

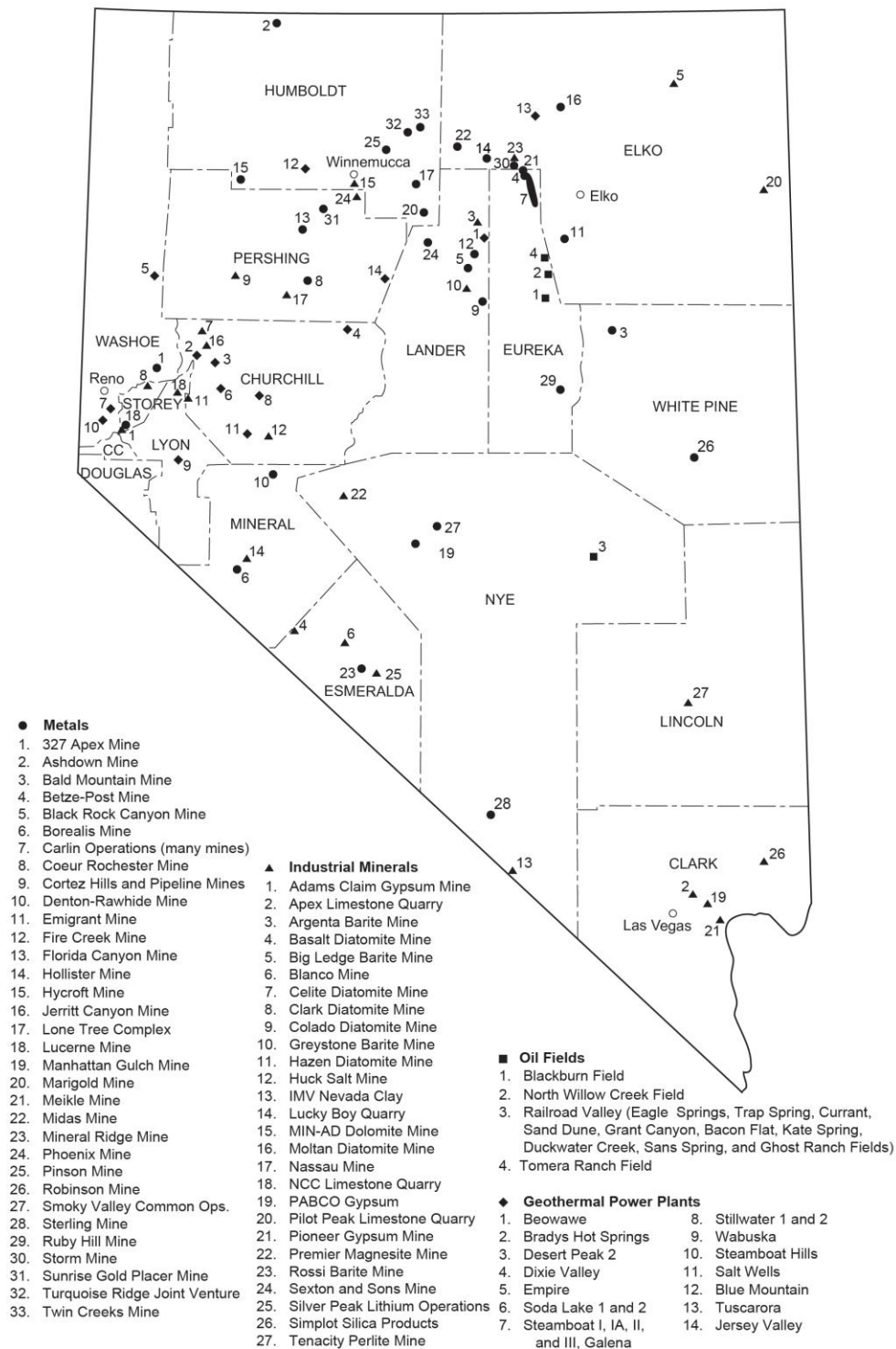
Nevada Bureau of Mines and Geology Special Publication MI-2012

The Nevada Mineral Industry 2012

Contents

- 3 Overview**
by John L. Muntean
- 13 Metals**
by David A. Davis and John L. Muntean
- 53 Major Precious-Metal Deposits**
by David A. Davis and John L. Muntean
- 102 Other Metallic Deposits**
by David A. Davis and John L. Muntean
- 109 Industrial Minerals**
by David A. Davis
- 123 Industrial Mineral Deposits**
by David A. Davis
- 126 Geothermal Energy**
by Lisa Shevenell and Benjamin McDonald
- 149 Oil and Gas**
by David A. Davis
- 166 Directory of Mining and Milling Operations**
by David A. Davis





Major mines, oil fields, and geothermal plants, 2012.

Overview

by John L. Muntean

This report highlights activities through 2012 in metals, industrial minerals, geothermal energy, and petroleum. The value of overall mineral and energy production in Nevada increased to an all-time high of \$10.76 billion, up substantially from the previous high of \$10.02 billion in 2011 (Table 1, Fig. 1). Gold production increased for the third consecutive year to 5.6 million ounces in 2012, after more or less steadily decreasing from a high of 8.86 million ounces in 1998 to 5.0 million ounces in 2009. 2012 was the 24th 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 2012, more or less in order of value, included copper, silver, construction aggregate (sand, gravel, and crushed stone, including limestone and dolomite), geothermal energy, petroleum, diatomite, lime (produced from limestone and dolomite), limestone, gypsum, molybdenum, and silica. Other materials produced with production values less than \$10,000,000 in 2012 were clays, perlite, iron ore, dimension stone, salt, semiprecious gemstones (turquoise and opal), and mercury (as a byproduct of gold and silver processing). Locations of many of the sites mentioned in the text of this report are shown on NBMG Map 170, *Nevada Active Mines and Energy Producers*, which is available at www.nbmgu.unr.edu/dox/m170.pdf.

As was the case in 2011, Nevada ranked first in the United States in terms of value of overall nonfuel (excluding oil, gas, coal, uranium, and geothermal) mineral production in 2012 (according to the U.S. Geological Survey, Mineral Commodity Summaries 2013, <http://minerals.usgs.gov/minerals/pubs/mcs/2013/mcs2013.pdf>). Arizona, the country's major copper producer, retained second place. Minnesota, the leading iron producer in the U.S., was third. Florida, mainly because of its phosphate production, rose to fourth. California, with its significant mining of borates and its large population and commensurate demands for construction raw materials, was fifth. Alaska, a significant producer of zinc, silver, and gold, was sixth. Utah dropped to seventh because of decreased production of copper resulting from the large pit wall failure at the Bingham Canyon Mine near Salt Lake City. 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.

Nevada's production of gold, valued at \$9.37 billion, accounted for 76% of the U.S. total and helped make the U.S. the fourth leading gold producer in the world in 2012. Nevada alone accounted for 6.5% of world production of gold. China, Australia, and Russia, each produced more gold than the state of Nevada in 2012. Second to gold in terms of Nevada's mineral value in 2010 was copper (\$538 million), followed by silver (\$266 million), chiefly as a byproduct or co-product of gold production. Construction aggregate ranked as the fourth leading mineral commodity in 2012, with a value of \$163 million. Electrical power from geothermal energy production in Nevada in 2012 was valued at \$153 million.

The section on **Metals** and the tables of **Major Precious-Metal Deposits** and **Other Metallic 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 continues to be the leading commodity produced in Nevada. Production of gold in 2012 came mainly from 15 major mining operations that each produced greater than 50,000 ounces. The Carlin trend in northeastern Nevada accounted for 38% of the total production, a slightly higher percentage than in 2011. There were ten mining operations not on the Carlin trend that each produced over 100,000 ounces of gold.

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 approximately 170,000 metric tons (5.5 billion troy ounces). Although this seems like a large quantity, all the gold ever mined would fit into a cube only 20.4 meters (67 feet) on a side. Interestingly, about 85% of that gold is still in use (in bullion, coins, jewelry, electronics, etc.), and most gold currently in use will be recycled. In 2012, Nevada reached a major milestone, passing the 200 million ounce mark in gold production, which started in 1859 with the Comstock Lode. Total gold production through 2012 is 203.05 million ounces. Remarkably, 88% has been produced since the Carlin Mine began production in 1965; 85% has been produced during the current boom from 1981 to the present; and 30% has been produced in the last ten years. Cumulative U.S. production, primarily since 1835, is approximately 567 million ounces or approximately 10% of total world gold production, and total Nevada production is 3.7% of cumulative world production.

The Carlin trend alone accounts for 1.5% of all the gold ever mined in the world. By the end of 2012, cumulative production from the Carlin trend was 80.5 million ounces, assuring its place as one of the most productive gold-mining districts in the world.

Nevada continues to be in the midst of the biggest gold boom in U.S. history, as the graph of historical U.S. gold production illustrates (Figs. 2, 3). 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 mostly in Nevada. The U.S. production so far in the current boom, the period since 1981, has been 247 million ounces. This is

significantly greater than the total U.S. 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 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 byproduct gold production from copper mines in Arizona and Utah contributed to cumulative production of 95 million ounces. U.S. production in the decade from 2003 through 2012 alone was 78 million ounces. The current boom is bigger than previous booms not only in terms of cumulative production but also in terms of

TABLE 1. MINERAL, GEOTHERMAL POWER, AND PETROLEUM PRODUCTION IN NEVADA¹

Commodity	2011 (revised)		2012		% Change from 2011 to 2012	
	Quantity	Value (millions)	Quantity	Value (millions)	Quantity	Value
Gold (thousand troy ounces)	5,536	\$8700.7	5,615	\$9371.7	1.4	7.7
Silver (thousand troy ounces)	7,141	250.8	8,527	265.6	19.4	5.9
Copper (thousand pounds)	123,791	502.6	145,319	537.7	17.4	7.0
Molybdenum (thousand pounds)	1,145	17.7	296	3.9	-74.1	-77.9
Aggregate (thousand short tons)	25,190	180.4	26,070	162.9	3.5	-9.7
Barite (thousand short tons)	698	59.5	744	72.1	6.7	21.2
Gypsum (thousand short tons)	1,010	12.7	1,481	17.1	46.6	34.6
Geothermal energy (net, thousand megawatt-hours)	2,173	153.3	2,410	152.9	10.9	-0.3
Petroleum (thousand 42-gallon barrels)	408	28.9	368	33.5	-9.8	15.9
Other minerals²	-----	115.5	-----	140.7	-----	21.8
Total	-----	\$10,022.1	-----	\$10,758.2	-----	7.3

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

²Building stone, cement, clay, diatomite, lime, lithium, magnesite, mercury, iron ore, perlite, salt, and silica sand.

The value of minerals and energy were calculated as follows:

Gold and silver: production reported by NDOM using average annual prices for gold (\$1571.52/oz for 2011, \$1668.98/oz for 2012) and silver (\$31.15/oz for 2012), as reported by www.kitco.com.

Copper and molybdenum: production reported by NDOM using average annual prices for copper (\$4.06/lb for 2011, \$3.70/lb for 2012) and molybdenum (\$15.44/lb for 2011, \$13.24/lb for 2012), as reported by USGS.

The values of all the other commodities were the gross proceeds in 2011 and 2012 reported by the Nevada Department of Taxation.

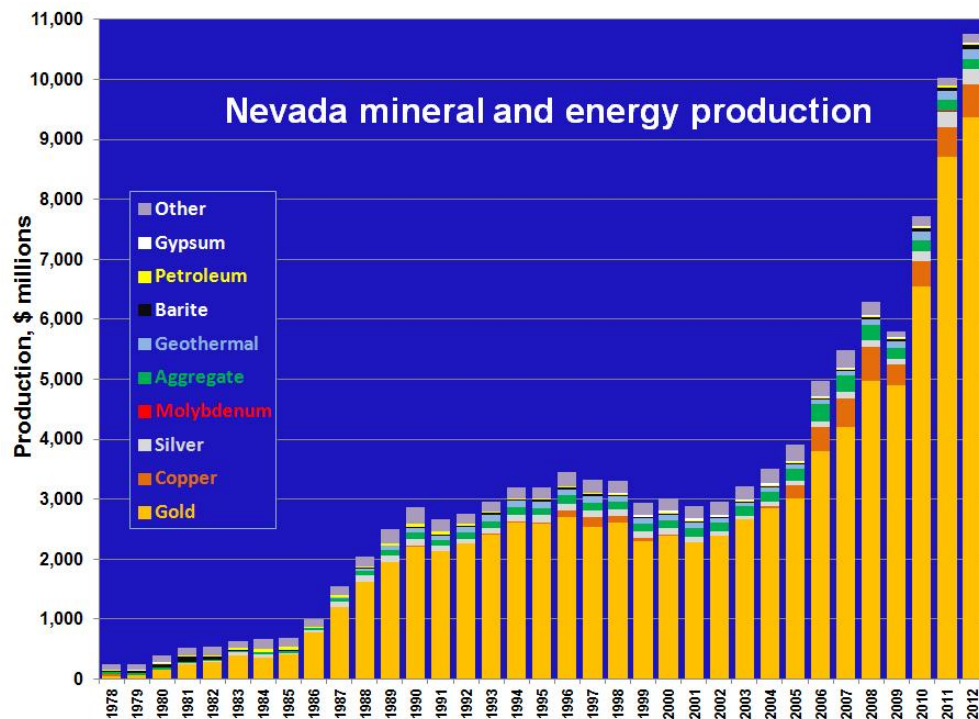


Figure 1. Chart showing relative values of Nevada production of gold, copper, silver, molybdenum, aggregate, geothermal energy, barite, petroleum, gypsum and other minerals from 1978 to 2012. Molybdenum production is only shown for 2011 and 2012.

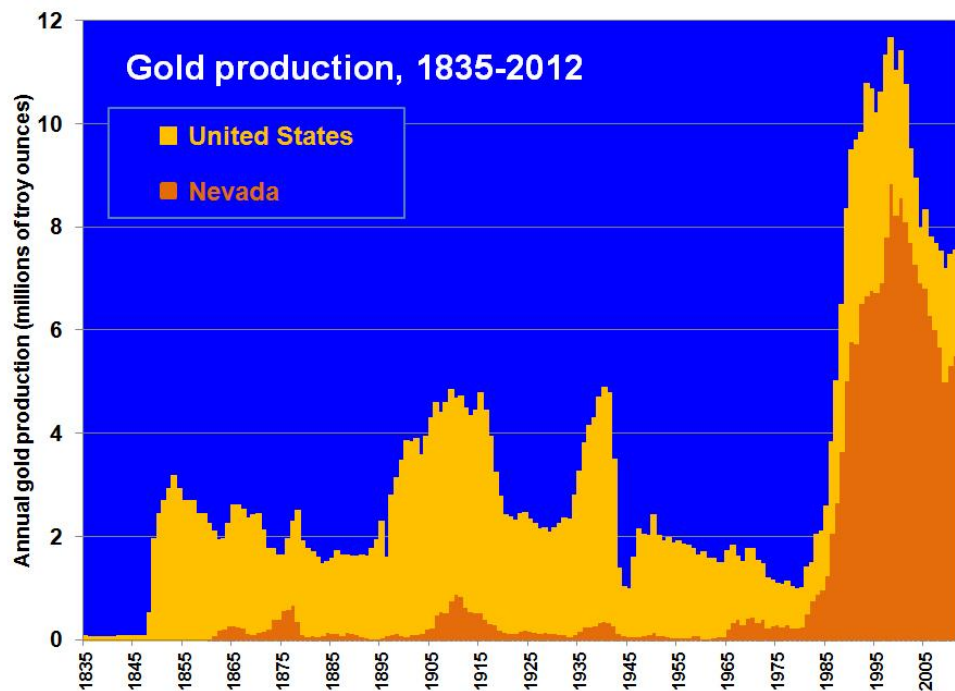


Figure 2. Chart comparing U.S. and Nevada gold production from 1835 to 2012.

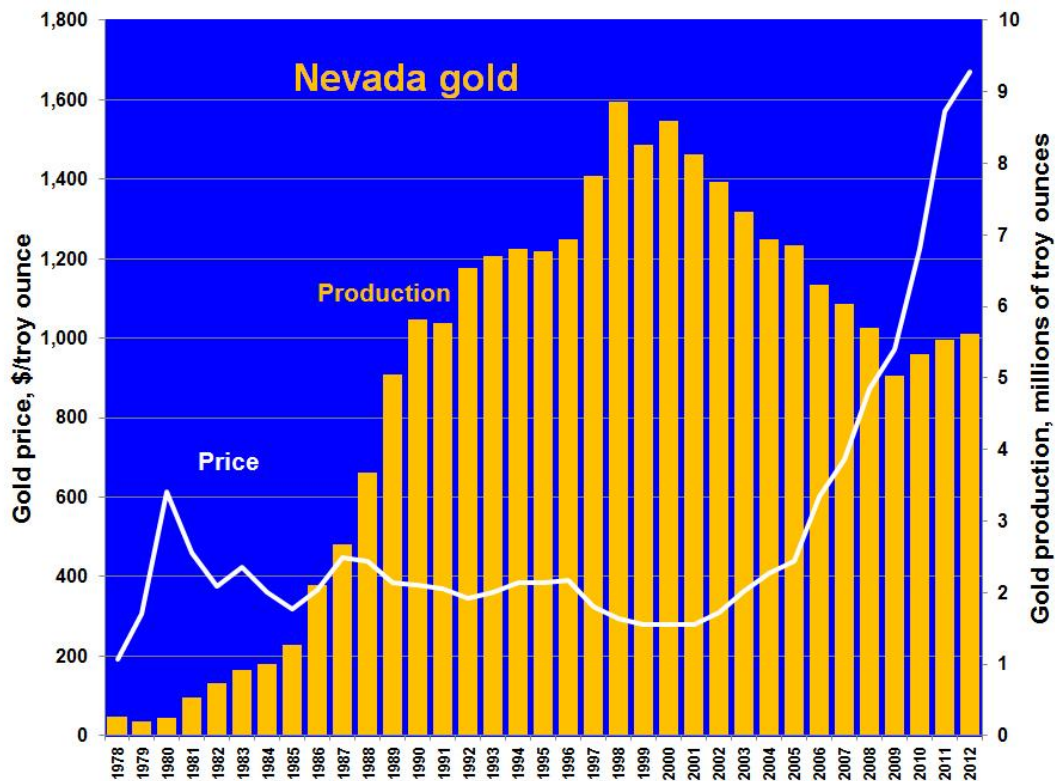


Figure 3. Chart showing Nevada gold production compared to the price of gold from 1978 to 2012.

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 33 years for the current boom versus no more than 24 years for any of the earlier booms).

In 2012, gold production from Barrick Gold Corporation's Cortez Hills deposit at their Cortez operations (1,369,966 ounces) surpassed for the second year in a row production from its Carlin trend mines (1,300,009 ounces). Other large gold operations were Newmont Mining Corporation's mines on the Carlin trend (987,959 ounces) in Eureka and Elko Counties, Newmont's Twin Creeks mine (408,751 ounces) in Humboldt County, and the Kinross-Barrick Smoky Valley joint venture Round Mountain mine (327,203 ounces) in Nye County. Combined, Barrick and Newmont accounted for 86% of Nevada gold production in 2012.

Much of Nevada's silver production in 2012, which totaled 8.53 million ounces, was mainly a co-product or byproduct of gold mining (Fig. 4). With a ratio of value (average price of gold to average price of silver) of 54:1 in 2011, only those deposits with more than 54 times as much silver as gold can be

considered primary silver deposits. Only one such deposit operated in Nevada in 2012—the Coeur Rochester Mine in Pershing County, which had a silver-to-gold production ratio of 74:1 and total silver production of 2.80 million ounces. It produced 33% of Nevada's silver in 2012. Nevada's silver production in 2012 accounted for 25% of the U.S. total and 1.1% of the world total.

Nevada's copper production was dominated by the Robinson copper-gold-silver-molybdenum mine, operated by KGHM International Ltd. near Ely in White Pine County (Fig 5). Copper was also produced at Newmont's Phoenix mine near Battle Mountain in Lander County, where its value was close to the value of its gold production. Molybdenum production (<300,000 pounds) came mainly from the Robinson mine and from the small underground Ashdown deposit operated by Win-Eldrich Mines Ltd.

Exploration activity in 2011 is summarized in the section on **Metals**. Most exploration focused on gold; however, some companies explored for copper, silver, molybdenum, tungsten, iron, vanadium, antimony, lithium, limestone for cement, diatomite, uranium, and rare earth elements.

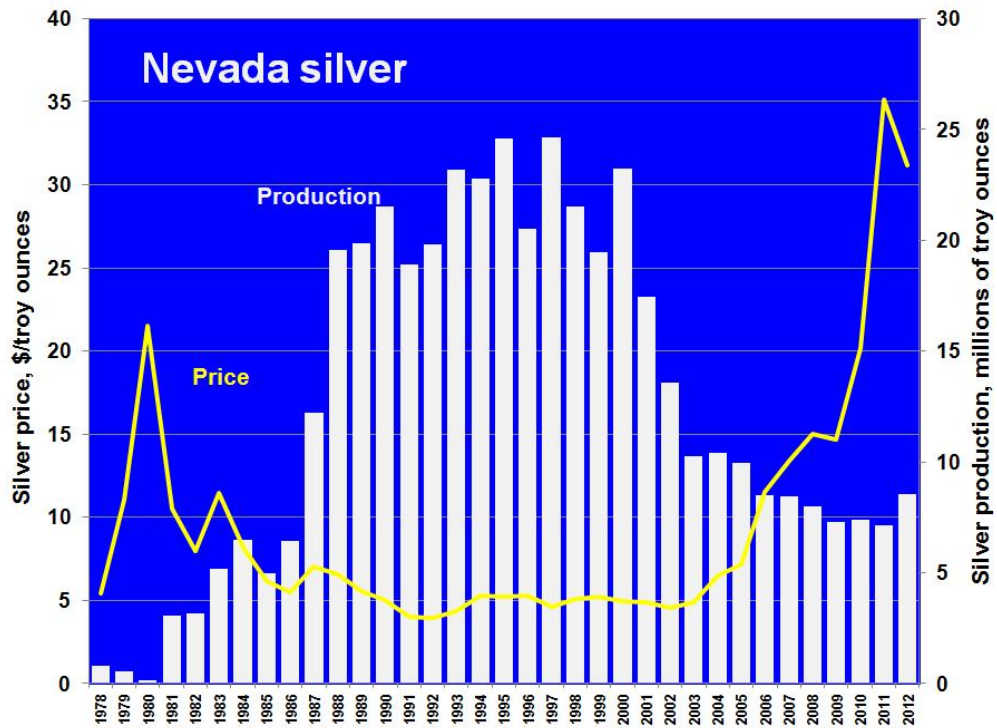


Figure 4. Chart showing Nevada silver production compared to the price of silver from 1978 to 2012.

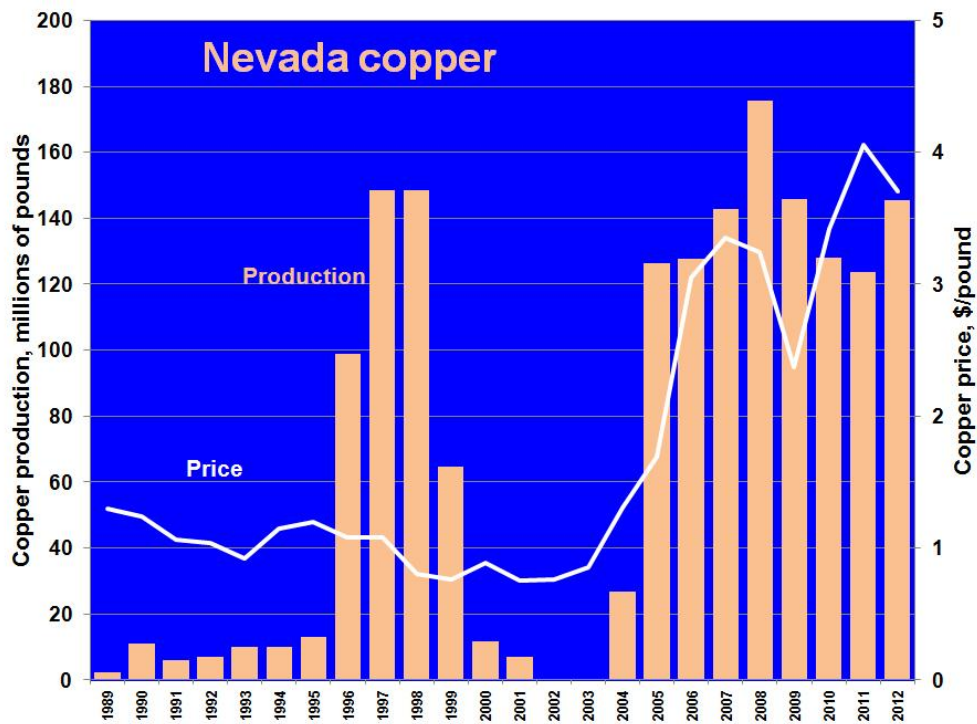


Figure 5. Chart showing Nevada copper production compared to the price of copper from 1978 to 2012.

Exploration activity began to level off in 2012, mainly due to a declining gold price, which peaked at \$1,895 an ounce in September of 2011 and finished 2012 at \$1,657.50 an ounce. New discoveries and promising drilling results 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). Exploration activity, including new claims staked, was reported in most of Nevada's 17 counties. Advanced exploration projects show

promise for major developments, particularly for gold along the Carlin and Battle Mountain-Eureka (Cortez) trends in Eureka and Elko Counties, but also off trend, such as at the Long Canyon deposit in the Pequop Mountains in Elko County. In addition to gold, copper projects, such as the Pumpkin Hollow deposit in the Yerington district in Lyon County, will soon be put into production. The Bureau of Land Management's LR2000 database indicated 195,005 active mining claims at the end of 2012, a 6.7% decrease from the end of 2011 and at the lowest level since 2006 (Fig. 6).

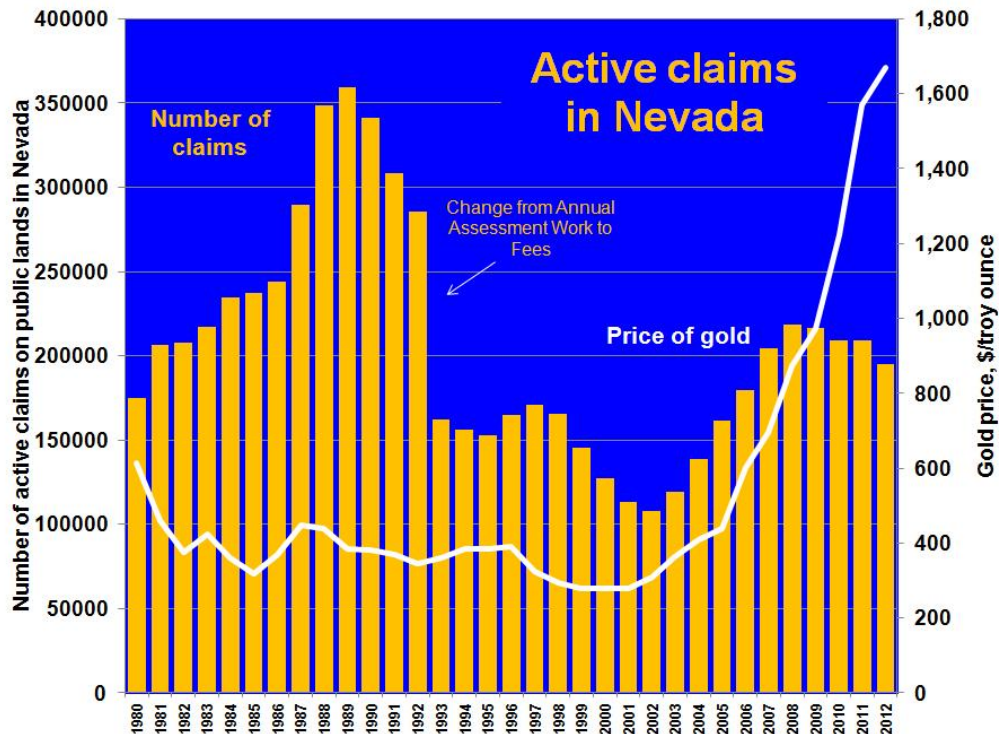


Figure 6. Chart showing number of active mining claims at the end of the year from 1980 to 2012. For comparison, chart also shows the price of gold during that period.

The section on **Industrial Minerals** covers developments during 2012 and gives details on important commodities produced from or processed in Nevada, including aggregate, barite, cement, clays, diatomite, dimension stone, dolomite, gypsum, lime, limestone, lithium, magnesite and brucite, perlite, potassium alum (kalinite), pozzolan, salt, semiprecious gemstones (opal and turquoise), silica, and zeolites. Aggregate production, which until the recession hit Nevada particularly hard, had been increasing as a result of Nevada's expanding population and need for construction materials for

homes, schools, streets, highways, airports, resort hotels, and other businesses. It declined nearly 10% from 2011 to 2012 (Fig. 7). However, the production of gypsum increased nearly 50% in 2012. Demand for construction raw materials is likely to remain strong in the future because of Nevada's population and need for highways. The U.S. Census Bureau (www.census.gov) reported Nevada's population as 2.701 million in 2010, up 35% from 1.998 million in the 2000 census.

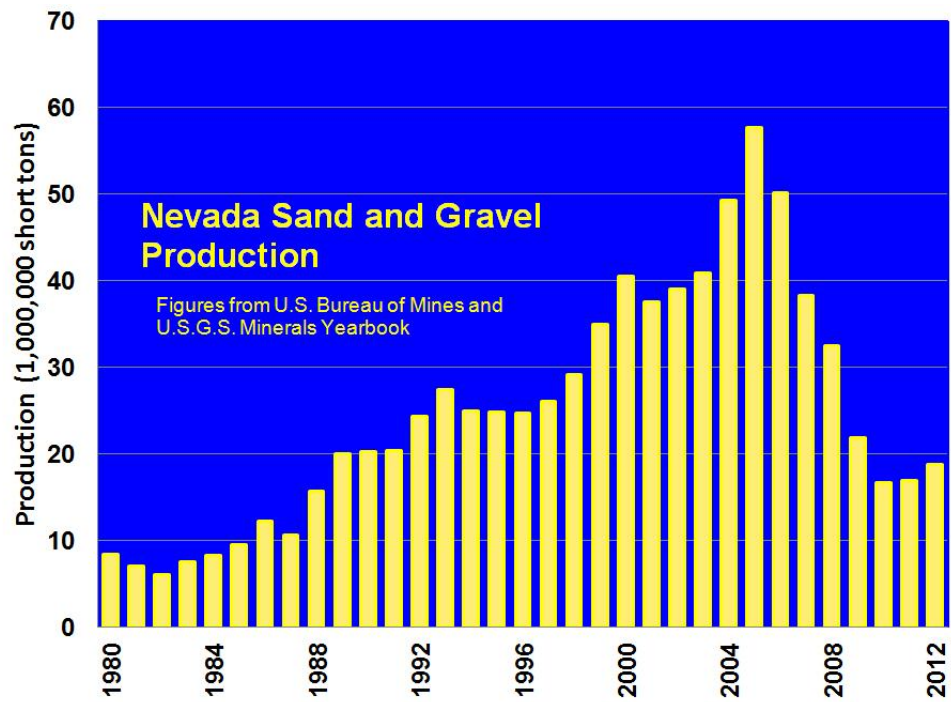


Figure 7. Chart showing Nevada aggregate production from 1980 to 2012.

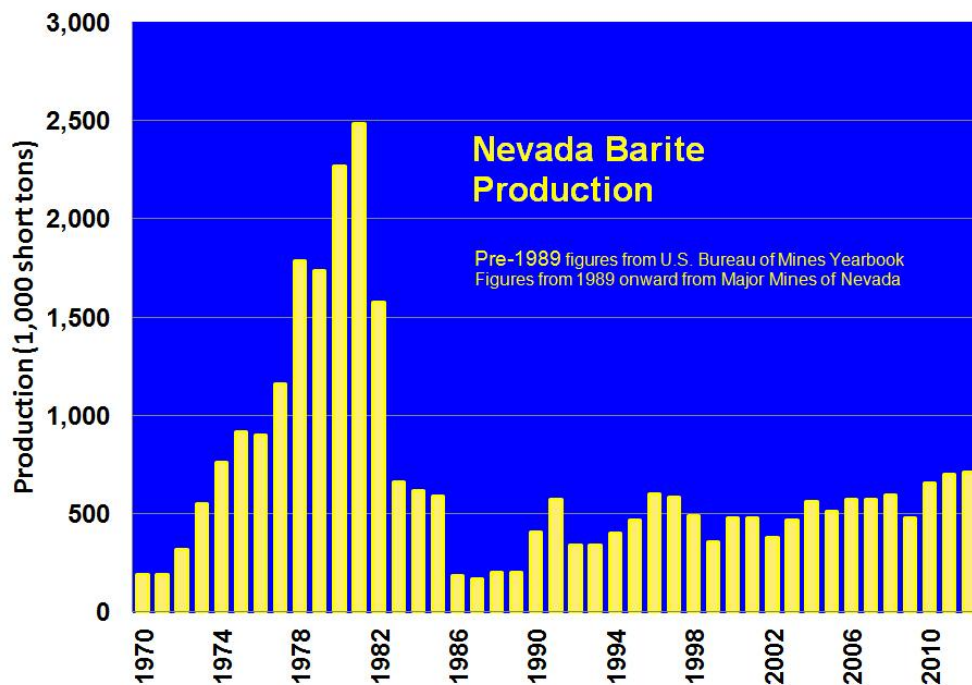


Figure 8. Chart showing Nevada barite production from 1970 to 2012.

Chemetall Foote Corporation's Silver Peak lithium operation in Clayton Valley, Esmeralda County, where subsurface brines are evaporated on a playa, is the only domestic lithium producer, and Premier Chemicals' (now Premier Magnesia) Gabbs Mine in Nye County is currently the nation's only hard-rock producer of magnesite. Four major operations in Lander and Elko Counties combined to produce most of the barite mined in the U.S. Nevada's barite production increased nearly 7% in 2012, with the value of barite production increasing 21% (Fig. 8).

Developments in the geothermal industry are covered in the section on **Geothermal Energy**. Approximately 23 plants operating at 14 sites sold a record amount of electricity in 2012. Nevada geothermal electrical production in 2012 from federal and private lands combined was 2,410,336 megawatt-hours (MWh) net, an 11% increase (Fig. 9). Additionally, geothermal energy is used at numerous places in Nevada for space heating, domestic warm water, recreation, dehydrating vegetables, and other agricultural applications.

Programs in the U.S. Department of Energy, energy bills passed by the Nevada and California legislatures, and activities of researchers at the

University of Nevada, Reno are stimulating geothermal development in Nevada. According to the Geothermal Energy Association, at the end of 2012, there were 75 projects in various stages of development in Nevada, which could result in the construction of between 1,056 and 1,061 MW of additional power generation capacity over the next 5 to 10 years.

At a 2005 meeting of a task force set up by the Western Governors' Association to assess geothermal resource potential, geothermal energy experts estimated that by 2025 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. Current projects under development in Nevada should result in construction of between 2,100 and 2,400 megawatts of capacity within 10 years. Production capacity stood at 512 megawatts at the end of 2012. Additional maps and data on Nevada's geothermal energy can be found at the Nevada Bureau of Mines and Geology website (<http://www.nbmj.unr.edu/Geothermal/index.html>)

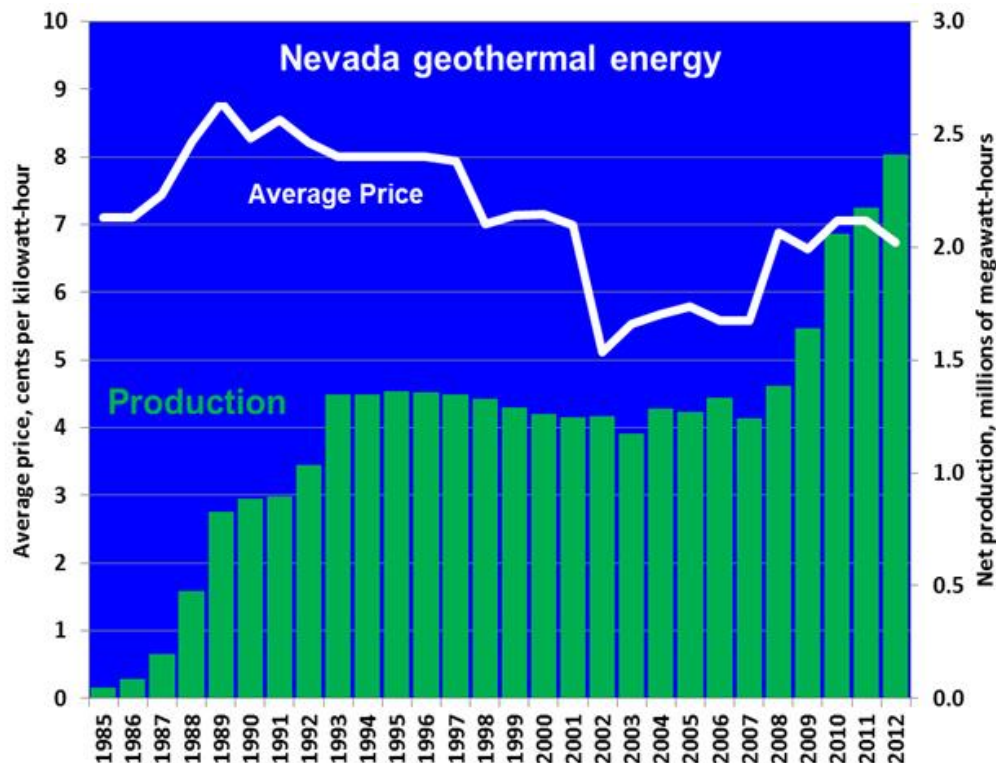


Figure 9. Chart showing net geothermal production in megawatt-hours in comparison to the average price of geothermal power in cents per kilowatt-hour for the period from 1985 to 2012.

