle Springs Field, which produces from Oligocene ignimbrites, the Eocene Sheep Pass Formation (lacustrine carbonates), and the Pennsylvanian Ely Limestone between about 5,780 and 7,360 feet, averaged

about 150 barrels of oil and about 1,374 barrels of water per day in 2006 and accounted for 13% of Nevada's total oil production. Oil and water increased less than 1% and 17% respectively. Of the 15 active producers, oil production decreased in 11 and increased in four. One well was shut in for one month. Of the six inactive producers, one has been shut in since 2004, three have been shut in since 1997, one since 1996, and one since 1986.

The Ghost Ranch Field, which produces from the Devonian Guilmette Formation between about 4,350 and 4,620 feet, averaged 83 barrels of oil and 1,756 barrels of water per day in 2005 and accounted for about 7% of Nevada's total oil production. Oil production decreased 20% and water production increased 13%. Oil production decreased in three and increased in one of the four producers.

The Grant Canyon Field, which produces from the Devonian Guilmette Formation between about 2,160 and 4,300 feet, averaged 192 barrels of oil and 1,388 barrels of water per day in 2006 and accounted for 16% of Nevada's total oil production. Oil and water production increased 18%, and 30% respectively. Of the two active producers, oil production decreased in one and increased in the other. Of the two inactive producers, one has been shut in since 1993 and the other since 1992.

### PRODUCTION OF NEVADA'S OIL FIELDS (barrels)

*Compiled from Producer's Reports filed with the Nevada Division of Minerals*

Field (year discovered)	1954-1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Eagle Springs (1954) (Railroad Valley)	4,618,112	111,562	82,067	59,394	67,024	67,908	57,946	45,175	54,362	54,706	5,218,257
Trap Spring (1976) (Railroad Valley)	11,851,197	257,921	263,566	246,725	218,198	206,424	193,191	181,937	170,896	163,301	13,753,356
Currant (1979) (Railroad Valley)	1,121	230	28	55	33	21	23	9	3	0	1,523
Bacon Flat (1981) (Railroad Valley)	882,549	18,757	16,849	14,766	13,898	12,647	11,763	10,612	7,556	8,112	997,509
Blackburn (1982) (Pine Valley)	4,582,256	112,008	89,400	78,136	66,899	62,412	54,623	51,372	45,369	41,491	5,183,966
Grant Canyon (1983) (Railroad Valley)	20,126,939	126,128	112,715	102,113	92,899	85,722	79,293	73,879	68,944	70,158	20,938,790
Kate Spring (1986) (Railroad Valley)	1,774,474	69,768	65,315	57,644	55,198	53,408	49,698	45,656	44,288	41,124	2,256,573
Tomera Ranch (1987) (Pine Valley)	21,006	574	398	488	0	11,901	1,981	124	0	0	36,472
North Willow Creek (1988) (Pine Valley)	42,699	1,502	123	146	144	573	349	377	2,064	2,552	50,529
Three Bar (1990) (Pine Valley)	23,837	0	0	0	0	0	0	0	0	0	23,837
Duckwater Creek (1990) (Railroad Valley)	14,830	491	93	116	968	869	436	200	185	122	18,310
Sans Spring (1983) (Railroad Valley)	198,160	21,759	11,127	6,990	6,356	5,532	4,775	4,169	3,324	3,265	265,457
Ghost Ranch (1996) (Railroad Valley)	147,182	65,370	49,348	41,454	36,173	31,814	26,129	36,423	37,878	30,256	502,023
Deadman Creek (1996) (Elko County)	109	258	0	0	0	0	0	0	0	0	367
Sand Dune (1998) (Railroad Valley)		12,465	15,122	12,624	13,461	14,211	13,123	13,124	11,878	10,618	116,626
<b>Total</b>	<b>44,284,471</b>	<b>798,793</b>	<b>706,151</b>	<b>620,651</b>	<b>571,251</b>	<b>553,442</b>	<b>493,330</b>	<b>463,058</b>	<b>446,743</b>	<b>425,705</b>	<b>49,363,595</b>
Change from previous year		-19%	-12%	-12%	-8%	-3%	-11%	-6%	-4%	-5%	

The Kate Spring Field, which produces from the Tertiary Horse Camp Formation (breccia) and the Devonian Guilmette Formation between about 4,450 and 4,820 feet, averaged 113 barrels of oil and 1,141 barrels of water per day in 2006 and accounted for 10% of Nevada's total oil production. Oil and water production decreased 7% and 2% respectively. Oil production decreased in all four active producers. Of the two inactive producers, one has been shut in since 1997 and the other since 1993. A total of 4,999 thousand cubic feet of gas was produced from the Kate Spring Field in 2006, a decrease of 2% from 2005. The gas is used to operate production and related equipment at the lease sites of Makoil, Inc., and Western General, Inc.

The Sand Dune Field's only producer, which produces from Permian and Pennsylvanian limestones between about 5,970 and 6,200 feet, averaged 29 barrels of oil and 74 barrels of water per day in 2006 and accounted for 2% of Nevada's total oil production. Oil and water production decreased 11% and 15% respectively.

The Sans Spring Field's only active producer, which produces from the Oligocene Garret Ranch Group (volcaniclastic rocks and ignimbrites) between about 5,640 and 5,770 feet, averaged 9 barrels of oil and 716 barrels of water per day in 2006 and accounted for less than 1% of Nevada's total oil production. Oil production decreased 2%, and water production increased 9%. Of the two inactive producers, one has been shut in since 1998 and the other has been temporarily abandoned since 1993.

The Trap Spring Field, which produces from the Oligocene tuff of Pritchards Station between about 3,210 and 4,950 feet, averaged 447 barrels of oil and 6,297 barrels of water per day in 2006 and accounted for 38% of Nevada's total oil production. Oil production decreased 4%, and water production increased 11%. Oil production decreased in 25 active producers and

increased in eight. One well was shut in for one month, one well was shut in for four months, one well was shut in for seven months, and one well was shut in for nine months. Of the ten inactive producers, one has been shut in since February 2003, one since 2001, one since 1999, two since 1998, two since 1996, one since 1992, one since 1991, and one since 1986.

Two minor fields accounted for about 0.6% of Nevada's total oil production. Oil and water production from the Duckwater Creek Field's only producer, which produces from the Oligocene Garrett Ranch Group between about 5,680 and 5,830 feet, decreased 34% and 39% respectively. Oil production from the North Willow Creek Field's only active producer, which produces from the Mississippian Chainman Shale between about 6,290 and 6,470 feet, increased 24%, and water production decreased 69%. North Willow Creek Field's has one inactive producer, which has been shut in since 2002.

Four other minor fields recorded no production for 2006. The Currant Field's only production well produced from the Eocene Sheep Pass Formation between about 6,850 and 7,080 feet. It produced 3 barrels of oil in 2005 and has been shut in since July of that year. Currant produced no water. The Tomera Ranch Field's two production wells had produced from the Oligocene Indian Well Formation (chert and tuffaceous sandstone) between about 1,150 and 1,950 feet. One has been shut in since 2000, and the other has been shut in since 2004. The Three Bar Field's two production wells produced from the Miocene Humboldt Formation (sandstone and volcanic rock), the Oligocene Indian Well Formation, and the Cretaceous Newark Formation (sandstone and carbonate) between about 5,720 and 7,070 feet. One producer has been shut in since 1992 and the other since 1994. Deadman Creek's only production well, which produced briefly from the Miocene Humboldt Formation 8,165 and 8,850 feet, was plugged and abandoned in 1998.

## PRODUCTION OF WATER FROM NEVADA'S OIL FIELDS (barrels)

*Compiled from Producer's Reports filed with the Nevada Division of Minerals*

Field (year discovered)	1994-99	2000	2001	2002	2003	2004	2005	2006	Total
Eagle Springs (1954)	2,026,045	275,521	421,755	572,541	538,814	357,021	428,375	501,462	5,121,534
Trap Spring (1976)	17,310,090	2,850,603	2,648,176	1,844,621	1,802,383	1,727,583	2,427,226	2,298,300	32,908,982
Currant (1979)	0	0	0	0	0	0	0	0	0
Bacon Flat (1981)	352,009	358,879	613	27	5,080	3,479	4,694	4,899	729,680
Blackburn (1982)	11,520,331	1,884,096	1,792,102	2,008,218	1,805,820	10,728,237	1,840,581	1,537,556	33,116,941
Grant Canyon (1983)	1,809,615	417,564	431,433	435,004	425,905	438,911	391,017	506,854	4,856,303
Kate Spring (1986)	3,050,644	521,464	515,205	457,264	451,878	417,030	424,809	416,752	6,255,046
Tomera Ranch (1987)	177,844	33,245	0	94,643	169,487	23,393	0	0	498,612
N. Willow Creek (1988)	2,660	0	50	0	52	97	268	83	3,120
Three Bar (1990)	5,958	0	0	0	0	0	0	0	5,958
Duckwater Creek (1990)	50,028	1,196	4,778	4,442	2,503	1,013	1,410	855	66,225
Sans Spring (1993)	1,715,212	240,773	324,585	326,943	290,961	317,230	238,854	261,500	3,716,058
Ghost Ranch (1996)	477,319	208,488	188,592	155,714	123,897	254,781	569,511	641,022	2,619,324
Deadman Creek (1996)	0	0	0	0	0	0	0	0	0
Sand Dune (1998)	76,450	33,308	34,369	32,123	32,624	30,807	31,935	27,043	298,659
<b>Total</b>	<b>38,574,205</b>	<b>6,825,137</b>	<b>6,361,658</b>	<b>5,931,540</b>	<b>5,649,404</b>	<b>14,299,582</b>	<b>6,358,680</b>	<b>6,196,326</b>	<b>90,196,532</b>
Change from previous year		4%	-7%	-7%	-5%	153%	56%	-3%	

## STATUS OF NEVADA OIL AND GAS PRODUCTION WELLS IN 2006

This table gives the amount of oil and water produced and the number of production days in 2006. The sources of information include well records and statistics from the Nevada Division of Minerals. Status abbreviations with dates of the action where applicable: BBL-barrels; MCF-thousand cubic feet; N/A-not available; PA-plugged and abandoned; Prod-production; SI-shut-in; WD-water disposal.