Nevada has great potential for renewable energy (particularly geothermal, wind, and solar energy for electricity). Currently, of all the energy consumed by people in Nevada, approximately 91.8% comes from fossil fuels (12.6% from coal, 42.7% from natural gas, and 36.5% from petroleum products). Hydroelectric dams account for 3.6%, followed by geothermal power (2.6%), biomass (1.5%), and solar (0.5%). (Data are from the latest, 2009 statistics of the Energy Information Administration, Table CT2, <http://www.eia.gov/>). New solar plants are being constructed, primarily in southern Nevada, and new wind farms are planned for several areas.

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 is a minor part of U.S. production. The amount of Nevada oil production decreased nearly 10% from 2011, and no new fields were discovered (Fig. 10). Small amounts of co-produced natural gas are used to fuel equipment used for oil production. Despite the decrease in production, the value of Nevada oil production increased 16% from 2011 to 2012 to \$33.5 million because of higher prices for Nevada's oil.

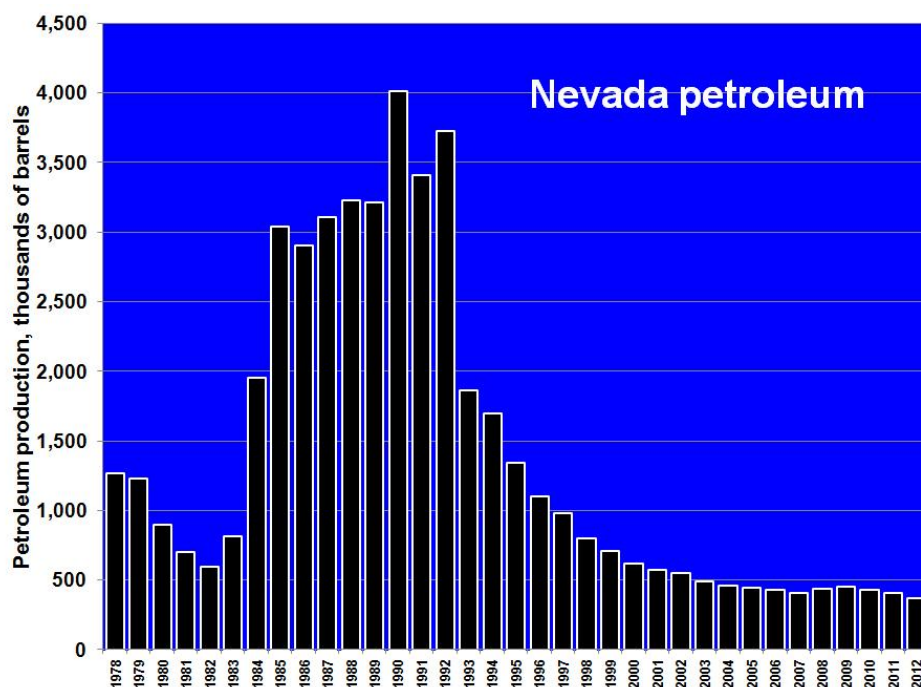


Figure 10. Chart showing Nevada petroleum production from 1978 to 2012.

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 estimated 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. In 2011, the Nevada Bureau of Mines and Geology released Open-File Report 11-2, *Qualitative Petroleum Potential Map of Nevada* (available at <http://www.nbmj.unr.edu/dox/dox.htm#8>), which highlights areas of relative potential for discovery of oil in Nevada, based primarily on the presence and thermal maturity of likely source rocks.

In 2012, Noble Energy Inc., a medium-sized oil company from Houston, Texas, continued evaluation of oil and gas in Tertiary shales near Elko and Wells with hydraulic fracturing technology, which is revolutionizing the oil and gas industry throughout the United States. Noble plans to spend as much as \$130 million on oil and gas exploration in the Elko and Wells area. The company owns leases covering 350,000 acres between Elko and Wells, 66% of which are on private property. Noble completed a 3-D seismic survey in 2012 and plans more surveys in 2013. This will be followed up with testing by drilling five to eight vertical holes and then switching to horizontal drilling depending upon the results. The company estimates the area may hold a potential resource of between 190 million and 1.4 billion equivalent barrels of oil with a potential production of up to 50,000 barrels per day.

Local economies benefit from mining in Nevada. Construction of new homes, hotels, 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. According to the Nevada Department of Employment, Training, and Rehabilitation, the Nevada mining industry employed an average of 15,400 employees in 2012. The average pay for mineral industry employees during this time was \$83,474 per year, the highest average of any employment sector in the state. In addition, it is estimated there are about 65,000 jobs in the state related to providing goods and services needed by the mining industry. Mining employment has remained an important factor in Nevada (M. Visser, 2012, Major Mines of Nevada 2012, Mineral Industries in Nevada's Economy, Nevada Bureau of Mines and Geology Special Publication P-23, 28 p.; available at www.nbmj.unr.edu/dox/mm/mm10.pdf).

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.nbmj.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) provides data on oil and gas, geothermal, solar, wind, hydroelectric, and other energy sources. The Nevada Bureau of Mines and Geology supports several interactive maps on the Web that are backed by periodically updated databases on mineral and energy resources and potential, exploration activity, land ownership and restrictions, and other geographic information (<http://www.nbmj.unr.edu/Mapping/InteractiveMaps.html>).

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 David A. Davis and John L. Muntean

PRODUCTION

Nevada produced 5,615,255 ounces of gold, 8,527,480 ounces of silver, 145,318,737 pounds of copper, and 295,510 pounds of molybdenum from 32 active mines in 2012 based on records from the Nevada Division of Minerals. Production of three of the four metals was up from 2011, a 1.4% increase for gold, a 19% increase for silver, and a 17% increase for copper. Molybdenum production, however, decreased 74%.

Gold production increased for the third year in a row after a nine-year decline in production. Based on the number of projects that are planned to be made into mines, gold production is anticipated to continue to increase in the near term. The Carlin trend helped Barrick Gold Corp. and Newmont Mining Corp. continue their dominance of Nevada's gold production. Barrick and Newmont accounted for 86% of Nevada's gold production, down slightly from 87% in 2011. The Carlin trend produced 2,161,271 ounces of gold, an increase of 7.8% from 2011 due to increases in production from Barrick's Goldstrike Mine, both from the Betze-Post open pit and the underground Meikle mine, and from Newmont's overall Carlin operations. The Carlin trend's share of Nevada's gold production increased to 38%, the first increase after declining annually since 2008 when the share was 54%. The increased share of the production from the Carlin trend was also due to decreases in production at Hollister, Marigold, Phoenix, Ruby Hill, and Twin Creeks, which was only partially offset by increases in production at Bald Mountain, Hycroft, Jerritt Canyon, Round Mountain, Standard, and Turquoise Ridge and the commencement of production at seven new or reopened mines.

Barrick remained the leading producer of gold in 2012, producing 55% of Nevada's gold. Its production decreased slightly from 3,092,704 ounces of gold in 2011 to 3,090,061 ounces in 2012. Production in 2012 came from its Goldstrike, Bald Mountain, Ruby Hill, Cortez, and Turquoise Ridge mines (75% share), plus its 50% share of the Round Mountain mine's production and 33% share of the production from the Marigold mine. The open pit and underground mines at the Cortez Hills deposit produced 1,369,966 ounces of gold which was 44% of Barrick's Nevada production and 24% of Nevada's output.

Newmont produced 1,736,845 ounces of gold, a 2.5% decrease from 2011. Newmont's production came from nine open pit and seven underground mines, including its Carlin trend mines and from its Twin Creeks, Phoenix, and Midas

mines, plus its 25% share of the Turquoise Ridge mine. Production was 82% from refractory ores in 2012 as compared to 79% in 2011 and 2010. The company reported 35,100,000 ounces of gold reserves in Nevada, 77% in open pit mines and 23% in underground mines. The reserves are 85% in refractory ore, and 15% in oxide ore. Production began in August at the Emigrant mine near the old Rain mine and was expected to reach 80,000 to 90,000 ounces annually. The BLM approved the company's Genesis Project in 2011 with production expected to start in 2014 or 2015.

Other mines that commenced production in 2012 include Atna Resources Ltd.'s Pinson deposit in Humboldt County, Comstock Mining's Lucerne deposit in Storey County, Imperial Metals Corp.'s underground Sterling deposit near Beatty, Scorpio Gold's series of deposits at Mineral Ridge, and Round Mountain Gold Corp.'s Gold Hill deposit just north of the Round Mountain. In addition, Gryphon Gold started production at its Borealis mine by re-processing old heap leach pads. In 2011, Jipangu Inc. shut down the Florida Canyon mine, and moved its production to the nearby Standard open pit. Plans were underway for expansion and recommencement of production at Florida Canyon in 2014. At the Jerritt Canyon mine, the underground Starvation Canyon deposit, was scheduled to commence production in 2013. All bodes well for annual increases in gold production in Nevada for at least the next few years if gold price remains high (e.g., above \$1000/ounce).

Newmont was the leading silver producer at 2,853,266 ounces, 90% of which was from the Midas and Phoenix mines. Coeur d'Alene Mines Corp. continued to ramp up production at its Rochester mine, doubling production to 2,801,501 ounces of silver. KGHM International's (formerly Quadra FNX) Robinson mine produced 81% of Nevada's copper, which amounted to 117,509,548 pounds, an 18% decrease from 2011. Newmont's Phoenix mine made up the balance of the copper production, producing 27,809,189 pounds, a 16% increase from 2011. KGHM International produced 449,001 pounds of by-product molybdenum from Robinson, a 40% decrease from 2011, which was due to mining of molybdenite-poor areas in 2012. Win-Eldrich Mines Ltd. produced 44,092 pounds of molybdenum from its underground Ashdown mine, a 40% decrease from 2011, before shutting down the mine in February 2012 because of low molybdenum prices.

EXPLORATION

Exploration activity began to level off in 2012, mainly due to a decreasing gold price, which peaked at \$1,895 an ounce in September of 2011 and finished 2012 at \$1,657.50 an ounce. Nevada

county recorders, however, registered 224,772 mining claims in fiscal year 2012 (which ended in June 2012), a 14.1% increase from fiscal year 2011. These included new claims and annual maintenance of existing claims. The number of claims at the end of 2012, as derived from U.S. Bureau of Land Management's (BLM) LR2000 database, was 195,005, supporting a decrease in activity during the course of 2012. The distribution of active claims at the end of 2012 is shown in Figure 1. The U.S. Bureau of Land Management (BLM) listed 21,118 new claims that were located in calendar year 2012 (Figure 2), a 24% decrease from 2011. Table 1 shows the ten companies that staked the most claims in calendar year 2012.

At least 126 projects were drilled in 2012, compared to 130 in 2011, 99 in 2010 and 64 in 2009. Table 2 shows the breakdown of the drill projects by size of company and size of drill program. Four "major" companies (Barrick Gold Corp., Newmont Mining Corp., Kinross Gold Corp., and Goldcorp Inc.) and nine "mid-tier" companies drilled at least 41 projects in 2011¹. The mid-tier companies included Agnico-Eagle Mines Ltd., Allied Nevada Gold Corp., Atna Resources Ltd., Coeur d'Alene Mines Corp., Great Basin Gold Corp., Imperial Metals Corp., International Minerals Corp., KGHM International Ltd., and Veris Gold Corp. The remaining 85 projects were drilled by 66 different "junior" companies. Figure 3 shows the distribution of projects across the state, which were drilled in 2012.

¹ 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 ounces of gold and/or have market capitalizations less than \$500 million.

The main exploration objective in Nevada continued to be gold. Of the 126 projects that were known to have been drilled in 2012, 106 of them targeted gold. Eight were drilled primarily for copper, which were also commonly tested for gold, silver, and molybdenum. These included Contact (International Enxco Ltd.), Kope Scheelite (Silver Reserve Corp.), Copper Basin (Newmont), the Robinson mine (KGHM), Majuba Hill (Max Resource Corp.) and three in the Yerington district – Ann Mason (Entrée Gold Inc.), Yerington mine (Quaterra Resources Inc.), and Pumpkin Hollow (Nevada Copper Corp.). Eight silver projects drilled in 2012,

which included Nivloc (International Millennium Mining Corp.), Silver Queen (MGold Resources Inc.), Trinity (Liberty Silver Corp.), Taylor (Silver Predator Inc.), Pioche (International Silver Inc.), Quartz Mountain (Cayden Resources) and two projects at Rochester (Coeur d'Alene Mines Corp. and Rye Patch Gold). General Moly Inc.'s Mount Hope project north of Eureka and its Liberty project north of Tonopah were not drilled in 2012. General Moly continued its permitting and financing efforts at Mount Hope and received a final environmental impact statement and record of decision form the BLM approving the project. The company continued to leave Liberty idle for the time being. Black Fire Minerals Ltd. drilled its Pilot Mountain project for tungsten; Stockpile Reserves LLC, drilled its Fencemaker project in Pershing County for antimony; and American Vanadium Corp. drilled the Gibellini Project south of Eureka for vanadium. Nevada Iron Ltd., an Australian company, drilled to develop an iron resource at its Buena Vista project, the first iron project in Nevada in decades.

With few exceptions, the major companies that drilled for gold in 2012 continued to focus on their active mine sites. Barrick Gold Corp. budgeted between \$450,000,000 and \$490,000,000 for exploration of which about half went to the company's North American projects most of which were in Nevada. The company had over 50 drill rigs operating mid-year in Nevada. At Turquoise Ridge, the company kept 17 drill rigs busy defining and updating reserves and resources in support of the prefeasibility study of developing a large-scale open pit to mine the lower grade mineralization that envelops the high-grade ores currently being mined underground. Barrick continued exploration and drilling at and adjacent to the Cortez Hills, Goldrush, and Pipeline deposits, and as well drill-testing several other targets within and near the Cortez and Gold Acres windows. Barrick had 12 drill rigs busy on its Goldrush deposit alone. Mining ceased at Pipeline in 2009, but was set to resume in 2013. In addition, at its the Spring Valley project (joint venture with Midway Gold Corp.) located near the Rochester mine in Pershing County, Barrick spent \$10,040,000, mainly on drilling.

Newmont Mining Corp. spent \$138,000,000 on advanced projects and exploration, an increase of 4.5% from 2011. The company focused much of its effort on continued exploration and development of the northern Carlin Trend, including Leeville, Silverstar (Genesis), and Turf. The company spent \$57,000,000 alone on underground development at Leeville and Turf. In addition, the company continued drilling and underground development of the Vista 7 Project at Twin Creeks. The company kept six drill rigs busy exploring and defining Long Canyon deposit with open pit mining potentially starting there in 2017. The company also continued

exploration and drilling at Copper Basin and Buffalo Valley in the Battle Mountain area.

At Marigold, Goldcorp Inc. continued development drilling at the Target II, Target III and the Red Dot deposits and was considering expanding the Mackay Pit. Round Mountain Gold Corp. (Kinross Gold Corp. 50%, Barrick Gold Corp. 50%) carried out three expansions of the Round Mountain and drilled the WEX deposit for potential near future expansion. The company also evaluated potential gold mineralization at the SWEX and Southeast target south of the main pit.

Several major drill programs were conducted by mid-tier companies. At the Hycroft Mine, Allied Nevada Gold Corp. drilled the Bay, Brimstone, Central, and Vortex deposits and issued a 43-101 technical report upgrading the resources. The company also developed an exploration program to test for mineralization at the Oscar, Chalcedony, Rabbit, and Chance targets south of the current mine plan. The company also spent \$4,400,000 on exploration, which included drilling at Hasbrouck Mountain and Three Hills properties near Tonopah and its Wildcat property in Pershing County. At the underground Hollister Mine, Great Basin Gold Ltd. continued test mining and conducted drilling for exploration and stope delineation of the Upper Zone, SE Gwenivere, Pit Feeder, and East Clementine deposits. However, the company went into bankruptcy after the end of the year. International Minerals Corp. continued drilling the Goldfield property mainly focusing on the Gemfield deposit and the Southeast Extension. Gemfield was being considered for an open pit mine.

There were several other drill projects of interest in 2012. Veris Gold Corp. (formerly Yukon-Nevada Gold Corp.) spent \$7,166,000 on development and exploration at its Jerritt Canyon mine and conducted a major drill program to mainly convert resources to reserves in the Smith and SSX/Steer underground mines. Comstock Mining Inc. spent \$4,870,000 on drilling infill and development holes in the Lucerne Resource area and exploration holes at its Spring Valley target area. Bravada Gold Corp. drilled the Connector, North Hills, and Zephyr targets at its Wind Mountain property in the San Emidio Desert and issued updated preliminary economic assessment of

the deposit. Timberline Resources Corp. spent \$4,204,887 on exploration at the Lookout Mountain project on its South Eureka property in the southern part of the Eureka district, which included drilling infill and holes for geotechnical data and metallurgical testing. Corvus Gold Inc. drilled mainly the Mayflower deposit and the Yellow Jacket zone on its North Bullfrog property and released a new resource estimate. Klondex Mines Ltd. drilled the Fire Creek property in the Bullion District and intercepted 4.8 feet grading 85 opt gold and 174 opt silver. The company contracted Small Mine Development to construct a portal and decline for underground close-in drilling. Pilot Gold Inc. spent \$3,676,068 on exploration at the Kinsley Mountain property that included an infill and step-out drilling program, which intersected a new mineralized zone at Candland Canyon and expanded the Western Flank Zone. Paramount Gold and Silver Corp. drilled the PAD and South Sleeper zones on the Sleeper property and issued a preliminary economic assessment with upgraded resources.

Not counting resources around operating mines, 26 new resource estimates were released in 2012 or early 2013, driven mainly by the high gold price. Ten were upgrades from the previous year and include Atlanta, Gold Bar, Goldfield Main, Goldrush, Lookout Mountain, Mount Hamilton, North Bullfrog, Pine Grove, Reward, Sleeper, Talapoosa, and South Arturo. Eight were new resource estimates that superseded those done between 2000 and 2010 and include Castle Black Rock (Castle and Boss), Gemfield, Lincoln Hill, Lone Tree, Long Canyon, Sandman, Silverstar (Genesis), and Taylor. Four were new resources that superseded estimated done in the 1990s and include Copper Basin, Hercules, Relief Canyon, and Trinity. Two were resources for new deposits and include Goldspring, and Wilco-Colado.

Exploration activity is summarized below by county and district. Projects that were drilled in 2012 are emphasized. Production, reserves and resources of gold and silver are updated in the section "Major Precious-Metal Deposits." Recent production, reserves, and resources from projects producing or targeting other metals are listed in the section "Other Metallic Deposits."

Table 1. Claimants that staked the most new claims in 2012.

Claimant	Number of Claims	Main Areas of Staking
RR Exploration LLC	1533	1) East flank of Pancake Range and in Newark Valley between the gold deposits at Pan (west) and Mount Hamilton (east), White Pine Co.
NEWMONT MINING CORP.	1426	1) Dolly Vardin District, including pediment to north in Goshute Valley, Elko Co. 2) Copper Basin area in Battle Mountain District, including pediment to the northeast, Lander Co.
BARRICK GOLD CORP.	1330	1) Antelope Valley between Mahogany Hills and Monitor Range, Eureka Co. 2) Fourmile Canyon area, Cortez Mountains, Eureka Co. 3) Horse Creek Valley north of the JD Window in the northeastern Simpson Park Mountains, Eureka Co.
SLEEPER MINING CO. LLC	810	1) Pediment on west flank of Slumbering Hills south of Sleeper gold deposit, Humboldt Co.
TONKIN SPRINGS LLC	744	1) Hot Springs Point, Toiyabe Range, Lander, Co.
WILMAT PETROLEUM CORP.	669	1) Bruner District and pediment east of Bruner, Nye Co.
CORVUS GOLD INC.	596	1) Bullfrog Hills, Nye Co.
KINSLEY RESOURCES INC.	572	1) Kinsley District, Elko Co.
ALTAN RIO INC.	505	1) Ellendale District, Nye Co.
RENAISSANCE GOLD CORP.	484	1) West of Reveille District, Nye Co. 2) Juniper Range District, south end of Sahwave Mountains, Pershing Co. 3) Piñon Range, Eureka and Elko Cos. 4) Arabia District, Pershing Co.

Table 2. Breakdown of 2012 drill programs for metals in Nevada.

	Major/Mid-Tier Companies	Junior Companies	Total
Major Drill Program	32	13	45
Minor Drill Program	9	72	81
Total	41	85	126

Major programs are arbitrarily defined as >25 drill holes.

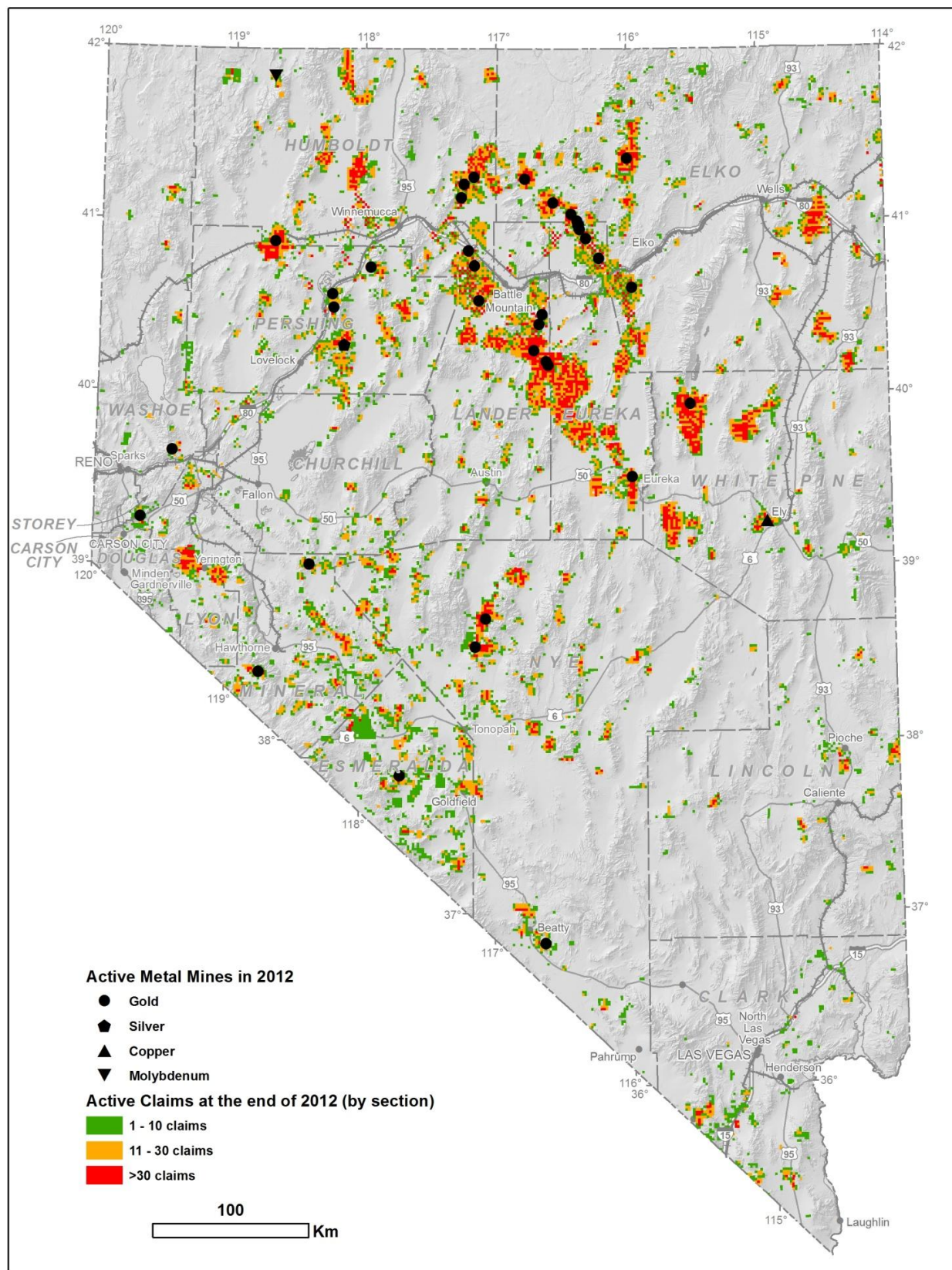


Figure 1. Map showing distribution of active mining claims by section at the end of 2012. Source of data is the U.S. Bureau of Land Management's LR2000 database.

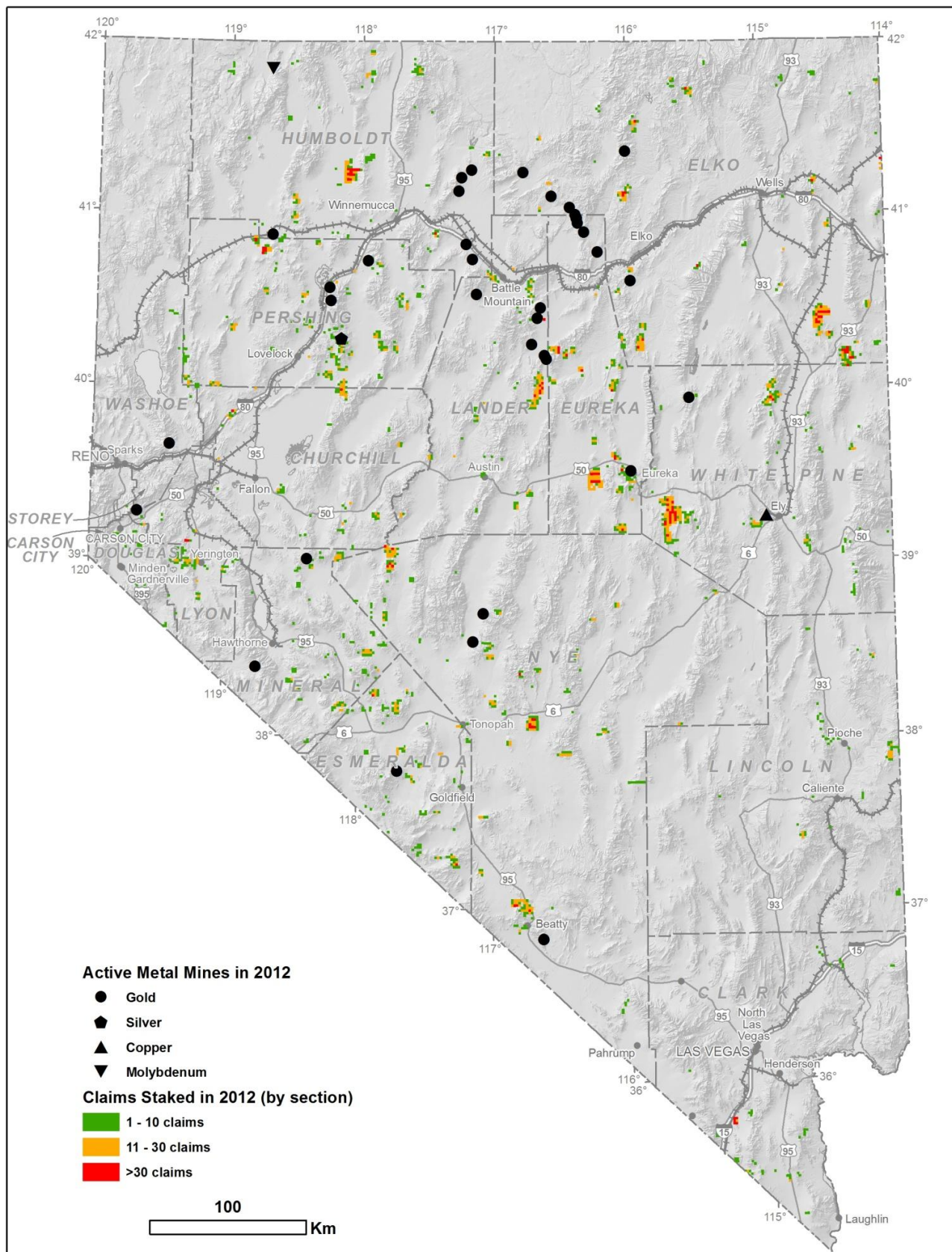


Figure 2. Map showing distribution of active mining claims by section that were staked in 2012. Source of data is the U.S. Bureau of Land Management's LR2000 database.

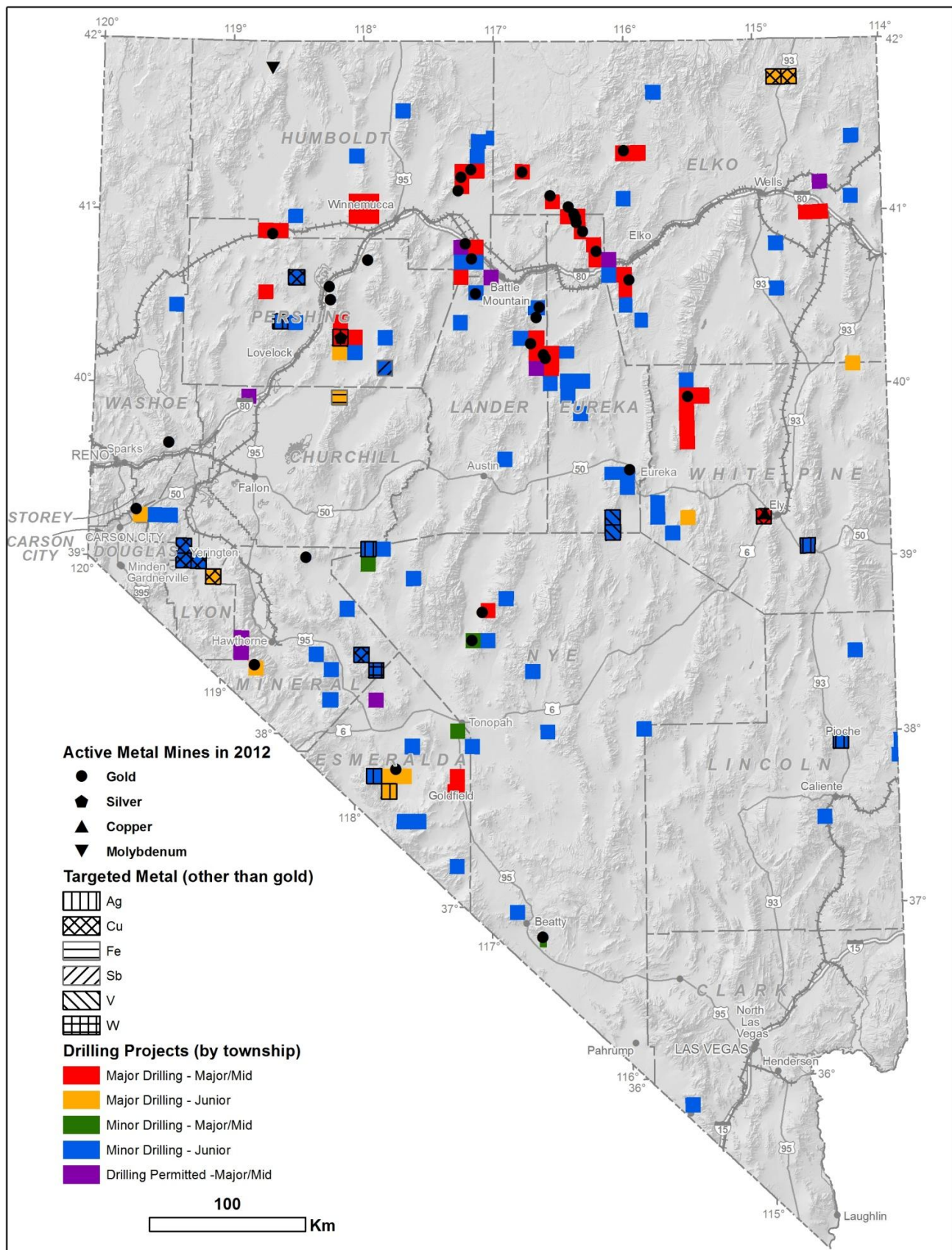


Figure 3. Map summarizing 2012 drill projects by township.

CHURCHILL COUNTY

Bell Mountain District

Bell Mountain. Late in 2012, Lincoln Mining Corp. entered into a purchasing agreement with Laurion Mineral Exploration Inc. for the Bell Mountain project, which consists of 174 unpatented lode claims covering 3,480 acres. Laurion had drilled the property in 2011, but no drilling was conducted in 2012. In December 2012, Lincoln Mining amended and reissued the 43-101 technical report of May 2011, but did not change the resource estimates (Lincoln Mining Corp. Management and Discussion Analysis, 3/14/2013; Lincoln Mining Corp. news release, 11/18/2012; Lincoln Mining Corp. 43-101 Technical Report, 12/18/2012; Lincoln Mining Corp. website, www.lincolnmining.com).

Jessup District

Jessup. Newmont Mining Corp. was granted a notice of intent by the BLM to drill holes in Sections 18 and 20, in Township 24 North, Range 28 East, west of the old Jessup town site. It is unknown whether Newmont drilled any holes in 2012. (BLM LR2000 database)

Mineral Basin District

Buena Vista. Nevada Iron Ltd., an Australian company, drilled to develop an iron resource at its Buena Vista project. Buena Vista is a magnetite iron deposit that was discovered in 1898, intermittently mined between 1951 and 1959, and most recently explored by US Steel periodically from 1961 to 1979. Nevada Iron is developing three deposits for production – the West, East, and Section 5 deposits. In 2012 it drilled 50 reverse circulation holes totaling 71,833 feet and 12 core holes totaling 21,798 at the Section 5 deposit. At the West deposit it drilled 29 reverse circulation holes totaling 55,318 feet and seven core holes totaling 11,696 feet. Based on drilling through 2012, including old holes drilled in the 1960s, Nevada Iron released a resource estimate in 2013. The indicated resource is 148,700,000 tons grading 18.8% iron. The iron mineralization in the Buena Vista Hills is an iron-oxide-copper-gold style deposit without the copper and gold. The iron deposits likely formed in the Jurassic by the circulation of the non-magmatic brines that mobilized iron out of the Jurassic Humboldt mafic complex. The brine formed a huge volume of scapolite-bearing alteration. (Nevada Iron Ltd., website, www.nv-iron.com; Johnson and Barton, 2000, SEG Guidebook Series)

CLARK COUNTY

Goodsprings District

Boss. Boxxer Gold Corp. ended its 2011-2012 drilling program by completing two core holes totaling 1,680 feet in the Oro Amigo zone in 2012. The best intercept was 97 feet grading 0.6% copper, 0.002 gold, and 0.04 opt silver including 37 feet grading 1.51% copper, 0.006 opt gold, and 0.08 opt silver. Five of the last six drill holes of the drill program contained significant intervals of copper mineralization, and three of these holes were interpreted to have intersected a proximal part of the large hydrothermal system responsible for the Boss Extension copper-gold skarn. The Oro Amigo zone likely marks a zone of higher grade alteration and mineralization within the skarn. (Boxxer Gold Corp. news releases, 2/9/2012, 5/14/2012; Boxxer Gold Corp. website, www.boxxergold.com).