Field/Operator/Well	Nevada Permit	Date Completed	Status	Location	Production Oil (BBL)	Production Water (BBL)	Production Gas (MCF)	Production Days
<b>EAGLE SPRINGS FIELD</b>								
<b>Meritage Energy Co., LLC</b>								
Eagle Springs Federal No. 44-35	813	05/98	SI 2004	SE¼, NW¼, S35, T9N, R57E	0	0		0
Eagle Springs Federal No. 54-35	726	10/94	Prod	SW¼, NE¼, S35, T9N, R57E	4,596	23,020		361
Eagle Springs Unit No. 1-34	107	07/67	SI 1986	SE¼, NE¼, S34, T9N, R57E	0	0		0
Eagle Springs Unit No. 1-35	4	05/54	WD 1978	NE¼, NW¼, S35, T9N, R57E	0	0		0
Eagle Springs Unit No. 1-36	76	02/65	Prod	SW¼, NE¼, S36, T9N, R57E	1,772	24,470		265
Eagle Springs Unit No. 2-36	80	07/65	SI 1996	NW¼, SE¼, S36, T9N, R57E	0	0		0
Eagle Springs Unit No. 4-36	86	10/65	SI 1997	NW¼, SE¼, S36, T9N, R57E	0	0		0
Eagle Springs Unit No. 5-36	94	04/66	Prod	NW¼, NE¼, S36, T9N, R57E	4,707	16,301		355
Eagle Springs Unit No. 15-35	21	07/55	Prod	NW¼, SW¼, S35, T9N, R57E	1,544	11,941		209
Eagle Springs Unit No. 35-35	17	03/55	Prod	NE¼, SW¼, S35, T9N, R57E	2,177	18,204		337
Eagle Springs Unit No. 43-36	83	08/65	Prod	NE¼, SE¼, S36, T9N, R57E	1,623	21,780		302
Eagle Springs Unit No. 62-35	46	01/60	Prod	NW¼, NE¼, S35, T9N, R57E	2,429	70,700		355
Eagle Springs Unit No. 73-35	69	10/63	Prod	SE¼, NE¼, S35, T9N, R57E	8,301	65,397		361
Eagle Springs Unit No. 74-35	71	04/64	Prod	SE¼, NE¼, S35, T9N, R57E	2,376	72,055		362
Eagle Springs Unit No. 84-35	77	01/65	SI 1997	SE¼, NE¼, S35, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 13-36	744	02/96	Prod	SW¼, NW¼, S36, T9N, R57E	4,014	22,749		360
Eagle Springs/Plains Petroleum No. 23-36	733	10/95	Prod	SW¼, NW¼, S36, T9N, R57E	2,790	19,490		355
Eagle Springs/Plains Petroleum No. 24-36	737	11/94	Prod	SW¼, NW¼, S36, T9N, R57E	3,281	2,373		333
Eagle Springs/Plains Petroleum No. 55-35	761	11/95	SI 1997	SW¼, NE¼, S35, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 64-35	755	09/95	Prod	SW¼, NE¼, S35, T9N, R57E	3,068	19,104		358
Eagle Springs/Plains Petroleum No. 82-35	734	10/94	Prod	NE¼, NE¼, S35, T9N, R57E	3,511	68,788		291
Eagle Springs/Plains Petroleum No. 83-35	754	07/95	Prod	SE¼, NE¼, S35, T9N, R57E	8,517	45,090		319
<b>TRAP SPRING FIELD</b>								
J.N. Oil and Gas Federal No. 1	449	09/85	PA 1999	NE¼, NW¼, S34, T9N, R56E				
<b>Frontier Exploration Co.</b>								
Munson Ranch No. 13-1	435	08/85	Prod	SE¼, NW¼, S13, T9N, R56E	4,154	5,401		361
Munson Ranch No. 13-45	547	08/89	Prod	NW¼, SW¼, S13, T9N, R56E	2,670	3,011		346
Munson Ranch No. 13-46	548	07/89	SI 1992	NE¼, SW¼, S13, T9N, R56E	0	0		0
Munson Ranch No. 14-33	513	07/89	Prod	NW¼, SE¼, S14, T9N, R56E	2,212	2,483		333
Munson Ranch No. 14-49	550	08/89	Prod	NE¼, SE¼, S14, T9N, R56E	1,901	2,216		365
Munson Ranch No. 14-49X	562	02/90	Prod	NE¼, SE¼, S14, T9N, R56E	626	0		57
Trap Spring No. 14-42	523	10/88	Prod	SE¼, NE¼, S14, T9N, R56E	2,632	3,488		365
<b>Makoi, Inc.</b>								
Britton No. 13-21	224	04/78	SI 1991	NE¼, NW¼, S13, T9N, R56E	0	0		0
East Inselberg No. 36-33	860	04/05	Prod	NW¼, SE¼, S36, T10N, R56E	27	682		4
Munson Ranch No. 12-14	688	05/95	Prod	SW¼, SW¼, S12, T9N, R56E	416	0		71
Munson Ranch No. 12-23	596	11/90	SI 1998	NE¼, SW¼, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-24	432	04/85	Prod	SE¼, SW¼, S12, T9N, R56E	5,317	14,450		358
Munson Ranch No. 12-32	559	12/89	Prod	SW¼, NE¼, S12, T9N, R56E	11,291	34,275		365
Munson Ranch No. 12-33	423	03/85	SI 1996	NW¼, SE¼, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-34	406	10/84	Prod	SW¼, SE¼, S12, T9N, R56E	5,278	6,141		362
Munson Ranch No. 12-42	572	06/90	SI 1998	SE¼, NE¼, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-44X	445	07/85	SI 1999	SE¼, SE¼, S12, T9N, R56E	0	0		0
Munson Ranch No. 13-11	622	11/91	SI 2003	NW¼, NW¼, S13, T9N, R56E	0	0		0
Munson Ranch No. 13-11R	840	11/01	Prod	NW¼, NW¼, S13, T9N, R56E	5,277	29,991		365
Munson Ranch No. 13-14	623	09/91	SI 2001	SW¼, SW¼, S13, T9N, R56E	0	0		0
Munson Ranch No. 13-21X	640	05/92	Prod	NE¼, NW¼, S13, T9N, R56E	5,271	24,450		357
Munson Ranch No. 13-24	218	08/79	Prod	SE¼, SW¼, S13, T9N, R56E	181	89		52
Munson Ranch No. 13-31	382	07/84	Prod	NW¼, NE¼, S13, T9N, R56E	6,022	27,956		356
Munson Ranch No. 13-32	373	08/84	Prod	SW¼, NE¼, S13, T9N, R56E	6,826	36,107		354
Munson Ranch No. 13-33	211	11/78	Prod	NW¼, SE¼, S13, T9N, R56E	2,023	4,150		327
Munson Ranch No. 13-41X	448	09/85	Prod	NE¼, NE¼, S13, T9N, R56E	13,484	82,291		364
Munson Ranch No. 13-42	222	11/78	Prod	SE¼, NE¼, S13, T9N, R56E	1,702	96,786		349
Munson Ranch No. 14-23	313	08/81	Prod	NE¼, SW¼, S14, T9N, R56E	2,717	28,451		364
Munson Ranch No. 14-24	354	10/83	SI 1996	SE¼, SW¼, S14, T9N, R56E	0	0		0
Munson Ranch No. 14-32	455	09/87	Prod	SW¼, NE¼, S14, T9N, R56E	5,371	98,014		365
Munson Ranch No. 14-34	287	11/80	Prod	SW¼, SE¼, S14, T9N, R56E	535	8,856		85
Munson Ranch No. 14-34X	522	08/88	Prod	SW¼, SE¼, S14, T9N, R56E	2,676	3,120		365
Munson Ranch No. 14-41	538	07/89	Prod	NE¼, NE¼, S14, T9N, R56E	7,012	93,805		365
Munson Ranch No. 14-44	528	08/89	Prod	SE¼, SE¼, S14, T9N, R56E	3,889	85,834		364
Trap Spring No. 2	185	02/77	Prod	SE¼, SW¼, S27, T9N, R56E	8,260	695		365
Trap Spring No. 3	188	04/77	Prod	NW¼, NE¼, S34, T9N, R56E	12,191	908,322		365
Trap Spring No. 8	196	09/77	Prod	SE¼, SW¼, S23, T9N, R56E	200	174		49
Trap Spring No. 9	197	09/78	Prod	NW¼, NW¼, S26, T9N, R56E	20,587	605,266		357
Trap Spring No. 16	232	09/78	Prod	NW¼, SE¼, S23, T9N, R56E	1,923	125,201		365
Trap Spring No. 19	219	12/77	Prod	SE¼, NW¼, S23, T9N, R56E	19,063	2,702		365
Trap Spring No. 23-41	574	06/90	Prod	NE¼, NE¼, S23, T9N, R56E	1,498	0		365
Zuspann No. 24-1	198	06/77	SI 1986	NW¼, SW¼, S24, T9N, R56E	0	0		0
Zuspann No. 24-3	208	09/77	Prod	NE¼, NW¼, S24, T9N, R56E	69	0		8
<b>CURRENT FIELD</b>								
<b>Makoi, Inc.</b>								
Current No. 1	241	10/78	SI 2005	SE¼, SW¼, S26, T10N, R57E	0	0		0

continued

**STATUS OF NEVADA OIL AND GAS PRODUCTION WELLS IN 2006 (continued)**

Field/Operator/Well	Nevada	Date Permit	Status Completed	Location	Production Oil (BBL)	Production Water (BBL)	Production Gas (MCF)	Production Days
<b>BACON FLAT FIELD</b>								
<b>Double D Nevada, LLC</b>								
Bacon Flat No. 1	316	07/81	SI 1988	C, SW¼, S17, T7N, R57E	0	0		0
Bacon Flat Federal No. 23-17	657	09/92	SI 1993	NE¼, SW¼, S17, T7N, R57E	0	0		0
Bacon Flat Federal No. 23-17A	710	01/94	Prod	NE¼, SW¼, S17, T7N, R57E	8,112	4,899		362
<b>BLACKBURN FIELD</b>								
<b>Petroleum Corp. of Nevada</b>								
Blackburn No. 3	324	03/82	SI 1998	SW¼, SW¼, S8, T27N, R52E	0	0		0
Blackburn No. 10	350	09/83	Prod	SW¼, NW¼, S8, T27N, R52E	6,577	9,718		365
Blackburn No. 14	442	07/85	SI 2001	NE¼, SE¼, S7, T27N, R52E	0	0		0
Blackburn No. 16	458	12/85	Prod	SE¼, NE¼, S7, T27N, R52E	1,219	34,188		365
Blackburn No. 18	660	11/92	Prod	NE¼, SE¼, S7, T27N, R52E	14,334	916,188		365
Blackburn No. 19	724	06/94	Prod	NW¼, SW¼, S8, T27N, R52E	18,452	491,675		365
Blackburn No. 21	802	09/97	Prod	NE¼, SE¼, S7, T27N, R52E	909	85,787		306
<b>GRANT CANYON FIELD</b>								
<b>Makoil, Inc.</b>								
Grant Canyon No. 3	375	08/84	SI 1992	SW¼, SW¼, S16, T7N, R57E	0	0		0
Grant Canyon No. 7	625	08/91	SI 1993	NW¼, NW¼, S21, T7N, R57E	0	0		0
Grant Canyon No. 9	642	04/92	Prod	NW¼, NW¼, S21, T7N, R57E	60,565	240,679		365
Grant Canyon No. 22-21	705	01/94	Prod	SE¼, NW¼, S21, T7N, R57E	9,593	266,175		365
<b>KATE SPRING FIELD</b>								
<b>Makoil, Inc.</b>								
Kate Spring No. 12-2	544	08/89	Prod	NW¼, NW¼, S2, T8N, R57E	10,378	103,340	2,076	365
<b>Western General, Inc.</b>								
Kate Spring No. 1	436	01/86	Prod	W½, SW¼, S2, T8N, R57E	5,300	52,000	299	N/A
Kate Spring No. 1A	560	12/89	Prod	NW¼, SW¼, S2, T8N, R57E	20,479	142,331	2,151	N/A
Kate Spring No. 1C	592	09/91	SI 1997	SW¼, SW¼, S2, T8N, R57E	0	0	0	0
Taylor Federal No. 1	497	10/87	Prod	NE¼, SE¼, S3, T8N, R57E	4,967	119,081	473	N/A
Taylor Federal No. 2	536	06/89	SI 1993	SE¼, NE¼, S3, T8N, R57E	0	0	0	0
<b>TOMERA RANCH FIELD</b>								
<b>Tomera Ranch No. 33-1</b>								
Tomera Ranch No. 33-1	591	10/90	PA 1997	SW¼, SW¼, S33, T31N, R52E				
<b>Foreland Corp.</b>								
Southern Pacific Land Co. No. 1-5	492	08/87	WD 1992	NE¼, NE¼, S5, T30N, R52E	0	0		0
Southern Pacific Land Co. No. 1-5R	647	05/92	SI 2000	NE¼, NE¼, S5, T30N, R52E	0	0		0
<b>V.F. Neuhaus Properties/Winn Exploration</b>								
Tomera Ranch No. 33-2RR	841	01/02	SI 2004	SW¼, SW¼, S33, T31N, R52E	0	0		0
<b>NORTH WILLOW CREEK FIELD</b>								
<b>North Willow Creek No. 5-27</b>								
North Willow Creek No. 5-27	646	06/93	PA 1998	SE¼, NW¼, S27, T29N, R52E				
<b>Meritage Energy Co., LLC</b>								
North Willow Creek No. 6-27	648	09/93	SI 1997-2002	NE¼, SW¼, S27, T29N, R52E	2,552	83		361
Southern Pacific Land Co. No. 1-27	503	02/88	SI 2002	NW¼, SE¼, S27, T29N, R52E	0	0		0
<b>THREE BAR FIELD</b>								
<b>Three Bar Federal No. 24-13A</b>								
Three Bar Federal No. 24-13A	566	09/90	PA 2000	SW¼, SW¼, S24, T28N, R51E				
<b>Trail Mountain, Inc.</b>								
Three Bar Federal No. 5	679	07/93	SI 1992	SE¼, NE¼, S25, T28N, R51E	0	0		0
Three Bar Federal No. 25-A	556	10/90	SI 1994	C, NE¼, S25, T28N, R51E	0	0		0
<b>DUCKWATER CREEK FIELD</b>								
<b>Makoil, Inc.</b>								
Duckwater Creek No. 19-11	542	03/90	Prod	NW¼, NW¼, S19, T9N, R57E	122	855		17
<b>SANS SPRING FIELD</b>								
<b>Double D Nevada, LLC</b>								
Federal No. 5-14	635	02/93	SI 1998	SW¼, NW¼, S14, T7N, R56E	0	0		0
Sans Springs No. 5-14A	792	05/97	Prod	SW¼, NW¼, S14, T7N, R56E	3,265	261,500		332
Federal No. 12-14	673	06/93	SI 1993	SW¼, SW¼, S14, T7N, R56E	0	0		0
<b>GHOST RANCH FIELD</b>								
<b>Makoil, Inc.</b>								
Ghost Ranch Springs No. 2-21X	800	08/97	Prod	NEv, NW¼, S2, T8N, R57E	10,590	240,039		365
<b>Meritage Energy Co., LLC</b>								
Ghost Ranch Springs No. 38-35	793	01/97	Prod	SE¼, SW¼, S35, T9N, R57E	10,263	155,783		365
Ghost Ranch Springs No. 47-35	799	03/97	Prod	SE¼, SW¼, S35, T9N, R57E	2,557	134,384		363
Ghost Ranch Springs No. 48-35	779	07/96	Prod	SE¼, SW¼, S35, T9N, R57E	6,846	110,816		365
<b>DEADMAN CREEK FIELD</b>								
<b>Deadman Creel No. 44-13</b>								
Deadman Creel No. 44-13	342	01/96	PA 1998	SE¼, SE¼, S13, T39N, R65E				
<b>SAND DUNE FIELD</b>								
<b>Meritage Energy Co., LLC</b>								
Sand Dune Federal No. 88-35	816	07/98	Prod	SE¼, SE¼, S35, T9N, R57E	10,618	27,043		360

Most Nevada oil is used to make such products as No. 1 and No. 2 diesel fuel, kerosene, stove oil, and asphalt. Nevada crude oil was transported in batches by trucks to the Energy Income Fund, Inc. (EIF) 8,000-barrel-per-day capacity refinery near Currant in Railroad Valley. The EIF refinery and asphalt storage facility at Tonopah was not in operation in 2006.

## NEW PRODUCERS

No new producers were discovered in Nevada in 2006.

## EXPLORATION

Seven wells were permitted for oil and gas in 2006, which is the same number as in 2005. Six wells were spudded in 2006, down from ten spudded in 2005. Drilling was completed on one of these wells, which was plugged and abandoned. One well spudded in 2003 was completed in 2006 but shut in, and one well spudded in 2005 was completed in 2006 as being tested. These wells totaled 20,282 feet, down 68% from 64,302 feet in 2005. These figures will be revised in the future as the information from several wells was either still confidential or had not been provided to the Division of Minerals as of the time of this writing. Of the three wells spudded in 2006 but not completed in some form, one was still being drilled at the end of the year, one was temporarily abandoned, and one had no progress report. Twelve wells drilled between 1993 and 2005 continued to be listed as either temporarily abandoned, testing, or suspended.

Two wells were completed in 2005, but the information had not been released until 2006. Fasken Oil and Ranch, LP, Pinon No. 5 Federal No. 1 (Permit 859) was completed to 12,037 feet in August 2005 and plugged and abandoned. Alpine, Inc., Needle Springs No. 1-14 (Permit 852) was completed to 8,804 feet in September 2005 and plugged and abandoned. Two other wells completed in 2005 have not sent in all of their information to date.

One drill rig operated during the January/February, July/August, and November/December periods. None operated during the March/April period. Two drill rigs operated during the May/June and September/October periods.

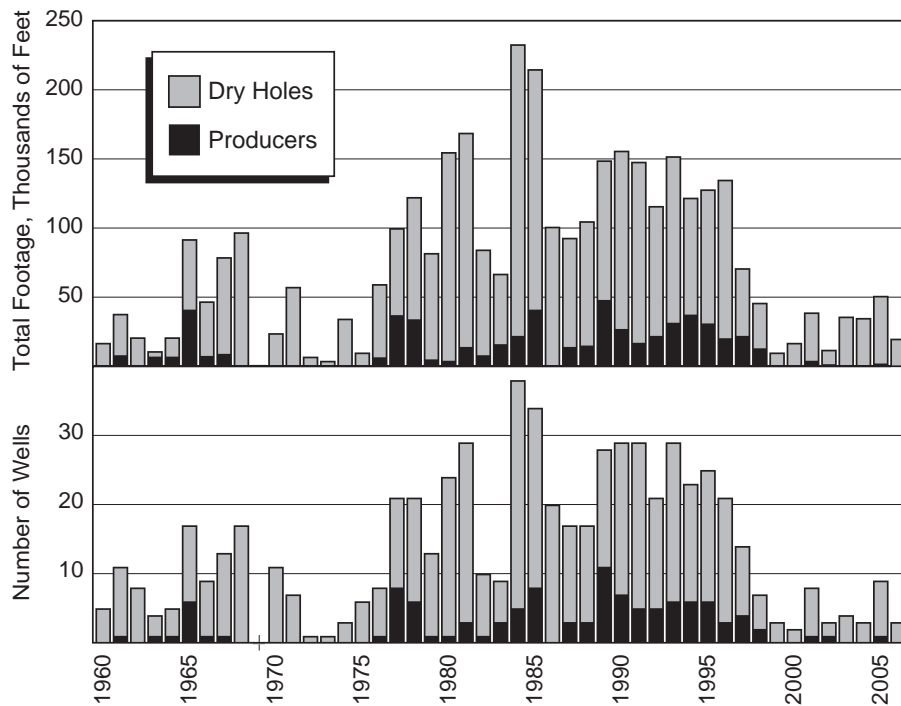
In 2006, 1,903 oil leases totaling 2,987,867 acres were in effect in Nevada, up 32% and down 61% respectively from 2005. This is about 6% of the public lands managed by the U. S. Bureau of Land Management (BLM) in Nevada and covers an area almost the size of the State of Connecticut.

On March 14, 2006, the Nevada State Office of the Bureau of Land Management (NSO-BLM) held an oil and gas lease sale on 345 parcels covering 727,643 acres in Elko, Eureka, Humboldt, Nye, Pershing, and White Pine Counties. The bonus bids totaled \$2,458,159 on 136 parcels covering 302,449 acres, which averaged \$8.13 per acre. The highest bid was \$70.00 per acre made by

Terry Kemp of Provo, UT, for Parcel 128 covering 2,560 acres in all of Sections 12, 13, 24 and 25, T27N, R5E in Eureka County. The second and third highest bids were \$53.00 per acre for Parcel 343 covering 2,546 acres in portions of Sections 5, 6, and 7 and all of Section 8, T28N, R63E in Elko County, and \$34.00 per acre for Parcel 131 covering 2,240 acres in portions of Sections 2, 9, 10, 16, and 17, and all of Section 26, T8N, R55E in Nye County. Both were made by Energy Operations Nevada of Tulsa, OK. Fourteen parcels brought bids between \$21 and \$32 per acre, 53 parcels brought bids between \$2.25 and \$20 per acre, and the rest went for the \$2.00 per acre minimum (PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Newsletter Edition, Section I, March 17, 2006; [http://www.nv.blm.gov/minerals/oil\\_and\\_gas/Sales\\_2006/200603/march06\\_oil\\_gas\\_sale.pdf](http://www.nv.blm.gov/minerals/oil_and_gas/Sales_2006/200603/march06_oil_gas_sale.pdf)).

On June 13, 2006, the NSO-BLM held an oil and gas lease sale on 257 parcels covering 490,226 acres in Churchill, Clark, Elko, Eureka, Mineral, Nye, and White Pine Counties. The bonus bids totaled \$445,051 on 83 parcels covering 165,111 acres, which averaged \$2.70 per acre. The highest bid was \$34 per acre made by Cleary Petroleum Corp. of Oklahoma City, OK, for Parcel 34 covering 1,005 acres in portions of Sections 23 and 26, T27N, R52E in eastern Eureka County. The next two highest bids were \$15 per acre for parcel 37, which covers 1,920 acres in all of Sections 25, 35, and 36, T8N, R54E and \$7 per acre for Parcel 46, which covers 640 acres in all of Section 25, T8N, R55E, both in Nye County. Both were made by Exxel Energy (USA), a subsidiary of Exxel Energy Corp of Vancouver, BC. Eighteen parcels brought bids between \$2.25 and \$6.50 per acre, and the rest brought the \$2.00 per acre minimum. (PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Newsletter Edition, Section I, May 5, 2006; PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Northern Edition, Section I, June 26, 2006).