ELKO COUNTY

Bootstrap District

South Arturo. In December 2012, Barrick-Dee Mining Venture Inc. (Barrick Gold Corp. 60%; Goldcorp, Inc., 40%) issued a draft environmental impact statement on its Arturo Mine project, which proposes expansion of the Dee open pit mine; construction of two new waste rock disposal facilities, a new heap leach pad, and processing facilities; upgrading and realigning parts of the Bootstrap haul road; and relocation or construction of support facilities. The Dee pit ceased production in 2000 and was in reclamation and closure. The project includes the South Arturo deposit just southeast of the Dee pit. The probable reserve at the end of 2012 was 2,368,000 ounces of gold in 56,280,000 tons grading 0.042 opt. (Elko Daily Free Press Mining Quarterly, Spring 2013; Barrick-Dee Mining Venture Inc. Draft Environmental Impact Study, 12/2012; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. website, www.barrick.com; Goldcorp, Inc. Annual Information Form, 3/28/2013; Goldcorp, Inc. website, www.goldcorp.com)

Storm. Barrick Gold Corp. operates the Storm (Barrick Gold Corp. 60%, Goldcorp, Inc. 40%) underground mine, which is accessible through the old Dee open pit. In 2012, production from the Storm Mine was 33,802 ounce of gold and 18,875 ounces of silver, decreases of 61% and 74% respectively. For reporting purposes, Barrick Gold generally lumps Storm in with Goldstrike. (Elko Daily Free Press Mining Quarterly, Summer 2012; Barrick-Dee Mining Venture Inc. Draft Environmental Impact

Study, 12/2012; Barrick Gold Corp. website, www.barrick.com)

Carlin District

Carlin. Evolving Gold Corp. continued its diamond drilling program started in 2009 at its Carlin/Humboldt project south of the town of Carlin. The property covers 10,880 acres and consists of a combination of unpatented lode claims and private land either owned or leased by the company. Some of the claims were leased from Newmont Mining Corp. In 2012, Evolving Gold spent \$4,042,660 on drilling. A number of the holes were drilled and then later re-entered and deepened as wedge holes. Most of the holes were drilled in the extension of the high grade mineralization in the Arch Zone. Significant intercepts included 30.8 feet averaging 0.365 opt gold, including 11.2 feet grading 0.824 opt gold; 90.9 feet averaging 0.145 opt gold, including 24.9 feet grading 0.331 opt gold; and 33.5 feet grading 0.523 opt gold in two holes. The gold mineralization in these two holes is accompanied by decalcification of limestone host rocks, remobilized carbon, fine pyrite and realgar. These and earlier holes have defined the 3,300-foot by 1,970-foot Arch Zone, in which mineralization is open in all directions. The high-grade intercepts are at depths mainly between 2,500 and 3,000 feet. The Humboldt portion of the property was not drilled in 2012. (Evolving Gold Corp., Management and Discussion Analysis, 2/14/2013; Evolving Gold Corp., Annual Information Form, 7/2/2013; Evolving Gold Corp. Audited Annual Financial Statements, 6/28/2013; Evolving Gold Corp., news release 7/11/2012, 11/12/2012, 2/4/2013; Evolving Gold Corp. website, www.evolvinggold.com)

Carlin Vanadium. After releasing a 43-101 compliant resource estimate in 2010, EMC Metals Corp. reported no further work in 2011 or 2012 on their vanadium project located on the northwestern flank of the Piñon Range near Cole Creek. (EMC Metals Corp. SEC Form 10-K, 3/27/2013; EMC Metals website, www.emcmetals.com)

Emigrant. Newmont Mining Corp. began mining at its 1,600-acre Emigrant deposit near the old Rain mine and poured the first gold bar on August 30. Production is expected to reach 80,000 to 90,000 ounces annually. The operation was mining in three pits and will eventually mine a series of eight small open pits that will be backfilled as they are mined out. The deepest pit will be 283 feet deep. Ore was processed on site and then hauled to the Gold Quarry operation for refining. The mine life was estimated to be 10 to 12 years and the life of processing 16 to 18 years. The company reported \$47,000,000 in capital expenditures on developing

Emigrant in 2012. Newmont continued drilling in 2012, but it was mainly definition drilling, including the Gold Shape resource. (Elko Daily Free Press Mining Quarterly, Spring 2012, Fall, 2012, Winter 2012; Newmont Mining Corp. Form 10-K, 3/28/2013; Newmont Mining Corp. Investor Day presentation, 5/23/2012; Newmont Mining Corp. website, www.newmont.com)

South Carlin: After conducting a drilling program in 2011, Premier Gold Mines, Ltd., spent \$841,077 in 2012 on exploration on its South Carlin Project, which includes the Saddle and Tess deposits about 1.5 miles northwest of the old Rain mine. No money was spent on drilling in 2012. In January 2012, Premier signed a letter of intent to form a joint venture with Newmont Mining Corp. (Premier Gold Mines, Ltd., 55%, Newmont Mining Corp. 45%). The terms of the joint venture include each company contributing lands held along the "Rain Trend" to consolidate the horizon that hosts the Rain Mine, and the Saddle and Tess deposits. In addition, Premier will contribute one section of land, waive its existing right of payment under the Rain and Emigrant royalties, and spend \$20 million for development over two years. Newmont will contribute three sections of land, full site access including roads, infrastructure, and power, and access to contractor/supplier relationships/discounts; and a favorable milling agreement such that ore from the project will be processed at Newmont's milling facilities that are located within 20 miles of the property at a pre-arranged milling rate. Premier plans to mine the Saddle and Tess deposits which are along strike of the Rain underground ramp, but some open pit resources may be present as well. (BLM LR2000 Database; Elko Daily Free Press Mining Quarterly, Spring 2012; Premier Gold Mines, Ltd., news release, 1/26/2012; Premier Gold Mines, Ltd., annual information form, 4/2/2013; Premier Gold Mines, Ltd., annual report, 5/28/2013; Premier Gold Mines, Ltd., website, www.premiergoldmines.com)

Contact District

Contact. Between November 2011 and September 2012, International Enxco, Ltd., completed 58 reverse circulation hole and 24 core holes totaling 42,418 feet on its Contact project. Significant intercepts include 90 feet grading 0.4% copper, 20 feet grading 0.57% copper, and 27 feet grading 0.44% copper. Drilling on the east end of the project area added over 3,000 feet of strike length to the copper oxide mineralization, extending it to over 7,250 feet. A surface sampling program at the Copper Ridge area, located about one mile southwest of the main resource area, returned assays of up to 12.4% copper. At the end of 2012

the measured and indicated resource was 215,710,000 tons grading 0.25% copper for a total of 1,058,998,000 pounds of copper. The resource is dominated by copper oxides with lesser chalcocite and covellite. (International Enxco Ltd. News Release, 8/27/2012, 9/10/2012; International Enxco Ltd. Management and Discussion Analysis, 4/4/2013; International Enxco Ltd. 43-101 Technical Report, 10/8/2012; International Enxco Ltd. website, www.enxco.ca)

Dolly Varden District

Claim Staking. Newmont Mining Corp. staked 1,247 lode claims in three blocks (DVN, DVS, and DVP claims) in T28-30N, R65-66E across much of the Dolly Varden Mining district. The district covers the Dolly Varden Mountains, which are underlain by limestone and limy and cherty shale of the Permian Pequop Formation, overlain by remnants of the Permian Park City Limestone. These rocks are intruded by the Cretaceous Melrose quartz monzonite stock and related dikes. Three types of ore have been mined in the district: 1) copper ores in skarn, 2) lead-silver replacement and fissure deposits in limestone, and 3) gold-bearing quartz veins in the stock. Between 1908 and 1981, the district produced over 21,000,000 pounds of copper, mostly from the Victoria Mine, and over 170,000 ounces of silver. (BLM LR2000 Database; NBMG Bulletin 106)

Eastern Elko County

Angel Wing. Ramelius Resources, Ltd., and Marmota Energy completed seven reverse circulation holes totaling 6,206 feet at the Angel Wing project (Ramelius Resources, Ltd., 42%, Marmota Energy 28%, Miranda Gold Corp. 30%). Significant intercepts included 100 feet grading 0.099 opt silver, 300 feet grading 0.089 opt silver, 120 feet grading 0.06 opt silver, and 260 feet grading 0.058 opt silver in four holes. One also intercepted 5 feet grading 0.34 opt gold and 15 feet grading 0.16 opt gold. The drill results indicate the anomalous silver and gold grades are related to buried silicified horizons in highly permeable Tertiary breccias and decalcified Triassic limestones that underlie Tertiary rhyolite tuffs that crop out at the surface. The tuffs also conceal the Grass Hollow rhyolite intrusion. The mineralization is open to the north, west, and east and for 1,200 feet to the south, and may represent the top of a preserved low-sulfidation epithermal vein system. (Marmota Energy Quarterly Reports, 7/31/2012, 10/31/2012; Ramelius Resources Ltd. website, www.rameliusresources.com.au; Marmota Energy website, www.marmotaenergy.com.au; Miranda Gold Corp. website, www.mirandagold.com)

Gold Circle District

Clover. Between 2009 and 2011, Yamana Gold Inc. drilled 26 holes at the Clover property (joint venture with Atna Resources Ltd.). The 2011 drilling program failed to extend mineralization encountered in earlier drilling, which the company interpreted as being due to a change in strike and host lithology of the targeted structure. No drilling was done in 2012, the company terminated its joint venture, and returned the property to Atna Resources. (Atna Resources, Ltd., Form 20-F, 3/21/2013; Atna Resources, Ltd., Management Discussion and Analysis, 8/10/2012, 3/21/2013; Atna Resources, Ltd., website, www.atna.com)

Jake Creek. Evolving Gold Corp. released a 43-101 technical report with the 2011 drill results. The system contains sub-horizontal and laterally extensive low-grade gold mineralization, which locally includes banded epithermal veins and quartz-stockwork zones. The gold mineralization is mainly hosted in middle Miocene rhyolitic and dacitic flows and welded tuffs. The mineralization is associated with silicification and clay, and has a low silver to gold ratio. The drill data show higher gold grades occur in clay-altered tuff, lying less than 100 feet above the contact with underlying Paleozoic sedimentary rocks. Gold correlates with arsenic, selenium, mercury, antimony and silver. Mineralization in the Paleozoic sedimentary rocks just below the contact is associated with increased silica content and veins of brassy pyrite, with a total sulfide content of approximately 5%. Mineralization in the Panorama target zone is characterized by banded quartz veining with calcite. (Evolving Gold Corp. Management Discussion and Analysis, 8/14/2012; Evolving Gold Corp. news release, 2/24/2012; Evolving Gold Corp. 43-101 Technical Report, 6/19/2013; Evolving Gold Corp. website, www.evolvinggold.com)

Midas. Newmont Mining Corp. produced 82,922 ounces of gold and 1,247,994 ounces of silver, decreases of 26% and 17% respectively from 2011. The decreases were due to lower throughput and grade. The life of the mine was estimated out to 2015, but that may be extended if drilling continues. No drill results from 2012 were released. The BLM was preparing an environmental assessment for release in 2013 involving the proposed construction of support facilities for Midas. The project proposed to construct and operate up to seven ventilation raises, access roads, and power lines, and to approve 25 acres for future surface exploration projects. (BLM News Release No. ELDO 2013-034 3/21/2013; BLM Environmental Assessment, 3/2013; Elko Daily Free Press Mining Quarterly, Winter 2012; Newmont Mining Corp. Management

Discussion and Analysis, 3/28/2013; Newmont Mining Corp. Form 10-K, 3/28/2013; Newmont Mining Corp. website, www.newmont.com)

Independence Mountains District

Jerritt Canyon. The owners of the Jerritt Canyon Mine changed its name from Yukon-Nevada Gold Corp. to Veris Gold Corp. The mine produced 105,627 ounces of gold, an increase of 57% from 2011. The cash cost per ounce was \$1,034. Production was from two operating underground mines, Smith and SSX/Steer. The operation of the Smith Mine was contracted out to Small Mines Development LLC, which produced 405,904 tons of ore resulting in 66,515 ounces of gold. Veris Gold operated the SSX/Steer Mine itself and mined 281,315 tons of ore. The roaster capacity was permitted at 6,000 tons per day. With the ore feed from the operating underground mines averaging less than a third of that. Veris planned to fill the remaining mill capacity with third party ores through toll milling contracts. In the past, the company had an agreement with Newmont Mining Corp., to process ore from several Newmont mines, but the agreement ended in 2011. No Newmont ore was processed in 2012. In June, Veris entered into an arrangement with Allied Nevada Gold Corp. to process gold and silver laden carbon from the Hycroft Mine at the carbon plant at Jerritt Canyon.

Veris spent \$7,166,000 on development and exploration at Jerritt Canyon. It completed two surface reverse circulation drill holes totaling 1,600 feet and two diamond drill holes totaling 977 feet. The company also completed a number of underground drill holes. At the Smith Mine, the company completed 30 diamond drill holes totaling 29,333 feet and three diamond drill holes totaling 2,473 feet at the SSX/Steer Mine for exploration and resource conversion. The company also completed 826 cubex production drill holes totaling 90,115 feet at the Smith and SSX-Steer Mines. The drilling focused on areas proximal to existing underground developments above the groundwater table in Zones 4, 5, and 7 at the Smith Mine and Zone 1 at the SSX/Steer Mine to convert inferred resources to measured and indicated resources, to better define existing reserves, and to expand reserves. Significant intercepts in Zone 4 included 10 feet grading 0.346 opt gold; 12 feet averaging 0.762 opt gold, including 5 feet grading 1.42 opt gold; and 31 feet grading 0.154 opt gold. Significant intercepts in Zone 5 included 86 feet grading 0.334 opt gold; 30 feet averaging 0.265 opt gold, including 20 feet grading 0.354 opt gold; and 32 feet averaging 0.183 opt gold, including 12 feet grading 0.373 opt gold.

During the third quarter the company completed development of the Zone 1 ore body in the SSX/Steer Mine. Rehabilitation work was

completed on Saval 3 portal to provide ventilation and an escapeway for mining in the Zone 5 ore body. Also, a new tailings storage facility was completed with a capacity of 7,000,000 tons.

The Starvation Canyon underground mine geotechnical report was finalized in late 2012. In November, Small Mines Development LLC began development with 629 feet of underground decline development completed by year's end. Development was progressing at a rate of 600 feet per month with start-up of mining planned for April 2013. Starvation Canyon will be the third active underground mine at Jerritt Canyon. (Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012, Fall 2012, Spring 2013; Veris Gold Corp. Annual Information Form, 3/27/2013; Veris Gold Corp. Audited Annual Financial Statement, 3/25/2013; Veris Gold Corp. press releases, 8/2/2012, 11/9/2012, 3/19/2013; Veris Gold Corp. website, www.verisgold.com)

Island Mountain District

Island Mountain. ARNEVUT Resources Inc. drilled 18 reverse circulation holes totaling about 13,500 feet and one core hole totaling about 500 feet on its Island Mountain Project (joint venture with Victoria Gold Corp.) about 14 miles southeast of Mountain City. The drilling focused on a strong gold anomaly in surface outcrops. The host rock includes a quartz monzonite plug with an endoskarn-exoskarn/hornfels contact zone. The property consisted of 53 unpatented lode claims covering 920 acres. (Elko Daily Free Press Mining Quarterly, Summer 2012; ARNEVUT Resources, Inc., website, www.arnevutresources.com)

Ivanhoe District

Hollister. Rodeo Creek Gold, Inc., a subsidiary of Great Basin Gold, Ltd., continued trial mining at the company's underground Hollister mine, producing 62,423 ounces of gold and 301,526 ounces of silver. Recoveries were 90% for gold and 62% for silver. The cash costs ranged from \$983 to \$1,096 per ounce of gold. The company completed 169 holes totaling 50,374 feet. The drilling was done for both exploration and stope delineation and targeted the Upper Zone, SE Gwenivere, Pit Feeder, and East Clementine. During the first half of the year, mining was hampered by a lack of available working stopes. Development then focused on infrastructure construction, providing access to the Upper Zone for additional delineation, and accelerated production from higher grade mining areas. The company transported its ore to its Esmeralda Mill near Hawthorne. The company upgraded the mill's acid wash and carbon regeneration circuits and was constructing a second tailings facility at the mill. Due to financial problems, Great Basin Gold, Ltd.

voluntarily delisted from the New York Stock Exchange at the beginning of 2013. Rodeo Creek Gold, Inc. also went in Chapter 11 bankruptcy, and the Hollister Mine and Esmeralda Mill were auctioned off to Waterton Global Resource Management, Inc. in May 2013. (Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012, Fall 2012, Spring 2013; BLM, Draft Environmental Impact Statement, 6/2012; Great Basin Gold Ltd. Management Discussion and Analysis, 8/14/2012, 11/14/2013; Great Basin Gold Ltd., news release, 1/15/2013, 2/25/2013, 4/30/2013; Great Basin Gold website, www.greatbasingold.com; Business Wire, 4/30/2013)

Kinsley District

Kinsley Mountain. Pilot Gold, Inc., (Pilot Gold, Inc., 65%, Nevada Sunrise Gold Corp. 35%) spent \$3,676,068 on exploration at the Kinsley Mountain property which included infill and step-out drilling. The company completed 63 core and reverse circulation holes totaling 38,914 feet to define and expand the mineralized zones identified by previous operators. Significant intercepts included 15 feet averaging 0.31 opt gold, including 5 feet grading 0.66 opt gold; 45 feet averaging 0.19 opt gold, including 15 feet grading 0.49 opt gold; and 67 feet averaging 0.18 opt gold, including 18 feet grading 0.53 opt gold. The drilling intersected a new mineralized zone at Candland Canyon and expanded the Western Flank Zone to cover an area that is 2,000 feet by 330 feet. Early in 2012, the company issued a 43-101 technical report. The company also submitted a plan of operations to the BLM, which then was compiling an environmental assessment for release in 2013. The proposed disturbed area would be expanded from 6.8 acres to 70.7 acres. (BLM LR2000 Database; BLM Environmental Assessment, 4/2013; Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012; Pilot Gold, Inc., Annual Information Form, 3/28/2013; Pilot Gold, Inc., Management Discussion and Analysis, 11/9/2012, 3/28/2013; Pilot Gold, Inc., 43-101 technical report, 3/26/2012; Pilot Gold, Inc., website, www.pilotgold.com)

Kinsley Pediment. Barrick Gold Corp. drilled two deep holes in Antelope Valley east of Kinsley Mountain. No results were released but the hole reportedly intersected bedrock.

Lime Mountain District

Deep Creek. After spending \$1,400,000 for exploration and drilling 32 core holes in 2011, Ashburton Ventures Inc., terminated its Deep Creek project (joint venture with Premier Gold Mines, Ltd.) with no further work in 2012. (Ashburton

Ventures Inc. Management Discussion and Analysis, 12/31/2012; Ashburton website, www.ashburtonventures.com)

Loray District

Toano. West Kirkland Mining Inc. completed two reverse circulation holes on the Toano property (joint venture with Rubicon Minerals Corp.) about 14 miles northeast of Long Canyon. The holes were part of a nine-hole program drilled on the 12 Mile and Toano prospects totaling 6,475 feet. No significant mineralization was intercepted. (West Kirkland Mining Inc. news releases, 9/26/2012, 11/19/2012; West Kirkland Mining Inc. website, www.wkmining.com)

Merrimac District

Lone Mountain. Global Geoscience completed 14 reverse circulation holes totaling 14,819 feet on its Lone Mountain project, which covers about 21 square miles about 19 miles south of the Jerritt Canyon Mine. The targets included Monarch (two holes), Lone Mountain skarn (three holes), NW skarn (two holes), Rip Van Winkle (three holes), and South Jasperoid (four holes). Three target types have been identified on the property: 1) polymetallic lead-zinc-silver-gold targets (Rip Van Winkle and Monarch); 2) copper-gold-silver skarn targets (Lone Mountain, NW Skarn, and Ridgetop); and 3) Carlin-type gold-arsenic-mercury-antimony targets (South Jasperoid, Pen Jasperoid, and North Jasperoid). Significant intercepts reported in the Lone Mountain skarn included 75 feet grading 0.002 opt gold, 0.77 opt silver, 0.13% copper, 0.13% lead, and 0.17% zinc; 75 feet grading 0.006 opt gold, 0.4 opt silver, 0.22% copper, 0.01% lead, and 0.03% zinc; and 10 feet grading 0.001 opt gold, 0.13 opt silver, 0.13% copper, 0.06% lead, and 0.02% zinc. At the Monarch target, 55 feet grading 0.005 opt gold, 0.042 opt silver, 0.14% lead, and 0.51% zinc was intercepted. At the NW skarn, 130 feet of anomalous gold was encountered. The three Rip Van Winkle holes were drilled below and along strike from old lead-zinc-silver mine workings. All three holes intersected lead-zinc-silver -gold mineralization hosted in a hydrothermal breccia with the best intercept being 236 feet averaging 0.5% lead, 1.3% zinc, and 1.09 opt silver, including 55.8 feet grading 1.23% lead, 3.5% zinc, and 2.5 opt silver. The four South Jasperoid holes targeted mineralization hosted in altered, fine-grained, calcareous sediments. All of the holes intersected multiple zones of anomalous gold, arsenic, mercury, and antimony with the best intercept being 144 feet averaging 0.01 opt gold, including 46 feet grading 0.026 opt gold. The age of the mineralization is likely Eocene, the same age as the intrusive rocks at Lone Mountain and the same

age as mineralization in the nearby Carlin Trend. (Global Geoscience 2012 Annual Report, 6/30/2012; Global Geoscience Quarterly Activities Reports, 10/31/2012, 1/31/2013; Global Geoscience website, www.globalgeo.com.au)

Pequop District

Baker Spring. In October 2012, Newmont Mining Corp. started a drilling program of five to six holes totaling about 3,300 feet on the Baker Spring property (joint venture with Redstar Gold Corp.) about 12 miles north of its Long Canyon deposit. Prior to drilling Newmont conducted a geologic mapping and sampling program and geophysical surveys. The mineralization is present in multiple structurally-controlled zones of jasperoid along north-northwest trending faults up to 4,000 feet long. No results were released, and Newmont terminated the joint venture. The property consisted of 22 claims. (Redstar Gold Corp. Management Discussion and Analysis, 7/16/2013)

Long Canyon. Newmont Mining Corp. continued exploration and development of its Long Canyon project, which covers about 10,000 acres. The company submitted a plan of operation to the BLM in support of an environmental impact statement. Four core and two reverse circulation rigs completed nearly 280,000 feet of drilling. The drilling was mainly done for in-fill and for exploration in all directions for new deposits. Like their predecessors at Long Canyon, Newmont continued to drill long intercepts of oxidized gold mineralization. Examples included 180 feet grading 0.326 opt gold and 187 feet grading 0.245 opt gold. The deposit is above the water table and is hosted in limestone and dolomite. It consists entirely of oxide ore. The mill will be built on flat ground near the building on the Newmont-owned Big Springs Ranch. The material will be shipped from the mill to the refinery at Newmont's Carlin operations. Production is expected to start up in 2016 with full production by 2017. The mine life, from construction to post-closure monitoring, is estimated to be between 8 and 14 years. The end of 2012 inferred resource for Long Canyon released by Newmont was 27,900,000 tons grading 0.094 opt gold for 2,630,000 ounces. Previously Fronteer Gold Inc. has released both an indicated and inferred resource. The change in classification by Newmont to an entirely inferred resource appears to be related to differences between Canadian and U.S. Securities and Exchange definitions and regulations. (Elko Daily Free Press Mining Quarterly, Summer 2012, Fall 2012; Newmont Mining Corp. Form 10-K, 2/22/2013; Newmont Mining Corp. news release, 2/14/2013; Newmont Mining Corp. website, www.newmont.com)

West Pequop. Agnico Eagle Mines Limited (joint venture with Newmont Mining Corp.) continued to explore and drill the West Pequop project. No results were released.

Wood Hills South. NuLegacy Gold Corp. completed 10 reverse circulation holes totaling 5,435 feet on the Wood Hills South property (NuLegacy Gold Corp. 70%, Renaissance Gold, Inc. 30). This drilling was the second phase of a 20-hole drilling program started in late 2011, which included following up on a 2011 hole that intersected 35 feet of oxidized rock grading 0.012 opt gold. (Elko Daily Free Press Mining Quarterly Summer 2012; NuLegacy Gold Corp. Management Discussion and Analysis 2/28/2013; Renaissance Gold, Inc. news release 3/14/2012; NuLegacy Gold Corp. website, nulegacygold.com; Renaissance Gold, Inc. website, www.rengold.com)

Railroad District

Railroad. Gold Standard Ventures Corp. completed 24 holes totaling 44,803 feet on its Railroad project at a cost of \$14,685,461. The program tested three main targets – the North Bullion Fault Zone, the Railroad Fault, and the Central Bullion skarn. It drilled 19 core holes totaling 35,434 feet on the North Bullion Fault Zone. Significant intercepts from four of the holes included 407 feet averaging 0.118 opt gold, including 142 feet grading 0.22 opt gold and 54 feet grading 0.44 opt gold; 19 feet averaging 0.1 opt gold, including 10.5 feet grading 0.16 opt gold; 7.5 feet averaging 0.084 opt gold; and 50 feet averaging 0.072 opt gold. The results of this drill program extended the 0.03 opt to 0.1 opt gold envelope to 3,000 feet trending north-northeast to south-southwest. Mineralization remains open in multiple directions. The high grade zone, grading 0.16 opt to 0.5 opt gold, is traceable for 900 feet from north to south. Gold Standard also completed the three holes totaling 5,840 feet in the Central Bullion Skarn target. Significant intercepts included 7.5 feet grading 6.16 opt silver, 3 feet grading 4.58 opt silver, 250 feet grading 1.28 opt silver and 0.25% copper, and 5 feet grading 0.32 opt gold. One hole tested a west-northwest trending corridor containing abundant dikes in the skarn and a coincident surface soil anomaly of copper and other metals, adjacent to the Bullion stock of Cretaceous and Tertiary age. The hole intercepted a previously unknown zone of strong silver and copper mineralization. Gold Standard also completed two holes totaling 3,529 feet in the Railroad Fault Zone. Significant intercepts included 2 feet grading 241 opt silver, 5 feet grading 60.1 opt silver, and 20 feet grading 0.011 opt gold. The company issued two 43-101 technical reports summarizing the property and exploration activity, but no new resources were calculated. The BLM

approved the company's plan of operation in September, which will allow for a more aggressive drilling and exploration campaign. (BLM Environmental Assessment, 9/2012; Elko Daily Free Press Mining Quarterly, Winter 2012; Gold Standard Ventures Corp. news releases, 10/31/2012, 1/22/2013, 2/7/2013; Gold Standard Ventures Corp. Audited Financial Statements, 4/1/2013; Gold Standard Ventures Corp. Annual Information Form, 3/28/2013; Gold Standard Ventures Corp. 43-101 Technical Report, 2/15/2012, 5/29/2012; Gold Standard Ventures website, www.goldstandardv.com)

Robinson Mountain

Robinson Creek: Gold Standard Ventures Corp. completed three reverse circulation drill holes totaling about 7,600 feet on the company's Robinson Creek project about six miles south of its Railroad Project. The drilling tested potential mineralization at the contact between limestone of the Devonian Devils Gate Formation and mudstone of the Mississippian Webb Formation in a structural dome estimated to be between 400 and 600 feet deep. The surface expression consists of silicified outcrops with limonite and anomalous barite, arsenic, zinc, and gold concentrations. (Gold Standard Ventures Corp. Audited Financial Statements, 4/1/2013; Gold Standard Ventures Corp. Management Discussion and Analysis, 8/14/2012, 4/1/2013; Gold Standard Ventures Corp. Annual Information Form, 4/1/2013; Gold Standard Ventures website, www.goldstandardv.com)

Spruce Mountain District

Spruce Mountain. Summit Mining Exploration, Inc., (a subsidiary of Sumitomo Corporation) funded two phases of drilling on the Spruce Mountain Property carried out by joint venture partner Renaissance Gold Inc. The mineralization occurs as base metal-silver veins, polymetallic skarns, quartz stockwork zones, replacement deposits, silicified breccia bodies, jasperoids, and gossans hosted by Paleozoic carbonate and siliciclastic rocks, especially in karst, solution collapse breccias, and shear zones.

The first phase was the completion of 11 reverse circulation holes totaling 8,711 feet. The drilling tested seven target areas located along the western slope and pediment of Spruce Mountain, where silver and base metal production occurred sporadically from 1869 to the 1930s. One hole intercepted 50 feet averaging 0.007 opt gold in mineralization, which occurred along the contact between the calcareous Pilot Shale and the underlying limestone of the Guilmette Formation. That hole also intercepted 10 feet grading 4.4% zinc

in the overlying Joanna Limestone. Two other holes intercepted 80 feet grading 0.23% zinc and 50 feet grading 0.35% zinc. Three other holes on the pediment intersected zones between 5 and 20 feet thick that graded between 0.003 and 0.009 opt gold in jasperoid.

The second phase was 13 drill holes totaling 15,057 feet, which included 3,105 feet of mud rotary, 5,087 feet of core, and 6,865 feet of reverse circulation drilling. These holes tested extensions of the targets drilled in the previous phase and intercepted multiple intrusions associated with mineralization under the alluvial cover, which expanded the known extent of the intrusive system along the range front. Eight of the holes tested three zones along a fault-controlled intrusive corridor striking northeastward 4.5 miles from the town site of Sprucemont at the range front, and five of the holes tested an area of peripheral silver-lead-zinc mineralization and Carlin-style gold mineralization northwest of the intrusive corridor. One hole intercepted 189.5 feet grading 0.06% molybdenum in porphyry-style mineralization. Another hole drilled northwest of the porphyry intercepted 195 feet grading 0.28% zinc including 25 feet also grading 0.643 opt silver and 0.23% copper. (Renaissance Gold, Inc., news releases, 4/26/2012, 4/8/2013; Renaissance Gold, Inc., Management Discussion and Analysis, 9/27/2012; Renaissance Gold, Inc., website, www.rengold.com)

West of the Tecoma District

12 Mile. West Kirkland Mining Inc. completed seven reverse circulation holes on the 12 Mile property (joint venture with Rubicon Minerals Corp.) mainly in T41N, R68E. These holes were part of a nine-hole program drilled on the 12 Mile and Toano prospects totaling 6,475 feet. Significant intercepts reported include 75 feet averaging 0.011 opt gold and 0.036 opt silver and 60 feet averaging 0.014 opt gold and 0.054 opt silver. The best mineralization occurs just below the contact between the Chainman Shale and underlying carbonates of the Guilmette Formation. (West Kirkland Mining Inc. news releases, 9/26/2012, 11/19/2012; West Kirkland Mining Inc. website, www.wkmining.com)

ESMERALDA COUNTY

Divide District

Hasbrouck Mountain. Allied Nevada Gold Corp. completed 37 reverse circulation holes totaling 20,010 feet at its Hasbrouck Mountain property. The drilling focused on expanding known resources, but no results were released. Allied Nevada issued a 43-101 technical report proposing a conventional open pit and heap leach operation that would include both

the Hasbrouck Mountain and Three Hills deposits (Three Hills is near Tonopah about five miles to the north). (Allied Nevada Gold Corp. 42-101 technical report, 4/11/2012; Allied Nevada Gold Corp. Form 10-K, 2/25/2013; Allied Nevada Gold Corp. website, www.alliednevada.com)

Gilbert District

Monte Cristo. Hecla Mining Company bought the Monte Cristo property from Crown Gold Corp. for \$5.5 million. Hecla spent \$650,000 on exploration in 2012, but no drilling was reported. (Crown Gold Corp., news release, 5/29/2012; Hecla Mining Company, news release, 2/25/2013)

Goldfield District

Goldfield. International Minerals Corp. continued its major aggressive drill program started in 2010 and completed 62 reverse circulation holes totaling 28,175 feet and 24 core holes totaling 18,430 feet. Much of the drilling focused on the Gemfield deposit and the Southeast Extension. Significant intercepts included 45 feet grading 0.58 opt gold, 115 feet grading 0.16 opt gold, and 155 feet grading 0.13 opt gold. The company was preparing an updated feasibility study for release in 2013. Gemfield is being considered for an open pit mine, while Goldfield Main and McMahon Ridge were still under evaluation. (International Minerals Corp. news release, 11/1/2012; International Minerals Corp. Annual Information Form, 9/28/2012; International Minerals Corp. 43-101 Technical Report, 7/25/2013; International Minerals Corp. website, www.intlminerals.com).

Klondyke District

Klondyke. Silver Reserve Corp. (a subsidiary of Infrastructure Materials Corp.) completed five reverse circulation holes totaling 1,640 feet on the Klondyke Property about 10 miles south of Tonopah. Four of the holes targeted an anomalous vein system in the northwestern area of the property, and one hole was drilled on a gold surface anomaly in the southeastern part. Significant intercepts reported include 5 feet grading 0.061 opt gold, 11.2 opt silver, and 2.53% lead and 5 feet grading 0.009 opt gold, 2.96 opt silver, and 0.2% lead. (Infrastructure Materials Corp. news release, 6/11/2012; Infrastructure Materials Corp. Form 10-K, 9/26/2012; Infrastructure Materials Corp. website, www.infrastructurematerialscorp.com)

Palmetto District

Excelsior Springs. Global Geoscience completed eight reverse circulation holes totaling about 7,900

feet on its Excelsior Springs property (Global Geoscience 70%, Nubian Resources, Ltd., 30%) about 25 miles southwest of Goldfield. Seven holes were drilled in the East Zone and one in the Buster Zone. All the holes intersected broad zones of strong silicification and quartz veining, but gold grades were generally low. Intercepts included 662 feet grading 0.003 opt gold and 58.5 feet grading 0.006 opt gold in two holes in the East Zone. The mineralization occurs within an east-west trending zone between 650 feet and 1,300 feet wide and at least 2 miles long. (Global Geoscience 2012 Annual Report, 6/30/2012; Global Geoscience Quarterly Activities Report, 1/31/2013; Nubian Resources, Ltd., website, nubianr.com; Global Geoscience website, www.globalgeo.com.au)

Red Mountain District

Nivloc. International Millennium Mining Corp. completed 37 holes totaling 34,440 feet on the Nivloc Property (joint venture with Silver Reserve Corp., a subsidiary of Infrastructure Materials Corp.). The project was mainly in-fill drilling around the area drilled in 2011 and to test unmined material near the main Nivloc workings. Significant intercepts from two holes on the Nivloc Vein included 70 feet averaging 3.31 opt silver and 0.014 opt gold; including 11 feet grading 10.8 opt silver and 0.036 opt gold, and 92 feet averaging 5.3 opt silver and 0.026 opt gold, which included 3.5 feet grading 19.3 opt silver and 0.14 opt gold. (International Millennium Mining Corp. news release, 1/8/2013; International Millennium Mining Corp. Management Discussion and Analysis, 4/30/2013; International Millennium Mining Corp. 43-101 Technical report, 7/31/2012; International Millennium Mining Corp. website, www.immc.ca)

Silver Queen. MGold Resources Inc. completed five reverse circulation holes totaling 3,549 feet on the Silver Queen property (joint venture with Silver Reserve Corp.). Two holes targeted the Silver Queen Vein, and three holes targeted surface silver anomalies. Significant intercepts reported include 5 feet grading 14.5 opt silver and 5 feet grading 12.4 opt silver. (MGold Resources, Inc., Management Discussion and Analysis, 4/30/2013; Infrastructure Materials Corp. news release, 2/6/2012; Infrastructure Materials Corp. Form 10-K, 9/26/2012; Infrastructure Materials Corp. website, www.infrastructurematerialscorp.com)

Rock Hill District

Monte Cristo Pediment. Newmont Mining Corp. was granted a notice of intent by the BLM to drill holes in Section 31, Township 4 North, Range 37 East, which is located on the southwest flank of the Monte Cristo Range, across the valley from the Rock

Hill District. It is unknown whether Newmont drilled any holes in 2012. (BLM LR2000 database)

Silver Peak District

Mineral Ridge. Scorpio Gold Corp. began commercial production of the Mineral Ridge Mine (Scorpio Gold Corp. 70%, Waterton Global Value L.P., 30%) on January 1, 2012, and produced 32,066 ounces of gold and 13,871 ounces of silver from the Mary and Drinkwater open pits. 662,885 tons of ore and 2,978,668 tons of waste were mined from the Drinkwater Pit, and 29,712 tons of ore and 1,265,292 tons of waste were mined from the Mary Pit. The amount processed was 717,360 tons of ore with a gold head grade of 0.07 opt and a cash cost of \$948 per ounce.

The company drilled 191 reverse circulation holes totaling 79,527 feet. Of the total, 6,422 feet contained average grades higher than the 0.009 opt gold cut-off. The areas drilled included the Mary Last Chance area, the Mary open pit, the Northwest Highwall in the Drinkwater open pit, Tarantula Springs, and various other targets. The block model was revised with the new drill data, and the initial results confirmed the continuation of down-dip mineralization and a plausible expansion of the Mary Pit to the southeast. Significant intercepts in the Mary LC zone included 5 feet grading 0.195 opt gold, 25 feet grading 0.092 opt gold, and 5 feet grading 0.067 opt gold. The 19 holes drilled in the Northwest Highwall of the Drinkwater open pit intersected two zones of mineralization at depth. Four of the holes contained ore-grade intercepts, and the rest contained low grade values down dip. High-grade intercepts in two of the holes contained 15 feet grading 0.178 opt gold and 15 feet grading 0.089 opt gold. Both intercepts started from the surface. Of the nine holes drilled in the Tarantula Springs target area, two contained good mineralization. Eight of 14 holes drilled northwest of the Brodie Pit contained ore-grade intervals. Twelve holes were drilled in the Vulcan exploration area. The results were unfavorable for gold, but did contain several intervals of low-grade silver.

Prospecting and sampling in an area about 1,300 feet west-southwest of the leach pad resulted in the discovery of high-grade gold and silver mineralization in two new zones, Lookout and Bottom. Compared to the 2:1 gold to silver ratio of the Drinkwater and Mary mineralization, the high-grade gold mineralization at the Lookout Zone contains a significantly higher silver content, while the Bottom Zone hosts high-grade silver mineralization with no gold. The Lookout and Bottom zones are hosted in the Mary Limestone unit, the lowest member of the Wyman Formation, which also hosts the Drinkwater and Mary deposits.

The company released a 43-101 technical report for the life of the mine. The proposed plan calls for production at Drinkwater and Mary with a 3-year mine life, a throughput of 66,000 ton per month, and an annual production of 33,000 ounces of gold. (Scorpio Gold Corp. news release, 9/11/2012, 10/1/2012, 11/26/2012; Scorpio Gold Corp. Management Discussion and Analysis, 4/12/2013; Scorpio Gold Corp. 43-101 Technical Report, 7/15/2012; Scorpio Gold Corp. website, www.scorpogold.com)

Tokop District

Empress. Punchline Resources Ltd. completed an initial reverse circulation drill program at the Empress Property (joint venture with MinQuest, Inc.) about 26 miles south of Goldfield. The drilling targeted potential down-dip extensions of quartz veins with high grades of gold and silver previously mined at the Wonder and Empress Mines. Drilling at the Empress Mine followed up an underground sampling project that produced assays ranging between 0.302 to 0.841 opt gold and 0.13 to 0.63 opt silver in Adit 3. No drilling results were released. (Punchline Resources, Ltd., news releases, 10/24/2012, 11/30/2013; Punchline Resources, Ltd., 10-Q Form, 3/18/2013; Punchline Resources, Ltd., website, www.punchlineresources.com)

Tonopah District

Three Hills. Allied Nevada Gold Corp. completed 17 reverse circulation holes totaling 9,170 feet at the Three Hills property. The drilling focused on expanding the deposit eastward, but no results were released. In 2012, the company issued a 43-101 technical report proposing a conventional open pit and heap leach operation that would include both the Hasbrouck Mountain and Three Hills deposits (Hasbrouck Mountain is in the Divide District about five miles to the south). (Allied Nevada Gold Corp. 42-101 technical report, 4/11/2012; Allied Nevada Gold Corp. Form 10-K, 2/25/2013; Allied Nevada Gold Corp. website, www.alliednevada.com)

Weepah District

Weepah. Sniper Resources Ltd. completed 20 reverse circulation holes totaling 4,610 feet on its Weepah property (joint venture with Columbus Gold Corp.). Significant intercepts included 155 feet averaging 0.013 opt gold including 35 feet grading 0.046 opt gold and 5 feet grading 0.636 gold; 125 feet averaging 0.035 opt gold including 15 feet grading 0.111 opt gold; and 25 feet averaging 0.062 opt gold, which included 5 feet grading opt 0.156 gold. Mineralization occurs in Precambrian siltstone and limestone immediately beneath gravel cover.