On September 12, 2005, the NSO-BLM held an oil and gas lease sale on 63 parcels covering 108,370 acres in Clark, Elko, Lincoln, and White Pine Counties. The high bids totaled \$366,311 on 42 parcels covering 68,518 acres, which averaged \$5.35 per acre. The three highest bids were all \$17 per acre. Of these, Stan Pack of Las Vegas, NV, acquired on Parcel 25, which covers 1,200 acres in all of Section 35 and a portion of Section 36, T26N, R62E in White Pine County. Lucinda Kemp of Provo, UT, acquired the other two, Parcel 26, which covers 640 acres in portion of Section 4, T27N, R62E, and Parcel 27, which covers 640 acres in all of Section 22, T27N, R62E, both in Elko County. Five parcels brought bids between \$11 and \$16.50 per acre, 27 parcels brought bids between \$3.50 and \$10, and the rest brought the \$2.00 per acre minimum (PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Four Corners Edition, Section I, July 26, 2006; PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Northern Edition, Section I, September 18, 2006).



**Number and total footage of Nevada oil wells completed as producers or as plugged and abandoned dry holes, 1955–2006.**

**OIL WELL DRILLING ACTIVITY IN NEVADA IN 2006**

Company	Well	Permit No.	Location	Permit Date	Spud Date	Completion Date	Depth (Ft.)	Status
<b>ELKO COUNTY</b>								
V.F. Neuhaus Properties	Stampede 7-1	855	NW¼, NE¼, S7, T34N, R67E	Nov-03				Expired
D.Y. Exploration	Toano Draw No. 15-19	856	NW¼, SW¼, S19, T39N, R66E	Nov-03	Nov-03	Dec 06	9,779	Shut in
<b>EUREKA COUNTY</b>								
V.F. Neuhaus Properties	Tomera Ranch 4-1	851	NW¼, NW¼, S4, T30N, R52E	May-03	Aug-03	Oct-03	1,500	P&A
<b>LINCOLN COUNTY</b>								
Falcon Energy/Kriac Energy, Inc.	Hamlin Wash No. 18-1R	805	SE¼, SE¼, S18, T8N, R70E	Aug-97	Aug-97	Sep-97	3,120	TA
Falcon Energy/Kriac Energy, Inc.	Kriac No. 3	810	SE¼, SE¼, S18, T8N, R70E	Dec-97	Jan-98		2,808	Suspended
<b>NYE COUNTY</b>								
Makoil, Inc.	Munson Ranch No. 11-44	672	SE¼, SE¼, S11, T9N, R56E	Apr-93	Jun-94	Jun-94	3,660	P&A
Double D Nevada, LLC	Federal No. 12-14	673	NW¼, SW¼, S14, T7N, R56E	Apr-93	May-93	Jun-93	6,106	TA
Westar Oil Co.	Gigante No. 1-4	837	NW¼, NE¼, S4, T12N, R35E	May-01	Aug-01	Dec-03	7,707	TA
Tri Valley Oil and Gas	Midland Trail No. 1-32	861	SW¼, SW¼, S32, T6N, R56E	Sep-04	Jun-05	Jan-06	7,063	Testing
Makoil, Inc.	Radio No. 6-31	865	NE¼, NW¼, S6, T9N, R57E	Sep-04	May-05	May-05	3,422	Drilled
V.F. Neuhaus Properties, Inc.	Currant Creek Ranch 31-1	872	SE¼, SW¼, S31, T10N, R57E	Jul-05	Jul-05		*2,200	TA
Makoil, Inc.	West Bacon Flat No. 18-43	873	SE¼, SE¼, S18, T7N, R57E	Sep-05	Nov-06	Dec-06	7,180	P&A
Geyser Petroleum	Santa Maria De Los Angeles No. 1	875	NE¼, SW¼, S32, T10N, R57E	Oct-05	Jan-06	Feb-06	9,100	Drilled
Petro World Nevada Corp.	Cobble Questa No. 1-12	876	NW¼, SE¼, S12, T12N, R34E	Dec-05	Sep-06		*5,200	Drilling
Tierra Nevada Expl. Partners, LP	Black Rock No. 1	878	NW¼, SW¼, S29, T8N, R56E	Apr-06			*8,000	Not Drilled
Tierra Nevada Expl. Partners, LP	Sage No. 1	879	SW¼, SW¼, S20, T10N, R61E	Apr-06	Jun-06	Aug-06	*8,000	P&A
Makoil, Inc.	Munson Ranch 12-43	880	NE¼, SE¼, S12, T9N, R56E	May-06	Sep-06	Oct-06	*5,000	TA
Makoil, Inc.	Dry Lake 21-21R	881	NE¼, NW¼, S21, T8N, R56E	Jun-06			*2,400	Not Drilled
Eagle Exploration, Inc.	Rio Blanco No. 2	882	NE¼, SW¼, S31, T10N, R62E	Jul-06			*2,500	Not Drilled
Tierra Nevada Expl. Partners, LP	Golden Eye 1	883	NW¼, SW¼, S10, T8N, R57E	Aug-06			*8,500	Not Drilled
<b>PERSHING COUNTY</b>								
Evans-Barton Ltd.	Kyle Spring No. 12-13D	759	NW¼, SW¼, S12, T29N, R36E	Jul-95	Jul-95	Oct-95	1,000	Testing
Evans-Barton Ltd.	Kyle Spring No. 11-14	791	SW¼, SW¼, S11, T29N, R36E	Oct-96	Nov-96	Nov-96	2,622	Testing
Evans-Barton Ltd.	Kyle Spring No. 11-43	821	NE¼, SE¼, S11, T29N, R36E	Jul-98	Sep-98	Dec-02	865	Testing
Evans-Barton Ltd.	Kyle Spring No. 11-43A	838	NE¼, SE¼, S11, T29N, R36E	Jul-01	Aug-01		*625	Testing
Evans-Barton Ltd.	Kyle Spring No. 12-12	868	SW¼, NW¼, S12, T29N, R36E	Oct-04	Dec-04		*1,200	Testing
<b>WHITE PINE COUNTY</b>								
Richardson Operating Company	Long Valley Federal No. 1	869	SW¼, NW¼, S21, T21N, R58E	Nov-04			*5000	Not Drilled
Geyser Petroleum	Pipeline Canyon No. 1	870	NE¼, SW¼, S28, T15N, R62E	Jan-05	Mar-05	Sep-05	*5270	Testing
Energy Operations of Nevada	Yankee Mine West No. 2	871	NE¼, SE¼, S21, T21N, R57E	Jan-05			*4,500	Not Drilled
Winn Exploration Co., Inc.	Long Canyon Federal No. 24-1	877	NW¼, S24, T20N, R58E	Mar-06	Jun-06	Jun-06	3,440	P&A

P&A: Plugged and abandoned, TA: Temporarily abandoned, \*: permitted depth, which is given when actual depth is not available

On December 12, 2006, the NSO-BLM held an oil and gas lease sale on 229 parcels covering 443,329 acres in Elko, Eureka, Nye, and White Pine Counties. The bonus bids totaled \$430,321 on 81 parcels covering 155,131 acres, which averaged \$2.77 per acre. The highest bid was \$53 per acre made by the D.Y. Exploration, Inc., of Boise ID, for Parcel 151 covering 320 acres in a portion Section 36, T7N, R56E in Railroad Valley, Nye County. The second highest bid was \$36 per acre by Great Nevada Petroleum, LLC, of Reno, NV, for Parcel 103, which covers 915 acres in portions of Sections 9 and 11, T27N, R52E, in Eureka County. The third highest bids were \$11 per acre by Contex Energy Co. of Denver, CO, for Parcel 21, which covers 1,972 acres in portions of Sections 1, 2, and 3, T15N, R51E, and Parcel 22, which covers 1,956 acres in portions of Sections 4, 5, and 6, T15N, R51E, both in Eureka County. Four parcels brought bids between \$3 and \$9 per acre, and the rest brought the \$2.00 per acre minimum (PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Newsletter Edition, Section I, November 3, 2006; PI/Dwight Plus Drilling Wire, Rocky Mountain Region, Wyoming Edition, Section I, December 19, 2006).

## TRANSFERS

Meritage Energy Company, LLC, of Denver, CO, acquired the following from Deerfield Production in 2006: Permit 4, Eagle Springs 1-35; Permit 17, Eagle Springs 35-35; Permit 21, Eagle Springs 15-35; Permit 46, Eagle Springs 62-35; Permit 48, Eagle Springs 81-35; Permit 6 9, Eagle Springs 73-35; Permit 71, Eagle Springs 74-35; Permit 76, Eagle Springs 1-36; Permit 77, Eagle Springs 84-35; Permit 80, Eagle Springs 2-36; Permit 83, Eagle Springs 43-36; Permit 86, Eagle Springs 4-36; Permit 94, Eagle Springs 5-36; Permit 107, Eagle Springs 1-34; Permit 648, Southern Pacific 6-27; Permit 726, Eagle Springs 54-35; Permit 733, Eagle Springs 23-36; Permit 734, Eagle Springs 82-35; Permit 737, Eagle Springs 24-36; Permit 744, Eagle Springs 13-36; Permit 754, Eagle Springs 83-35; Permit 755, Eagle Springs 64-35; Permit 761, Eagle Springs 55-35; Permit 779, Ghost Ranch 48-35; Permit 793, Ghost Ranch 38-35; Permit 799, Ghost Ranch 47-35; Permit 813, Eagle Springs 44-35; and Permit 816, Sand Dune 88-35.

NEVADA OIL PRODUCERS			
Company	Field	Contact	Address and Phone and FAX Numbers
Deerfield Production Co.	Deadman Creek Eagle Springs Ghost Ranch North Willow Creek Sand Dune	Mark McSwain	2561 South 1560 West, Suite 200 Woods Cross, UT 84087 Phone: (801) 298-9866 FAX: (801) 298-9889
Double D Nevada, LLC	Bacon Flat Sans Spring	Steve Durrett	1500 Poly Drive, Suite 100 Billings, MT 5902 Phone: 406-294-5990 FAX: 406-294-5992
Frontier Exploration Co.	Trap Spring	Andy Pierce	3006 Highland Drive, Suite 206 Salt Lake City, UT 84106 Phone: (801) 486-5555 FAX: (801) 486-5575
Makoil, Inc.	Currant Duckwater Creek Grant Canyon Kate Spring Trap Spring	Gregg Kozlowski	25391 Commercentre Drive, Suite 120 Lake Forest, CA 92630 Phone: (949) 462-9010 FAX: (949) 462-9012
Petroleum Corp. of Nevada	Blackburn	Ken Chattin	P.O. Box 1447 Elko, NV 89801 Phone: (775) 753-6810
Trail Mountain, Inc.	Three Bar		105 South 4th St. Artesia, NM 88210 Phone: (505) 748-1471
V.F. Neuhaus Properties/ Winn Exploration	Tomera Ranch	Mark Richards	213 West Business Highway 83 P.O. Box 1270 McAllen, TX 78505 Phone: (956) 686-2491 FAX: (956) 686-7065
Western General	Kate Spring	Rick Taylor	801 Noahs Star Street Las Vegas, NV 89145 Phone: (702) 233-1490

## OTHER DEVELOPMENTS

The Energy Policy Act of 2005 directed the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior to designate corridors on federal land in 11 western states for oil, gas, and hydrogen pipelines and electricity transmission lines and related structures. These “energy corridors” would be designated in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. The results of this study are to be reported in a Programmatic Environmental Impact Statement entitled, Designation of Energy Corridors on Federal Land in the 11 Western States. The U.S. Bureau of Land Management conducted public scoping meetings in 2005, and issued a report on them in early 2006. For more information and a copy of the scoping report, please visit the website: <http://corridoreis.anl.gov>.