The first phase of drilling confirmed and extended the mineralization encountered by the 2011 drilling program conducted by Columbus Gold Corp. One hole tested for and intercepted the up-dip extension of mineralization intercepted by one hole in the 2011 program. This mineralized zone appears to represent a 0.25-mile southerly strike extension of the original Weepah vein. The Weepah open pit, not on Sniper's claim block, was mined in the 1930's and in 1986 and 1987 by Sunshine Mining Company. (Sniper Resources, Management and Discussion Analysis, 1/28/2013; Ltd., Sniper Resources, Ltd., website, www.sniperresources.com; Columbus Gold Corp. website, www.columbusgoldcorp.com)

EUREKA COUNTY

Antelope District

Red Canyon. Montezuma Mines Inc. (a subsidiary of CMQ Resources Inc.) completed six reverse circulation holes totaling 7,435 feet on the Red Canyon property (joint venture with Miranda Gold Corp.). The holes tested the Ice, the Wall, and the Hole prospects. The best intercepts were 15 feet grading 0.004 opt gold and 15 feet grading 0.003 opt. (CMQ Resources, Inc., news release, 11/2/2012; CMQ Resources, Inc., Management and Discussion Analysis, 3/26/2013; CMQ Resources, Inc., website, www.cmqresources.com).

Antelope Valley

Claim Staking. Barrick Gold Exploration Inc. staked 965 lode claims (AV Claims) mostly in T18-19N, R51E and some in T18-19N, R50E in northern Antelope Valley west of the Mahogany Hills. The claims are on a pediment that has local outcrops of Devonian Devils Gate Limestone. (BLM LR2000 Database; NBMG Bulletin 64)

Buckhorn District

Cortez Summit. Carlin Gold Corp. completed seven reverse circulation holes totaling about 11,720 feet on the Cortez Summit property located 0.6 miles northeast of Barrick Gold Corp.'s Goldrush deposit and 0.6 miles west of the old Buckhorn Mine. The holes were drilled on a small portion in the southwest part of the property. Anomalous gold and Carlin-type geology, alteration and geochemistry were encountered in six of the holes. The best intercept was 5 feet grading 0.017 opt gold. All the holes encountered Paleozoic sedimentary rocks, including a unit consisting mainly of gray-black siltstone, with lesser amounts of sandstone and chert and containing a significant interval of variably calcareous and laminated siltstones. This unit has

been tentatively correlated with the Devonian Horse Canyon member, an informal stratigraphic unit in the Cortez mine area that is analogous to the Rodeo Creek Formation on the Carlin Trend. The Horse Canyon member hosts significant mineralization at the Cortez Hills and Horse Canyon deposits, and it overlies limestones of the Devonian Wenban Formation, which hosts much of the ore in the Cortez Hills and Goldrush deposits. (Carlin Gold Corp. news releases, 9/25/2012, 10/25/2012; Carlin Gold Corp. Management Discussion and Analysis, 11/29/2012, 4/15/2013; Carlin Gold Corp. website, www.carlingold.com)

Cortez District

Garden Gate Pass. Rye Patch Gold Corp. completed three reverse circulation holes with core tails totaling 7,500 feet at its Garden Gate Pass project located in the far southwest end of Pine Valley 3 miles along strike southeast from Barrick Gold Corp.'s Goldrush discovery. The results of Rye Patch's 2012 drill program were not released. The project consists of 153 unpatented lode claims and is covered with alluvium. (Rye Patch Gold Corp. news releases, 5/30/2012, 10/1/2012; Rye Patch Corp. Management and Discussion Analysis, 4/29/2013; Rye Patch Gold Corp. website, www.ryepatchgold.com)

Goldrush. Barrick Gold Corp. continued exploration at its Goldrush deposit about 4 miles southeast of its Cortez Hills mine. The deposit was initially thought to be two, Red Hill and Goldrush. Later in-fill drilling showed them to be parts of one larger deposit which is now referred to as just Goldrush. In 2012, about 400 exploration holes totaling about 640,000 feet were drilled at Cortez including Cortez Hills and Goldrush. Twelve drill rigs were busy at Goldrush alone. The drilling upgraded and more than doubled the resource base at Goldrush. The measured and indicated resource released at the end of 2012 was 65,914,000 tons grading 0.127 opt gold, for 8,367,000 ounces. The inferred resource contains 5,679,000 ounces of gold at a similar grade. The mineralization is sulfide-bearing and occurs at depths between 500 and 1,700 feet, primarily in carbonates of the Devonian Wenban Formation. The Wenban is correlative with the Popovich Formation, which hosted the bulk of the ore on the Carlin Trend. The deposit's footprint was more than doubled to over 4 miles in length and is still open in multiple directions with shallow mineralization encountered 400 feet to the west, high-grade mineralization being encountered to the north, and good indicators of strong mineralization up to 3,000 feet to the south. Also, a new parallel exploration trend was discovered to the west. Some of the better 2012 drill intercepts outside the resource footprint were 50 feet

grading 0.51 opt and 160 feet grading 0.08 opt, the second of which was encountered 1,000 feet southeast of the resource footprint. A scoping study was completed on the project, and a feasibility study was underway. (Elko Daily Free Press Mining Quarterly, Spring 2012, Fall 2012; Barrick Gold Corp. news release, 5/2/2012; Barrick Gold Corp. Management Discussion and Analysis, 5/3/2012, 11/1/2012; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. Annual Report, 3/25/2012; Barrick Gold Corp. 43-101 Technical Report, 3/16/2012; Barrick Gold Corp. website, www.barrick.com)

Eureka District

Jewel Ridge. Rainbow Resources Inc. completed six reverse circulation holes totaling 3,395 feet at its Jewel Ridge project (joint venture with Greencastle Resources, Ltd.). Polymetallic mineralization was encountered. The best intercepts were 30 feet averaging 0.021 opt gold, 6.88 opt silver, 1.1% lead, and 1.7 % zinc, which included 10 feet grading 0.035 opt gold 19.3 opt silver, 8.8% lead, and 4.7 % zinc; 30 feet averaging 0.032 opt gold and 0.367 opt silver; and 25 feet grading 0.029 opt gold and 0.408 opt silver. The mineralized zone trends north-south along the contact between the Cambrian Hamburg Dolomite and the overlying Dunderberg Shale for a distance of about 1.6 miles from the old Hamburg open pit. (Rainbow Resources, Inc., Management Discussion and Analysis, 8/31/2012; Greencastle Resources, Ltd., Management Discussion and Analysis, 4/12/2013; Greencastle Resources, Ltd. website, www.greencastleresources.com)

Lookout Mountain/South Eureka. Timberline Resources Corp. spent \$4,204,887 on exploration and completed 31 reverse circulation holes totaling 16,995 feet and 17 core holes totaling 9,206 feet at its Lookout Mountain project on its South Eureka property. Most of the holes were in-fill drilling, but some were drilled for geotechnical data, metallurgical testing, and hydrologic work. The best intercepts were 31 feet averaging 0.061 opt gold; 75 feet averaging 0.033 opt gold, including 10 feet grading 0.149 opt gold; 20 feet averaging 0.06 opt gold; and 100 feet averaging 0.023 opt gold, which included 45 feet grading 0.045 opt gold. Based on drilling through 2012, the measured and indicated resource is 28,940,000 tons grading 0.018 opt gold and containing 508,000 ounces. The company also acquired 19 patented claims covering 211 acres on the Windfall and Oswego structural trends. (Timberline Resources Corp., news releases, 3/14/2012, 11/12/2012; Timberline Resources Corp. 10-K Form, 12/11/2012; Timberline Resources Corp. 43-101 Technical Report, 3/1/2013; Timberline

Resources Corp. website, www.timberline-resources.com)

Ruby Hill. Barrick Gold Corp. produced 41,242 ounces of gold and 32,124 ounces of silver from its Ruby Hill mine, decreases of 68% and 25%, respectively, from 2011. The total cash cost was \$682 per ounce of gold, up from \$334 in 2011. The metallurgical recovery was 75.5% at a cut-off grade between 0.004 and 0.012 opt gold. The company issued an environmental assessment involving an expansion of the mine and the deepening of the pit by 240 feet to approximately 1,500 feet. The planned expansion would start at the planned Bullwhacker open pit located to the west of the Archimedes open pit. The Bullwhacker deposit had a gold reserve of 1,900,000 ounces in 2012. The Bullwhacker pit would eventually join Archimedes to form one large open pit. The expansion would extend the mine's life seven years to 2222. The BLM will be deciding if an environmental assessment is sufficient or if a full environmental impact statement, which would require three years to complete, will be required. Barrick carried out an exploration drill program in 2012, but no results were released. (Elko Daily Free Press Mining Quarterly, Fall 2012, Spring 2013; Homestake Mining Co. of California Environmental Assessment, 8/2012; Barrick Gold Corp., Annual Information Form, 3/28/2013; Barrick Gold Corp., Annual Report, 3/25/2013; Barrick Gold Corp. website, www.barrick.com)

Signal. In June 2012, Terra Rosa Gold Ltd. drilled nine core holes at the Signal property (joint venture with Bravada Gold Corp). Earlier drilling outlined two small zones of shallow, oxidized gold mineralization along a Mississippian unconformity. The mineralization had strong pathfinder elements, but the gold values were generally weak with a maximum of 0.016 opt gold. Terra Rosa Gold terminated the joint venture. (Bravada Gold Corp. news release, 6/14/2012; Bravada Gold Corp. Management Discussion and Analysis, 12/20/2012; Bravada Gold Corp. website, www.bravadagold.com)

Gibellini District

Gibellini. American Vanadium Corp. spent almost \$3,379,555 on exploration and evaluation including \$210,748 on drilling and trenching on the company's Gibellini vanadium project. At year's end, the company submitted a plan of operation to the BLM. In 2011, the company's metallurgical pilot study successfully resulted in production of vanadium pentoxide and vanadium electrolyte. In 2012, the company filed a patent application entitled, "Vanadium Oxide Purification Process", the process of which will allow for the refinement of vanadium

oxide for use as an electrolyte for mass storage batteries and in aluminum and titanium vanadium master alloys. (Elko Daily Free Press Mining Quarterly, Spring 2012; American Vanadium Corp. press releases, 8/22/2011, 2/24/2012, 12/24/2012; American Vanadium Corp. Management Discussion and Analysis, 4/30/2013; American Vanadium Corp. Audited Financial Statements, 4/30/2013; American Vanadium Corp. website, www.americanvanadium.com)

Lynn District

Northern Carlin Trend. Newmont Mining Corp. continued its huge exploration and development program on its properties in the northern Carlin trend. Results of specific drill projects were not released. Newmont spent \$57,000,000 alone on underground development at the Leeville/Turf deposit. The life of that underground mine is estimated to last through 2026. Drilling at the Carlin underground operations converted 1,700,000 ounces of resources into reserves.

The BLM approved Newmont's Genesis project in 2011. The Genesis project consists of Beast, Bluestar Ridge, Bobcat, Genesis, Payraise, and West Genesis. The plan is to re-start open pit mining in the area. For tax accounting purposes, names of the projects were changed. The Genesis pit, now called Silverstar, is permitted for 650 million tons to be mined. The expansion will start in the old Genesis pit, which has a reserve of 3,000,000 ounces, and progress to West Genesis (now Goldstar) in 2014 or 2015, then to Bobcat (now Bobstar), and finally to Bluestar Ridge. The project also involves back-filling the Blue Star and Beast pits. The life of the mine is expected to be 12 years.

In 2012, Newmont continued open-pit mining at the Lantern, Carlin and Payraise open pits. The company also conducted underground mining at the West Leeville and Turf deposits and work was progressing towards the Four Corners deposit to the west. Leeville produced an average of 4,000 tons of ore per day in 2012. Preparations were made to sink a third shaft as part of the Turf Project. The 26-foot shaft will go down 2,050 feet and take three years to complete. It will double the ventilation and provide another escapeway as the Leeville underground workings are expanded northward. The underground workings at the Pete Bajo deposit and the Full House deposit at Leeville were being driven towards each other and will eventually connect. Between late 2010 and 2012, Small Mine Development had completed over 12,000 feet of development and mined 70,000 tons of ore. At the Exodus underground mine, Newmont completed 23,500 feet of development and mined 55,000 tons of ore between 2010 and 2012. (Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012,

Winter 2012; Newmont Mining Corp. Form 10-K, 2/22/2013; Newmont Mining Corp. Management Discussion and Analysis, 3/28/2013; Newmont Mining Corp. website, www.newmont.com; Small Mine Development website, www.undergroundmining.com)

Goldstrike. The total production at Barrick Gold Corp.'s Goldstrike operation (Betze-Post, Meikle, and Storm) was 1,173,712 ounces of gold and 163,350 ounces of silver, an increase of 8% for gold and a decrease of 11% for silver. Total cash cost for gold was \$541 per ounce, up 6% from \$511 per ounce in 2011. A 43-101 technical report covering the Goldstrike and Meikle mines was released in early 2012 which reviewed the reserves and resource. Production from the Goldstrike (Betze-Post) open pit was 812,707 ounce of gold and 102,700 ounces of silver, increases of 13% and 9% respectively. Metallurgical recovery for gold was 78.7%. The life of the open pit was estimated to last until 2025. Production from the underground Meikle mine was 327,204 ounce of gold and 41,775 ounces of silver, increases of 17% and 156% respectively. Metallurgical recovery for gold at Meikle was 88.6%. The Meikle Mine includes two major deposits, Meikle and Rodeo. Meikle is located one mile north of the Betze-Post open pit. The high-grade Meikle deposit includes six mineralized zones: Main Meikle, Meikle Extension, South Meikle, Griffin, Banshee, and West Griffin. Rodeo is located 0.3 miles northwest of the Betze-Post. It is lower grade than Meikle and includes four mineralized zones: Upper Rodeo, Lower Rodeo, West Rodeo, and Barrel. In addition to Meikle and Rodeo, a small deposit called Bazza Underground will be mined beginning in 2013 from the bottom of the Betze-Post pit. The current life of the underground mining at Goldstrike is expected to last to 2020.

Only small portions of Barrick's 2012 drill program at Goldstrike were released. Drilling tested targets at the undeveloped Ren resource north of Meikle, for a possible westward extension of the JB resource, in the North Leeville area, and a deep target below the planned bottom of the Betze-Post pit. Exploration work conducted in 2011 and 2012 also delineated targets in the West Dee and West Goldstrike areas.

The Goldstrike mine has two processing facilities, an autoclave to treat non-carbonaceous sulfide or refractory ore, and a roaster to treat carbonaceous ore. These two facilities process the ore from both the open pit and underground mines, and have a combined capacity of about 33,000 to 35,000 tons per day. In 2012, the company was installing technology that uses thiosulphate to leach gold from carbonaceous ores after pressure oxidation rather than cyanide and then resin to collect the dissolved gold rather than carbon.

Previously, carbonaceous ore was stockpiled to be only later processed through the roaster. The new process will allow the autoclaves, which otherwise would have been shut down in 2012, to process stockpiled carbonaceous ore and continue to operate through the remaining life of the mine. (Elko Daily Free Press Mining Quarterly Summer 2012, Winter 2012; Barrick Gold Corp., 2012 Annual Report, 3/25/2013; Barrick Gold Corp., Annual Information Form, 3/28/2013; Barrick Gold Corp., 43-101 technical report, 3/16/2012; Barrick Gold website, www.barrick.com)

Maggie Creek District

Gold Quarry/Chukar. In the Gold Quarry open pit, Newmont Mining Corp. continued mining in the Phase 4 layback, which was expected to end in 2013. Preparations were underway to begin mining the Phase 7 layback which contains between 350,000,000 and 400,000,000 tons of material and will take five years to mine. The life of the mine was estimated to be out to 2028. In 2011, Small Mine Development returned to operating the Chukar underground mine, which is two miles long and over 1,000 feet deep with an estimated life out to 2015. Newmont did carry out a drilling program, but no results were released. (Elko Daily Free Press, 5/31/2013; Elko Daily Free Press Mining Quarterly Spring 2013; Newmont Mining Corp. Form 10-K, 2/22/2013; Newmont Mining Corp. website, www.newmont.com; Small Mine Development website, www.undergroundmining.com)

Maggie Creek. Barrick Gold Corp. was granted a notice of intent by the BLM to drill holes in Sections 4, 10, and 14 in Township 33 North, Range 52 East along the northeast side of Maggie Creek, three to five miles north of the town of Carlin. It is unknown whether Barrick drilled any holes in 2012. (BLM LR2000 database)

Mike. Newmont Mining Corp. carried out drill program on its undeveloped Mike gold-copper deposit, located northwest of the Gold Quarry open pit. No results were released.

Mount Hope District

Mount Hope. General Moly Inc. (joint venture with POS-Minerals) continued its efforts at permitting and financing the development of the Mount Hope porphyry molybdenum deposit. In November, the BLM released a final environmental impact statement. The project includes an open pit with associated dewatering, waste rock disposal facilities, milling facilities including a crusher, a molybdenite concentrate roaster and packaging plant, a ferromolybdenum plant for production of FeMo alloy,

two tailings storage facilities, an ongoing exploration program, a low-grade ore stockpile, and supporting facilities and infrastructure. Commercial production was planned for about mid-2015. The life of the mine was estimated to be 32 years with another 12 years for processing of low-grade ore. (BLM Final Environmental Impact Statement, 10/2012; BLM Record of Decision, 11/2012; Elko Daily Free Press Mining Quarterly Spring 2012, Summer 2012; Fall 2012; General Moly Inc. Form 10-K, 3/11/2013; General Moly Inc. website, www.generalmoly.com)

Northern Simpson Park Mountains

Coal Canyon. NuLegacy Gold drilled 2 holes on the Coal Canyon property. No results were reported, and it terminated its agreement with Miranda Gold Corp. (NuLegacy Gold Corp. Management Discussion and Analysis 2/28/2013; NuLegacy Gold Corp. website, www.nulegacygold.com)

JDS. Carlin Gold Corp. completed three widely spaced holes totaling about 3,200 feet on the JDS property in Denay Valley just east of the JD window. The drilling targeted Carlin-style mineralization in Devonian carbonate rocks below cover consisting of late Tertiary sedimentary rocks and alluvium. All three holes encountered Paleozoic calcareous rocks, and the hole closest to a prominent gravity high under the northwestern part of the property intercepted massive Devonian carbonate rocks similar to those mapped in the JD window to the west. No significant gold values were found. (Carlin Gold Corp. news release, 9/25/2013; Carlin Gold Corp. Management Discussion and Analysis, 11/29/2012, 4/15/2013; Carlin Gold Corp. website, www.carlingold.com)

Patty. Rye Patch Gold Corp. completed six reverse circulation and two mud rotary holes totaling 16,455 feet at the company's Patty project, formerly known as Indian Ranch (various agreements with Barrick Gold Corp., McEwen Mining, and Chapleau Resources) The best intercepts were 15 feet grading 0.063 opt gold and 30 feet grading 0.019 opt gold in two holes in the Patty Resource, and 335 feet grading 0.01 opt gold, including 5 feet grading 0.133 opt gold, in one hole in the Western Rift target. Two stratigraphic holes were drilled at the northeast and east-central portions of the property. The holes confirmed the area contains Ordovician to Devonian lower-plate, carbonate rocks at depth. Basalts of the Northern Nevada Rift are at least 1,040 feet thick in the northeastern portion of the property. (Elko Daily Free Press Mining Quarterly Spring 2012; Rye Patch Gold Corp. news release, 3/1/2013; Rye Patch Gold Corp. Management Discussion and Analysis, 4/29/2013; Rye Patch Corp. website, www.ryepatchgold.com)

Red Hill. NuLegacy Gold Corp. (various agreements with Barrick Gold Corp., Idaho Resources Corp., and Miranda Gold Corp.) completed 24 drill holes on the Red Hill property. Six of the holes were completed on the Iceberg deposit in the Central Mineralized Zone. The best intercept was 90 feet averaging 0.037 opt gold, which included 35 feet grading 0.076 opt gold. The intercept was oxidized. NuLegacy calls the hole that drilled the intercept the “discovery hole” of the Iceberg deposit. Other significant intercepts were 155 feet averaging 0.021 opt gold, including 95 feet grading 0.030 opt gold; and 50 feet averaging 0.018 opt gold including 15 feet grading 0.035 opt gold. The results of the drilling show the main higher grade zone of oxide gold mineralization in the Iceberg deposit extends over 1,200 feet in silicified and decalcified Devonian carbonates along a north-northwest strike. Five holes were drilled in the Central Pediment Anomaly, and two holes were drilled in the East Pediment. Only weakly anomalous gold in was encountered in those two target areas. Six reverse circulation exploration holes were also completed in the Long Fault anomaly. Five holes were drilled into the Jasperoid Basin target, but no results were released. (NuLegacy Gold Corp. news release, 10/22/2012, 12/18/2012; NuLegacy Gold Corp. Management Discussion and Analysis 2/28/2013; NuLegacy Gold Corp. website, www.nulegacygold.com)

HUMBOLDT COUNTY

Awakening District

North Sleeper. Montezuma Mines, Inc. (a subsidiary of CMQ Resources Inc.) completed six reverse circulation holes totaling 3,568 feet on the North Sleeper property about 2 miles north of the old Sleeper mine. The drilling focused on a pronounced deflection in the strike of the Sleeper Fault, where it appears to be intersected by a significant N20-30°W-striking structural zone and is marked by a gravity anomaly. Only a few zones with anomalous gold and silver assays were encountered. (CMQ Resources, Inc., news release, 8/30/2012; CMQ Resources, Inc., Management and Discussion Analysis, 3/26/2013; CMQ Resources, Inc., website, www.cmqresources.com).

Sleeper. Paramount Gold and Silver Corp. completed 33 holes totaling 30,743 feet on the Sleeper property. The best intercepts were 30 feet averaging 0.026 opt gold and 0.25 opt silver; 135 feet averaging 0.02 opt gold and 0.013 opt silver, which included 55 grading 0.033 gold and 0.25 opt silver; 15 feet grading 0.016 opt gold and 0.15 opt silver; and 10 feet grading 0.007 opt gold and 2.37 opt silver. Drilling targeted the PAD and South Sleeper zones, which are outside the existing

resource area defined in the latest preliminary economic assessment. The PAD zone is in the northeast part of the mine site under the original heap leach pad. The PAD zone is connected to the resource in the Facility Area, which results in a shallow oxide deposit about 3,300 feet along strike, 330 feet to 1,650 feet wide, and about 1,000 feet deep. The mineralization in the South Sleeper zone is associated with stockwork veins, breccias and disseminations in intensely-altered silicic to intermediate volcanic rocks. The zone is between 160 feet and 460 feet wide, and drilling has extended the zone for 1,600 feet beyond the resource area.

The company issued a preliminary economic assessment containing the latest resource estimate. The measured and indicated oxide resource is 79,812,000 tons grading 0.009 opt gold and contains 659,000 ounces, and the measured and indicated sulfide resource is 280,617,000 tons grading 0.011 opt gold. The report also proposed a large-scale open pit mining operation with a heap leach processing plant handling both oxide and sulfide material and producing a gold-silver doré. The projected start-up capital cost was estimated at \$346,000,000, with total costs for extraction of \$996 per ounce of recovered gold equivalent gold over a 17 year mine life. As part of the Sleeper Gold Project, the company staked 920 claims adjacent to the west side and south of Sleeper and called the new claims the Mimi Project. These claims were being drilled in late 2012, but no results were reported. (Paramount Gold and Silver Corp. press releases, 9/25/2012, 1/7/2013; Paramount Gold and Silver Corp. 10-Q Forms, 2/9/2012, 9/13/2012, 2/6/2013; Paramount Gold and Silver Corp. 10-K Form, 9/25/2012; Paramount Gold and Silver Corp. 43-101 technical report, 7/30/2012; Paramount Gold and Silver Corp. website, www.paramountgold.com).

South Sleeper. Montezuma Mines, Inc. (a subsidiary of CMQ Resources, Inc.) completed six reverse circulation holes totaling 5,294 feet on its South Sleeper property about 1.5 miles south-southwest of the old Sleeper Mine. Significant intercepts included 70 feet grading 0.022 opt gold, 10 feet grading 0.015 opt gold, 5 feet grading 0.016 opt gold, and 10 feet grading 0.143 opt silver. The holes focused on three targets that had geophysical and surface geochemical anomalies. Argillic and silicic alteration and pyrite-marcasite veinlets and disseminations were intercepted in both rhyolite and intermediate volcanic rocks. The drilling indicated that flat-lying breccia zones and high-angle fracture zones controlled the hydrothermal alteration and mineralization. (CMQ Resources Inc. news release, 8/30/2012; CMQ Resources Inc. Management and Discussion Analysis, 3/26/2013; CMQ Resources Inc. website, www.cmqresources.com).

Battle Mountain District

Marigold. Goldcorp Inc. produced 144,382 ounces of gold from its Marigold Mine (Goldcorp, Inc., 66.67%, Barrick Gold Corp. 33.33%). The company mined 8,807,200 tons of ore with a strip ratio of 3.4:1, from the Target II Pit as well as from small laybacks in the Basalt Phase 7 and Phase 8 Pits and the Red Rock Pit. The average grade was 0.018 opt gold, and the average metallurgical recovery was 73%. Total cash cost was \$776 per ounce of gold. Exploration activity focused on development drilling on the Target II, Target III and Red Dot deposits, where positive results added 520,000 ounces to the reserve. Another 460,000 ounces were added because of a decrease in the cut-off grade associated with a higher gold price assumption. The life of the mine was extended and estimated to last until 2024 or 2025. Because of the favorable exploration results, an expansion of the Mackay pit was being considered, which will probably require an environmental impact statement. The Mackay Pit would be expanded into a long, thin pit extending for three miles and taking in the Target III and Get 'Er Done Pits, the Red Dot Resource, and part of Section 19, which is owned by the University of Nevada, Reno. (Barrick Gold Corp., Form 40-F, 3/28/2013; Barrick Gold Corp. Annual Information Form, 3/28/2013; Goldcorp Inc. annual report, 4/2/2013; Management Discussion and Analysis, 4/25/2012, 7/26/2012; Elko Daily Free Press Mining Quarterly Summer 2012; Goldcorp Inc. website, www.goldcorp.com)

Buffalo Mountain District

Buffalo Mountain. Newmont Mining Corp. was granted a notice of intent by the BLM to drill holes in Sections 20, and 28 in Township 34 North, Range 42 East in the Havallah Hills about 4 miles southwest of its Lone Tree mine. It is unknown whether Newmont drilled any holes in 2012. (BLM LR2000 database)

Converse. International Minerals Corp. completed 15 core holes totaling 17,728 feet on its Converse property. Significant intercepts included 111 feet grading 0.039 opt gold, 46 feet grading 0.05 opt gold, and 30 feet grading 0.057 opt gold. Converse consists of the Redline North and Redline South deposits, which are gold skarn deposits associated with a dioritic stock. The company issued a preliminary economic assessment in early 2012. (International Minerals Corp. news release, 5/29/2012; International Minerals Corp. Annual Information Form, 9/28/2012; International Minerals Corp. 43-101 Technical Report, 2/2/2012; International Minerals Corp. website, www.intlminerals.com).

Gold Run District

Adelaide. The BLM approved Golden Predator Mines US Inc.'s plan of operations its Adelaide project. The plan of operations involves surface exploration and excavating a portal and tunneling for underground exploration. Up to 50 drill sites were proposed. Golden Predator and Seabridge Gold Inc. decided to focus on their advanced Canadian assets, and in the process, contributed select U.S. properties, including Adelaide, to Wolfpack Gold Corp. In December 2012, Wolfpack Gold was acquired by Tigris Uranium Corp. in a reverse takeover, and a 43-101 technical report was being prepared by Tigris Uranium for release in 2013. (BLM Environmental Assessment, 8/2012, BLM Record of Decision, 8/24/2012, BLM Finding of No Significant Impact, 8/24/2012; Tigris Uranium Corp., 43-101 Technical Report, 4/8/2013; Americas Bullion Royalty Corp. news releases, 6/11/2011, 6/28/2012; Americas Bullion Royalty Corp. website, www.aubullion.com; Wolfpack Gold Corp. website, www.wolfpackgold.com)

Jungo District

Fox Springs/LB Vixen. Grizzly Gold Corp. completed four angled reverse circulation holes totaling 2,500 feet, spaced widely over an area 9,000 feet by 2,000 feet on the LB Vixen property located about 13 miles northeast of the Hycroft Mine. The drilling was intended to determine the extent and trend of mineralization. Significant intercepts from two of the holes included 20 feet grading 0.01 opt gold, 60 feet grading 0.004 opt gold, and 70 feet grading 0.003 opt gold. The property is mainly covered by alluvium. There are local outcrops of Permo-Triassic argillite, siltstone, shale, and limestone with zones of silicification along hilltops that are cut by northwest-trending and north-northeast-trending, pre- and post-mineralization, high angle faults. Mineralization tends to occur near fault intersections. The company staked 100 additional claims in 2012 and renamed the property Fox Springs. (Grizzly Gold Corp. news releases 10/25/2012, 11/16/2012, 1/16/2013; Grizzly Gold Corp. website www.grizzlygoldcorp.com)

Potosi District

Pinson. In 2011, Atna Resources Ltd. acquired the 70% interest that Barrick Gold Corp. had in the Pinson Mine property. Atna developed the underground resources and began mining them in August 2012. Purchasing agreements were made with Barrick Gold Corp. to process sulfide ore in at the Goldstrike facilities and with Newmont Mining Corp. to process oxide ore at the Twin Creeks facilities. Oxide ore makes up about 15% of the

stated reserves. The company mined 7,862 tons of ore during development and shipped 4,946 tons to the processing facilities, which produced 1,358 ounces of gold. The total cost of the development was estimated to be \$31,000,000 of which \$22,800,000 had been spent by the end of 2012. Laterals drifts were driven into the OG and Otto zones, and a crosscut was started into the Range Front zone. During this development, the Ogee (OG) stope was successfully mined. Underground drilling of at least 30 reverse recirculation holes for stope delineation was started in October. Significant intercepts included 45 feet grading 0.583 opt gold, 60 feet grading 1.382 opt gold, and 35 feet grading 0.879 opt.

Atna initiated a feasibility study for development of the Section 33 pit. Also, four core holes totaling 2,086 feet were completed to acquire samples for column leach testing of the potential open-pittable, heap-leach gold resources remaining in the old Mag pit. Significant intercepts included 154.5 feet grading 0.057 opt gold, 162 feet grading 0.098 opt gold, and 41 feet grading 0.059 opt gold. The Mag deposit is separated from the zones in the underground mine and may be developed independently after completion of permitting. The company issued two 43-101 technical reports with new resource estimates. The proven and probably reserve for the underground ore at a 0.2 opt gold cut-off grade is 1,738,738 tons grading 0.369 opt gold and containing 642,236 ounces. (Elko Daily Free Press Mining Quarterly, Summer 2012; Atna Resources Ltd., Form 20-F Annual report, 3/21/2013; Atna Resources Ltd., Management Discussion and Analysis, 3/21/2013; Atna Resources Ltd., news releases, 11/6/2012, 11/15/2012, 1/16/2013; Atna Resources Ltd., 43-101 technical reports, 2/6/2012, 5/30/2012; Atna Resources Ltd., website, www.atna.com)

Turquoise Ridge. The underground Turquoise Ridge Mine, which is operated by Barrick Gold Corp., (75% Barrick Gold Corp., 25% Newmont Mining Corp.) produced 191,754 ounces of gold in 2012. Most of the mining occurred in the North Zone, where workings are as deep as 3,000 feet with the deepest ore bodies another 600 to 700 feet further down. In the spring of 2012, the company had six drill rigs operating underground and 11 on the surface. By July, 232,000 feet of drilling (50% of the 2012 planned drilling) had been completed which targeted resource upgrades and additions in four main areas of the deposit in support of a mine expansion prefeasibility study. The study is to evaluate the potential development of a large-scale open pit to mine the lower grade halo around the high-grade underground ore. By year's end, the drilling added 700,000 ounces to the reserves, 2,600,000 ounces to the measured and indicated

resources, and 1,900,000 ounces to the inferred resources. The life of the mine is projected to last until 2043. A quarry operation on the property produced 40,000 tons per month of aggregate for use as backfill in the underground operation. A backfill plant was under construction in the North Zone and due for completion in 2013. The plant will greatly reduce the effort to haul backfill. (Elko Daily Free Press Mining Quarterly, Spring 2012, Spring 2013; Barrick Gold Corp., Form 40-F, 3/28/2013; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. Management Discussion and Analysis, 2/16/2012, 5/3/2012, 7/26/2012; Barrick Gold Corp. website, www.barrick.com; Newmont Mining Corp. Form 10-K, 2/22/2013; Newmont Mining Corp. website, www.newmont.com)

Twin Creeks. Newmont Mining Corp. produced 408,751 ounces of gold and 79,574 ounces of silver at Twin Creeks in 2012. In 2012, Newmont worked on the Vista 7 project (a.k.a. the Vista "Vein") which is accessed from the bottom on the Vista open pit and is the first underground operation at Twin Creeks. Mining in the Vista open pit ended in the mid-1990s. The plan for the Vista 7 project called for 90,000 feet of core drilling and 10,000 feet of drifting on the Vista "Vein." As of May 2012, 19,000 feet of core drilling and 3,000 feet of drifting were completed. Small Mine Development was averaging 36 feet per day of drift work. Newmont was also in the process of applying for a permit for an onsite cement plant for shotcrete for the underground project. The Vista 7 Project was expected to add 130,000 ounces to the reserve by year's end. Exploration drilling continued on the Fiberline deposit below and east of the Megapit. No results were released. The planned mine life for Twin Creek currently lasts until 2028, with processing continuing through 2036. (Elko Daily Free Press Summer 2012 Mining Quarterly; Newmont Mining Corp. Form 10-K, 2/22/2013; Newmont website, www.newmont.com; Small Mine Development website, www.undergroundmining.com)

Rebel Creek District

Orovada. Global Geoscience completed five reverse circulation holes totaling 5,025 feet on its Orovada project about 50 miles north of Winnemucca. The gold and silver mineralization is associated with quartz veins with a strike length of over 2.5 miles. The veins are hosted by a sequence of folded Mesozoic mudstone and greywacke. Gold values occur locally in the greywacke units on the limbs of a syncline and in veins sub-parallel to the bedding in the axis of the syncline. The holes were drilled in two fences located about 1.5 miles apart. Better intercepts included 165 feet grading 0.003 opt gold

and 0.051 opt silver, 10 feet grading 0.042 opt gold and 0.39 opt silver, 20 feet grading 0.011 opt gold and 0.084 opt silver, and 14.8 feet grading 0.011 opt gold and 0.45 opt silver. (Global Geoscience 2012 Annual Report, 6/30/2012; Global Geoscience Quarterly Activities Report, 1/31/2013; Global Geoscience website, www.globalgeo.com.au)

Sulphur District

Hycroft. Allied Nevada Gold Corp. produced 114,705 ounces of gold and 696,144 ounces of silver from its Hycroft Mine in 2012. The adjusted cash cost was \$638 per ounce. The mine moved 60,678,000 tons of material, an increase of 78% from 2011, including 30,299,000 tons of ore placed on the leach pad and another 3,346,000 tons of ore that was stockpiled. The average grade was 0.012 opt gold and 0.211 opt silver. In 2012, the BLM issued a final environmental impact statement approving the company's proposed expansion of mining at Brimstone, Cut-5, Bay, and Central, the operation of the north and south leach pads, and infrastructure upgrades. The expansion will increase the life of the mine by 12 years.

The company completed 182 reverse circulation holes totaling 138,755 feet and 83 diamond drill holes totaling 116,791 feet in the Bay, Brimstone, Central, and Vortex deposits. Better intercepts included 85 feet averaging 0.022 opt gold and 0.88 opt silver; 155 feet averaging 0.017 opt gold and 0.88 opt silver including 30 feet grading 0.032 opt gold and 3.25 opt silver; 787 feet averaging 0.02 opt gold and 0.49 opt silver; and 488 feet of sulfide material grading 0.013 opt gold and 2.26 opt. An exploration program was being prepared to test for mineralization outside the current mine plan, including targets at Oscar, Chalcedony, Rabbit, and Chance located to the south. The known gold mineralization within the mine extends three miles in a north-south direction by 1.5 miles in an east-west direction. The mineralization extends to a depth of less than 330 feet on the northwest side to over 2,500 feet in the Vortex deposit to the east. Oxide ore extends down to 300 feet, below which is sulfide ore. The transitional mineralization occurs in a zone where sulfide mineralization is partially oxidized. Based on the results of the 2012 drilling program, the company issued a new 43-101 technical report with new reserve and resource estimates. (BLM Final Environmental Impact Statement, 7/2012; BLM Record of Decision, 8/2012; Elko Daily Free Press Mining Quarterly, Summer 2012, Fall 2012; Allied Nevada Gold Corp. news release, 1/31/2013, 2/25/2013; Allied Nevada Gold Corp. SEC Form 10-K, 2/25/2013; Allied Nevada Gold Corp. 43-101 technical report, 3/6/2013; Allied Nevada Gold Corp. website, www.alliednevada.com)

Ten Mile District

Sandman. Newmont carried out a drill program, but no results were released. Based on drilling through 2012, it released an indicated resource estimate of 1,300,000 tons grading 0.023 opt gold and containing 50,000 ounces of gold. (Newmont Mining Corp. website, www.newmont.com).

Vicksburg District

Ashdown. Ashdown Project LLC, a subsidiary of Win-Eldrich Mines Ltd., produced 44,092 pounds of molybdenite concentrate from the company's underground Ashdown mine, a decrease of 93% from 2011. On November 1, 2011, the company determined that molybdenum production from the mine was not commercially viable and ended further development. The company decided to phase out molybdenum production and return to its original plan to mine the property for gold, though molybdenum production would be reconsidered if the price stabilized above \$20 per pound. Operations continued until readily available molybdenum was mined out at the end of February 2012. (BLM LR2000 Database; Nevada Business Search; Win-Eldrich Mines Ltd. Management and Discussion Analysis, 11/30/2012)

LANDER COUNTY

Battle Mountain District

Battle Mountain Ridge. Waseco Resources Inc. completed six core holes on the Battle Mountain Ridge project (joint venture with Sparton Resources, Inc.) about six miles north of the Phoenix Mine. The best intercepts were 12.1 feet grading 0.82 opt gold, 2 feet grading 1.96 opt gold, and 5 feet grading 0.17 opt gold. Mineralization occurs in three areas – North, South, and West zones. (Waseco Resources, Inc., news release, 1/17/2013; Waseco Resources, Inc., 1/28/2013; Management Discussion and Analysis, 1/28/2013, 6/27/2013; Waseco Resources, Inc., website, www.wasecoresources.com)

Copper Basin. Newmont Mining Corp. carried out a major drill program at its Copper Basin project in 2012, drilling both reverse circulation and core holes. Results were not released. It also staked an additional 126 lode claims (Jade Claims) in T32N, R44E in 2012. (BLM LR2000 Database; BLM Battle Mountain District annual report, 1/2013)

Independence Mine: General Metals Corp. spent \$80,321 on drilling and permitting at its Independence Mine project but released no results. The property contains three types of mineralization, including shallow mineralization associated with

silicification/jasperoid in the Pumpnickel Formation, deeper gold skarn mineralization developed in the carbonate portions of the Battle Mountain, Antler Peak, and Edna Mountain Formations and disseminated gold/silver-bearing stockwork mineralization that might be related to a deep porphyry copper-gold system. (General Metals Corp. 10-Q Form, 3/18/2013; General Metals Corp. 43-101 Technical Report, 5/31/2011; General Metals Corp. website, nevada-goldmine.com)

Phoenix. From its Phoenix mine, Newmont Mining Corp. produced 27,809,189 pounds of copper. Gold production was 158,843 ounces. Silver production was 1,325,200. Recovery was 59% for copper, 73% for gold, and 36% of silver. Newmont carried out an exploration drill program, but no results were released. The BLM issued a final environmental impact statement and record of decision approving Newmont's Phoenix Copper Leach Project. The cost of the project is estimated to be between \$170,000,000 and \$215,000,000. \$79,000,000 was spent on the project by the end of 2012. Initial production will be 20,000,000 pounds annually during the first five years at cash costs of \$1.75 to \$2 per pound. (BLM Final Environmental Impact Statement, 4/2013; BLM Record of Decision, 6/2012; Elko Daily Free Press Mining Quarterly, Summer 2012, Fall 2012; Newmont Mining Corp. Form 10-K, 3/28/2013; Newmont Mining Corp. website, www.newmont.com)

Buffalo Valley District

Buffalo Valley. Newmont Mining Corp. continued to explore its Buffalo Valley project (joint venture with Fairmile Goldtech Inc.). The BLM approved the company's plan of operation and was preparing an environmental impact statement. The proposed project would include two open pits, three waste rock storage areas, high-grade ore stockpiles, a heap leach pad, crushing and processing facilities, and support infrastructure. Newmont continued to drill Buffalo Valley in 2012, but no results were released. A new resource was released based on drilling through 2012. The indicated resource is 23,100,000 tons grading 0.063 opt gold and contains 470,000 ounces of gold. In October 2012, the British Columbia Securities Commission issued a cease trade order against Fairmile Goldtech Inc. (BLM Scoping Document, 2/4/2013; BLM Battle Mountain District Annual Report, 2013; Newmont Mining Corp. Form 10-K, 3/28/2013; Fairmile Goldtech Inc. Management Discussion and Analysis, 11/2/2012; Newmont website, www.newmont.com).

Bullion District

Fire Creek. Klondex Mines Ltd. completed 20 drill holes, totaling 20,948 feet as part of a surface drilling program on its Fire Creek property. This included 8,086 feet of core to extend ten holes that had been pre-collared with reverse circulation drilling. All ten core holes encountered gold mineralization, with the best intercepts being 4.8 feet grading 85 opt gold and 174 opt silver, 1.7 feet grading 2.9 opt gold, and 3.7 feet grading 1.7 opt gold. The company also continued its underground drilling program, and completed 35 core holes totaling 30,511 feet in 2012. Small Mine Development was contracted for the underground work which included constructing the portal and developing a 12-foot wide by 14-foot high decline with a 15% grade to be used as an exploration platform for close-in drilling.

The mineralization consists of gold and minor silver associated with quartz, calcite, pyrite and minor arsenopyrite. Gold occurs as native gold, electrum, and in pyrite. The mineralization occurs in many separate veins, stockwork zones, breccia zones, or sheeted fractures and as disseminations within the host rocks near veins. The veins are hosted by more competent mafic volcanic flows and dikes. The veins have been grouped into several vein zones referred to as M1 and M2 on the Main Zone, the FN1 and FN2 in the Far North Zone and the New North Zone. The vein structures are sub-parallel with a general N15°W strike and dips ranging between about 75° westward to about 80° eastward. The Main Zone veins are continuously traceable for 3,935 feet, the Far North Zone veins have a strike length of 1,640 feet, and New North vein zone is traceable for 820 feet. Gold grades in the veins range up to 3.7 opt gold with widths to over six feet. The best grades occur at elevations between 4,900 feet and 5,600 feet. The vein zones commonly pinch at depth in less competent lithologic units. (Elko Daily Free Press Mining Quarterly, Winter 2012; Klondex Mines Ltd. news release, 9/24/2012; Klondex Mines Ltd. Annual Information Form, 4/1/2013; Klondex Mines Ltd. website, www.klondexmines.com; Small Mine Development website www.undergroundmining.com)

Gold Acres Window. Barrick Gold Corp. stopped mining the series of deposits that make up the Pipeline open pit in 2009, but exploration has continued and remaining resources continue to be re-evaluated. Barrick was preparing to resume mining in 2013. The plan calls for the South Gap deposit to be mined through 2017. Stripping of the Crossroads deposit would start in 2013 and mining would continue through 2024. A 1,500-foot pit is planned for the Crossroads deposit, which will be mined in four phases. Mining of the Pipeline Phase

10a would start in 2015 and last through 2020. Several angled core holes were drilled at the Pipeline and South Pipeline deposits to provide geotechnical data and further delineate mineralized areas, but no results were released. An indeterminate amount of drilling was done on various exploration targets in the area of the Gold Acres window, but no results were released. (Elko Daily Free Press Mining Quarterly, Spring 2012; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. 43-101 Technical Report, 3/16/2012; Barrick website, www.barrick.com)

Robertson. Coral Gold Resources Ltd. completed 12 core holes that twinned holes drilled by Amax Gold, Inc., in the early 1990s on the Porphyry zone on the Robertson property. Significant intercepts included 235 feet grading 0.0288 opt gold, 465 feet grading 0.0214 opt gold, and 395 feet grading 0.0218 opt gold in three holes. The company released a preliminary economic assessment at the beginning of 2012, which looks at expanded exploration and open pit mining of the Altenburg Hill, Porphyry and Gold Pan zones. An environmental assessment is being undertaken. (Coral Gold Resources, Ltd., Management Discussion and Analysis, 10/2/2012; Coral Gold Resources, Ltd., Preliminary Economic Assessment, 1/15/2012; Coral Gold Resources, Ltd., Environmental Assessment, 5/2013; Coral Gold Resources, Ltd., website, www.coralgold.com)

Utah Clipper. Navaho Gold Ltd. (joint venture with Columbus Gold Corp.) completed one diamond core hole to 3,800 feet on the Utah Clipper property just west of the Gold Acres open pit. The hole encountered widespread anomalous silver and two zones of gold mineralization. Significant silver intercepts included 24.5 feet grading 0.788 opt silver, 50 feet grading 0.826 opt silver, 90 feet grading 0.961 opt silver, and 8 feet grading 2.09 opt silver. One of the gold zones consisted of 19.3 feet of strongly fractured, altered pyrite-rich dike material within a thrust zone. It occurred at a depth of 3,543 feet and graded 0.003 opt gold. The other gold zone consisted of 13.4 feet of strongly fractured and silicified lower plate rocks. It occurred at a depth of 3,744 feet and graded 0.003 opt gold. A shallow zone of silver mineralization encountered in the upper 1,100 feet of the hole was extended over a strike length of 1.75 miles. (Navaho Gold, Ltd., press releases, 2/21/2012, 4/24/2012; Navaho Gold, Ltd., 2012 Annual Report, 12/31/2012; Navaho Gold, Ltd., website, www.navahogold.com)

Callaghan Ranch District

Big Blue. Ramelius Resources Ltd. and Marmota Energy completed two reverse circulation holes totaling 2,859 feet on the Big Blue Project (Ramelius Resources, Ltd., 42%, Marmota Energy 28%, Miranda Gold Corp. 30%). Significant intercepts included 45 feet grading 0.005 opt gold, 145 feet grading 0.004 opt gold, and 5 feet grading 0.052 opt gold. Though the drilling did intersect host rocks favorable for Carlin-style mineralization, the results were not encouraging enough to warrant any follow-up due to the depths of the intersections and the lack of any meaningful pathfinder trace elements. (Marmota Energy Quarterly Report, 7/31/2012; Ramelius Resources Ltd. website, www.rameliusresources.com.au; Marmota Energy website, www.marmotaenergy.com.au; Miranda Gold Corp. website, www.mirandagold.com)

Cortez District

Cortez Hills. Production from Barrick Gold Corp.'s Cortez Hills and Pediment open pits totaled 939,004 ounces of gold. The total production of the Cortez underground mines was 430,962 ounces of gold, an increase of 43% from 2011. The average total cash cost was an amazingly low \$282 per ounce. The metallurgical recovery was 82.5%. The underground mine was producing 1,400 tons of ore per day.

About 400 exploration holes totaling about 640,000 feet drilled on Barrick's Cortez mine properties, including Cortez Hills, Pipeline, and Goldrush. As part of the Cortez Hills Lower Zone Expansion project, advancement on the exploration decline continued. Two exploration rigs continued to delineate the ore body in the lower zone, and infill drilling continued to convert resources to reserves in the upper zone. Several angled core holes were drilled at Cortez NW Deep deposit to provide geotechnical data and further delineate mineralized areas, but no results were released. The Cortez NW Deep deposit is a continuation of the old Cortez deposit, which was mined out in 1982, and consists of remnants of oxide mineralization in the east wall of the Bass Pond pit and deeper sulfide-bearing, carbonaceous mineralization. Barrick also acquired the Mill Canyon property from Victoria Gold Corp. for \$24,000,000, located adjacent to the east of the Cortez Hills property. (BLM LR2000 Database; Elko Daily Free Press Mining Quarterly, Spring 2012, Fall 2012, Summer 2013; Chicago Tribune, 5/25/2013; Victoria Gold news release, 5/25/2012; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. Annual Report, 3/25/2013; Barrick Gold Corp. Management Discussion and Analysis, 5/3/2012, 11/1/2012; Barrick Gold Corp. 43-101 Technical Report, 3/16/2012; Barrick website, www.barrick.com)

McCoy District

Cove. Starting in late 2011 and into 2012, Victoria Gold Corp. conducted a drilling program on the Cove project. Premier Gold Mines, Ltd. bought the property from Victoria Gold Corp. in June of 2012 for \$28,000,000, payable over a two-year period. Nine reverse circulation holes totaling 20,575 feet and ten diamond drill holes totaling 23,477 feet were completed. The drilling focused on finding extensions of the Helen Zone mineralization in the Favret and Augusta Mountain Formations within the shallow-dipping southern limb of the Cove Project anticline. Significant intercepts include 10 feet averaging 1.41 opt gold; 67 feet averaging 0.34 opt gold, including 5 feet grading 1.43 opt gold and 5 feet of 0.93 opt gold; 5 feet grading 0.51 opt gold; and 3.5 feet grading 1.51 opt gold. The company issued a preliminary economic assessment assessing potential underground mining of the Helen Zone with a mine life of four years. (Premier Gold Mines, Ltd., news releases, 6/6/2012, 1/9/2013; Premier Gold Mines, Ltd., Annual Information Form, 4/2/2013; Premier Gold Mines, Ltd., 43-101 Technical Report, 10/5/2012; Premier Gold Mines, Ltd., website, www.premiergoldmines.com)

Toiyabe Mine Area

House Spring Area. Allied Nevada Gold Corp. was granted a notice of intent by the BLM to drill holes in Sections 20, 21, 28, 29, and 32 in Township 26 North Range 47 East, near the area of House Spring in Toiyabe Range three to five miles northeast of the inactive Toiyabe gold mine. It is unknown whether Allied Nevada drilled any holes in 2012. (BLM LR2000 database)

LINCOLN COUNTY

Atlanta District

Atlanta. Late in 2012, Meadow Bay Gold Corp. completed four drill holes totaling 4,059 feet on its Atlanta property. Significant intercepts included 220 feet averaging 0.065 opt gold and 0.42 opt silver and 115 feet averaging 0.062 opt gold and 0.17 opt silver, including 30 feet grading 0.18 opt gold and 0.46 opt silver in two holes. The holes were drilled in a jasperoid breccia northwest of the pit to confirm and offset results from the 2011 drill program. A new resource estimate was released based on drilling through 2012. The measured and indicated resource is 15,503,000 tons grading 0.037 opt gold and containing 572,100 ounces of gold. (Meadow Bay Gold Corp., news releases, 12/3/2012, 1/9/2013; Meadow Bay Gold Corp., 43-101 technical reports, 7/21/2012, 3/15/2013; Meadow Bay Gold Corp. website, www.meadowbaygold.com)

Delamar District

Easter. La Quinta Resources Corp. (joint venture with Pilot Gold Inc.) completed two diamond drill holes totaling 431 feet in the West Vein area on the Easter Project. The Easter Project consisted of 70 unpatented lode claims underlain by a quartz-adularia vein stockwork system hosted by Tertiary volcanic rocks of the Caliente Caldera Complex. In 2011, the company drilled three holes to test the West Vein area, which had not been previously drilled. One angled hole in 2012 intersected mineralization at shallower depths than anticipated in the Footwall Vein portion of the West Vein target. The unfaulted portions of the Footwall vein in the West Vein target are up to 30 feet thick at the surface. The best intercepts were four feet grading 0.03 opt gold and 0.42 opt silver and two feet grading 0.005 opt gold and 0.026 opt silver. In September, La Quinta Resources Corp. terminated the agreement and turned the Easter project back to Pilot Gold, Inc. (La Quinta Resources Corp. news release, 9/11/2012; La Quinta Resources Corp. Audited Annual Financial Statements, 4/30/2013; La Quinta Resources Corp. Management Discussion and Analysis, 8/29/2012; La Quinta Resources Corp. website, www.laquintaresources.com; Pilot Gold Inc. website, www.pilotgold.com)

Eagle Valley District

Gold Springs. High Desert Gold Corp. (High Desert Gold Corp. 82.5%, Pilot Gold Inc. 17.5%) completed 21 reverse circulation holes totaling 8,567 feet on the Grey Eagle Zone at its Gold Springs project located along the border with Utah about 22 miles east of Pioche. The best intercepts were 185 feet averaging 0.017 opt gold and 0.14 opt silver, including 25 feet grading 0.057 opt gold and 0.39 opt silver; 240 feet averaging 0.009 opt gold and 0.11 opt silver, including 20 feet grading 0.056 opt gold and 0.48 opt silver; and 90 feet grading 0.017 opt gold and 0.45 opt silver, including 55 feet grading 0.022 opt gold and 0.61 opt silver. The results of the drilling indicate the mineralized zone trends over 1,300 feet in a north-northeast to south-southwest direction and is open in both directions and at depth. The mineralized zone consists of quartz veins, breccias, and stockwork zones hosted mainly in Miocene andesitic flows and, to a lesser extent, in overlying rhyolitic ash-flow tuffs. Sulfides in the form of pyrite and arsenopyrite make up less than 1% of the vein material. Gangue material includes calcite, fluorite, and locally abundant adularia. Based on drilling through 2012, High Desert released an inferred resource estimate of 3,196,276 tons grading 0.02 opt gold and containing 62,482 ounces. (High Desert Gold Corp. news release, 12/17/2012; High Desert Gold Corp. 43-101 Technical Report,

5/1/2013; High Desert Gold Corp. website, www.highdesertgoldcorp.com; Pilot Gold Inc. website, www.pilotgold.com)

Pioche District

Prince Mine. International Silver Inc. drilled 16 holes, totaling 11,680 feet. Carbonate-hosted gold-silver mineralization without significant lead-zinc grade was encountered in a hole at a depth of 630 feet in a 190 feet intercept that graded 0.04 opt gold and 1.5 opt silver. Fifty feet of the intercept was oxidized while the remainder was sulfide-bearing. Two other holes intercepted from 10 to 40 feet of gold mineralization grading 0.07 to 0.08 opt gold with 0.9 opt silver. Carbonate replacement silver, lead, zinc, manganese mineralization was found at depths between 540 and 660 feet below surface in two holes. This base metal rich mineralization ranges from 15 feet to 80 feet in thickness and extends more or less continuously on strike for a distance of 3,000 feet. It occurs in a zone between two major faults and is inferred to host 4,800,000 tons of mineralized material grading 0.019 opt gold, 1.96 opt silver, 1.0% lead, 2.1% zinc and 6.7% manganese. The mineralization is expected to be amenable to underground mining methods. Two other holes intercepted shallower replacement type mineralization that appears to be amenable to open pit mining. Using the 2012 drilling data combined with data from nearby underground sampling points, an inferred tonnage of mineralized material was calculated for this area totaling 5,200,000 tons averaging 0.008 opt gold, 2.57 opt silver, 2.7% lead, 2.2% zinc and 9.6% manganese as oxides. (International Silver Inc. news release, 3/18/2013)

LYON COUNTY

Como District

Hercules. Iconic Minerals Ltd. completed 12 reverse circulation drill holes and eight core holes totaling 6,631 feet on its Hercules property (joint venture with Willow Creek Enterprises, Inc.). Previous work identified four zones of gold-silver mineralization (Hercules, Loaves, Northeast, and West Cliffs) within two fault zones. The fault zones are about 2,500 feet apart and traceable for over 1.5 miles. Significant intercepts included 117 feet grading 0.019 opt gold and 0.23 opt silver and 70 feet grading 0.03 opt gold and 0.41 opt silver in two holes at Hercules, 50 feet grading 0.014 opt gold and 0.25 opt silver at Loaves, and 10 feet grading 0.82 opt gold and 0.34 opt silver and 65 feet grading 0.018 opt gold and 0.26 opt silver in two holes at West Cliff. The company issued a 43-101 technical report on the property, but it did not contain a new resource estimate. (Iconic Minerals, Ltd., news release, 4/12/2012; Iconic

Minerals, Ltd., Management Discussion and Analysis, 11/23/2012; Iconic Minerals, Ltd., 43-101 Technical Report, 9/7/2012; Iconic Minerals, Ltd., website, www.iconicmineralsltd.com; MinQuest, Inc., website, www.minquestinc.com)

Yerington District

Ann Mason. Entrée Gold Inc. issued a preliminary economic assessment of its Ann Mason project. Using data from all holes drilled through 2011, new resources were estimated for the Ann Mason and Blue Hill deposits, which were only slightly different than previous estimates. Besides the the Ann Mason and Blue Hill deposits, the property contains the Blackjack IP, Blackjack Oxide, Minnesota, and Roulette exploration targets. After compiling the data for the preliminary economic assessment, exploration activities were curtailed in 2012 to conserve capital. However, geological mapping, surface sampling and some drilling continued. The company completed at least five holes and deepened others. Step-out drilling was done to better define the northern and western margins of the Ann Mason deposit. Significant intercepts reported included 2,886 feet averaging 0.24% copper, 0.009 opt silver, and 0.002% molybdenum, including 564 feet grading 0.36% copper; and 2,493 feet averaging 0.29% copper, 0.019 opt silver, and 0.004% molybdenum, including 892 feet grading 0.38% copper. When projected to the surface, the 0.15% copper envelope of the Ann Mason resource covers a roughly oval area of about 8,000 feet by 3,500 feet with the long axis trending about west-northwest. The mineralization extends to a depth of about 3,800 feet. For the Ann Mason deposit, the preliminary economic assessment calls for an open pit and conventional sulfide flotation milling operation with an initial 24 year mine life. Over the life of mine, the pit is estimated to produce an average of 214 million pounds of copper annually. (Entrée Gold Inc. news releases, 3/20/2012, 7/30/2012, 11/13/2012; Entrée Gold Inc. Annual Information Form, 4/2/2013; Entrée Gold Management Discussion and Analysis, 4/2/2013; Entrée Gold, Inc., Preliminary Economic Assessment, 10/24/2012; Entrée Gold, Inc., website, www.entreegold.com)

MacArthur. Quaterra Resources Inc. issued a preliminary economic assessment for its MacArthur copper deposit calling for open pit mining that will recover 747,000,000 pounds of copper over a mine life of 18 years. The initial capital expenditure was estimated to be \$232,700,000. The mine will eventually have three pits – Main Arthur, North Area, and Gallagher. The resource includes primary chalcopryite, supergene chalcocite, and supergene copper oxides. The company continued geological

and geochemical surveys and flew a detailed helicopter magnetic survey. No drilling was completed. (Quaterra Resources Inc. press release. 5/23/2012; Quaterra Resources, Inc., Form 20-F, 3/28/2013; Quaterra Resources Inc. 43-101 Technical Report, 6/29/2012; Quaterra Resources, Inc., website, www.quaterra.com)

Pumpkin Hollow. Nevada Copper Corp. completed 37 core holes totaling about 50,000 feet and eight rotary holes for hydrology totaling 5,550 feet at the company's Pumpkin Hollow property southeast of Yerington. Most of the 2011 and 2012 drill program focused on expansion and step-out drilling of the North and South deposits, which could have a positive impact on pit designs and project economics. The North Deposit had multiple areas of open mineralization including the lower stacked mineralization area, the north and northwest areas, and the eastern and southeastern edge of the deposit. One drill hole along the southern edge intersected 625 feet grading 1.17% copper, including 35 feet grading 3.08% copper. Drilling at the South Deposit focused on expanding mineralization along the northern and northeastern boundary of the deposit and the area between the planned North and South pits. One hole drilled in the center of the deposit intersected 179.5 feet grading 0.23% copper. The East Deposit remained open in several directions and contains several recognized higher grade trends. The trend in the northern part of the deposit extends and thins to the east and west. The trend in the southwestern portion of the deposit contained widely spaced holes with high-grade mineralization. Several 43-101 technical reports were issued in 2012, and new resources were calculated for the Western open pit deposits. The measured and indicated resource is 732,056,000 tons grading 0.37% copper and containing 5,448,225,000 pounds of copper.

The deposits consist mainly of magnetite-chalcopyrite mineralization scattered over an area of about 11,000 feet by 8,500 feet. The North Deposit is centered on a subhorizontal, pipe-like, copper-rich, magnetite-poor skarn breccia body hosted by hornfels of the Jurassic Gardnerville Formation. The South Deposit consists of a magnetite-chalcopyrite body closely associated with the intrusive contact of granodiorite into limestone of the Mason Valley Formation. The Southeast Deposit consists of a 300-foot wide lens of chalcopyrite-magnetite-garnet-actinolite skarn developed within limestone of the Mason Valley Formation with higher than average magnetite grades that are locally up to 75%. The East Deposit measures about 2,000 feet by 1,200 feet at a depth between 1,400 to 2,200 feet and consists of horizontal to gently dipping, bedding-controlled, stacked, chalcopyrite-magnetite mineralized zones within the limestone of the Mason

Valley Formation. The E-2 deposit consists of a steeply northwest-dipping lens of high-grade copper-magnetite skarn breccia within the Mason Valley limestone, which lies on the hanging wall of an endoskarn sill. The E-2 mineralization follows the marble front, similar to the East Deposit, but a major east-trending rotational fault appears to exist between the two deposits resulting in a significant variation in the deposit orientation.

Nevada Copper, in conjunction with the City of Yerington and Lyon County, proposed acquiring 11,630 acres of public land, including transferring to the city public lands that cover the claims. Among the benefits of this land transfer are more efficient development of the mine and its infrastructure, the use of the mine's infrastructure to support other local commercial and industrial interests, as well as recreational development. The land would also provide open space buffers between the mine and existing agricultural and residential lands. The transfer requires an act of Congress, which was introduced as the Yerington Land Conveyance and Sustainable Development Act in February 2012. The House passed it in June, and the bill was introduced to the Senate in December with a wilderness provision added.

The sinking of a 2,200 foot, 24-foot diameter production-sized shaft to access the East underground deposit started in February 2012. Production is expected to start in 2015 with an initial mine life of about 12 years. While the development of a smaller underground operation is not considered the main development option, it does provide for a phased approach consisting of the construction of an integrated underground operation followed by an open pit operation. (Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012; Nevada Copper Corp. news releases, 9/13/2012, 11/19/2012, 12/5/2012, 12/21/2012; Nevada Copper Corp. Annual Information Form, 9/27/2012; Nevada Copper Corp. Management Discussion and Analysis, 11/14/2012, 2/14/2013; Nevada Copper Corp. 43-101 Technical Reports, 2/3/2012, 10/18/2012, 12/12/2012; Nevada Copper Corp. website, www.nevadacopper.com)

Yerington Mine. Singatse Peak Services, LLC, a subsidiary of Quaterra Resources Inc., completed 95 sonic drill holes totaling 9,585 feet on the company's Yerington property. The drilling sampled potential remaining resources within the old dumps and tailings, which had been estimated in the past to be about 124,000,000 tons of mineralized material. The results were not released. (Quaterra Resources, Inc., Form 20-F, 3/28/2013; Quaterra Resources, Inc., Management Discussion and Analysis, 11/13/2012; Quaterra Resources, Inc., 43-101 Technical Report, 2/17/2012; Quaterra Resources, Inc., website, www.quaterra.com)

MINERAL COUNTY

Borealis District

Borealis. Through its subsidiary Borealis Mining Co., Gryphon Gold Corp. produced 8,459 ounces of gold and 13,172 ounces of silver from its Borealis mine, an oxide heap leach operation (Gryphon Gold Corp. 40%, Waterton Global Value, L.P., 60%). The operation re-crushed old heap leach material and placed it on new pads. The heap leaching process began September 23, 2011, and gold production began in March 2012 with the pouring of two doré bars. The life of the operation is estimated to be about six years. The company expanded production capacity and advanced the development of oxide heap leachable gold and silver resources in both preprocessed and unprocessed ore. Plans were also made to expand and develop the sulfide resource. The company continued drilling to prioritize ore development. (Gryphon Gold Corp. news release, 8/14/2012, 2/14/2013; Gryphon Gold Corp. Form 10-Q, 8/14/2012, 2/14/2013; Gryphon Gold Corp. website, www.gryphongold.com)

Candelaria District

Belleville. In February 2012, All American Gold Corp. attempted to drill a mud rotary hole to test an IP target on its Bellevue property (joint venture with TAC Gold Corp.), but had to abandon the hole because of difficult drilling conditions. Anomalous gold grades between 0.001 opt and 0.0025 opt were encountered. MinQuest, the underlying claimant, terminated the option to TAC Gold Corp. and All American Gold Corp. (TAC Gold Corp. news release, 2/20/2012; TAC Gold Corp. Management Discussion and Analysis, 7/10/2013; TAC Gold Corp. website, tacgold.com)

Garfield District

Twenty-One. Cypress Development Corp. completed five reverse circulation holes totaling 5,576 feet on the Twenty-One gold-silver property about seven miles west-southwest of Luning. The drilling program followed a geophysical survey and surface sampling program and tested a 3,000 foot wide alteration zone locally containing silver, gold, and lead mineralization. The results showed widespread sub-economic silver mineralization mainly contained within well oxidized, silica flooded and brecciated volcanoclastic rocks, and in underlying Triassic age limestone and siltstone. Highly anomalous bismuth is associated with the higher silver values, but the gold values are low and sparse and generally associated with the higher grade silver-bismuth zones. The anomalous silver intercepts were up to 270 feet thick and assayed

up to 0.6 opt silver in four holes. (Cypress Development Corp. news release, 4/5/2012; (Cypress Development Corp. Management Discussion and Analysis, 11/6/2012, 4/17/2013; Cypress Development Corp. website, www.cypressdevelopmentcorp.com)

Mount Grant District

South Fork Cat Creek. Newmont Mining Corp. was granted a notice of intent by the BLM to drill holes in Section 5, Township 7 North, Range 28 East and Section 32, Township 8 North, Range 28E, where there are gold prospects in the south fork of Cat Creek. The area is about three to four miles north of the mined out Jaime Ridge open pit, which was part of the Borealis mine. It is unknown whether Newmont drilled any holes in 2012. (BLM LR2000 database)

Pilot Mountains District

Pilot Mountain. Black Fire Minerals Ltd. drilled 15 core holes totaling 9,993 feet in early 2012 to confirm historic results at its Pilot Mountain tungsten project. Better intercepts included 45.6 feet grading 0.895% WO₃ and 57.4 feet grading 1.80% copper. That drilling and historic drilling allowed Black Fire to release a JORC resource estimate of 7.48 million tons at 0.31% WO₃, 0.665 opt silver and 0.17% copper using a 0.2% WO₃ cut-off grade. The resource is open at depth. JORC is the Australasian code for reporting of exploration results, mineral resources and ore reserves. The project covers tungsten-copper-silver skarn-style mineralization at three locations, including the Desert Scheelite, Gunmetal and Garnet Deposits, where Union Carbide Corp undertook detailed evaluation and feasibility studies and developed a 70,000 ton trial pit between 1977 and 1983. Union Carbide's project collapsed after the drop in tungsten prices in the 1980s. Black Fire's resource estimate is only for Desert Scheelite. (Black Fire Minerals Ltd. website, www.blackfireminerals.com.au)

Rawhide District

Denton-Rawhide. Rawhide Mining, LLC, produced 24,052 ounces of gold and 339,044 ounces of silver from the company's Denton-Rawhide Mine. The company expanded the heap leach pads and was actively mining. The company also acquired the adjacent Regent property from Pilot Gold, Inc., at year's end for \$3,000,000. (Pilot Gold, Inc., news release, 1/10/2013; Pilot Gold, Inc., Annual Information Form, 3/28/2013)

Santa Fe District

Kope Scheelite. Silver Reserve Corp. (a subsidiary of Infrastructure Materials Corp.) completed 19 reverse circulation holes totaling 7,578 feet on its Kope Scheelite project about 11 miles northeast of Mina. The drilling tested geological and geophysical targets identified by previous exploration. The best intercepts were 115 feet averaging 0.39% copper, which included 40 feet grading 0.92% copper and 15 feet grading 1.64% copper; 245 feet averaging 0.26% copper, including 75 feet grading 0.49% copper and 0.42% zinc; and 30 feet grading 0.08 opt silver. Gold, silver, and copper mineralization occurs in northwest-trending structures. The property had been explored in the past for tungsten, and some scheelite is present on the old dumps. (NBMG Bulletin 105; Infrastructure Materials Corp. news release, 1/16/2013; Infrastructure Materials Corp. Form 10-K, 9/26/2012; Infrastructure Materials Corp. website, www.infrastructurematerialscorp.com)

Silver Star District

East Camp Douglas. Gold Standard Ventures Corp. completed 12 core holes totaling 9,953 feet on its East Camp Douglas property at a cost of \$1,600,493. The drill program tested various bonanza vein gold-silver targets and a shallow, bulk disseminated gold zone. Significant intercepts included 22.5 feet grading 0.167 opt gold, 20 feet grading 0.058 opt gold, and 15 feet grading 0.042 opt gold in two holes. (Gold Standard Ventures Corp. Management and Discussion Analysis, 8/14/2012; Gold Standard Ventures Corp. Annual Information Form, 3/28/2013; Gold Standard Ventures website, www.goldstandardv.com)

NYE COUNTY

Bare Mountain District

Reward. Atna Resources Ltd. delayed development of its Reward project in favor of development of the Pinson Mine. (Atna Resources Ltd. Management and Discussion Analysis, 8/10/2012; Atna Resources Ltd. Form 20-F, 3/21/2013; Atna Resources Ltd. website, www.atna.com)

Sterling. The Sterling Gold Mining Corp., a subsidiary of Imperial Metals Corp., produced 12,000 ounces of gold from its Sterling Mine. Mining was conducted underground in the 144 Zone. Imperial mined 77,944 tons of ore with an average grade of 0.082 opt gold. Gold recovery was 56.59%. The 144 Zone contains 200,000 tons of material available for mining, and the mine life was estimated to be 1.5 years.

In 2012, the company completed 21 core holes totaling 4,115 feet to further delineate of the 144 zone. The 144 zone mineralization is hosted in silty carbonates near the base of the Bonanza King Formation and may extend somewhat into limestone and silty limestone of the underlying limestone and silty limestone of the Carrara Formation. The rocks are cut by the north-northeast-striking, steeply east-dipping Reudy fault and an obliquely trending quartz latite porphyry dike. Anomalous to high-grade gold is also present in breccias in the fault zone, and locally along the dike contact. The drilling targeted the dike and the northern limb of the 144 Zone, and all of the holes encountered varying degrees of gold mineralization. The best intercepts were 65 feet averaging 0.123 opt gold, including 15 feet grading 0.282 opt gold; 170 feet averaging 0.105 opt gold, including 10 feet grading 0.344 opt gold; and 60 feet grading 0.308 opt gold, including 5 feet grading 0.728 opt gold in three holes. The Panama Zone, a near surface deposit just south of the old Ambrose pit, was not drilled in 2012, but was being considered as a shallow open pit target for the near future. (Imperial Metals Corp. Management and Discussion Analysis, 3/28/2013; Imperial Metals Corp. Annual Information Form, 3/28/2013; Imperial Metals Corp. website, www.imperialmetals.com)

Bruner District

Bruner. Canamex Resources Corp. completed 18 reverse circulation and two core holes totaling about 14,000 feet in two phases in the Penelas East discovery area at the Bruner project (joint venture with Patriot Gold Corp.) Better drill intercepts were 360 feet averaging 0.119 opt gold including 25 feet grading 0.159 opt gold; and 50 feet averaging 0.512 opt gold including 5 feet grading 3.864 opt gold; and 5 feet grading 0.796 opt gold. Historic production at Bruner, most of which came from the Penelas Mine, was reportedly 100,000 tons grading 0.56 opt gold. The gold and silver mineralization is associated with a brecciated and silicified rhyolite porphyry within a large rhyolite porphyry flow-dome complex. The northerly-trending mineralized breccia network is mainly defined by a northwest-trending, eastern bounding fault intruded by late-stage mafic dikes. (Canamex Resources Corp. news release, 8/15/2012, 1/8/2013; Canamex Resources Management Discussion and Analysis, 4/23/2013; Canamex Resources website, www.canamex.us; MinQuest, Inc., website, www.minquestinc.com)

Bullfrog District

North Bullfrog. Corvus Gold Inc. completed 26 reverse circulation holes totaling 10,093 feet and 14 core holes totaling 11,346 feet on its North Bullfrog property. The company also completed seven

condemnation holes totaling 3,500 feet and five water monitoring holes totaling 843 feet. Most were drilled into the Mayflower deposit and the Yellow Jacket zone with the remainder of the holes drilled in a few other targets. Better drill intercepts were 158 feet averaging 0.061 opt gold and 1.38 opt silver, including 34 feet grading 0.15 opt gold and 3.83 opt silver and 5.5 feet grading 0.42 opt gold and 17.6 opt silver; and 237 feet averaging 0.056 opt gold and 3.17 opt silver, including 14.1 feet grading 0.64 opt gold and 48.8 opt silver and 6.9 feet grading 1.06 opt gold and 92.3 opt silver in two holes in the Yellow Jacket zone. The best intercepts in the Mayflower deposit were 9.4 feet averaging 0.32 opt gold and 0.2 opt silver and 85 feet averaging 0.036 opt gold and 0.019 opt silver, which included 20 feet grading 0.1 opt gold and 0.034 opt silver. The best intercept in the North Sierra Blanca zone was 145 feet averaging 0.02 opt gold, which included 30 feet grading 0.007 opt gold and 0.32 opt silver in one hole in the North Sierra Blanca zone. The North Bullfrog property contains four main deposits with resource estimates - Mayflower, Sierra Blanca, Jolly Jane, and Connection. The Yellow Jacket zone is on the northeast edge of the Sierra Blanca pit. Corvus released a new indicated resource based on drilling through 2012 – 40,465,000 tons grading 0.0084 opt gold and containing 307,860 ounces. The company also staked 596 claims in the Bullfrog Hills in 2012. (Corvus Gold Inc. Management Discussion and Analysis, 8/29/2012, 10/15/2012, 1/14/2013, 4/15/2013; Corvus Gold Inc. Annual Information Form, 8/29/2012; Corvus Gold Inc. 43-101 technical report, 6/4/2013; Corvus Gold Inc. website, www.corvusgold.com)

Golden Arrow District

Golden Arrow. Nevada Sunrise Gold Corp. completed 21 reverse circulation holes totaling 18,270 feet on its Golden Arrow property. The drilling focused on additional potential centers of gold mineralization near the previously-defined resources at Hidden Hill and Gold Coin. Significant intercepts were 25 feet grading 0.032 opt gold, 15 feet averaging 0.027 opt gold including 10 feet grading 0.034 opt, and 70 feet grading 0.053 opt gold. (Nevada Sunrise Gold Corp. news release, 3/29/2012, 10/4/2012; Nevada Sunrise Gold Corp. website, www.nevadasunrise.com)

Lodi District

Lodi Hills. Agnico-Eagle Mines Ltd. followed up a seven-hole reverse circulation drill program totaling 4,995 feet in 2011 by drilling nine core holes in 2012, which totaled 6,488 feet. The best intercepts were from the Illinois Vein and a surrounding fault zone. The best reverse circulation intercept was 35

feet averaging 0.173 opt gold and 7.24 opt silver, which included 5 feet grading 0.813 opt gold and 15.6 opt silver. The best core intercept was 10.5 feet grading 0.252 opt gold and 3.24 opt silver. (Nevada Bureau of Mines and Geology Mining District Files).