## U.S. OIL PRODUCTION AND CONSUMPTION

According to the Energy Information Agency of the U.S. Department of Energy ([www.eia.doe.gov](http://www.eia.doe.gov)), the total petroleum products supplied to the U.S. averaged 20.6 million barrels per day in 2006, down 1% from the all time high of 20.8 million barrels per day in 2005. Imports accounted for 66.1% of this total, up from an all time high of 65.9% in 2005. Domestic crude oil production averaged 5.14 million barrels per day, down about 0.8% from 5.18 million barrels per day in 2005. The annual production for 2005 has been the lowest since 1949 when production was 5.046 million barrels per day. The average price of domestic oil increased 19% to \$59.69 per barrel in 2006 from an average of \$50.28 per barrel in 2005 ([www.eia.doe.gov](http://www.eia.doe.gov)).

NEVADA OIL REFINERIES		
Company	Refinery	Address and Phone Number
Energy Income Fund, Inc.	Currant	66 Miles South of Ely Ely, NV 89301 Phone: (775) 863-0229
Energy Income Fund, Inc.	Tonopah	105 Refinery Road Tonopah, NV 89409 Phone: (775) 482-3555

FEDERAL OIL AND GAS LEASES IN EFFECT IN FISCAL YEARS 2005 AND 2006													
County	NUMBER OF LEASES						ACREAGE						
	Competitive		Noncompetitive		Simultaneous		Competitive		Noncompetitive		Simultaneous <sup>2</sup>		
	FY05	FY06	FY05	FY06	FY05	FY06	FY05	FY06	FY05	FY06	FY05	FY06	
Carson City	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	2	0	2	0	0	0	5,100	0	5,093	0	0	0
Clark	0	0	0	11	0	0	0	0	0	18,982	0	0	0
Douglas	0	0	0	0	0	0	0	0	0	0	0	0	0
Elko	79	228	210	229	0	0	87,457	254,085	487,863	528,534	0	0	0
Esmeralda	0	0	0	0	0	0	0	0	0	0	0	0	0
Eureka	106	103	183	185	2	1	122,175	188,980	466,594	486,285	1,345	622	0
Humboldt	0	0	0	0	0	0	0	0	0	0	0	0	0
Lander	0	0	0	0	0	0	0	0	0	0	0	0	0
Lincoln	9	28	27	11	1	0	14,374	27,387	46,316	33,705	7,040	0	0
Lyon	0	0	0	0	0	0	0	0	0	0	0	0	0
Mineral	0	0	0	12	0	0	0	0	0	25,834	0	0	0
Nye	373	397	159	195	19	19	211,276	225,329	423,115	384,088	7,398	6,951	0
Pershing	0	0	0	0	0	0	3,800	0	0	0	0	0	0
Storey	0	0	0	0	0	0	0	0	0	0	0	0	0
Washoe	0	0	0	0	0	0	0	0	0	0	0	0	0
White Pine	87	205	187	275	0	0	93,105	216,323	464,811	650,569	0	0	0
<b>TOTAL</b>	<b>657</b>	<b>963</b>	<b>766</b>	<b>920</b>	<b>22</b>	<b>20</b>	<b>444,730</b>	<b>847,204</b>	<b>1,400,836</b>	<b>2,133,090</b>	<b>15,783</b>	<b>7,573</b>	<b>0</b>

<sup>1</sup>Data from the U.S. Bureau of Land Management. Fiscal years (FY) run from Oct. 1 to Sept. 30.  
<sup>2</sup>These are the remaining leases that were issued under the simultaneous leasing program that was terminated by the December 22, 1987 amendment to the 1920 Mineral Leasing Act.



# Directory of Mining and Milling Operations

by David A. Davis

Compiled from information supplied by the Nevada Division of Minerals and Mine Safety and Training Section.

Sand and gravel operations with less than 100,000 tons annual production are not listed.

CIL = carbon-in-leach, CIP = carbon-in-pulp, HL = heap leach, ML = mill, OP = open-pit mine, OS = other surface, UG = underground mine.

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>CARSON CITY</b>							
<b>Goni Pit</b>	Cinderlite Trucking Corp.	S28,T16N,R20E	decomposed granite sand gravel	OP,ML	mining crushing screening	6/1	1665 South Sutro Terrace Carson City, NV 89706 775-882-4483 Fax: 882-1671 www.cinderlite.com
<b>CHURCHILL COUNTY</b>							
<b>Celite Mine</b>	World Minerals, Inc.	S8,17,T19N,R26E	diatomite	OP,ML	mining classification drying grinding milling	16	100 Front St. Fernley, NV 89408 775-575-2536 Fax: 775-575-4857 www.worldminerals.com
<b>Desert Mountain Aggregate Pit</b>	A and K Earthmovers	S9,16,17,T16N,R28E	aggregate	OP,ML	mining crushing screening	8	P.O. Box 1059, 1200 Auction Rd. Fallon, NV 89407 775-423-6085 Fax: 775-423-8410 www.akearthmovers.com
<b>Huck Salt</b>	Huck Salt Co.	S11,12,13, T16N,R31E; S7,T16N,R32E	salt	OS	mining solar evaporation	8	2900 Phritzie Lane Fallon, NV 89406 775-423-2055 Fax: 775-423-0467
<b>Moltan Mine and Plant</b>	Moltan Co., LP	S28,32, T23N,R27E	diatomite	OP,ML	mining crushing drying packaging screening	48	P.O. Box 860 I-80 Frontage Rd. Fernley, NV 89408-0860 775-423-6668 Fax: 775-423-6411 www.moltan.com
<b>Popcorn Mine</b>	Eagle-Picher Filtration and Minerals, Inc.	S24,T16N,R28E; S19,T16N,R29E	perlite	OP	mining	1	640 Clark Station Rd. Sparks, NV 89434 775-824-7700 Fax: 775-824-7715 www.epcorp.com
<b>CLARK COUNTY</b>							
<b>American Sand and Gravel Pit No. 1 (Salt Lake Highway Pit)</b>	American Sand and Gravel, LLC	S24,T19S,R62E	sand gravel	OP,ML	mining gravity	7	5260 Beesley Dr. Las Vegas, NV 89115 702-452-1900 Fax: 702-651-0375
<b>American Sand and Gravel Pit No. 2 (Lone Mountain)</b>	American Sand and Gravel, LLC	S36,T19S,R59E	sand gravel	OP,ML	mining gravity	5	5260 Beesley Dr. Las Vegas, NV 89115 702-452-1900 Fax: 702-651-0375
<b>Apex Landfill Pit</b>	Las Vegas Paving Corp.	S19,T18S,R64E	sand gravel	OP,ML	mining crushing screening	22	4420 S. Decatur Boulevard Las Vegas, NV 89103 702-251-5800 Fax: 702-251-1968 www.lasvegapaving.com
<b>Apex Quarry and Plant</b>	Chemical Lime Co.	S14,22,23,26,27,34,35 T18S,R63E	limestone	OP,ML	mining calcining crushing screening	100	P.O. Box 363068 North Las Vegas, NV 89036 702-643-7702 Fax: 702-643-9517 www.chemicallime.com
<b>Apex Quarry</b>	Granite Construction Co.	S14,22,23,26,27,34,35 T18S,R63E	aggregate sand	OP,ML	mining crushing screening washing	20	P.O. Box 2087 1900 Glendale Ave. Sparks, NV 89432 775-355-3434 Fax: 775-329-2803 www.graniteconstruction.com
<b>Blue Diamond (Jones) Pit</b>	Las Vegas Paving Corp.	S26,T22S,R60E	sand gravel	OP,ML	mining crushing screening	20	4420 South Decatur Blvd. Las Vegas, NV 89103 702-251-5800 Fax: 702-251-1968 www.lasvegapaving.com
<b>Bootleg Pit</b>	Boulder Sand and Gravel, Inc.	S8,T23S,R64E	sand gravel landscape rock	OP,ML	mining crushing screening	9	P.O. Box 62186 Boulder City, NV 89006 702-294-1156 Fax: 702-294-0676
<b>Cactus Pit</b>	Impact Sand and Gravel (CTC Crushing, LLC)	S27,T22S,R61E	sand gravel	OP,ML	mining crushing screening	36	250 Pilot Rd., Suite No. 160 Las Vegas, NV 89120 702-597-1010 Fax: 702-597-3406

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**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>CLARK COUNTY (continued)</b>							
<b>East Pit</b>	Various (BLM manages pit)	S2,11,12,14 T21S,R62E	sand gravel	OP,ML	mining crushing screening		Bureau of Land Management 4701 North Torrey Pines Drive Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
<b>El Dorado Quarry</b>	Rinker Materials West, LLC	S11,T23S,R63E	sand gravel	OP,ML	mining crushing screening washing	34/2	7150 Pollock Dr. Las Vegas, NV 89119 702-260-9900 Fax: 702-260-9902 www.rinkermaterials.com
<b>Henderson Plant</b>	Chemical Lime Co.	S12,T22S,R62E	lime	ML	calcining	29	P.O. Box 127 BMI Complex Henderson, NV 89015 702-565-8991 Fax: 702-565-5902 www.chemicallime.com
<b>Hidden Valley South Pit</b>	Southern Nevada Liteweight, Inc.	S9,16,T25S,R61E	sand	OP,ML	mining milling	17	1101 E. Alexander Rd. Las Vegas, NV 89030 702-399-8621 Fax: 702-633-5787 www.snlsand.com
<b>Jetco Enterprises</b>	Jetco Enterprises, Inc.	S33,T30S,R65E	decorative rock	OP	mining	2	2076 Mohigan Way Las Vegas, NV 89109 702-734-2129 Fax: 702-369-9294
<b>KMI Zeolite Plant</b>	KMI Zeolite, Inc.	S3,T25S,R57E	zeolite	ML	processing	4	HCR 37 Box 52 Sandy Valley, NV 89019 702-723-5415 www.kmizeolite.com
<b>Lone Mountain</b>	Diamond Const.	S36,T19S,R59E	sand gravel	OP,ML	mining gravity	22	7885 Westwind Road Las Vegas, NV 89139 702-644-1016 Fax: 702-644-6541
<b>Lone Mountain</b>	Hollywood Gravel, Inc.	S35,T19S,R59E,	sand gravel	OP,ML	mining crushing screening	9	5145 South Rogers St., Suite A-1 Las Vegas, NV 89118 702-870-7094 Fax: 702-870-8114
<b>Lone Mountain</b>	Las Vegas Paving Corp.	S3,T20S,R60E	sand gravel	OP,ML	mining crushing screening	10	4420 South Decatur Blvd. Las Vegas, NV 89103 702-251-5800 Fax: 702-251-1968 www.lasvegaspaving.com
<b>Lone Mountain</b>	Nevada Ready Mix Corp.	S36,T19S,R59E	sand gravel	OP,ML	mining crushing screening	94	601 West Bonanza Las Vegas, NV 89106 702-457-1115 Fax: 702-457-9070 www.nevadareadymix.com
<b>Lone Mountain Community Pit</b>	Various (BLM manages pit)	S36,T19S,R59E; S1,T20S,R59E	sand gravel	OP,ML	mining crushing screening		Bureau of Land Management 4701 North Torrey Pines Drive Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
<b>Lone Mountain Stocks Pit</b>	Southern Nevada Paving	S34,35,T19S,R59E; S3,4,11,T20S,R59E	sand gravel	OP,ML	mining crushing screening	5	3555 Polaris Avenue Las Vegas, NV 89102 702-876-5226
<b>Moapa Pit</b>	Ready Mix, Inc.	S2,T15S,R66E	aggregate decorative rock	OP,ML	mining milling	15	3430 East Flamingo Road, Suite 100 Las Vegas, NV 89021 702-433-2090 Fax: 702-433-0189 www.readymixinc.com
<b>Money Pit</b>	Southern Nevada Liteweight, Inc.	S16,T25S,R61E	sand gravel	OP,ML	mining milling	17	1101 E. Alexander Rd. Las Vegas, NV 89030 702-399-8621 Fax: 702-633-5787 www.snlsand.com
<b>North Jean Lake Pit</b>	Various (BLM manages pit)	S22,T24S,R60E	sand gravel	OP,ML	mining crushing screening		Bureau of Land Management 4701 North Torrey Pines Drive Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
<b>PABCO Gypsum- Apex Pit</b>	Pacific Coast Building Products, Inc.	S7,18,T20S,R64E	gypsum	OP,ML	mining crushing washing	178/3	P.O. Box 364329 North Las Vegas, NV 89036 702-643-1016 Fax: 702-643-6249 www.paccoast.com

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**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>CLARK COUNTY (continued)</b>							
<b>Pioneer Gypsum Mine</b>	D.L. Denman Construction Co.	S30,T19S,R64E	gypsum	OP,ML	mining crushing screening	7	4880 Donovan Way North Las Vegas, NV 89031 702-399-5939 Fax: 702-399-8353
<b>Pipes Pit</b>	Pipes Paving	S1,T20S,R59E	sand gravel	OP,ML	mining crushing screening	7	3529 Clayton North Las Vegas, NV 89032 702-647-1162 Fax: 702-647-2387
<b>Racetrack Pit</b>	Las Vegas Paving Corp.	S24,T19S,R62E	sand gravel	OP,ML	mining crushing screening		4420 South Decatur Blvd. Las Vegas, NV 89103 702-251-5800 Fax: 702-251-1968 www.lasvegapaving.com
<b>Rainbow Quarries</b>	Las Vegas Rock, Inc.	S34,T25S,R58E	gravel stone	OP,ML	mining crushing	17	11635 Bermuda Rd. Henderson, NV 89052 702-429-4103 Fax: 702-896-4533 www.vegasrock.com
<b>Rinker Moapa Pit</b>	Rinker Materials West, LLC	S19,T13S,R66E	sand	OP	mining	18	7150 Pollock Dr. Las Vegas, NV 89119 702-260-9900 Fax: 702-260-9902
<b>Salt Lake Highway Pit</b>	Various (BLM manages pit)	S13,24,T19S,R62E; S17,18,19,T19S,R63E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Drive Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
<b>Simplot Silica Products Pit</b>	Simplot Silica Products	S11,T17S,R67E	silica sand	OP,ML	mining drying flotation screening	50	P.O. Box 308 Overton, NV 89040 702-397-2667 Fax: 702-397-2798 www.simplot.com
<b>Sloan Quarry &amp; Mill</b>	Bardon Materials	S13,T23S,R60E	sand gravel	OP,OS, ML	mining crushing screening	84	3920 West Hacienda Ave. Las Vegas, NV 89118 702-876-5226 Fax: 702-876-0694 www.aggregate-us.com
<b>South Jean Lake Pit</b>	Various (BLM manages pit)	S33,T25S,R60E	sand gravel	OP,ML	mining crushing screening		Bureau of Land Management 4701 North Torrey Pines Drive Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
<b>Spanish Trails Pit</b>	Hollywood Gravel, LP	S28,T21S,R60E	sand gravel	OP,ML	mining crushing screening	3	908 South Valley View Blvd. Las Vegas, NV 89107 702-870-7094 Fax: 702-870-8114
<b>Spring Mountain Pit and Mill</b>	Wells Cargo, Inc.	S10,15,T21S,R60E	sand gravel	OS,ML	mining gravity	10	P.O. Box 81170 7770 West Spring Mountain Rd. Las Vegas, NV 89160 702-873-7440 Fax: 702-873-1696 www.wellscargoconstruction.com
<b>DOUGLAS COUNTY</b>							
<b>Bing Materials Pit and Plant</b>	Bing Materials Co.	S16,T12N,R20E	sand gravel	OP,ML	mining crushing screening	9	P.O. Box 487 Minden, NV 89423 775-265-3641
<b>Dressler Pit</b>	A and A Construction, Inc.	S32,33,T12N,R20E	sand	OS,ML	mining screening	1	P.O. Box 995 Minden, NV 89423 775-782-5957 Fax: 775-782-0322
<b>ELKO COUNTY</b>							
<b>Capstone Mine</b>	Newmont Mining Corp.	S10,T36N,R49E	gold silver mercury	OP,HL, ML	heap leach milling	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com
<b>Dunphy Mill</b>	BAROID/Halliburton Energy Services, Inc.	S26,T33N,R48E	barite	ML	crushing gravity grinding	39/16	912 Dunphy Ranch Road Battle Mountain, NV 89820 775-468-0515 Fax: 775-468-2060 www.halliburton.com
<b>Elburz Pit</b>	Vega Construction and Trucking Co.	S9,T33N,R52E	sand gravel	OP,ML	mining crushing screening	24	P.O. Box 1630 Elko, NV 89803 775-738-5381 Fax: 775-738-6311

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<sup>1</sup>Combined Newmont Carlin Trend Operations.

**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>ELKO COUNTY (continued)</b>							
<b>Jerritt Canyon Mine</b>	Queenstake Resources USA, Ltd.	T39-41N,R52-54E	gold silver mercury	UG,ML, CIL	mining heap leach milling roasting	374/6	HC31 Box 78 Elko, NV 89801 775-738-5006 Fax: 775-758-9231 www.yukon-nevadagold.com
<b>Meikle Mine</b>	Barrick Gold Corp.	S12,13,T36N,R50E	gold silver	UG,ML	mining milling roasting	551	P.O. Box 29 Elko, NV 89803 775-738-8043 Fax: 775-738-6543 www.barrick.com
<b>Midas Mine</b>	Newmont Mining Corp.	S21,22,27,28,33,34; T39N,R46E	gold silver	UG,ML	mining milling	231	HC66 Box 125 Midas, NV 89414 775-635-6423 Fax: 635-6460 www.newmont.com
<b>Pilot Peak Quarry and Plant</b>	Graymont Western U.S., Inc.	S14,15,22,23,26, T34N,R68E	limestone	OP,ML	mining calcination rotary kiln	57	P.O. Box 2520 West Wendover, NV 89883 775-483-5463 Fax: 775-483-5149
<b>Rain Mine</b>	Newmont Mining Corp.	S33,T32N,R53E	gold silver mercury	UG HL,ML	heap leach reclamation	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com
<b>Rossi Mine</b>	BAROID/Halliburton Energy Services, Inc.	S14-16,21-23,26-28, 34-35;T37N,R49E	barite	OP,ML	mining	3/27	912 Dunphy Ranch Road Battle Mountain, NV 89820 775-468-0515 Fax: 775-468-2060 www.halliburton.com
<b>ESMERALDA COUNTY</b>							
<b>Basalt Mine and Plant</b>	Grefco Minerals, Inc.	S23-26,T2N,R33E; S28,29,32,T2N,R34E	diatomite	OP,ML	drying milling	7	36994 Summit Lake Rd. Burney, CA 96013 775-573-2422 Fax: 775-573-2422 www.grefco.com
<b>Blanco Mine</b>	Vanderbilt Minerals Corp.	S22,T1N,R37E	clay	OP	bagging grinding screening	4	3561 East Burgundy Dr. Pahrump, NV 89048 775-537-6976 Fax: 775-537-6879 www.rtvanderbilt.com
<b>Lone Mountain Turquoise Mine</b>	Lone Star Mining, LLC	S18,T1N,R41E;	turquoise	OP	mining	2	P.O. Box 1601 Tonopah, NV 89049-1601 775-482-5903
<b>Rulco Potassium Sulfate Project</b>	Rulco, LLC	S32,33,T1N,R38.5E	potassium sulfate	OP,ML	crushing milling shipping	2/2	1019 CR330 Ignacio, CO 81137 970-883-2468 Fax: 970-883-2469
<b>Silver Peak Operations</b>	Chemetall Foote Corp.	S22,T2S,R39E	lithium carbonate	OS,ML	mining solar evaporation precipitation	50/11	P.O. Box 98 Silver Peak, NV 89047 775-937-2222 Fax: 775-937-2250 www.chemetall.com
<b>EUREKA COUNTY</b>							
<b>Betze/Post Mine</b>	Barrick Gold Corp.	S23-26,T36N,R49E; S12,20,29,30; T36N,R50E	gold	OP,CIL, HL,ML	mining heap leach milling roasting	1140	P.O. Box 29 Elko, NV 89803 775-738-8043 Fax: 775-738-6543 www.barrick.com
<b>Carlin North Genesis Complex</b>	Newmont Mining Corp.	S33,T36N,R50E	gold	OP,HL, ML	mining bioleaching heap leach milling roasting	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com
<b>Carlin North-Post and adjacent mines</b>	Newmont Mining Corp.	S19,T36N,R50E	gold	OP,HL, ML	mining bioleaching heap leach milling roasting	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com
<b>Carlin South-Carlin and adjacent mines</b>	Newmont Mining Corp.	S14,T35N,R50E	gold	UG,HL, ML	mining bioleaching heap leach milling roasting	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com

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<sup>1</sup>Combined Newmont Carlin Trend Operations.