Quartz Mountain. Cayden Resources drilled 24 holes at its Quartz Mountain project. The 24 holes tested the Quartz Mountain mineralized system over an area of 350 by 150 meters. The majority of holes have encountered intercepts greater than 1 opt silver and in excess of 1% combined lead and zinc. The best intercept was 50 feet grading 0.004 opt gold, 5.58 opt silver, 5.31% zinc, and 4.86% lead. In early 2013, Cayden terminated the agreement it had for Quartz Mountain. (Cayden Resources press releases, 2/15/2013, 3/23/2012; Cayden Resources website, www.caydenresources.com)

Longstreet District

Longstreet. Star Gold Corp. completed 23 reverse circulation holes totaling 10,240 feet and four diamond core holes totaling 1,295 feet on the Longstreet property. Significant intercepts were 184 feet averaging 0.018 opt gold and 0.613 opt silver, including 65 feet grading 0.035 opt gold and 0.972 opt silver and 25 feet grading 0.051 opt gold and 1.772 opt silver; 135 feet averaging 0.088 opt gold and 0.48 opt silver, including 10 feet grading 0.965 opt gold and 0.64 opt silver and 5 feet grading 1.813 opt gold and 1.16 opt silver; and 74 feet grading 0.027 opt gold and 0.485 opt silver, including 5 feet grading 0.017 opt gold and 4.03 opt silver. (Star Gold Corp. news release, 8/15/2012; Star Gold Corp., 43-101 Technical Report, 12/28/2012; Star Gold Corp. website, www.stargoldcorp.com; MinQuest, Inc., website, www.minquestinc.com)

Manhattan District

Gold Wedge. Royal Standard Minerals Inc. spent \$1,878,956 on mine development plus \$71,884 more on drilling on the Gold Wedge property. However, no details were released. Net proceeds of \$367,521 were reported from the sale of development ore. The company sold the Gold Wedge and Pinion properties to Scorpio Gold Corp for \$1,250,000 Canadian cash, 3,000,000 common shares of Scorpio Gold stock, and the assumption by Scorpio Gold of \$12,000,000 in principal, interest, and fees. (Royal Standard Minerals, Inc., Management Discussion and Analysis, 5/29/2013, Royal Standard Minerals, Inc., Audited Annual Financial Statement, 5/29/2013; Royal Standard Minerals, Inc., website, www.royalstandardminerals.com; Scorpio Gold Corp. website, www.scorpiogold.com)

Manhattan Pediment. The U.S. Forest Service approved a plan of operations for Newmont Mining Corp's Manhattan Pediment project. It is uncertain whether Newmont drilled in 2012. (<http://www.fs.fed.us/sopa/components/reports/sopa-110417-2013-01.html>)

Timber Hill. The U.S. Forest Service issued an environmental assessment for Round Mountain Gold Corp.'s Timber Hill exploration project located just south of Manhattan. The project would consist of drilling one to three reverse-circulation or core drill holes on each of up to 34 pads and constructing the associated access roads and staging areas. (Forest Service Environmental Assessment, 9/2012; Kinross Gold Corp. Annual Information Form, 4/1/2013)

Northeast Mount Jefferson

Pasco Canyon. Cassini Resources, Ltd., completed two 1,500-foot diamond core holes on the Pasco Canyon property (joint venture with Renaissance Gold, Inc.) on the northeast side of Mount Jefferson. The area is largely underlain by rhyolitic rocks of the Oligocene Northumberland Tuff. No other details were released. (NBMG Bulletin 99A; Renaissance Gold, Inc., news release 7/12/2012)

Paradise Peak District

Radar. Altan Nevada Minerals Ltd, completed four reverse circulation holes totaling 6,393 feet on the Radar property near the old Paradise Peak mine. Gold assays were all below 0.003 opt. (Altan Nevada Minerals, Ltd., news release, 3/30/2012; Altan Nevada Minerals, Ltd., Management Discussion and Analysis, 4/30/2013; Altan Nevada Minerals, Ltd., website, www.altnev.com)

Queen City District

Black Top. Altan Nevada Minerals, Ltd., completed eight reverse circulation holes totaling 10,422 feet on its Black Top property about 11 miles northwest of Rachel along State Route 375. Surface sampling, geologic mapping, and magnetic and gravity surveys conducted in 2011 showed gold in soil anomalies over an area 4.4 miles long by 1.9 miles wide. The best drill intercept was 20 feet grading 0.0035 opt gold. (Altan Nevada Minerals, Ltd., news releases, 4/10/2012, 8/27/2012; Altan Nevada Minerals, Ltd., Management Discussion and Analysis, 4/30/2013; Altan Nevada Minerals, Ltd., website, www.altnev.com)

Round Mountain District

Round Mountain. In 2012, the Round Mountain Gold Corp. produced 367,595 ounces of gold and

926,284 ounces of silver from the Round Mountain Mine (Kinross Gold Corp. 50%, Barrick Gold Corp. 50%). Overall, 20,622,000 tons were mined with an average grade of 0.025 opt gold. Metallurgical recovery was 73.2%. About 80,000 tons of ore were mined daily with 12,000 tons going to the mill, 15,000 tons being crushed for the leach pads, and 53,000 tons being run-of-mine going directly to the leach pad without needing to be crushed. The operation had the largest heap leach in the U.S. with 800,000,000 tons under leach in 2012. Expansions were carried in three areas of the mine: 1) Fairview, a knob to the east of the mine; 2) Northeast Extension; and 3) JK on the west side of the mine. The mine is also considering a Westward Extension project (WEX) to mine the Deep Northwest deposit that will take out the support buildings, including the administration building, and require a significant stripping. Underground mining is an option but would only get a small pocket of the gold. During the first quarter of 2012, three drill rigs completed 25 holes totaling 28,864 feet on WEX. The results were not disclosed. Later in the year, geotechnical and hydrological drilling continued at WEX. Evaluation of potential gold mineralization at the SWEX and Southeast targets south of the main pit were being undertaken. In 2012, the Gold Hill deposit was put into production. Despite Gold Hill being a satellite to the Round Mountain mine, a separate leach pad and processing plant were built for the mine. The life of the Round Mountain mine including Gold Hill lasts through 2016 and processing out to 2021. (Kinross Gold Corp. Annual Information Form, 4/1/2013; Kinross Gold Corp. Management Discussion and Analysis, 2/13/2013; Elko Daily Free Press Mining Quarterly, Spring 2012, Summer 2012; Kinross Gold Corp. website, www.kinross.com; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. website, www.barrick.com)

San Antone District

Liberty. General Moly Inc. continued evaluating the company's Liberty molybdenum project in 2012. Production was projected to commence in 2017 with the life of the open pit estimated at 26 years. (General Moly Inc. Form 10-K, 3/11/2012; General Moly Inc. website, www.generalmoly.com)

Union District

Buffalo Canyon. Eldorado Gold Corp. funded completion of 14 reverse circulation holes totaling 9,909 feet and four core holes totaling 2,324 feet on the Buffalo Canyon property (joint venture with Renaissance Gold, Inc.). The targets included veins, breccias, stockworks, and skarn associated with a tourmaline-bearing granodiorite and jasperoids with anomalous gold at the surface. Significant intercepts

were 35 feet grading 0.018 opt gold, 25 feet grading 0.015 opt gold, 15 feet grading 0.055 opt gold. Eldorado Gold Corp. terminated its joint venture agreement, and Renaissance Gold Inc. was seeking a new joint venture partner. (Renaissance Gold, Inc., news releases, 9/27/2012, 3/26/2012; Renaissance Gold, Inc., Management Discussion and Analysis, 2/12/2013; Renaissance Gold, Inc., website, www.rengold.com)

PERSHING COUNTY

Antelope District

Majuba Hill. Max Resource Corp. drilled seven core holes totaling 1,709 feet to test for the southeast extension of near surface, high grade, supergene oxide mineralization identified in earlier drilling at the Majuba Hill mine and to delineate the DeSoto discovery zone 0.9 miles to the northwest. Significant intercepts were 25.6 feet averaging 0.57% copper and 0.9 opt silver, including 5 feet grading 2.13% copper and 3.28 opt silver; 5.3 feet grading 1.26% copper and 2.63 opt silver; and 5.9 feet grading 1.47% copper and 2.11 opt silver. The drilling confirmed that the high-grade mineralized system extends about 1,600 feet to the southeast of the Majuba Hill mine to a depth of at least 1,100 feet. The drilling suggests Majuba Hill may be a significant porphyry system with a chalcocite blanket. The Majuba Hill property is centered on the Majuba Hill intrusive complex which consists of a cross-cutting series of rhyolite to latite intrusives of Oligocene age emplaced into argillite of the Triassic-Jurassic Auld Lang Syne Formation. (Max Resource Corp. news release, 10/2/2012; Max Resource Corp. Management Discussion and Analysis, 3/11/2013; Max Resource Corp. website, www.maxresource.com)

Antelope Springs District

Fisher Canyon. In late 2012, Consolidated Goldfields Corp. completed 11 reverse circulation holes totaling 3,060 feet on the Fisher Canyon property. The best intercept was 54 feet averaging 0.015 opt gold, including 20 feet grading 0.039 opt gold. The drilling followed up on a sampling program completed earlier in the year, which included two samples assaying 1.148 opt and 0.634 opt gold. Gold mineralization mainly occurs within oxidized shear zones and brecciated quartz veins up 600 feet wide and up to several miles long. (Consolidated Goldfields Corp. news releases, 10/9/2012, 11/8/2012, 1/16/2013, 1/17/2013; Consolidated Goldfields Corp. website, www.consolidatedgold.com)

Relief Canyon. Pershing Gold Corp. (formerly Sagebrush Gold, Ltd.) completed seven core holes totaling 6,842 feet and 83 reverse circulation holes totaling 27,300 feet in two phases of drilling at its Relief Canyon gold project. The property includes five heap leach pads, two solution ponds, mine offices, processing facilities, and a furnace and retort for the production of gold doré. The operation was constructed and mined by Pegasus Mining in the 1980s and was completely rehabilitated with new equipment in 2007 and 2008.

The core drilling program focused on exploring the North Target and extending known mineralization at the Southwest Target. The best intercept was 55 feet averaging 0.125 opt gold, which included five feet grading 0.428 opt gold and five feet grading 0.642 opt gold. The intercept was in the "north feeder fault." This intercept along with other intercepts from several other holes discovered a new zone of mineralization 600 feet north of the North Pit. Drilling at the Southwest Target showed mineralization to be open to the north and south.

The reverse circulation program focused on expanding the resource in the Main Breccia Zone south of the old South and Light Bulb Pits, the southernmost open pits at Relief Canyon; evaluating the gold mineralization potential in a 1980's waste rock dump; and defining the depth to the water table in the vicinity of the pits. Significant intercepts in the main breccia body south of the South pit were 15 feet grading 0.047 opt gold, 55 feet grading 0.046 opt gold, and 20 feet grading 0.038 opt gold. The best intercepts drilled in the main breccia body south of the LB pit were 20 feet grading 0.038 opt gold and 45 feet grading 0.032 opt gold. The best intercept in a waste dump was 80 feet grading 0.01 opt gold, which was in the Section 20 dump. (Elko Daily Free Press Mining Quarterly, Spring 2013; Pershing Gold Corp. news releases, 5/10/2012, 12/4/2012; Victoria Gold Corp. news release, 3/27/2012, 6/6/2012; Pershing Gold Corp. website, www.pershinggold.com).

Farrel District

Wildcat. Allied Nevada Gold Corp. completed 22 reverse circulation holes totaling 32,999 feet and 27 core holes totaling 17,599 feet on its Wildcat property. The results were not released, but will be used to carry out a resource estimate in 2013. The central portion of the property contains four mineralized zones - Hero/Tag, Main, Northeast, and Knob 32. The mineralization is of a lower grade disseminated type tending to straddle the contact between a Cretaceous granodiorite and overlying Tertiary volcanic rocks. Mineralization in the volcanic rocks is characterized by pervasive and intense silicification, whereas mineralization in the granodiorite contains higher-grades and is

associated with zones of quartz stockwork. (Allied Nevada Gold Corp. Form 10-K, 2/25/2013; Allied Nevada Gold Corp. website, www.alliednevada.com)

Imlay District

Florida Canyon. Jipangu Inc. temporarily shut-down the Florida Canyon Mine in March 2011 and shifted mining to the Standard Mine about five miles to the south. The shut-down was due in part to the company's effort to obtain permits to expand the pit, modify and expand one of existing dumps, install a crusher, and construct a new leach pad to accommodate more ore, all of which will take about three years. Ore on the old pad will continue to leach for at least four years. The pit expansion would involve enlarging the Phase 7 pit which includes the Phase 4, Main, and Jasperoid Hill pits. The expansion would also involve 669 acres of new disturbance. The expansion would extend the mine life by ten years, and another eight to ten years' worth of reserves reportedly exist that were not in the present plan. A plan of operations involving the proposed changes was sent to the BLM. Resumption of mining is planned for March 2014, which was about the time mining at its nearby Standard mine is estimated to end. It is unknown if Jipangu carried out any exploration drilling on its Florida Canyon property in 2012. (BLM Scoping Document, 7/23/2013; Elko Daily Free Press Mining Quarterly, Spring 2012; Jipangu, Inc., website www.jipangu.co.jp)

Standard. Jipangu Inc. produced 23,575 ounces of gold and 50,983 ounces of silver, from its Standard open pit mine, located just south of its Florida Canyon mine. Mining was conducted at the North pit and Intermediate pit and mining began in the South pit. Mining was expected to end in 2014. It is unknown if Jipangu drilled any exploration holes at Standard in 2012. (Elko Daily Free Press Mining Quarterly, Spring 2012; Jipangu, Inc., website www.jipangu.co.jp)

Kennedy District.

Root Spring. Brocade Metals Corp. drilled 18 holes totaling 4,041 feet on the Root Spring property (joint venture with Redstar Gold Corp.) in the East Range. The drilling tested the down dip potential of a vein system, several prominent high resistivity anomalies underlying the alluvium along strike southwest of the known veins, and potential for bulk tonnage deposit in the hanging wall and footwall rocks that host the veins. Significant intercepts were 31 feet grading 0.017 opt gold and 0.53 opt silver, 6.5 feet grading 0.008 opt gold and 3.86 opt silver, and 35 feet averaging 0.005 opt gold and 0.553 opt silver. The mineralization consists of northwest-trending,

shallow, southwest-dipping quartz veins and stockworks hosted in silicified Triassic felsic volcanic rocks. The quartz vein system consists of two parallel veins about 330 feet apart and is at least 4,000 feet long with veins up to 15 feet thick. Surface rock-chip samples of the veins assay up to 0.273 opt gold and 44 opt silver. The veins locally contain secondary copper minerals and traces of tetrahedrite, galena and sphalerite. (Redstar Gold Corp. Management Discussion and Analysis, 7/16/2013; Brocade Metals Corp. news release, 10/24/2012; Brocade Metals Corp. website, www.brocademetals.com)

Rochester District

Lincoln Hill. Rye Patch Gold Corp. released a 43-101 technical report in September, which included resources estimated from the results of four drilling programs conducted between 2008 and 2011. The measured oxide resource is 3,846,000 tons grading 0.014 opt gold and containing 47,000 ounces of gold. The indicated oxide resource is 19,985,000 tons grading 0.0128 opt gold and containing 221,000 ounces. A potential Lincoln Hill open pit to mine this resource would measure about 4,300 feet by about 3,100 feet and 1,600 feet deep with the long axis aligned in a northwest-southeast direction. Rye Patch did not drill any holes at Lincoln Hill in 2012. (Elko Daily Free Press Mining Quarterly Spring 2012; Rye Patch Gold Corp. press release, 9/17/2012; Rye Patch Corp. Management Discussion and Analysis, 4/29/2013; Rye Patch Corp. 43-101 Technical Report, 9/17/2012; Rye Patch Corp. website, www.ryepatchgold.com)

Rochester. Coeur d'Alene Mines Corp. produced 2,801,501 ounces of silver and 38,071 ounces of gold from its Rochester Mine. 11,710,795 tons averaging 0.55 opt silver and 0.0047 opt gold were mined. Metallurgical recovery was 57% for silver and 90% for gold. The total cash cost per ounce was \$20.40 per ounce for silver and \$1023 per ounce for gold. Mining occurred at the north, south, and west ends of the open pit.

The company spent \$3,900,000 on exploration which included drilling over 600 reverse circulation, sonic, and core holes totaling 138,121 feet. The drilling programs were on the Rochester North and West stockpiles and Northwest Rochester, Nevada Packard, and the South Mystic target areas. Current expansion plans will extend the life of the mine out to 2017, though final closure would not come before at least 2028.

In 2011, Coeur Rochester, Inc., failed to pay the claim maintenance fees for unpatented claims that were part of the Rochester mine. Rye Patch Gold Corp. staked the LH claims over the ground Coeur Rochester failed to pay the fees on and then

informed Coeur after the fact. Coeur Rochester began re-staking its claims over Rye Patch Gold's claims. This resulted in lawsuits and counter-suits involving claim jumping, trespassing, and slander of title. Coeur Rochester obtained an order restraining Rye Patch Gold from working their disputed claims, which covered up to 20% of the Rochester Mine's reserves and a "significant" portion of the resource. In 2012, the Court appointed a Special Master to assist in addressing certain pre-trial matters. The Special Master filed a report dated August 6, 2012, and the Court adopted a number of its recommendations. The mine continued normal operations under an approved BLM plan of operations while the legal action was pending. A trial date was moved back to September 2013, but the two companies began negotiating an out-of-court settlement. (Elko Daily Free Press Mining Quarterly, Spring 2012; Coeur d'Alene Mines Corp., news release 8/14/2012, 11/6/2012; Coeur d'Alene Mines Corp. 10-K Report, 2/21/2013; Coeur d'Alene Mines Corp. 10-Q Reports, 5/7/2012, 8/6/2012; Coeur d'Alene Mines Corp., website www.coeur.com; Rye Patch Gold Corp. news releases, 6/25/2013; Rye Patch Corp. website, www.ryepatchgold.com)

Rochester (LH Claims). Rye Patch Gold Corp. completed 64 reverse circulation holes totaling 43,400 on the company's Rochester Project (LH claim block). The property consisted of 413 lode claims covering over 7,500 acres. The LH claim block is the object of dispute between Rye Patch Gold Corp. and Coeur Rochester Inc. The drilling focused on the Limerick Basin, Mystic, Northwest Rochester, Mystic, South Packard Pediment, and West Pediment targets. The best intercept in the Limerick Basin target was 40 feet averaging 0.002 opt gold and 1.08 opt silver. The Mystic area consists of a wide zone of parallel, northeast-trending quartz vein swarms. The best intercept was 600 feet grading 0.001 opt gold and 0.331 opt silver. Mineralization at the South Packard Pediment target is about 0.6 miles in length and open to the northeast and southwest. Significant intercepts at South Packard Pediment target were 310 feet averaging 0.006 opt gold and 2.06 opt silver, which included 60 feet grading 0.023 opt gold and 7.72 opt silver; 95 feet grading 0.003 opt gold and 1.59 opt silver; and 15 feet grading 0.014 opt gold and 6.06 opt silver. The West Pediment zone was discovered by a ground magnetic survey, which extended from Rye Patch's Lincoln Hill property located about 2.5 miles to the north. The best intercepts at West Pediment include 5 feet grading 0.72 opt silver and 5 feet grading 0.228 opt silver. (Rye Patch Gold Corp. news releases, 5/29/2012, 7/10/2012, 2/21/2013; Rye Patch Gold Corp. Management Discussion and Analysis, 4/29/2013; Rye Patch Corp. website, www.ryepatchgold.com)

Spring Valley District

Spring Valley. Barrick Gold Corp. (joint venture with Midway Gold Corp.) completed 33 reverse circulation holes totaling 38,845 feet and 21 core holes totaling 21,573 feet. Barrick spent \$10,040,000 in 2012 at Spring Valley and earned in a 60% interest in the property. Step-out drilling extended the resource about a mile to the south of the resource area and intersected significant intercepts, including 35 feet averaging 0.078 opt gold and 125 feet averaging 0.042 opt gold, which included 5 feet grading 0.442 opt. In-fill drilling encountered significant intercepts including 61 feet grading 0.218 opt gold; 390 feet grading 0.075 opt gold including 56 feet grading 0.259 opt gold; 119 feet grading 0.062 opt gold including 10 feet grading 0.472 opt gold; and 90 feet grading 0.054 opt gold including 5 feet grading 0.411 opt gold. Barrick also completed hydrologic, biological baseline, initial site engineering, pit slope, and geotechnical studies, and began additional metallurgical testing. (Midway Gold Corp. 10-K Form, 3/12/2013; Midway Gold Corp. Management Discussion and Analysis, 5/7/2013; Midway Gold Corp. news release, 12/21/2012; Midway Gold Corp. website, www.midwaygold.com)

Table Mountain District

Fencemaker. Stockpile Reserves LLC, drilled 13 reverse circulation holes totaling 2,350 feet exploring for antimony on the Fencemaker Project. The best intercepts were five feet grading 9.99% antimony in one hole and two five-foot intervals grading 18.65% and 7.5% in another hole. Traces of gold were also present in some sections, with one ten-foot intercept grading 0.008 opt gold. An inferred resource of 34,125 tons grading 2.92% antimony was calculated from the results. The ore is stibnite in a replacement body hosted in calcareous siltstone and dolostone in the Triassic Dun Glen Formation. The mine on the property produced one ton of antimony metal in the 1880s and two tons of ore averaging 50% antimony in 1940. Underground operations were carried out by the Silver Bell Mining Company between 1966 and 1981, but production was not reported. (NBMG Bulletin 61; 43-101 Technical Report, 9/30/2012; Stockpile Reserves, LLC, website, stockpilereservesllc.com/files/ppt_Final_Version_WEBSITE_1.24.pdf; First Liberty Power Corp. website, www.firstlibertypower.com).

Trinity District

Gold Star. Lynx Resources (US), Inc., (a subsidiary of Cassini Resources, Ltd.) drilled two core holes totaling 500 feet on one of the patented claims at the Gold Star Property (joint venture with Renaissance Gold, Inc.) on the east flank of the Trinity Mountains

about 10 miles north of Lovelock. The drilling targeted Cretaceous monzonite-diorite intrusive rocks and Tertiary intrusive rhyolite hosting gold and/or silver in quartz-tourmaline stockwork and fissure veins. Two significant intercepts reported were 10 feet grading 0.022 opt gold and 25 feet grading 1.11 opt silver. (Renaissance Gold, Inc., news releases, 11/14/2012, 2/12/2013; Renaissance Gold, Inc., website, www.rengold.com)

Trinity Silver. Liberty Silver Corp. completed 20 reverse circulation holes totaling 22,535 feet on the Trinity Silver property (joint venture with Renaissance Gold, Inc.). Significant intercepts were 35 feet averaging 1.611 opt silver including 15 feet grading 4.067 opt silver; 32 feet grading 2.129 opt silver; 38 feet grading 3.047 opt silver; and 83 feet grading 1.068 opt silver. The mineralization is hosted in a rhyolite-filled graben with the strongest mineralization controlled by northeast-trending, high-angle faults. The existing pit is centered on this fault zone. The oxidized silver resource is the main interest for the initial proposed heap leach phase of mining and processing. The mining of the silver-lead-zinc sulfide resource will be considered in the future. (Renaissance Gold, Inc., news release, 10/23/2012; Liberty Silver Corp. news release, 7/9/2012; Liberty Silver Corp. 43-101 Technical Report, 2/14/2013; Renaissance Gold, Inc., website, www.rengold.com; Liberty Silver Corp. website, www.libertysilvercorp.com)

Willard District

Wilco. Rye Patch Gold Corp. released a 43-101 technical report in June, which included resources estimated from the results of drilling programs conducted between 2007 and 2011 at the Wilco Project. Two gold resource areas: Colado and Section Line Resource areas. Both resource areas are characterized by low-sulfidation epithermal mineralization. The measured oxide resource at Colado is 6,399,000 tons grading 0.01 opt gold, and containing 58,000 ounces. The indicated oxide resource is 37,571,000 tons grading 0.008 opt gold and containing 285,000 ounces. The gold mineralization at the Colado Resource area begins at the surface and dips gently westward forming a flat-lying zone measuring 1,600 feet by 2,000 feet by up to 450 feet thick. The deposit sits at the contact between sedimentary rocks of the Triassic to Jurassic Auld Lang Syne Group and overlying Tertiary volcanic rocks. The mineralization within the zone consistently averages between 0.01 and 0.02 opt gold, and some higher-grade zones have been identified that may represent high-grade, structurally controlled "feeder" zones for the mineralization. The measured oxide resource at Section Line is 12,279,000 tons grading 0.013 opt gold, and

containing 140,000 ounces. The indicated oxide resource is 23,676,000 tons grading 0.009 opt gold and containing 193,000 ounces. The gold mineralization at the Section Line Resource Area covers an area of about 3,000 feet by 3,000 feet and is both stratigraphically and structurally controlled. The resource consists of several structural zones containing higher-grade gold mineralization closely associated with breccias, silicification, and quartz veins. (Rye Patch Gold Corp. news release, 6/27/2013; Rye Patch Gold Corp. Management Discussion and Analysis, 4/29/2013; Rye Patch 43-101 Technical Report, 6/27/2012; Rye Patch Corp. website, www.ryepatchgold.com)

STOREY/LYON COUNTIES

Comstock/Silver City Districts

Comstock. In August 2012, Comstock Mining Inc. began hauling ore from the Lucerne open pit. The company poured its first doré bar on September 29 and produced 2,588 ounces of gold and 26,719 ounces of silver in 2012. Prior to production, the heap leach pad was expanded from three to five cells, and the company installed new crushing and Merrill Crowe facilities. The ore was hauled to the processing plant at American Flat, which is 2.6 miles from the Lucerne pit. The company used part of State Route 342 to haul the ore and was working with the BLM build a haul road around that. That plan was stymied by a dispute between the company and the BLM over the ownership of a 25-acre lot near the town of Gold Hill. The life of the Lucerne pit is estimated to be about 20 years. The company was also looking at open pit mining the Dayton Resource area, which would have a mine life of about 10 years, and at three areas for underground mining.

Comstock spent \$4,870,000 on its 2012 drilling program. It drilled 364 reverse circulation holes totaling 138,521 feet and 27 core holes, totaling 7,754 feet which focused on infill and development in the Lucerne Resource area. The Lucerne resource area includes the Lucerne, Hartford, and Billie the Kid pits; the historic Justice and Keystone surface cuts and underground mines, including the historic Woodville bonanza. The mineralization in the Lucerne resource area has a strike length of about 5,400 feet. The drilling discovered the "Chute Zone" – a 100x150x450 foot zone of higher grade mineralization hosted at the intersection between the northwest-striking, northeast-dipping Silver City fault and a series of northeast-striking, southeast-dipping faults. Twenty of the holes were drilled on the east side of the Lucerne resource area. Some of significant intercepts were 65 feet averaging 0.027 opt gold and 0.66 opt silver, which included 20 feet grading 0.057

opt gold and 1.676 opt silver; 65 feet averaging 0.038 opt gold and 0.599 opt silver, including 10 feet grading 0.141 opt gold and 2.058 opt silver; and 75 feet averaging 0.111 opt gold and 1.382 opt silver, which included 15 feet grading 0.242 opt gold and 3.75 opt silver.

The company also completed 14 reverse circulation holes totaling 10,235 feet and two core holes totaling 1,627 feet at Spring Valley. The Spring Valley area includes the Kossuth claim block south of State Route 341, the Dondero property, the New Daney lode claims, and the company's placer claims in Spring Valley and Gold Canyon. The drilling was a follow-up on the 2009 Spring Valley discovery and to verify the continuity of the company's Dayton geological model southward beyond State Route 341.

The total measured and indicated resource based on drilling through 2012 was 61,880,000 tons grading 0.029 opt gold and containing 1,824,000 ounces, and grading 0.276 opt silver and containing 17,100,000 ounces of silver. (Elko Daily Free Press Mining Quarterly, Winter 2012; Comstock Mining Inc. press releases, 8/9/2012, 10/1/2012, 11/7/2012; Comstock Mining, Inc. Form 10-K, 3/18/2013; Comstock Mining Inc. 43-101 Technical Report, 1/31/2013; Comstock Mining, Inc. website, www.comstockmining.com)

WASHOE COUNTY

San Emidio District

Wind Mountain. Bravada Gold Corp. completed 12 reverse circulation holes totaling 4,569 feet at the company's Wind Mountain property on the east side of the San Emidio desert. The drilling focused on the Connector, North Hill, and Zephyr exploration targets. At the Connector target, the Breeze and DeepMin resources were demonstrated to be one continuous deposit. Significant intercepts from two holes drilled at Connector included 90 feet averaging 0.011 opt gold and 0.389 opt silver and 135 feet averaging 0.011 opt gold and 0.443 opt silver, which included 35 feet grading 0.03 opt gold and 1.08 opt silver. At the North Hill target, the drilling tested the extent of the shallow, oxide mineralization under the alluvium. However, the drilling suggested much of the mineralized zone was eroded prior to deposition of the alluvium, thus limiting the size of the resource. The area will now be considered for a heap leach site. At the Zephyr target, two holes were drilled, but neither intercepted the targeted host rock. However, the overlying lake sediments contained long intervals grading 20-80 ppb gold and 1-5 ppm silver. The company released an updated preliminary economic assessment. (Bravada Gold Corp. News Releases, 10/18/2012, 1/9/2013; Bravada Gold

Corp. 43-101 Technical Report, 5/2/2012; Bravada Gold Corp. website, www.bravadagold.com)

WHITE PINE COUNTY

Bald Mountain District

Bald Mountain. Barrick Gold Corp. produced 171,154 ounces of gold at an average total cash cost of \$834 per ounce from its Bald Mountain Mine. The reserves are all oxide, and all of the ore was run-of-mine that went directly to the leach pads. The metallurgical recovery for gold was 72.2%. The average gold grade at Bald Mountain in 2012 was 0.022 opt gold. The BLM began preparing a draft Environmental Impact Statement (EIS) on the company's proposed expansion of the Bald Mountain Mine with a final EIS expected in 2014 and a Record of Decision in 2015. The proposal calls for expanding existing mine facilities in the North Operations Area Project, expanding the existing Casino/Winrock Plan of Operations and incorporating it into the North Operations Area Project, and establishing a South Operations Area Project that would encompass and expand the existing Yankee and Alligator Ridge mine sites. When the expansion is complete, the Bald Mountain operation will include 24 pits. The expansion will add 5 million ounces of production and extend the life of the mine to 2032. Barrick carried out a significant drill program in 2012, but no results were released. (BLM LR2000 Database; BLM News Release, 6/18/2012; Elko Daily Free Press, 5/11/2012; Elko Daily Free Press Mining Quarterly, Summer 2012, Winter 2012; Barrick Gold Corp., Form 40-F, 3/28/2013; Barrick Gold Corp. Annual Information Form, 3/28/2013; Barrick Gold Corp. Management Discussion and Analysis, 2/14/2013; Barrick Gold Corp. website, www.barrick.com)

Overland Pass. Early in 2012, Sniper Resources, Ltd., completed 18 reverse circulation holes totaling 7,310 feet on the Overland Pass property (joint venture with Columbus Gold Corp.) about 4 miles north of the Bald Mountain Mine. The drilling tested for offsets to known oxide mineralization. Significant intercepts from two holes included 55 feet averaging 0.015 opt gold, 160 feet averaging 0.009 opt gold, and 25 feet grading 0.012 gold. The gold mineralization occurs in silicified zones and breccia hosted in the Pilot Shale and Joana Limestone. (Sniper Resources, Management and Discussion Analysis, 1/28/2013; Ltd., Sniper Resources, Ltd., website, www.sniperresources.com; Columbus Gold Corp. website, www.columbusgoldcorp.com)

Pancake District

Pan. Midway Gold Corp. completed 14 reverse circulation holes totaling 8,170 feet and seven core

holes totaling 2,156 feet on the company's Pan property, but the results were not released. The BLM was preparing a draft environmental impact statement for release in 2013. The project will involve an open-pit gold mine consisting of two larger pits and four smaller pits, crushing facilities and stockpiles, two waste rock disposal areas, a heap leach pad and associated conveyors, processing facilities and ponds, water supply wells and a delivery and storage system, haul and access roads, ancillary facilities, and a 69-kilovolt transmission line to serve the project. The project would disturb an estimated 3,204 acres. (BLM LR2000 Database; BLM Environmental Impact Statement, 3/2013; Elko Daily Free Press Mining Quarterly, Summer 2012; Midway Gold Corp. 10-K Form, 3/12/2013; Midway Gold Corp. 43-101 technical report, 11/29/2012; Midway Gold Corp. 11/9/2012, 3/12/2013; Management Discussion and Analysis Midway Gold Corp. website, www.midwaygold.com)

Robinson District

Robinson. KGHM International Ltd. mined ore from Ruth 2nd West and Ruth East open pits and produced 117,509,548 pounds of copper and 449,001 pounds of molybdenite (60% molybdenum by weight). Material containing molybdenite is stockpiled, and molybdenum is produced when the stockpiles are large enough to process it in the mill. The company also produced 30,948 ounces of gold and 225,421 ounces of silver. The average grade of ore processed was 0.53% copper and 0.008 opt gold. Metallurgical recovery was 75.8% for copper and 35.9% for gold. The cash cost for copper was \$2.39 per pound. Concentrates from the mill are trucked to Wendover, Utah, and loaded into Union Pacific train cars headed for the Port of Vancouver. They are shipped mainly to China, India, and Japan. KGHM also carried out an exploration drill program at the Liberty Pit, but no details were released. Permitting through the Nevada Department of Environmental Protection was underway for renewal of mining in the Liberty Pit, which would go deeper into and south of the pit. All mining at Robinson is on 21,000 acres of private land. (Elko Daily Free Press Mining Quarterly Spring 2012, Summer 2012; KGHM International, Ltd. Management Discussion and Analysis, 1st Quarter 2012, 2nd Quarter 2012, 3rd Quarter 2012, 4th Quarter 2012; KGHM International, Ltd. website www.quadrafmx.com)

Taylor District

Taylor. Silver Predator Mines Inc. completed 25 mostly angled, reverse circulation holes totaling 6,535 feet on its Taylor property. The program tested for potential high grade open pit and

underground mineralization along the Argus fault and to provide additional infill drilling in the old Bishop open pit. Better intercepts were 30 feet grading 6.49 opt silver in the Monitor pit; 75 feet averaging 2.95 opt silver including 25 feet grading 6.55 opt silver in one hole in the Northeast pit, 150 feet grading 3.17 opt silver the Bishop pit; and 25 feet grading 13.9 opt silver in the Argus zone. Taylor is an epithermal, high-silica, low-sulfide replacement deposit occurring as large, relatively flat, tabular argentiferous jasperoid replacement bodies hosted in the Devonian upper Guilmette Limestone and Joana Formation, which are cut by Tertiary rhyolitic dikes and sills. Overlying shale units acted as barriers to hydrothermal fluids traveling upward along nearly vertical fracture zones to the crest of a broad, south-plunging antiform now centered on the Bishop pit. The fluids replaced the limestone with silica, barite, sulfides and other minerals including argentiferous sulfosalts. (Silver Predator Mines Inc. news release, 1/28/2013; Silver Predator Mines Inc. Annual Information Form, 8/30/2012; Silver Predator Mines Inc. 43-101 Technical Report, 3/18/2013; Silver Predator Mines Inc. website, www.silverpredator.com)

White Pine District

Gold Rock. In 2012, Midway Gold Corp. completed 19 reverse circulation holes totaling 38,950 feet and eight core holes totaling 5,361 feet on its Gold Rock property (formerly known as Easy Junior). Significant intercepts were 30 feet averaging 0.095 opt gold including 10 feet of 0.266 opt gold; 348 feet averaging 0.036 opt gold, and 350 feet averaging 0.04 opt gold. The BLM issued a final environmental assessment analyzing the potential impacts the company's proposed exploration drilling activities on the Gold Rock Project, which would include drilling reverse circulation and core holes, geologic mapping, trenching and bulk sampling, groundwater monitoring wells, and construction and maintenance of exploration roads, drill sites and sumps, and sediment traps. (BLM Final Environmental Assessment, 6/2012; Midway Gold Corp. 10-K Form, 3/12/2013; Midway Gold Corp. news release, 1/7/2013; Midway Gold Corp. 43-101 Technical Reports, 4/10/2012, 11/29/2012; Midway Gold Corp. website, www.midwaygold.com)

Mount Hamilton. Mount Hamilton, LLC, (joint venture involving Solitario Exploration and Royalty Corp. and Ely Gold and Minerals, Inc.) completed 42 reverse circulation holes and 11 core holes totaling 20,584 feet on the Mount Hamilton property. Better intercepts were 125 feet grading 0.059 opt gold and 0.596 opt silver, 60 feet grading 0.032 opt gold and 0.78 opt silver, and 65 feet grading 0.036 opt gold and 0.232 opt silver. The drilling focused on

upgrading the Seligman resource. The Seligman deposit is about 1,500 feet north of the Centennial deposit.

The company filed a plan of operations with the Forest Service for operating a gold and silver mine at Mount Hamilton. The plan of operations calls for mining from two open pits (the Centennial and Seligman deposits), a waste disposal area, ore stockpiles and crushing facilities, transfer of ore off-site for processing via underground conveyance, office and truck shop facilities, and assorted infrastructure. The total proposed surface disturbance on Forest Service lands was estimated to be 406 acres. The company also filed an

application for a reclamation permit for the processing facility with the Nevada Department of Environmental Protection. The proposed mine life was estimated to be between eight and ten years. (Solitario Exploration and Royalty Corp. news releases, 9/10/2012, 11/8/2012, 11/26/2012; Solitario Exploration and Royalty Corp. Annual Information Form, 3/13/2013; Solitario Exploration and Royalty Corp. 43-101 Technical Report, 10/25/2012; Solitario Exploration and Royalty Corp. website, www.solitarioresources.com; Ely Gold and Minerals, Inc. website, www.elygoldandminerals.com)

Major Precious-Metal Deposits

by David A. Davis and 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
--------------	--------------------	------------	-----------	--------------------

CHURCHILL COUNTY

Bell Mountain (Bell Mountain district)	1982: 1,000,000 tons, 0.055 opt Au, 1.4 opt Ag 1989: reserves-30,000 oz Au, 125,000 oz Ag 1997: 2,500,000 tons, 0.059 opt Au equiv. oz 2011: 10,760,000 tons, 0.015 opt Au, 0.514 opt Ag (measured and indicated resource) 2,255,000 tons, 0.013 opt Au, 0.387 opt Ag (inferred resource)	1914: 35 tons, 0.51 opt Au, 16 opt Ag	rhyolitic tuff	Miocene
Buffalo Valley gold property (Eastgate district)	1996: 96,000 oz Au		rhyolitic ash-flow tuff	Tertiary
Dixie Comstock (Dixie Valley district)	1991: 2,400,000 tons, 0.049 opt Au 1995: 100,000 oz Au		Tertiary rhyolite	Miocene?
Fondaway Canyon (Shady Run district)	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	
Jessup (Jessup district)	1998: 8,376,564 tons, 0.024 opt Au, 0.25 opt Ag ("global resource") 2007: 5,432,000 tons, 0.022 opt Au, 0.31 opt Ag (indicated resource); 1,265,000 tons, 0.017 opt Au, 0.23 opt Ag (inferred resource) 2009: 8,571,000 tons, 0.015 opt Au, 0.255 opt Ag (measured resource); 13,936,000 tons, 0.012 opt Au 0.209 opt Ag (indicated resource); 4,954,000 tons, 0.016 opt Au, 0.231 opt Ag (inferred resource)			
New Pass property (New Pass district)	1994: 3,400,000 tons, 0.042 opt Au 1997: 3,100,000 tons, 0.055 opt Au 2006: 11,500,000 tons, 0.0226 opt Au, 0.0041 opt Ag (inferred resource) 2009: 11,142,000 tons, 0.028 opt Au, 0.24 opt Ag (measured and indicated resource)		Triassic siltstone	

CLARK COUNTY

Crescent property (Crescent district)	1992: 390,000 tons, 0.05 opt Au; 3,300,000 tons, 0.022 opt Au			
Keystone (Goodsprings district)	1990: <i>estimated geologic resource</i> - 64,000,000 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

MAJOR PRECIOUS-METAL DEPOSITS, DOUGLAS AND ELKO COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
DOUGLAS COUNTY				
Buckskin (Buckskin district)	1973: 678,400 tons, averaging 0.15 opt Au, 0.45 opt Ag, 1.3% Cu 1978: 561,500 tons, 0.18 opt Au, 0.5 opt Ag, 1.3% Cu	1918-50 intermittent: est. 10,000 tons Au, Cu ore	Triassic andesite and rhyodacite flows	
ELKO COUNTY				
Banshee (Bootstrap district)	2002: 44,000,000 tons, 0.44 opt Au, 1,400,000 oz Au (preliminary resource) 2011 underground: 1,679,000, tons, 0.327 opt Au, 548,000 oz contained Au		Popovich Fm.	
Big Springs (Independence Mountains district)	1987: 3,760,000 tons, 0.148 opt Au 1989: 1,550,000 tons, 0.172 opt Au 2005 (inferred resource, 0.025 opt Au cut-off): 15,145,000 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
Bootstrap/Capstone/ Tara (Bootstrap district)	1989: <i>geologic resource</i> -25,100,000 tons, 0.039 opt Au 1996: 20,200,000 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 at the end of this section 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
Burns Basin (Jerritt Canyon, Independence Mountains district)	2005-2007: 29,700 tons, 0.134 opt Au (open pit indicated resource) 30,700 tons, 0.194 opt Au (underground indicated resource), 50,600 tons, 0.23 opt Au (underground inferred resource) 2011: 348,800 tons, 0.078 opt Au, 27,200 oz Au (proven and probable reserves, open pit) 344,500 tons, 0.096 opt Au, 33,200 oz Au (measured and indicated resource, includes reserves) 14,000 tons, 0.079 opt Au, 1,100 oz Au (inferred resource) 2012: 423,800 tons, 0.101 opt Au, 42,800 oz Au (proven and probable reserves, open pit) 476,500 tons, 0.097 opt Au, 46,300 oz Au (measured and indicated resource, includes reserves) 5,000 tons, 0.061 opt Au, 300 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
California Mountain (Jerritt Canyon, Independence Mountains district)	2005-2007: 8,000 tons, 0.11 opt Au (open pit indicated resource) 32,100 tons, 0.38 opt Au (underground indicated resource), 9,400 tons, 0.33 opt Au (underground inferred resource) 2011: 4,500 tons, 0.184 opt Au, 800 oz Au (indicated resource, underground) 29,500 tons, 0.192 opt Au, 5,700 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Coyote Zone (Jerritt Canyon, Independence Mountains district)	2005-2007: 45,200 tons, 0.21 opt Au (underground indicated resource) 2,700 tons, 0.18 opt Au (underground inferred resource) 2006-2007: 20,100 tons, 0.104 opt Au (open pit inferred resource)		Hanson Creek and Roberts Mountains Formations	
Cobb Creek (Mountain City district)	1988: <i>geologic resource</i> -3.2 million tons, 0.045 opt Au			
Cord Ranch (Robinson Mountain district)	1991: 3,500,000 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	
Dee (Bootstrap district)	1982: 2,500,000 tons, 0.12 opt Au 1990: 4,500,000 tons, 0.059 opt Au 1999: 1,400,000 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 carbonate rocks, dacitic dikes	Eocene
Doby George (Aura district)	1995: 3,700,000 tons, 0.060 opt Au 1997: 250,000 oz Au		Schoonover	
Hollister (Ivanhoe district)	1989: oxide-18,400,000 tons, 0.035 opt Au; estimated mineral inventory 83,500,000 tons, 0.034 opt Au, with 52,800,000 tons of oxide and 30.7 million tons of sulfide 1995: 1,300,000 oz Au; 42 million tons of 0.031 opt Au (geologic resource, combined oxide and sulfide) 2001: 719,000 tons, 1.29 opt Au, 7 opt Ag 2007 (May, 0.25 opt Au cut-off grade): 903,000 tons, 1.03 opt Au, 5.71 opt Ag (measured and indicated resource) 805,000 tons, 1.08 opt Au, 3.94 opt Ag (inferred resource) 2008 (June, 0.25 opt Au cut-off grade): 1,615,000 tons, 0.87 opt Au, 4.57 opt Ag (measured and indicated resource) 1,252,000 tons, 0.51 opt Au, 1.43 opt Ag (inferred resource) 2009 (June, 0.25 opt Au cut-off grade): 1,111,200 tons, 1.167 opt Au, 8.59 opt Ag (measured and indicated resource, includes reserves) 1,035,300 tons, 1.340 opt Au, 2.72 opt Ag (inferred resource) 2010 (August, 0.25 opt Au cut-off grade): 1,121,000 tons, 1.305 opt Au, 10.35 opt Ag (measured and indicated resource, includes reserves) 1,487,000 tons, 0.690 opt Au, 11.1 opt Ag (inferred resource) 2012: 516,000 tons, 0.882 opt Au, 455,000 oz Au, 2.9 opt Ag, 1,470,000 oz Ag (proven and probable reserves, Au cut-off grade: 0.25 opt epithermal, 0.15 opt Tertiary mineralization); 1,260,000 tons, 0.595 opt Au, 750,000 oz Au, 2.5 opt Ag, 3,106,000 oz Ag (measured and indicated resource, includes reserves, cut-off 0.1 opt Au); 1,416,000 tons, 0.224 opt Au, 317,000 oz Au, 0.6 opt Ag, 872,000 oz Ag (inferred resource, cut-off 0.1 opt Au)	1990: 6,000 oz Au 1991: 60,000 oz Au 2007: 4,066 oz Au, 38,885 oz Ag 2008: 41,890 oz Au, 192,000 oz Ag 2009: 31,174 oz Au, 243,148 oz Ag 2010: 105,144 oz Au 578,855 oz Ag 2011: 86,518 oz Au 711,493 oz Ag 2012: 62,423 oz Au 301,526 oz Ag	rhyolitic tuff, flows	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Jerritt Canyon Property (Independence Mountains district)	1981: 12,500,000 tons 0.231 opt Au 1989: 21,600,000 tons, 0.143 opt Au mill ore; 6,500,000 tons, 0.043 opt Au leachable 1999: 1,500,000 oz Au, proven and probable reserves; 3,800,000 oz Au other 2000: 1,300,000 oz Au proven and probable; 3,700,000 oz Au other mineralized material 2001: 2,058,000 oz Au proven and probable; 893,000 oz Au other 2002: 580,913 oz Au, proven and probable reserves; 1,296,000 oz Au measured and indicated resource; 1,035,000 oz Au inferred resource 2003: 820,104 oz Au, proven and probable reserves; 2,295,000 oz Au measured and indicated resource; 1,034,000 oz Au inferred resource 2004: 9,988,000 tons, 0.241 opt Au measured and indicated resource; 4,100,000 tons, 0.219 opt Au inferred resource 2005: 3,723,000 tons, 0.24 opt Au (proven and probable reserves); 8,812,000 tons, 0.24 opt Au (measured and indicated resource, includes proven and probable reserves), 2,646,500 tons, 0.23 opt Au (inferred resource) 2006: 1,984,900 tons, 0.245 opt Au (proven and probable reserves); 8,203,200 tons, 0.232 opt Au (measured and indicated resource, includes proven and probable reserves), 2,414,800 tons, 0.226 opt Au (inferred resource) 2007: 3,155,200 tons, 0.227 opt Au (proven and probable reserves); 8,196,900 tons, 0.239 opt Au (measured and indicated resource, includes proven and probable reserves); 2,319,700 tons, 0.224 opt Au (inferred resource) 2010: 4,365,800 tons, 0.164 opt Au (proven and probable reserves); 11,692,300 tons, 0.217 opt Au (measured and indicated resource, includes proven and probable reserves); 4,490,100 tons, 0.198 opt Au (inferred resource) 2011: 6,056,900 tons, 0.175 opt Au, 1,060,800 oz Au (proven and probable reserves); 12,289,500 tons, 0.189 opt Au, 2,319,200 oz Au (measured and indicated resource, includes reserves); 4,115,700 tons, 0.182 opt Au, 748,400 oz Au (inferred resource) 2012: 7,287,000 tons, 0.157 opt Au, 1,145,000 oz Au (proven and probable reserves); 12,443,000 tons, 0.181 opt Au, 2,251,100 oz Au (measured and indicated resource, includes reserves); 3,845,000 tons, 0.17 opt Au, 653,200 oz Au (inferred resource)	1981: ~2,600,000 oz Au 1991: 1,380,000 oz Au, 25,000 oz Ag 1995: 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, 6,322 oz Ag 2006: 169,862 oz Au, 7,154 oz Ag 2007: 121,700 oz Au, 17,560 oz Ag 2008: 35,936 oz Au, 4,620 oz Ag 2009: 9,770 oz Au 2010: 65,104 oz Au 2011: 67,453 oz Au 2012: 105,627 oz Au, 4,580 oz Ag	Hanson Creek and Roberts Mountains Formations	Eocene
Kinsley Mountain (Kinsley district)	1988: 2,100,000 tons, 0.048 opt Au 1996: 3,400,000 tons, 0.032 opt Au 1999: (Main NW-trend oxidized): 785,808 tons, 0.037 opt Au, 28,799 oz Au; (SW "off-trend" oxidized): 590,022 tons, 0.024 opt Au, 14,227 oz Au; (Main trend, (Unoxidized/refractory): 994,162 tons, 0.072 opt Au, 71,904 oz Au (drill indicated Resources)	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?

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Long Canyon (Pequop district)	2009 (March, 0.012 opt Au cut-off grade): 5,300,000 tons, 0.069 opt Au (indicated resource); 9,678,000 tons, 0.048 opt Au (inferred resource) 2010 (May, 0.006 opt Au cut-off grade): 13,492,000 tons, 0.050 opt Au (measured and indicated resource) 11,457,000 tons, 0.048 opt Au (inferred resource) 2010 (year-end, 0.006 opt Au cut-off grade): 20,250,000 tons, 0.069 opt Au (measured and indicated resource) 12,313,000 tons, 0.056 opt Au (inferred resource) 2012: 27,900,000 tons, 0.094 opt Au 2,630,000 oz Au (inferred resource)			
Maverick Springs (Maverick Springs area)	2002: 350,000 oz Au, 32,300,000 oz Ag (indicated resource); 747,000 oz Au, 68,800,000 oz Ag (inferred resource) 2004: 69,630,000 tons, 0.01 opt Au (indicated resource); 85,550,000 tons, 0.008 opt Au (inferred resource)			
Meikle (Lynn district)	1992: 7,900,000 tons, 0.613 opt Au (geologic resource) 1999: 5,900,000 tons, 0.647 opt Au (proven and probable reserves); 3,300,000 tons, 0.457 opt Au mineralized material 2000: 4,900,000 tons, 0.540 opt Au (proven and probable reserves); 2,900,000 tons, 0.450 opt Au (mineral resource) 2001: 9,000,000 tons, 0.439 opt Au (proven and probable reserves); 13,500,000 tons, 0.433 opt Au (mineral resource) 2002: 9,800,000 tons, 0.398 opt Au (proven and probable reserves); 12,900,000 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 resource); 4,261,000 tons, 0.423 opt Au (indicated resource); 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): 7,319,000 tons, 0.379 opt Au (proven and probable reserves); 3,234,000 tons, 0.386 opt Au (measured and indicated resource); 3,034,000 tons, 0.386 opt Au (inferred resource) 2006 (includes all underground resources at Goldstrike): 7,662,000 tons, 0.370 opt Au (proven and probable reserves); 4,143,000 tons, 0.338 opt Au (measured and indicated resource); 2,159,000 tons, 0.301 opt Au (inferred resource) 2007 (includes all underground resources at Goldstrike): 7,423,000 tons, 0.364 opt Au (proven and probable reserves); 4,129,000 tons, 0.329 opt Au (measured and indicated resource); 2,747,000 tons, 0.371 opt Au (inferred resource) 2008 (includes all underground resources at Goldstrike): 6,923,000 tons, 0.368 opt Au proven and probable reserves; 4,467,000 tons, 0.323 opt Au measured and indicated resource; 3,424,000 tons, 0.393 opt Au inferred resource 2009 (includes all underground resources at Goldstrike): 8,998,000 tons, 0.318 opt Au proven and probable reserves; 4,436,000 tons, 0.334 opt Au measured and indicated resource; 1,858,000 tons, 0.341 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 oz Au, 133,979 oz Ag 2006 (includes all underground production at Goldstrike): 477,035 oz Au, 58,345 oz Ag 2007 (includes all underground production at Goldstrike): 413,186 oz Au, 74,000 oz Ag 2008 (includes all underground production at Goldstrike): 424,687 oz Au, 51,434 oz Ag 2009 (includes all underground production at Goldstrike): 388,548 oz Au, 30,198 oz Ag 2010 (includes all underground production at Goldstrike): 281,308 oz Au, 22,628 oz Ag 2011 (includes all underground production at Goldstrike): 279,348 oz Au, 16,345 oz Ag 2012: 327,203 oz Au, 41,775 oz Ag	Popovich and Roberts Mountains Formations	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Meikle (cont.)	2010 (includes all underground resources at Goldstrike): 10,872,000 tons, 0.272 opt Au (proven and probable reserves); 6,771,000 tons, 0.298 opt Au (measured and indicated resource); 3,047,000 tons, 0.298 opt Au (inferred resource) 2011 (includes all underground resources at Goldstrike): 11,895,000 tons, 0.255 opt Au, 3,055,000 contained oz Au (proven and probable reserves); 6,077,000 tons, 0.325 opt Au, 1,828,000 contained oz Au (measured and indicated resource); 2,698,000 tons, 0.298 opt Au, contained 805,000 oz Au (inferred resource) 2012 (includes all underground resources at Goldstrike): 14,632,000 tons, 0.233 opt Au, 3,405,000 contained oz Au (proven and probable reserves); 6,144,000 tons, 0.303 opt Au, 1,864,000 contained oz Au (measured and indicated resource); 2,387,000 tons, 0.265 opt Au, contained 633,000 oz Au (inferred resource)			
MCE (Jerritt Canyon, Independence Mountains district)	2005-2007: 4,400 tons, 0.20 opt Au (underground measured and indicated resource); 7,800 tons, 0.19 opt Au (underground inferred resource)		Hanson Creek and Roberts Mountains Formations	
Midas (Ken Snyder) Mine (Gold Circle district)	1995: 13,000,000 tons, 0.16 opt Au, 2.7 opt Ag, announced resource, proven Au reserves<500,000 oz 1996: 1,100,000 tons, 1.324 opt Au, 14.95 opt Ag 1999: 3,000,000 tons, 0.816 opt Au, 9.835 opt Ag (proven and probable reserves) 2000: 3,400,000 tons, 0.63 opt Au, 7.77 opt Ag (proven and probable reserves) 2002: 3,400,000 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: 2,900,000 tons, 0.510 opt Au (proven and probable reserves); 200,000 tons, 0.58 opt Au (indicated resource); 700,000 tons, 0.31 opt Au (inferred resource) 2005: 1,500,000 tons, 0.58 opt Au (proven and probable reserves); 600,000 tons, 0.42 opt Au, (inferred resource) 2006: 1,200,000 tons, 0.47 opt Au (proven and probable reserves which includes 6,800,000 oz Ag); 800,000 tons, 0.33 opt Au, (inferred resource) 2007: 1,000,000 tons, 0.493 opt Au, (proven and probable reserves which includes 7,500,000 oz Ag); 200,000 tons, 0.345 opt Au (measured and indicated resource); 100,000 tons, 0.3013 opt Au (inferred resource) 2008: 900,000 tons, 0.436 opt Au, (proven and probable reserves); 200,000 tons, 0.186 opt Au, (measured and indicated resource); 100,000 tons, 0.321 opt Au (inferred resource) 2009: 700,000 tons, 0.425 opt Au, (proven and probable reserves, also includes 4,600,000 oz Ag); 100,000 tons, 0.193 opt Au, measured and indicated resource); 100,000 tons, 0.248 opt Au (inferred resource) 2010: 500,000 tons, 0.319 opt Au (proven and probable reserves, 95% recovery, also includes 2,800,000 oz Ag); 120,000 tons, 0.167 opt Au (measured and indicated 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 2007: 79,133 oz Au, 1,040,059 oz Ag 2008: 150,608 oz Au, 1,872,883 oz Ag 2009: 123,621 oz Au, 1,634,601 oz Ag 2010: 127,196 oz Au, 1,710,318 oz Ag 2011: 111,476 oz Au; 1,512,287 oz Ag 2012: 82,922 oz Au; 1,247,994 oz Ag	Tertiary volcanic rocks	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Midas (cont.)	2011: 800,000 tons, 0.226 opt Au, 7.201 opt Ag, 160,000 Au, 5,250,000 oz Ag (proven and probable reserves, 95% Au and 88% Ag recovery); 110,000 tons, 0.070 opt Au; 100,000 tons 4.352 opt Ag (measured and indicated resource); 100,000 tons, 0.049 opt Au, 9.56 opt Ag (inferred resource) 2012: 600,000 tons, 0.095 opt Au, 7.791 opt Ag, 50,000 Au, 4,410,000 oz Ag (proven and probable reserves, 90% Au and 90% Ag recovery); 100,000 tons, 0.056 opt Au, 6.879 opt Ag, N/A oz Au, 740,000 oz Ag (measured and indicated resource); 300,000 tons, 0.07 opt Au, 7.156 opt, Ag, 20,000 oz Au, 2,500,000 oz Ag (inferred resource)			
Mill Creek (Jerritt Canyon, Independence Mountains district)	2005-2007: 78,400 tons, 0.12 opt Au (measured and indicated resource) 2011: 186,000 tons, 0.09 opt Au, 16,800 oz Au (proven and probable reserves, open pit) 276,200 tons, 0.094 opt Au, 26,100 oz Au (measured and indicated resource, includes reserves) 3,400 tons, 0.154 opt Au, 500 oz Au (inferred resource) 2012: 197,000 tons, 0.09 opt Au, 17,700 oz Au (proven and probable reserves, open pit) 302,000 tons, 0.094 opt Au, 28,300 oz Au (measured and indicated resource, includes reserves) 4,000 tons, 0.153 opt Au, 600 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Murray (Jerritt Canyon, Independence Mountains district)	2005: 243,300 tons, 0.26 opt Au (proven and probable reserves) 789,200 tons, 0.29 opt Au (measured and indicated resource, includes reserves) 2006: 18,400 tons, 0.266 opt Au (proven and probable reserves); 393,300 tons, 0.290 opt Au (measured and indicated resource, includes reserves); 152,000 tons, 0.220 opt Au (inferred resource) 2007: 393,300 tons, 0.290 opt Au (measured and indicated resource); 152,000 tons, 0.220 opt Au (inferred resource) 2011: 412,400 tons, 0.221 opt Au, 91,100 oz Au (proven and probable reserves, underground) 590,200 tons, 0.213 opt Au, 125,900 oz Au (measured and indicated resource, includes reserves) 86,000 tons, 0.215 opt Au, 18,500 oz Au (inferred resource) 2012: 495,400 tons, 0.165 opt Au, 81,700 oz Au (proven and probable reserves); 545,000 tons, 0.165 opt Au, 89,900 oz Au (measured and indicated resource, includes reserves); 61,000 tons, 0.162 opt Au, 10,000 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Pie Creek (Jerritt Canyon, Independence Mountains district)	2005-2007: 190,200 tons, 0.16 opt Au (measured and indicated resource) 28,300 tons, 0.14 opt Au (inferred resource) 2011: 205,400 tons, 0.087 opt Au, 17,900 oz Au (indicated resource, open pit); 4,900 tons, 0.09 opt Au, 400 oz Au (inferred resource) 2012: 225,000 tons, 0.086 opt Au, 19,200 oz Au (indicated resource, open pit); 5,000 tons, 0.089 opt Au, 500 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Piñon (South Bullion and Dark Star) (Robinson Mountain district)	1996: 38,300,000 tons, 0.026 opt Au geologic mineral inventory 2002: 30,600,000 tons, 0.026 opt Au, measured, indicated, and inferred resource		Webb Formation siltstone Devils Gate Limestone	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Pony Creek (Robinson Mountain district)	1994: 1,100,000 tons, 0.057 opt Au (geologic resource) 2004: 32,410,000 tons, 0.044 opt Au (inferred resource)			
Railroad Property (POD zone) (Railroad district)	1997: 1,500,000 tons, 0.085 opt Au drill-indicated resource			
Rain Property (Carlin district)	1982: 3,400,000 tons, 0.147 opt Au and 8,300,000 tons, 0.083 opt Au			
Gnome	1988: 2,700,000 tons, 0.048 opt Au		Webb Formation	Eocene
Emigrant	1989 (Emigrant Springs): 30,300,000 tons, 0.021 opt Au 2005 (Emigrant Springs): 1,531,165 oz Au (proven and probable reserves) 2011 low grade oxide: 1,600,000 oz Au (reserves) 2012: 1,240,000 oz Au (reserves)	2012: 20,738 oz Au, 2,376 oz Ag	Webb Formation	Eocene
Rain	1989: 22,600,000 tons, 0.052 opt Au (geologic resource) 1996 (Rain/Emigrant Springs): 16,000,000 tons, 0.028 opt Au (proven and probable reserves); 10,400,000 tons, 0.021 opt Au (mineralized material) 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	1988: 29,000 oz Au 1991: 135,000 oz Au 1994: 79,000 oz Au 1995: 32,100 oz Au 1996: 48,900 oz Au 1997-1998: included in Newmont Gold production at the end of this section 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		
SMZ	1989: 1,600,000 tons, 0.019 opt Au (geologic resource)			
Rain district	2000: 13,500,000 tons, 0.026 opt Au proven and probable open-pit ore; 308,000 tons, 0.267 opt Au (proven and probable underground ore) 2001: 13,500,000 tons, 0.026 opt Au (proven and probable open-pit ore); 21,000 tons, 0.024 opt Au (proven and probable underground ore); 1,300,000 tons, 0.048 opt Au (mineralized material)			
REN (Bootstrap district)	2003: 2,100,000 tons, 0.43 opt Au (inferred resource) 2005: 2,100,000 tons, 0.38 opt Au (indicated resource); 1,400,000 tons, 0.37 opt Au (inferred resource) 2006: 2,713,000 tons, 0.37 opt Au (indicated resource); 758,000 tons, 0.47 opt Au (inferred resource) 2007: 2,991,000 tons, 0.37 opt Au (indicated resource); 835,000 tons, 0.47 opt Au (inferred resource)			
Road Canyon (Jerritt Canyon, Independence Mountains district)	2005-2007: 148,600 tons, 0.14 opt Au (measured and indicated resource); 74,300 tons, 0.13 opt Au (inferred resource) 2011: 17,500 tons, 0.069 opt Au, 1,200 oz Au (indicated resource, open pit) 185,100 tons, 0.082 opt Au, 15,100 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Road Canyon (cont.)	2012: 17,000 tons, 0.07 opt Au, 1,200 oz Au (indicated resource, open pit) 187,000 tons, 0.081 opt Au, 15,200 oz Au (inferred resource)			
Saval (Jerritt Canyon, Independence Mountains district)	2005: 104,400 tons, 0.23 opt Au (proven and probable reserves); 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 reserves); 369,300 tons, 0.254 opt Au (measured and indicated resource, includes reserves); 191,200 tons, 0.238 opt Au (inferred resource) 2007: 120,200 tons, 0.246 opt Au (proven and probable reserves); 379,800 tons, 0.252 opt Au (measured and indicated resource, includes reserves); 107,400 tons, 0.206 opt Au (inferred resource) 2010: 169,100 tons, 0.210 opt Au (proven and probable reserves, underground) 656,000 tons, 0.227 opt Au (measured and indicated resource, includes reserves); 201,700 tons, 0.209 opt Au (inferred resource) 2011 underground: 169,100 tons, 0.210 opt Au, 35,500 oz Au (proven and probable reserves) 333,600 tons, 0.224 opt Au, 74,800 oz Au (measured and indicated resource, includes reserves); 95,400 tons, 0.2 opt Au, 19,100 oz Au (inferred resource); open pit: 144,900 tons, 0.092 opt Au, 13,400 oz Au (proven and probable reserves) 654,300 tons, 0.074 opt Au, 48,600 oz Au (measured and indicated resource, includes reserves); 222,200 tons, 0.142 opt Au, 31,600 oz Au (inferred resource) 2012 underground: 168,000 tons, 0.207 opt Au, 34,800 oz Au (proven and probable reserves) 177,600 tons, 0.25 opt Au, 44,200 oz Au (measured and indicated resource, includes reserves); 51,000 tons, 0.238 opt Au, 12,200 oz Au (inferred resource); open pit: 83,000 tons, 0.129 opt Au, 10,800 oz Au (proven and probable reserves); 367,000 tons, 0.093 opt Au, 34,300 oz Au (measured and indicated resource, includes reserves); 10,000 tons, 0.083 opt Au, 800 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Smith (Jerritt Canyon, Independence Mountains district)	2005: 949,300 tons, 0.29 opt Au (proven and probable reserves) 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 reserves); 1,064,400 tons, 0.290 opt Au (measured and indicated resource, includes reserves); 541,600 tons, 0.231 opt Au (inferred resource) 2007: 954,100 tons, 0.282 opt Au (proven and probable reserves); 1,236,900 tons, 0.278 opt Au (measured and indicated resource, includes reserves); 534,000 tons, 0.221 opt Au (inferred resource) 2010: 1,631,700 tons, 0.172 opt Au (proven and probable reserves, underground) 4,186,200 tons, 0.235 opt Au (measured and indicated resource, includes reserves) 1,157,300 tons, 0.195 opt Au (inferred resource) 2011: 2,056,600 tons, 0.212 opt Au, 435,700 oz Au (proven and probable reserves, underground) 4,231,500 tons, 0.22 opt Au, 928,800 oz Au (measured and indicated resource, includes reserves)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Smith (cont.)	979,500 tons, 0.196 opt Au, 191,800 oz Au (inferred resource) 2012: 3,012,000 tons, 0.164 opt Au, 495,300 oz Au (proven and probable reserves); 5,193,000 tons, 0.202 opt Au, 1,049,400 oz Au (measured and indicated resource, includes reserves); 977,000 tons, 0.179 opt Au, 174,600 oz Au (inferred resource)			
Smith East (Jerritt Canyon, Independence Mountains district)	2006: 997,400 tons, 0.281 opt Au (measured and indicated resource, includes reserves) 120,400 tons, 0.264 opt Au (inferred resource) 2007: 1,065,500 tons, 0.287 opt Au (measured and indicated resource); 125,200 tons, 0.280 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
South Arturo (Bootstrap district)	2006: 21,073,000 tons, 0.060 opt Au (indicated resource); 1,310,000 tons, 0.053 opt Au (inferred resource) 2007: 29,880,000 tons, 0.070 opt Au (indicated resource); 1,020,000 tons, 0.022 opt Au (inferred resource) 2008: 36,857,000 tons, 0.045 opt Au (indicated resource); 3,253,000 tons, 0.013 opt Au (inferred resource) 2009: 43,857,000 tons, 0.051 opt Au (proven and probable reserve) 5,628,000 tons, 0.048 opt Au (indicated resource); 4,232,000 tons, 0.018 opt Au (inferred resource) 2010: 45,597,000 tons, 0.051 opt Au (proven and probable reserve) 26,735,000 tons, 0.043 opt Au (indicated resource); 11,623,000 tons, 0.018 opt Au (inferred resource) 2011: 47,062,000 tons, 0.05 opt Au 2,330,000 contained oz Au (probable reserve); 35,803,000 tons, 0.039 opt Au, 1,380,000 contained oz Au (indicated resource) 17,430,000 tons, 0.023 opt Au, 472,000 contained oz Au (inferred resource) 2012: 56,280,000 tons, 0.042 opt Au, 0.227 opt Ag, 2,368,000 contained oz Au 11,600,000 contained oz Ag (probable reserve); 27,295,000 tons, 0.045 opt Au, 0.339 opt Ag, 731,000 contained oz Au, 5,900,000 contained oz Ag (indicated resource); 28,123,000 tons, 0.015 opt Au, 0.077 opt Ag, 422,000 contained oz Au, 3,250,000 contained oz Ag (inferred resource)		Popovich Formation Bootstrap Limestone Rodeo Creek Formation	
SSX-Steer (Jerritt Canyon, Independence Mountains district)	2005: 1,333,300 tons, 0.25 opt Au (proven and probable reserves); 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 reserves); 2,332,500 tons, 0.266 opt Au (measured and indicated resource, includes reserves); 929,700 tons, 0.23 opt Au (inferred resource) 2007: 900,000 tons, 0.226 opt Au (proven and probable reserves); 2,561,400 tons, 0.259 opt Au (measured and indicated resource, includes reserves); 959,200 tons, 0.236 opt Au (inferred resource) 2010: 1,215,400 tons, 0.189 opt Au (proven and probable reserves, underground) 4,012,200 tons, 0.224 opt Au (measured and indicated resource, includes reserves); 479,100 tons, 0.194 opt Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
SSX-Steer (cont.)	2011: 1,280,900 tons, 0.191 opt Au, 244,400 oz Au (proven and probable reserves, underground) 3,699,200 tons, 0.209 opt Au, 772,200 oz Au (measured and indicated resource, includes reserves) 371,700 tons, 0.198 opt Au, 73,700 oz Au (inferred resource) 2012 (including West Mahala): 1,621,000 tons, 0.163 opt Au, 272,000 oz Au (proven and probable reserves); 3,643,000 tons, 0.199 opt Au, 724,300 oz Au (measured and indicated resource, includes reserves); 2,508,000 tons, 0.173 opt Au, 433,600 oz Au (inferred resource)			
Starvation Canyon (Jerritt Canyon, Independence Mountains district)	2005: 400,500 tons, 0.30 opt Au (probable reserves); 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 reserves); 636,500 tons, 0.290 opt Au (measured and indicated resource, includes reserves); 51,200 tons, 0.278 opt Au (inferred resource) 2007: 571,600 tons, 0.282 opt Au (probable reserves); 697,300 tons, 0.287 opt Au (measured and indicated resource, includes reserves) 25,500 tons, 0.252 opt Au (inferred resource) 2010: 363,000 tons, 0.264 opt Au (proven and probable reserves, underground) 502,400 tons, 0.285 opt Au (measured and indicated resource, includes reserves) 256,300 tons, 0.276 opt Au (inferred resource) 2011: 343,400 tons, 0.265 opt Au, 90,900 oz Au (proven and probable reserves, underground) 525,200 tons, 0.251 opt Au, 131,800 oz Au (measured and indicated resource, includes reserves) 244,400 tons, 0.253 opt Au, 64,600 oz Au (inferred resource) 2012: 970,000 tons, 0.178 opt Au, 172,600 oz Au (proven and probable reserves); 970,000 tons, 0.178 opt Au, 172,600 oz Au; (measured and indicated resource, includes reserves); 21,000 tons, 0.17 opt Au, 3,600 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Storm Mine (Rossi) (Bootstrap district)	1998: 3,100,000 tons, 0.371 opt Au (resource) 2000: 2,700,000 tons, 0.345 opt Au (resource) 2002: 1,900,000 tons, 0.335 opt Au (measured and indicated resource); 1,000,000 tons, 0.0335 opt Au (inferred resource) 2005 and 2006: 500,000 tons, 0.449 opt Au (measured and indicated resource) 800,000 tons, 0.376 opt Au, (inferred resource)	2008: 52,000 oz Au 2009: 64,558 oz Au, 50,069 oz Ag 2010: 74,429 oz Au, 63,309 oz Ag 2011: 86,508 oz Au, 73,588 oz Ag 2012: 33,802 oz Au, 18,875 oz Ag	Popovich Formation Bootstrap Limestone Rodeo Creek Formation	
Trout Creek (Contact district)	1988: 1,500,000 tons, 0.04 opt Au	1988: exploration	Miocene sedimentary rocks	
Tuscarora (Dexter) (Tuscarora district)	1987: 2,000,000 tons, 0.039 opt Au, 1.9 opt Ag 1988: 1,800,000 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
Twelvemile Ranch (Tecoma district)	1986: 4,000,000 tons, 0.01 opt Au, (resource)		volcanic and sedimentary rocks	
Waterpipe II (Jerritt Canyon, Independence Mountains district)	2005-2007: 37,400 tons, 0.21 opt Au (underground inferred resource)		Roberts Mountains Formation	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
West Mahala (Jerritt Canyon, Independence Mountains district)	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) 2007: 197,500 tons, 0.218 opt Au (underground indicated resource); 129,600 tons, 0.206 opt Au (inferred resource) 2010: 225,800 tons, 0.189 opt Au (measured and indicated resource, underground); 1,956,900 tons, 0.191 opt Au (inferred resource) 2011: 199,300 tons, 0.188 opt Au, 37,500 oz Au (proven and probable reserves, underground) 388,700 tons, 0.19 opt Au, 73,900 oz Au (measured and indicated resource, includes reserves) 1,854,600 tons, 0.175 opt Au, 324,000 oz Au (inferred resource) 2012: Included with SSX		Hanson Creek and Roberts Mountains Formations	
West Pequop (Pequop district)	2010: 1,349,700 tons, 0.00475 opt Au (measured and indicated resource); 6,055,500 tons, 0.0411 opt Au (inferred resource)			
Winters Creek (Jerritt Canyon, Independence Mountains district)	1986: 1,400,000 tons, 0.146 opt Au 2005-2007: 148,900 tons, 0.22 opt Au (measured and indicated resource); underground 37,200 tons, 0.2 opt Au, (underground inferred resource) 2011: 90,300 tons, 0.162 opt Au, 14,600 oz Au (indicated resource, underground); 9,200 tons, 0.186 opt Au, 1,700 oz Au (inferred resource) 2012: 117,000 tons, 0.112 opt Au, 13,100 oz Au (indicated resource); 10,000 tons, 0.145 opt Au, 1,500 oz Au (inferred resource)		lower Paleozoic carbonate rocks	Eocene
Wright Window (Jerritt Canyon, Independence Mountains district)	1986: 1,300,000 tons, 0.095 opt Au 2005-2007: 32,600 tons, 0.226 opt Au, (probable reserves); 97,800 tons, 0.16 opt Au, (measured and indicated resource, includes reserves); 19,000 tons, 0.23 opt Au (inferred resource) 2010: 84,500 tons, 0.127 opt Au (probable reserve, open pit); 97,800 tons, 0.156 opt Au (measured and indicated resource, includes reserves); 19,000 tons, 0.229 opt Au (inferred resource) 2011: 112,900 tons, 0.096 opt Au, 10,900 oz Au (proven and probable reserves, open pit); 125,800 tons, 0.094 opt Au, 11,800 oz Au (measured and indicated resource, includes reserves) 4,800 tons, 0.093 opt Au, 400 oz Au (inferred resource) 2012: 114,000 tons, 0.096 opt Au, 11,000 oz Au (proven and probable reserves, open pit); 120,000 tons, 0.094 opt Au, 11,200 oz Au (measured and indicated resource, includes reserves) 5,000 tons, 0.089 opt Au, 500 oz Au (inferred resource)	1992: 3,500 oz Au	lower Paleozoic carbonate rocks	Eocene
ESMERALDA COUNTY				
Boss (Gilbert district)	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?
Castle Black Rock (includes Castle and Boss) (Gilbert district)	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 2012: Castle Zone: 16,185,000 tons, 0.013 opt Au (inferred resource, 0.007 opt Au cut-off grade)		Ordovician Palmetto Formation	