**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>EUREKA COUNTY (continued)</b>							
<b>Carlin South-Gold Quarry and adjacent mines</b>	Newmont Mining Corp.	S3,T33N,R51E	gold	OP,HL,ML	mining bioleaching heap leach milling roasting	2124 <sup>1</sup>	P.O. Box 669 Carlin, NV 89822-0669 775-778-4000 Fax: 775-778-4757 www.newmont.com
<b>Nevada Barth Iron Mine and Mill</b>	Saga Exploration Co.	S7,T31N,R51E	iron	OP,ML	screening	5	2339 Dickerson Road Reno, NV 89503 775-322-9994
<b>Ruby Hill Mine</b>	Barrick Gold Corp.	S9-11,14,15 T19N,R53E	gold silver	OP,CIL, CIP,HL, ML	heap leach milling	103/4	P.O. Box 676 Eureka, NV 89316 775-237-6060 Fax: 775-237-5408 www.barrick.com

**HUMBOLDT COUNTY**

<b>Ashdown Mine</b>	Ashdown Project, LLC	S17,T47N,R30E	molybdenum gold	UG,ML	mining flotation milling	31	1675 East Prater Way, Suite 102 Sparks, NV 89434 775-853-4919 Fax: 775-853-5010 www.golden-phoenix.com
<b>Lone Tree Mine (Lone Tree Complex)</b>	Newmont Mining Corp.	S1,11,13,15,23, T34N,R42E	gold silver	OP,HL,ML	mining flotation heap leach milling	178 <sup>2</sup>	P.O. Box 388 Valmy, NV 89438-0388 775-635-9000 Fax: 775-635-0111 www.newmont.com
<b>Marigold Mine</b>	Marigold Mining Co.	S8,9,18-20, T33N,R43E	gold silver	OP,HL,ML	mining heap leach milling	189	P.O. Box 160 Valmy, NV 89438 775-635-2317 Fax: 635-2551 www.goldcorp.com
<b>MIN-AD Mine</b>	MIN-AD, Inc.	S28,T35N,R38E	dolomite	OP,ML	mining grinding	19/4	P.O. Box 39 Winnemucca, NV 89446 775-623-5944 Fax: 623-9028 www.min-ad.com
<b>Rainbow Ridge Opal Mine</b>	Rainbow Ridge Opal Mines, Inc.	S22,23,T45N,R26E	opalized wood precious opal	OP	mining	1	P.O. Box 97 Denio, NV 89404 775-941-0270 (summer) 541-548-4810 (winter) www.nevadaopal.com
<b>Royal Peacock Opal Mine</b>	Walter Wilson	S30,T45N,R26E	precious opal	OP	mining	1	P.O. Box 165 Denio, NV 89404 775-941-0374 (summer) 775-272-3246 (winter) www.royalpeacock.com
<b>Turquoise Ridge Joint Venture</b>	Barrick Gold Corp.	S33, T39N,R42E	gold silver	UG	mining	320/32	HC 66 Box 220 Golconda, NV 89414-9702 775-529-5001 Fax: 775-529-0753 www.placerdome.com
<b>Twin Creeks Mine</b>	Newmont Mining Corp.	S3-10,15-22,27-32 T39N,R43E	gold silver	OP,HL,ML	mining heap leach milling	559	P.O. Box 69 Golconda, NV 89414 775-623-4300 Fax: 775-635-4602 www.newmont.com

**LANDER COUNTY**

<b>3D Pit</b>	John Davis Trucking Co.	S2,T32N,R45E	sand gravel	OP,ML	mining screening	5	P.O. Box 457 Battle Mountain, NV 89820 775-635-2805 Fax: 775-635-8017
<b>Argenta Mill</b>	Baker Hughes Drilling Fluids	S6,T32N,R47E	barite	ML	gravity grinding	7/1	P.O. Box 277 Battle Mountain, NV 89820 775-635-5441 Fax: 775-635-5455 www.bakerhughes.com
<b>Argenta Mine</b>	Baker Hughes Drilling Fluids	S13,14,T32N,R46E S18,19,T32N,R47E	barite	OP	mining	15/3	P.O. Box 277 Battle Mountain, NV 89820 775-635-5441 Fax: 775-635-5455 www.bakerhughes.com

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<sup>1</sup>Combined Newmont Carlin Trend operations.

<sup>2</sup>Combined Lone Tree, Mule Canyon, Phoenix, and Trenton Canyon.

**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>LANDER COUNTY (continued)</b>							
<b>Battle Mountain Grinding Plant</b>	M-I Swaco	S18,T32N,R45E	barite	ML	gravity grinding	37	P.O. Box 370 Battle Mountain, NV 89820 775-635-5135 Fax: 775-635-2191 www.miswaco.com
<b>Blue Ridge Mine</b>	Jay and Grace Wintle	S19,20,29,30, T28N,R47E	turquoise	OP	mining screening sorting	4	810 Sheep Creek Road Battle Mountain, NV 89820 775-635-5231
<b>Cortez/Pipeline Mines</b>	Barrick Gold Corp.	S31,33,34, T28N,R47E	gold	OP,HL, ML	mining heap leach milling	510/6	HC 66 Box 1250 Crescent Valley, NV 89821 775-468-4400 Fax: 468-4496 www.barrick.com
<b>Greystone Mine</b>	M-I Swaco	S35,T28N,R45E	barite	OP,ML	mining gravity	48	P.O. Box 370 Battle Mountain, NV 89820 775-635-5135 Fax: 775-635-2191 www.miswaco.com
<b>McCoy/Cove Mine</b>	Newmont Mining Corp.	S1-11,T28N,R42E; S36,T29N,R42E	silver gold	OP,UG	reclamation	3	P.O. Box 1658 McCoy Mine Road, No. 1 Battle Mountain, NV 89820 775-635-4923 Fax: 775-635-4921 www.newmont.com
<b>Mule Canyon Mine (Lone Tree Complex)</b>	Newmont Mining Corp.	S4,T31N,R47E	gold silver	OP	mining	178 <sup>2</sup>	P.O. Box 388 Valmy, NV 89438-0388 775-635-9000 Fax: 775-635-0111 www.newmont.com
<b>Phoenix Project</b>	Newmont Mining Corp.	S22,27,33,34, T31N,R43E	gold silver	OP,HL, ML	mining heap leach	444	P.O. Box 388 Valmy, NV 89438-0388 775-635-9000 Fax: 775-635-0111 www.newmont.com
<b>Trenton Canyon Mine</b>	Newmont Mining Corp.	S7,18,19, T32N,R43E	gold silver	OP,HL, ML	heap leach	4	P.O. Box 388 Valmy, NV 89438-0388 775-635-9000 Fax: 775-635-0111 www.newmont.com
<b>LINCOLN COUNTY</b>							
<b>Natural Pozzolan of Nevada</b>	Natural Pozzolan of Nevada, LLC	S25,36,T1S,R67E	pozzolan	OP,ML	crushing screening	5	P.O. Box 308 450 East Main Panaca, NV 89042 877-676-7699 www.naturalpozzolan.com
<b>Tenacity Perlite Mine and Mill</b>	Wilkin Mining and Trucking Co.	S34,T4S,R62E	perlite	OP,ML	mining milling	8	HC 34 Box 199 Caliente, NV 89008 775-728-4463 Fax: 775-728-4456
<b>LYON COUNTY</b>							
<b>Adams Claim Gypsum Mine</b>	Art Wilson Co.	S25,T16N,R20E	gypsum limestone	OP,ML	mining crushing screening	48	P.O. Box 20160 Carson City, NV 89702-1160 775-882-0700 Fax: 775-882-0790 www.awgypsum.com
<b>Fernley Pit</b>	Gopher Construction Co.	S24,T20N,R24E	aggregate	OP	mining crushing	6	1625 East Newlands Dr. P.O. Box 801 Fernley, NV 89408 775-575-4333 Fax: 775-575-1137
<b>Hazen Pit</b>	EP Minerals, LLC	S6,9,T19N,R26E	diatomite	OP	mining	2	640 Clark Station Rd. Sparks, NV 89434 775-824-7700 Fax: 775-824-7715 www.epcorp.com
<b>Mound House Pit</b>	Bardon Materials	S19,T16N,R21E	sand gravel	OP,ML	mining crushing screening	9	3920 West Hacienda Ave. Las Vegas, NV 89118 702-876-5226 Fax: 702-876-6808 www.aggregate-us.com
<b>Nevada Cement Mine</b>	Nevada Cement Co.	S3-6,9,T19N,R25E; S31-33,T20N,R25E	limestone clay	OP	mining	12	P.O. Box 840 Fernley, NV 89408 775-575-2281 Fax: 775-575-4387 www.eaglematerials.com

<sup>2</sup>Combined Lone Tree, Mule Canyon, Phoenix, and Trenton Canyon.

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**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>LYON COUNTY (continued)</b>							
Nevada Cement Plant	Nevada Cement Co.	S10,11,T20N,R24E	limestone clay	ML	crushing dry milling rotary kiln	110	P.O. Box 840 Fernley, NV 89408 775-575-2281 Fax: 575-4387 www.eaglematerials.com
Yerington Plant	Grant Smith Associates, Inc.	S4,T12N,R25E	sand gravel	OS,ML	mining crushing screening	22	435 Highway 339 Yerington, NV 89447 775-463-3111 Fax: 775-463-4642
<b>MINERAL COUNTY</b>							
Denton-Rawhide Mine	Kennecott Rawhide Mining Co.	S4,5,8,16,17, T13N,R32E	gold silver	OP,HL	heap leach	17/5	P.O. Box 2070 Fallon, NV 89407 775-945-1015 Fax: 775-945-1213 www.kennecottminerals.com
<b>NYE COUNTY</b>							
Ash Meadows Plant	Ash Meadows Zeolite, LLC	S25,T18S,R50E	unaltered ash zeolite	ML	crushing screening packaging	2	HCR 70, Box 7006 East Spring Meadows Rd. Amargosa Valley, NV 89020 775-372-5524 Fax: 775-764-0090
Bolling (Simkins) Pit	Bolling Construction, Inc.	S26,T19S,R53E	sand gravel	OP,ML	mining milling	5	2200 East Calvada Blvd., Suite A Pahrump, NV 89048 775-727-7070 Fax: 775-727-6432
Cinder Cone Pit	Allied Building Materials, Inc./ Cind-R-Lite Co.	S36,T14S,R48E; S31,T14S,R49E; S1,T15S,R48E; S6,T15S,R49E	cinder	OP,ML	mining screening	11	4745 Mitchell St. North Las Vegas, NV 89081 702-651-1550 Fax: 702-651-1551
Gabbs Mine	Premier Chemicals, LLC	S22,23,25-27,34-36, T12N,R36E	magnesite	OP,ML	mining calcining sizing	79	P.O. Box 177 Gabbs, NV 89409 775-285-2601 Fax: 775-285-4030 www.premierchemicals.com
IMV Pits	Mud Camp Mining Co., LLC	S28,29,T17S,R49E	clay	OP,ML	mining classification crushing grinding screening	31	HCR 70 Box 549 Amargosa Valley, NV 89020 775-372-5341 Fax: 775-372-5640 www.imvnevada.com
Mesquite Community Pit	Various (BLM manages pit)	S12,T20S,R53E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
New Discovery Mine/ White Caps Mill	Vanderbilt Minerals Corp.	S13,14,T12S,R46E; S18,19,T12S,R47E	clay	OP,UG, ML	bagging grinding screening	8	3561 Burgundy Dr. Pahrump, NV 89048 775-537-6976 Fax: 775-537-6879 www.rtvanderbilt.com
P and S	Standard Industrial Minerals, Inc.	S11,14,15, T13N,R45E	barite	OP	mining shipping	2	P.O. Box 10477 Reno, NV 89510 775-324-1334 Fax: 775-324-2458
Pahrump Community Pit	Various (BLM manages pit)	S28,29,T20S,R54E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 702-515-5000 www.blm.gov
Round Mountain Mine (Smoky Valley Common Operation)	Round Mountain Gold Corp.	S19,20,29,30, T10N,R44E	gold silver	OP,HL, ML	mining gravity heap leach milling	660/46	P.O. Box 480 Smoky Valley Mine Rd. Round Mountain, NV 89405 775-377-2366 Fax: 775-377-3224 www.kinross.com
Royal Royston	Dean Otteson and Danny Otteson	S31,T6N,R40E	turquoise	OP	mining	2	P.O. Box 564 Tonopah, NV 89049 970-375-2401 www.roystonturquoise.com

*continued*

**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>NYE COUNTY (continued)</b>							
Silica LLC Pit	American Cement and Aggregate	S29,T15S,R54E	silica sand	OP	mining		639 East Brooks Avenue North Las Vegas, NV 89030 702-642-9350
Wheeler Pit	Bolling Construction, Inc.	S28,T20S,R54E	sand gravel	OP,ML	mining milling	3	2200 East Calvada Blvd., Suite A Pahrump, NV 89048 775-727-7070 Fax: 775-727-6432
<b>PERSHING COUNTY</b>							
Buff-Satin Mine	Vanderbilt Minerals Corp.	S2,T27N,R32E	clay	OP	bagging grinding screening	4	3561 Burgundy Dr. Pahrump, NV 89048 775-537-6976 Fax: 775-537-6879 www.rtvanderbilt.com
Coeur Rochester Mine	Coeur Rochester, Inc.	S9-11,15,16,21,27,28,T28N,R34E	silver gold	OP,HL,ML	mining heap leach milling	181	P.O. Box 1057 Lovelock, NV 89419 775-273-7995 Fax: 273-7050 www.coeur.com
Colado Mines	EP Minerals, LLC	S6,7,16,18,21,25,T28N,R29E	diatomite perlite	OP,OS	mining	30	P.O. Box 959 150 Coal Canyon Road Lovelock, NV 89419 775-824-7540 Fax: 775-824-7582 www.epcorp.com
Colado Plant	EP Minerals, LLC	S33,T28N,R32E	diatomite perlite	ML	drying classification grinding calcining	85	P.O. Box 959 150 Coal Canyon Road Lovelock, NV 89419 775-824-7540 Fax: 824-7582 www.epcorp.com
Empire Quarry	United States Gypsum Co.	S31,T31N,R24E	gypsum	OP	mining	11	P.O. Box 130 Empire, NV 89405 775-557-2341 Fax: 775-557-2212 www.usg.com
Florida Canyon Mine	Florida Canyon Mining, Inc.	S1-4,9-15,T31N,R33E; S37-39,T31½N,R33E; S33-35,T32N,R33E	gold	OP,HL,ML	mining heap leach milling	100 <sup>3</sup>	P.O. Box 330 Imlay, NV 89418 775-538-7300 Fax: 775-538-7324 www.jipangu.co.jp
Nassau (Section 8) Mine	American Colloid Co.	S8,T27N,R33E	clay	OP	mining shipping	0	P.O. Box 2010 Belle Fourche, SD 57717 605-892-6371 Fax: 605-892-3178 www.colloid.com
Standard Mine	Standard Gold Mining, Inc.	S1,12,T30N,R33E; S35,T31N,R33E	gold	OP,HL,ML	mining heap leach milling	100 <sup>3</sup>	P.O. Box 330 Imlay, NV 89418 775-538-7300 Fax: 775-538-7324 www.jipangu.co.jp
W. Glen Sexton Family Trust	Nutritional Additives Co.	S5,T34N,R38E	dolomite	OP,ML	mining milling	3	415 Wellington Street Winnemucca, NV 89445 775-623-1151 Fax: 775-623-1153
<b>STOREY COUNTY</b>							
All-Lite Pit and Plant	All-Lite Aggregate	S26,33,34,T19N,R22E	sand gravel	OS,ML	mining crushing screening	31	P.O. Box 51990 3005 Canyon Way Sparks, NV 89434 775-342-0500
Basalite Dayton Pit	Basalite Division of Pacific Coast Building Products	S8,9,16,17,T17N,R22E	sand gravel	OS,ML	mining crushing milling	5	2600 Boeing Way Carson City, NV 89701 775-882-9336 Fax: 775-887-1025 http://basalite.pacocoast.com
Clark Mill	EP Minerals, LLC	S35,T20N,R23E	diatomite	OP,ML	mining	54	640 Clark Station Rd. Sparks, NV 89434 775-824-7700 Fax: 775-824-7715 www.epcorp.com
Clark Mine	EP Minerals, LLC	S27,33,34,T20N,R23E	diatomite	ML	calcining classification drying grinding	12	640 Clark Station Rd. Sparks, NV 89434 775-824-7700 Fax: 824-7715 www.epcorp.com
Hartford Hill Complex	The Plum Mining, Co., LLC	S6,T16N,R21E	gold silver	OP,HL,ML	mining heap leach milling	20/12	P.O. Box 1118 Virginia City, NV 89440 775-847-5272 Fax: 775-847-4762 www.goldspring.us
Trico Pit	Gopher Construction Co.	S33,T20N,R22E	aggregate	OP	mining crushing	7	1625 East Newlands Dr., P.O. Box 801 Fernley, NV 89408 775-575-4333 Fax: 775-575-1137

<sup>3</sup>Combined Florida Canyon and Standard Mines.



**DIRECTORY OF MINING AND MILLING OPERATIONS (continued)**

Mine/plant name	Operator	Location	Commodity	Type	Process/ activity	Company/Contract Employees	Address
<b>WASHOE COUNTY</b>							
<b>Bella Vista Pit</b>	A and K Earthmovers	S3,4,T18N,R20E; S33,34,T19N,R20E	sand rock	OP,ML	mining crushing screening	13/3	P.O. Box 1059 1200 Auction Rd. Fallon, NV 89407 775-423-6085 Fax: 775-423-8410 www.akearthmovers.com
<b>Clay Mine and Mill</b>	Art Wilson Co.	S13,14,T27N,R19E	clay	OP,ML	mining milling	3	P.O. Box 20160 Carson City, NV 89721 775-882-0700 Fax: 882-0790 www.awgypsum.com
<b>Empire Mill</b>	United States Gypsum Co.	S11,13,T31N,R23E	gypsum	ML	calcining crushing	120	P.O. Box 130 Empire, NV 89405 775-557-2341 Fax: 775-557-2212 www.usg.com
<b>Golden Valley Pit</b>	A and K Earthmovers	S11,12,T19N,R20E	aggregate	OP,ML	mining screening	3	P.O. Box 1059 1200 Auction Rd. Fallon, NV 89407 775-423-6085 Fax: 423-8410 www.akearthmovers.com
<b>Hidden Canyon</b>	Granite Construction Co.	S16,T20N,R20E	aggregate	OP,ML	mining crushing screening washing	6/6	P.O. Box 2087 1900 Glendale Ave. Sparks, NV 89432 775-355-3434 Fax: 775-329-2803 www.graniteconstruction.com
<b>Lemon Valley Pit</b>	Martin Marietta Minerals	S23,24,T21N,R19E	sand		shipping	0	11059 Pyramid Lake Rd. Sparks, NV 89436 775-425-4455 Fax: 425-5131 www.martinmarietta.com
<b>Lockwood Quarry</b>	Granite Construction Co.	S17,T19N,R21E	aggregate	OP,ML	mining crushing screening washing	19	P.O. Box 2087 1900 Glendale Ave. Sparks, NV 89432 775-355-3434 Fax: 775-329-2803 www.graniteconstruction.com
<b>Mustang Pit</b>	Bardon Materials	S4,T19N,R21E	aggregate	OP,ML	mining crushing screening	21	3920 West Hacienda Ave. Las Vegas, NV 89118 702-876-5226 Fax: 702-876-0694
<b>Paiute Pit</b>	Paiute Aggregates Inc.	S2,27,34, T21N,R24E	sand gravel	OP	mining	13	10 Hill Ranch Rd. Wadsworth, NV 89442 775-575-1162
<b>Rilite Aggregate</b>	Rilite Aggregate Co.	S23,T18N,R20E	sand rock	OP,ML	mining crushing	16	3025 Mill St. Reno, NV 89502 775-329-8842 Fax: 775-329-3593
<b>Spanish Springs Quarry</b>	Martin Marietta Materials, Inc.	S15,22,T21N,R20E	aggregate	OP,ML	mining crushing screening	25	11059 Pyramid Lake Rd. Sparks, NV 89436 775-425-4455 Fax: 775-425-5131 www.martinmarietta.com
<b>Wade Sand Pit</b>	Granite Construction Co.	S3,T20N,R24E	sand	OP,ML	mining screening	6	P.O. Box 2087 1900 Glendale Ave. Sparks, NV 89432 775-355-3434 Fax: 775-329-2803 www.graniteconstruction.com
<b>WHITE PINE COUNTY</b>							
<b>Bald Mountain Mine</b>	Barrick Gold Corp.	S14,15,19,20 T24N,R57E	gold	OP,HL, ML	mining heap leach milling	188	P.O. Box 2706 Elko, NV 89803 775-237-7100 Fax: 775-237-7101 www.barrick.com
<b>Mount Moriah Quarry</b>	Mt. Moriah Stone Quarries, LLC	S22,23,26,27, 33-36, T16N,R70E	building stone decorative stone	OP	mining	56	P.O. Box 70 No. 10 Hatch Rock Rd. Baker, NV 89311 435-855-2232 Fax: 775-855-2332
<b>Robinson Mine</b>	Robinson Nevada Mining Co.	S6,8,17,18, T16N,R62E	copper gold silver molybdenum	OP,ML	mining milling	483	P.O. Box 382 Ruth, NV 89319 775-289-7000 Fax: 775-289-7104 www.quadramining.com
<b>Star Dust Mines</b>	Dunbar Stone Co.	S22,23,26,35, T16N,R70E	building stone decorative stone	OP	mining	5	P.O. Box 430 Chino Valley, AZ 86323 928-637-2592

For additional information on Nevada's mineral resources and mineral industries see the following NBMG publications:

### **Statewide Commodity Publications**

Antimony (B61)	Oil and gas (B104, OF01-7, OF04-1)
Barite (B98)	Radioactive minerals (B81, OF06-19)
Fluorspar (B93)	Talcose minerals (B84)
Gypsum (B103)	Thermal waters (B91, M141, M151)
Iron (B53)	Tungsten (B105)
Mercury (B41)	Zeolites (B79)
Montmorillonite, bentonite, and fuller's earth (B96)	

### **County Mineral Resource Bulletins**

Carson City (B75)	Eureka (B64)	Nye (B77, B99B)
Churchill (B83)	Humboldt (B59)	Pershing (B89)
Clark (B62)	Lander (B88)	Storey (B70)
Douglas (B75)	Lincoln (B73)	Washoe (B70)
Elko (B106)	Lyon (B75)	White Pine (B85)
Esmeralda (B78)	Mineral (B58)	

### **Other Publications**

- Index to geothermal well files housed at NBMG (L-5)
- Gold and silver resources in Nevada (M149)
- Geothermal resources (M141)
- Industrial mineral deposits (M142)
- Nevada oil and gas well database (OF04-1)
- Major mines of Nevada 2006 (P-18)
- Outline of Nevada mining history (SP15)
- Mining districts of Nevada (R47)

### **NBMG maintains an open-file office with the following information available to the public:**

- NBMG, USGS, USBM, and DOE open-file reports on Nevada geology and mineral resources
- petroleum and geothermal exploration and production
- mining district records and maps
- mineral resources and reserves
- mineral resource assessments
- core and cuttings library
- mining claim data
- wilderness study area reports
- general geologic studies
- indexes and ordering information for maps, air photos, and remote sensing imagery



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