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gemfield (Goldfield district)	1996: 9,500,000 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 resource); 1,001,000 tons, 0.022 opt Au (inferred resource) 2006: 12,459,000 tons, 0.031 opt Au (measured and indicated resource); 88,000 tons, 0.116 opt Au (inferred resource) 2011: 15,748,000 tons, 0.0325 opt Au, 511,000 oz Au; (proven and probable reserves); 18,772,000 tons, 0.031 opt Au, 438,000 oz Au, 0.098 opt Ag, 1,846,000 oz Ag (measured and indicated resource, 0.009 opt Au cut-off grade); 4,596,000 tons, 0.016 opt Au, 74,000 oz Au, 0.059 opt Ag, 272,000 oz Ag (inferred resource, 0.009 opt Au cut-off grade) 2013: 19,026,000 tons, 0.0298 opt Au, 567,000 oz Au; (proven and probable reserves); 27,070,000 tons, 0.025 opt Au, 681,000 oz (measured and indicated resource, 0.007 opt Au cut-off grade); 1,190,000 tons, 0.015 opt Au, 18,000 oz Au (inferred resource, 0.007 opt Au cut-off grade)		Sandstorm Rhyolite	21 Ma?
Goldfield Project (Goldfield district)	1983: 1,750,00 tons, 0.087 opt Au 1994: 3,480,000 tons, 0.071 opt Au 2003: 23,410,200 tons, 0.031 opt Au (measured and indicated resource) 10,239,100 tons 0.024 opt Au inferred resource (includes Goldfield Main, McMahon Ridge, and Gemfield) 2006: 16,856,000 tons, 0.034 opt Au (measured, indicated, and inferred resource, includes McMahon Ridge and Gemfield) 2013: 42,615,000 tons, 0.032 opt Au 1,340,000 oz Au (measured and indicated resource); 8,756,000 tons, 0.044 opt Au, 382,000 oz Au (inferred resource) (includes Goldfield Main, 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
Goldfield Main (Goldfield district)	2004: 6,651,000 tons, 0.036 opt Au measured and indicated resource; 2,129,000 tons, 0.038 opt Au inferred resource 2010 (Goldfield Main, 0.012 opt cut-off grade) 9,424,000 tons, 0.044 opt Au (indicated resource) 7,267,000 tons, 0.050 opt Au (inferred resource) 2011: 9,425,000 tons, 0.045 opt Au, 421,000 oz Au, (indicated resource, 0.009 opt Au cut-off grade); 7,264,000 tons, 0.05 opt Au, 360,000 oz Au (inferred resource, 0.009 opt Au cut-off grade)			
Goldfield West (Goldfield district)	2011: 5,042,444 tons, 0.015 opt Au, 76,080 oz Au, 0.12 opt Ag, 589,078 oz Ag (inferred resource. 0.009 opt Au cut-off grade)		rhyolite tuff	
Hasbrouck (Divide district)	1982: 5,000,000 tons 0.06 opt Au, 1.5 opt Ag 1986: 12,900,000 tons, 0.0291 opt Au, 0.59 opt Ag 1998: 7,700,000 tons, 0.036 opt Au, 0.7 opt Ag 2003: 26,036,00 tons, 0.023 opt Au (indicated resource); 8,200,000 tons, 0.021 opt Au (inferred resource) 2011: 128,608,197 tons, 0.009 opt Au, 0.228 Ag, 1,157,474 oz Au, 29,322,699 oz Ag (inferred resource, 0.005 opt Au cut-off grade)		Siebert Formation tuff and volcaniclastic rocks	16 Ma

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Hill of Gold deposit (Divide district)	1988: 500,000 tons, 0.04 opt Au, 0.40 opt Ag 1996: 1,600,000 tons, 0.026 opt Au		Miocene silicic tuff	16 Ma
Mary-Drinkwater (Silver Peak district)	1991: 531,300 tons, 0.124 opt Au	1991: 25,000 oz Au, 8,000 oz Ag	Wyman Formation	Mesozoic?
McMahon Ridge (Goldfield district)	2004: 8,200,000 tons, 0.035 opt Au (measured and indicated resource); 171,000 tons, 0.019 opt Au (inferred resource) 2006: 4,138,000 tons, 0.042 opt Au (measured and indicated resource); 172,000 tons, 0.038 opt Au (inferred resource) 2011: 6,074,000 tons, 0.039 opt Au, 238,000 oz Au (indicated resource, 0.009 opt Au cut-off grade) 121,000 tons, oz, 0.032 opt Au, 4,000 oz Au (inferred resource, 0.009 opt Au cut-off grade)			
Mineral Ridge (Silver Peak district)	1995: 5,200,000 tons, 0.068 opt Au (proven and probable reserves, includes Mary-Drinkwater) 1998: 4,000,000 tons, 0.06 opt Au; 241,000 oz Au 2000: 2,840,000 tons, 0.074 opt Au (minable reserves) 2002: 2,660,000 tons, 0.079 opt Au (total Reserves) 2003: 8,300,000 tons, 0.061 opt Au resource (includes 2,660,000 tons, 0.079 opt Au reserves) 2010 (May): 4,697,000 tons, 0.047 opt Au (measured and indicated resource, Drinkwater and Mary deposits) 2010 (May): 3,793,000 tons, 0.036 opt Au (inferred resource, Drinkwater and Mary deposits) 2012: 3,231,000 tons, 0.059 opt Au, 190,800 oz Au (indicated resource, 0.02 opt Au cut-off grade, Drinkwater, Mary, and Last Chance deposits) 89,000 tons, 0.043 opt Au, 3,800 oz Au (inferred resource, 0.02 opt Au cut-off grade, Drinkwater, Mary, and Last Chance deposits)	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 2011: 11,932 oz Au, 6,918 oz Ag 2012: 32,871 oz Au, 13,871 oz Ag	Wyman Formation	Mesozoic?
Monte Cristo (Gilbert district)	2006: 363,760 tons, 0.190 opt Au, 0.583 opt Ag (inferred resource) 2010: 2,545,980 tons, 0.11 opt Au (inferred resource, McLean Lode, 0.02 opt cut-off grade) 888,685 tons, 0.04 opt Au (inferred resource, Upper Zone, 0.02 opt cut-off grade) 999,966 tons, 1.27 opt Ag (inferred silver resource, McLean Lode, 0.36 opt cut-off grade) 123,948 tons, 0.78 opt Ag (inferred silver resource, Upper Zone, 0.36 opt cut-off grade)	late 1980s: 300,000 tons, 0.072 opt Au	Tertiary andesite, lithic tuff	Tertiary
Nivloc (Red Mtn. district)	2011: 1,807,000 tons, 0.023 opt Au, 41,000 oz Au, 3.11 opt Ag, 5,633,000 oz Ag (inferred resource, 1.17 opt Ag cut-off grade)	1937-43: 4,675,408 oz Ag, 18,794 oz Au	Alaskite Complex, rhyolite, and metasediments	Late Cenozoic
Three Hills (Tonopah district)	1996: 3,200,000 tons, 0.036 opt Au 1997: 6,300,000 tons, 0.023 opt Au 2003: 5,736,000 tons, 0.023 opt Au (indicated resource)		Miocene Siebert Formation and Oddie Rhyolite	
Tip Top (Fish Lake Valley district)	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) 2009: 388,920 tons, 0.096 opt Au (indicated resource) 323,230 tons, 0.072 opt Au (inferred resource)		Tertiary quartz latite	

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Weepah (Weepah district)	1986: 200,000 tons, 0.1 opt Au, 0.4 opt Ag	1930s: N/A 1986-87: 58,000 oz Au	Wyman Formation	Cretaceous
EUREKA COUNTY				
Afgan (Antelope district)	1996: 80,000 oz Au drill-indicated resource 1999: 2,800,000 tons, 0.037 opt Au oxide resource 2004: 1,850,000 tons, 0.027 opt Au (indicated resource) 1,290,000 tons, 0.026 opt Au (inferred resource) 2011 (oxide): 3,206,000 tons, 0.021 opt Au, 66,000 oz Au (indicated resource, 0.006 opt Au cut-off grade) 3,972,000 tons, 0.014 opt Au, 55,000 oz Au (inferred resource, 0.006 opt Au cut-off grade)		Webb Formation	
Antimony Hill (Lynn district)	2002: 20,000 oz at 0.05 opt Au (pre-mine resource)		Vinini Formation	
Barrel (Lynn district)	1998 (Barrel and Goldbug): 2,917,000 tons, 0.391 oz Au, 1,140,000 oz Au (proven and probable reserve); 1,170,000 tons, 0.337 opt Au (material not in reserve) 2002: 200,000 oz at 0.2 opt Au (pre-mine resource) 2011 underground: 383,000 tons, 0.217 opt Au, 83,000 oz contained Au		Popovich Fm. Rodeo Creek Fm.	
Beast (Lynn district)	2002: 50,000 oz at 0.02 opt Au (pre-mine resource)	1994-1999: 8,000,000 tons, 0.02 opt Au	Roberts Mountains Fm., Eocene rhyolite dikes	Eocene
Betze-Post (Lynn district)	1988: 128,400,000 tons, 0.095 opt Au 1999: 135,600,000 tons, 0.153 opt Au (proven and probable reserves); 23,300,000 tons, 0.099 opt Au (mineralized material) 2000: 116,400,000 tons, 0.155 opt Au (proven and probable); 55,900,000 tons, 0.063 opt Au (mineral resource) 2001: 108,900,000 tons, 0.151 opt Au (proven and probable); 49,900,000 tons, 0.069 opt Au (mineral resource) 2002: 107,100,000 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 resource); 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 reserves); 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 reserves); 20,184,000 tons, 0.050 opt Au (measured and indicated resource); 489,000 tons, 0.078 opt Au (inferred resource) 2007: 94,914,000 tons, 0.128 opt Au (proven and probable reserves); 34,532,000 tons, 0.052 opt Au (measured and indicated resource); 5,014,000 tons, 0.064 opt Au (inferred resource) 2008: 86,254,000 tons, 0.119 opt Au (proven and probable reserves); 15,751,000 tons, 0.055 opt Au (measured and indicated resource); 479,000 tons, 0.092 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 2007: 1,215,447 oz Au, 140,923 oz Ag 2008: 1,281,450 oz Au, 152,886 oz Ag 2009: 901,002 oz Au 120,736 oz Ag 2010: 884,200 oz Au 138,931 oz Ag 2011: 721,534 oz Au 94,572 oz Ag 2012: 812,707 oz Au 102,700 oz Ag	Popovich Fm. Rodeo Creek Fm.	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Betze-Post (cont.)	2009: 82,902,000 tons, 0.112 opt Au (proven and probable reserves); 16,687,000 tons, 0.052 opt Au (measured and indicated resource); 3,568,000 tons, 0.116 opt Au (inferred resource) 2010: 95,865,000 tons, 0.101 opt Au (proven and probable reserves); 4,694,000 tons, 0.037 opt Au (measured and indicated resource) 1,344,000 tons, 0.065 opt Au (inferred resource) 2011: 97,325,000 tons, 0.096 opt Au, 9,342,000 contained oz Au (proven and probable reserves); 4,612,000 tons, 0.032 opt Au, 147,000 contained oz Au (measured and indicated resource); 564,000 tons, 0.055 opt Au, 31,000 contained oz Au (inferred resource) 2012 (includes all open resources at Goldstrike): 94,541,000 tons, 0.094 opt Au, 8,933,000 contained oz Au (proven and probable reserves); 3,621,000 tons, 0.033 opt Au, 103,000 contained oz Au (measured and indicated resource); 3,049,000 tons, 0.066 opt Au, 201,000 contained oz Au (inferred resource)			
Buckhorn property (Buckhorn district)	1984: 5,000,000 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
Buckhorn South/Zeke deposit (Buckhorn district)	1989: 2,000,000 tons, 0.056 opt Au, 0.224 opt Ag 1998: 2,400,000 tons, 0.046 opt Au		lower Paleozoic rocks	
Cabin Creek (Antelope district)	2009-2010 (Feb., 0.012 opt Au cut-off grade) 3,200,000 tons, 0.024 opt Au (indicated resource); 100,000 tons, 0.015 opt Au (inferred resource) 2011: 2,348,000 tons, 0.026 opt Au, 60,005 oz Au (measured and indicated resource, 0.009 opt Au cut-off grade) 1,117,000 tons, 0.023 opt Au, 25,391 oz Au (inferred resources, 0.009 opt Au cut-off grade)			
Carlin North, Newmont (Lynn district)				
Blue Star	1987: 1,950,000 tons, 0.066 opt Au 1989: <i>geologic resource</i> -22,200,000 tons, 0.030 opt Au	1974-84: intermittent 1988-2012: included in Newmont Gold production at the end of this section	lower Paleozoic sandy siltstone and carbonate rocks, granodiorite	Eocene
Bobcat (Bobstar)	1988: <i>geologic resource</i> -17,700,000 tons, 0.029 opt Au		lower Paleozoic rocks	Eocene
Bullion Monarch	1987: 1,000,000 tons, 0.10 opt Au	1977-84: 17,779 oz Au	lower Paleozoic sedimentary rocks	Eocene
Deep Star	1996: 1,400,000 tons, 0.8765 opt Au proven and probable reserves	1995: 2,800 oz Au 1996: 93,400 oz Au 1997-2012: included in Newmont Gold production at the end of this section	Popovich Formation	Eocene
Genesis (Silverstar)	1989: <i>geologic resource</i> -35,800,000 tons, 0.044 opt Au 1990: 32,000,000 tons, 0.047 opt (includes Blue Star) 2004: 1,065,000 oz Au (proven and probable reserves) 2012: 3,000,000 oz Au (reserves)	1986: production commenced 1988-2012: included in Newmont Gold production at the end of this section	Ordovician-Devonian limestone, argillite, chert	Eocene
Genesis Complex	2000: 14,100,000 tons, 0.026 opt Au proven and probable open-pit reserves 2004: 1,065,000 oz Au (proven and probable reserves)			

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Leeville	2004: 2,612,000 oz Au (proven and probable reserves) 2005: 2,433,000 oz Au (proven and probable reserves)	2005-2012: included in Newmont Gold production at the end of this section	Roberts Mountains Formation	Eocene
North Lantern	2004: 199,940 oz Au			
North Star	1989: <i>geologic resource</i> -6,900,000 tons, 0.052 opt Au 1990: 3,900,000 tons, 0.052 opt Au	1988: 4,250 oz Au 1989-2010: included in Newmont Gold production at the end of this section	lower Paleozoic sedimentary rocks	Eocene
Post/Goldbug	1996: 25,600,000 tons, 0.190 opt Au proven and probable reserves; 43,600,000 tons, 0.079 opt Au mineralized material	1999-2012: included in Newmont Gold production at the end of this section	lower Paleozoic sedimentary rocks	Eocene
Deep Post	2000: 3,100,000 tons, 0.814 opt Au proven and probable underground reserves 2004 (includes Deep Star) 1,462,000 oz Au (proven and probable reserves) 2005 (includes Deep Star) 942,000 oz Au (proven and probable reserves)	included in Newmont Gold production at the end of this section		
Turf	1996: 2,500,000 tons, 0.367 opt Au mineralized material	included in Newmont Gold production at the end of this section	Roberts Mountains Formation	Eocene
West Leeville (Newmont)	1996: 2,000,000 tons, 0.377 opt Au proven and probable reserves; 581,000 tons 0.354 opt Au mineralized material	1995-96: 272,000 oz Au 1997-2012: included in Newmont Gold production at the end of this section	Roberts Mountains Formation	Eocene
West Leeville (Newmont-Barrick)	1996: 7,100,000 tons, 0.425 opt Au proven and probable reserves; 500,000 tons 0.328 opt Au mineralized material		Roberts Mountains Formation	Eocene
Carlin Mine	1965: 11,000,000 tons, 0.32 opt Au	1965-86: 3,800,000 oz Au		
Carlin/Pete/Lantern	1995: 14,800,000 tons, 0.031 opt Au 1996: 13,700,000 tons, 0.046 opt Au proven and probable reserves; 14,700,000 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 1997-2012: included in Newmont Gold production at the end of this section	Roberts Mountains Formation	Eocene
Carlin Underground	2004: 163,000 oz Au 2005: 123,000 oz Au (proven and probable reserves)			
Carlin North-other	2000: 19,800,000 tons, 0.052 opt Au, proven and probable open-pit reserves			
Carlin North area total	2000: 8,200,000 tons, 0.495 opt Au, proven and probable underground reserves			
Carlin North area, total open-pit	2001: 32,600,000 tons, 0.044 opt Au, (proven and probable reserves); 13,000,000 tons, 0.039 opt Au (mineralized material)			
Carlin North area, total underground	2001: 10,900,000 tons, 0.56 opt Au, (proven and probable reserves); 2,100,000 tons, 0.55 opt Au (mineralized material)			
Carlin South, Newmont (Maggie Creek district)				
Chukar Footwall underground	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)			
Gold Quarry/Mac/Tusc	1982: 25,100,000 tons, 0.106 opt Au and 150,000,000 tons, 0.036 opt Au 1987: 197,800,000 tons, 0.042 opt Au	1981: 6,000 oz Au 1982: 19,000 oz Au 1983: 74,000 oz Au	See below	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gold Quarry/Mac/Tusc (cont.)	1990: 212,600,000 tons, 0.042 opt Au, <i>geologic resource</i> -534,300,000 tons, 0.037 opt Au 1996: 174,800,000 tons, 0.046 opt Au (proven and probable reserves); 51,900,000 tons, 0.058 opt Au (mineralized material) 2004: 5,984,000 oz (proven and probable reserves) 2005: 6,554,297 oz (proven and probable reserves)	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 1994-96: 2,978,000 oz Au 1997-2012: included in Newmont Gold production at the end of this section	Ordovician to Devonian chert, shale, siltstone, and impure carbonate rocks; in part, <i>Vinini Formation</i>	Eocene
Mike	1999: 408,000,00 tons, 0.006 opt Au, 151,000,000 tons, 0.10 % Cu 19,000,000 tons, 1.00 % Zn (drill-indicated mineral inventory)			
Tusc	1988: <i>geologic resource</i> -15.8 million tons, 0.059 opt Au 1990: 13,300,000 tons, 0.062 opt Au	included in Newmont Gold production at the end of this section	lower Paleozoic sedimentary rocks	Eocene
Carlin South area	2000: 75,200,000 tons, 0.059 opt Au (proven and probable open-pit reserves)			
Carlin South open-pit	2001: 61,300,000 tons, 0.062 opt Au proven and probable reserves; 24,600,000 tons, 0.028 opt Au (mineralized material)			
Carlin North and South combined (includes all Newmont's Carlin properties)				
Carlin open pit	2002: 181,800,000 tons, 0.042 opt Au (proven and probable reserves); 9,500,000 tons, 0.028 opt Au (measured and indicated mineralized material; 9,300,000 tons, 0.035 opt Au (inferred mineralized material) 2003: 17,500,000 tons, 0.052 opt Au (proven reserves); 203,300,000 tons, 0.044 (probable reserves); 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: 238,300,000 tons, 0.043 opt Au (proven and probable reserves); 28,100,000 tons, 0.04 opt Au (measured and indicated resource); 4,200,000 tons, 0.024 opt Au (inferred resource) 2006: 271,600,000 tons, 0.042 opt Au (proven and probable reserves); 35,100,000 tons, 0.035 opt Au (measured and indicated resource); 6,300,000 tons, 0.022 opt Au (inferred resource) 2007: 213,500,000 tons, 0.045 opt Au (proven and probable reserves); 14,600,000 tons, 0.020 opt Au (measured and indicated resource); 3,700,000 tons, 0.037 opt Au (inferred resource) 2008: 202,400,000 tons, 0.045 opt Au (proven and probable reserves); 88,400,000 tons, 0.040 opt Au (measured and indicated resource); 21,100,000 tons, 0.023 opt Au (inferred resource) 2009: 259,300,000 tons, 0.044 opt Au (proven and probable reserves); 28,800,000 tons, 0.021 opt Au (measured and indicated resource); 10,400,000 tons, 0.034 opt Au (inferred resource) 2010: 263,500,000 tons, 0.043 opt Au (proven and probable reserve, 75% recovery); 91,800,000 tons, 0.020 opt Au (measured and indicated resource) 22,100,000 tons, 0.034 opt Au (inferred resource) 2011: 331,700,000 tons, 0.038 opt Au (proven and probable reserve, 77% recovery); 112,600,000 tons, 0.026 opt Au (measured and indicated resource) 15,300,000 tons, 0.02 opt Au (inferred resource) 2012: 313,200,000 tons, 0.037 opt Au, 11,650,000 oz Au (proven and probable reserve, 74% recovery); 88,900,000 tons, 0.027 opt Au, 2,370,000 oz Au (measured and indicated resource); 18,900,000 tons, 0.018 opt Au, 350,000 oz Au (inferred resource)	2004-2012: included in Newmont Gold production at the end of this section		Eocene

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Carlin underground	2002: 10,000,000 tons, 0.57 opt Au (proven and probable reserves); 2,600,000 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); reserves); 6,100,000 tons, 0.500 opt Au (probable 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: 7,700,000 tons, 0.49 opt Au (proven and probable reserves); 300,000 tons, 0.33 opt Au (measured and indicated resource); 3,700,000 tons, 0.46 opt Au (inferred resource) 2006: 7,400,000 tons, 0.44 opt Au (proven and probable reserves); 1,100,000 tons, 0.28 opt Au (measured and indicated resource); 3,000,000 tons, 0.47 opt Au (inferred resource) 2007: 7,200,000 tons, 0.388 opt Au (proven and probable reserves); 110,000 tons, 0.482 opt Au (measured and indicated resource); 2,600,000 tons, 0.480 opt Au (inferred resource) 2008: 11,700,000 tons, 0.313 opt Au (proven and probable reserves); 340,000 tons, 0.330 opt Au (measured and indicated resource); 3,100,000 tons, 0.327 opt Au (inferred resource) 2009: 9,700,000 tons, 0.311 opt Au (proven and probable reserves); 810,000 tons, 0.180 opt Au (measured and indicated resource); 7,400,000 tons, 0.289 opt Au (inferred resource) 2010: 14,600,000 tons, 0.307 opt Au, 12,620,000 oz Au (proven and probable reserve, 88% recovery) 4,200,000 tons, 0.290 opt Au (measured and indicated resource); 1,300,000 tons, 0.345 opt Au (inferred resource) 2011: 18,000,000 tons, 0.282 opt Au, 5,090,000 oz Au (proven and probable reserve, 88% recovery) 7,600,000 tons, 0.241 opt Au (measured and indicated resource); 1,300,000 tons, 0.264 opt Au (inferred resource) 2012: 23,500,000 tons, 0.265 opt Au, 6,230,000 oz Au (proven and probable reserve, 86% recovery); 1,300,000 tons, 0.18 opt Au, 240,000 oz Au (measured and indicated resource); 4,000,000 tons, 0.26 opt Au, 1,020,000 oz Au (inferred resource)	2004-2012: included in Newmont Gold gold production at the end of this section		Eocene
Gold Bar (Antelope district)	1984: 2,800,000 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: 3,600,00 tons, 0.100 opt Au (resource) 2009 (Feb.): 21,500,000 tons, 0.032 opt Au (measured and indicated resource, 0.012 opt Au cut-off grade, Gold Pick and Gold Ridge deposits); 8,700,000 tons, 0.021 opt Au (inferred resources, 0.012 opt Au cut-off grade, Gold Pick and Gold Ridge deposits) 2010: 33,300,000 tons, 0.027 opt Au (measured and indicated and resource, 0.012 opt Au cut-off grade, Gold Pick and Gold Ridge deposits); 1,200,000 tons, 0.016 opt Au (inferred resource, 0.012 opt Au cut-off grade, Gold Pick and Gold Ridge deposits) 2011: 21,486,000 tons, 0.028 opt Au, 592,928 oz Au (measured and indicated resource, 0.009 opt Au cut-off grade, Cabin Creek, Gold Pick, and Gold Ridge deposits); 7,758,000 tons, 0.027 opt Au, 212,168 oz Au (inferred resources, 0.009 opt Au cut-off grade, Cabin Creek, Gold Pick, and Gold Ridge deposits)	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?

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gold Canyon (Antelope district)	1992: reserves-86,500 oz Au, <i>geologic resource</i> -131,000 oz Au 1993: 770,000 tons, 0.080 opt Au 2001: <i>see</i> Gold Bar 2002: 2,500,000 tons, 0.056 opt Au resource	reported with Gold Bar	Devonian Upper Denay Limestone Formation	Eocene?
Gold Pick (Antelope district)	1988: 10,000,000 tons, 0.06 opt Au 1993: 1,400,000 tons, 0.079 opt Au 2001: <i>see</i> Gold Bar 2002: 5,000,000 tons, 0.057 opt Au measured mineral resource 2005: 7,874,000 tons, 0.041 opt Au (indicated resource) 2011: 16,553,000 tons, 0.028 opt Au, 459,165 oz Au (measured and indicated resource, 0.009 opt Au cut-off grade); 5,649,000 tons, 0.029 opt Au, 161,761 oz Au (inferred resource, 0.009 opt Au cut-off grade)	reported with Gold Bar	Devonian McColley Canyon Formation	Eocene?
Gold Ridge (Antelope district)	1988: 400,000 tons, 0.06 opt Au 1993: 426,000 tons, 0.059 opt Au 2001: <i>see</i> Gold Bar 2002: 584,164 tons, 0.046 opt Au resource 2011: 2,585,000 tons, 0.028 opt Au, 73,100 oz Au (measured and indicated resource, 0.009 opt Au cut-off grade) 992,000 tons, 0.025 opt Au 25,016 oz Au (inferred resource, 0.009 opt Au cut-off grade)	reported with Gold Bar	Devonian McColley Canyon Formation	Eocene?
Goldrush (Cortez district)	2011 (Red Hill/Goldrush): 11,221,000 tons, 0.113 opt Au, 1,273,000 contained oz Au (indicated resource); 41,290,000 tons 0.139 opt Au, 5,748,000 contained oz Au (inferred resource) 2012: 65,914,000 tons, 0.127 opt Au, 8,367,000 oz Au (measured and indicated resource); 43,183,000 tons, 0.132 opt Au, 5,679,000 oz Au (inferred resource)			
Goldstone (Antelope district)	1988: 1,700,000 tons, 0.08 opt Au 1993: 130,928 tons, 0.104 opt Au 2001: <i>see</i> Gold Bar	reported with Gold Bar	Devonian Upper Denay Limestone Formation	Eocene?
Horse Canyon (Cortez district)	1984: 3,940,000 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?
Hunter (Antelope district)	2009 (Feb., 0.013 opt Au cut-off grade) 500,000 tons, 0.031 opt Au (indicated resource); 100,000 tons, 0.015 opt Au (inferred resource)			
Lookout Mountain (Eureka district)	2011: 20,745,000 tons, 0.019 opt Au 390,000 oz Au (measured and indicated resource, 0.006 opt Au oxidized cut-off grade, 0.03 opt unoxidized cut-off grade) 18,385,000, 0.012 opt Au, 221,000 oz Au (inferred resource, 0.006 opt Au oxidize cut-off grade, 0.03 opt unoxidized cut-off grade) 2013: 28,940,000 tons, 0.018 opt Au 508,000 oz Au (measured and indicated resource, 0.006 opt Au oxidized cut-off grade, 0.03 opt unoxidized cut-off grade) 11,790,000, 0.012 opt Au, 141,000 oz Au (inferred resource, 0.006 opt Au oxidize cut-off grade, 0.03 opt unoxidized cut-off grade)	1987: 180,000 tons, 0.12 opt Au, 81% recovery	Hamburg Dolomite	

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
North Post (Lynn district)	2011 underground: 3,348,000 tons, 0.244 opt Au, 816,000 contained oz Au			
Ratto Canyon (Lookout Mountain) (Eureka district)	1984: ~200,000 oz Au (entire Ratto Ridge area): 2006: 836,000 tons, 0.24 opt Au (measured and indicated resource) 2010: 13,640,000 tons, 0.021 opt Au (measured and indicated resource) 16,420,000 tons, 0.012 opt Au (inferred resource)	1987-88: 17,000 oz Au	Dunderberg Shale, Eocene Hamburg Dolomite	
Rock Creek (Eureka-Lander Co. line)	1997: 800,000 tons, 0.045 opt Au		Tertiary latite tuff	
Rodeo Projects (Rodeo, Griffin, Goldbug, North Betze) (Lynn district)	1998: 2,900,000 tons, 0.487 opt Au proven and probable reserves; 5,800,000 tons, 0.302 opt Au (mineralized material) 1999: 5,800,000 tons, 0.466 opt Au, (proven and probable reserves); 13,000,000 tons, 0.270 opt Au (mineralized material) 2000: 9,200,000 tons, 0.414 opt Au (proven and Probable); 7,400,000 tons, 0.333 opt Au (mineral resource) 2005-2012: reserves are combined with Meikle reserves	included with Meikle production, Elko County		Eocene
Ruby Hill (Eureka district)	1994: <i>geologic resource</i> -20,000,000 tons, 0.08 opt Au 1995: 7,620,000 tons, 0.099 opt Au 1999: 3,770,000 tons, 0.110 opt Au (proven and probable); 7,330,000 tons, 0.072 opt Au (mineralized material) 2000: 2,700,000 tons, 0.105 opt Au (proven and probable reserves); 7,300,000 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 resource) 2007: (East Archimedes) 18,763,000 tons, 0.055 opt Au (proven and probable reserves); 3,202,000 tons, 0.076 opt Au (measured and indicated resource); 6,000 tons, 0.333 opt Au (inferred resource) 2008: (East Archimedes) 18,844,000 tons, 0.044 opt Au (proven and probable reserves); 111,919,000 tons, 0.04 opt Au measured and (indicated resource); 3,495,000 tons, 0.037 opt Au (inferred resource) 2009: 13,933,000 tons, 0.050 opt Au (proven and probable reserves); 8,960,000 tons, 0.057 opt Au (measured and indicated resource); 2,928,000 tons, 0.051 opt Au, (inferred resource) 2010: 17,182,000 tons, 0.065 opt Au (proven and probable reserves); 61,530,000 tons, 0.023 opt Au (measured and indicated resource); 12,885,000 tons, 0.024 opt Au (inferred resource) 2011: 16,778,000 tons, 0.058 opt Au, 978,000 contained oz Au (proven and probable reserves); 107,626,000 tons, 0.021 opt Au, 2,245,000 contained oz Au (measured and indicated resource); 5,779,000 tons, 0.034 opt Au 196,000 contained oz Au (inferred resource) 2012: 7,823,000 tons, 0.042 opt Au, 326,000 contained oz Au (proven and probable reserves); 172,646,000 tons, 0.02 opt Au 3,463,000 contained oz Au (measured and	1997-98: 133,100 oz Au, 8,686 oz Ag 2000: 125,193 oz Au, 7,984 oz Ag 1999: 123,841 oz Au, 7,688 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 2007: 142,856 oz Au, 8,368 oz Ag 2008: 102,553 oz Au, 7,572 oz Ag 2009: 103,523 oz Au, 39,110 oz Ag 2010: 81,382 oz Au, 43,276 oz Ag 2011: 127,089 oz Au, 42,754 oz Ag 2012: 41,242 oz Au, 32,124 oz Ag	Goodwin Limestone	

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Ruby Hill (cont.)	indicated resource); 5,152,000 tons, 0.043 opt Au 220,000 contained oz Au (inferred resource)			
Tonkin Springs (Antelope district)	1983: 1,840,000 tons, 0.089 opt Au, 0.204 opt Ag 1987: <i>oxide</i> -1,500,000 tons, 0.05 opt Au; <i>sulfide</i> -2,500,000 tons, 0.09 opt Au 1991: 9,000,000, 0.05 opt Au 1999: 30,700,000 tons, 0.045 opt Au (resource) 2006: 29,672,000 tons, 0.043 opt Au (measured and indicated resource); 3,466,000 tons, 0.044 opt Au, (inferred resource) 2008 (May): 35,584,000 tons, 0.041 opt Au (measured and indicated resource) 9,290,000 tons, 0.033 opt Au, (inferred resource)	1987-88: 10,265 oz Au 1989-90: 3,821 oz Au, 1,872 oz Ag	Vinini Formation	Eocene?
Mineral Ridge (Eureka district)	1988: 3,000,000 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

HUMBOLDT COUNTY

Adelaide Crown (Gold Run district)	1989: south pit-585,000 tons, 1.313 opt Ag, 0.043 opt Au; additional area: 165,000 tons, 0.015 opt Au, 1.10 opt Ag	1990-91: 4,917 oz Au, 53,474 oz Ag	Preble Formation	Tertiary
Ashdown (Vicksburg district)	1987: 1,160,000 tons, 0.125 opt Au 1992: 1,100,000 tons, 0.12 opt Au 2002: 100,000 oz Au		Mesozoic granite	Mesozoic
Buckskin (National district)	1997: 50,221 oz Au, 466,243 oz Ag estimated resource		Miocene rhyolite flows and flow breccias	16 Ma
Chimney Creek (Potosi district)	1988: proven, probable-26,900,000 tons, 0.068 opt Au; inferred in south pit- 2,100,000 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	upper Paleozoic sedimentary rocks	
Converse/Redline (Buffalo Valley district)	2003: 77,459,000 tons, 0.020 opt Au (measured and indicated resource) 2004: 263,000,000 tons, 0.0150 opt Au, 0.0582 opt Ag (measured and indicated resource) 35,000,000 tons, 0.0143 opt Au, 0.0524 opt Ag 2011: 352,990,000 tons, 0.015 opt Au, 0.108 opt Ag, containing 5,170,000 oz Au, 37,950,000 oz Ag (measured and indicated resource, 0.008 opt cut-off grade); 34,440,000 tons, 0.015 opt Au, 0.087 opt Ag, containing 510,000 oz Au, 3,010,000 oz Ag (inferred resource, 0.008 opt cut-off grade)		Havallah Formation, granodiorite	Tertiary
Getchell (Potosi district)	1989: 8,100,000 tons, 0.154 opt Au mill grade and 1,430,000 tons, 0.049 opt Au heap-leach ore; additional geologic resource: 5,700,000 tons, 0.092 opt Au sulfide and 2,600,000 tons, 0.055 opt Au oxide 1999: 18,100,000 tons, 0.359 opt Au 2000: 2,800,000 oz Au (measured resource); 5,500,000 oz Au (indicated resource); 6,700,000 oz (inferred resource) 2002: 2,690,000 oz Au (proven and probable reserves); 1,510,000 oz Au (measured and indicated mineral 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	Comus and Preble Formations, dikes, granodiorite	37-41 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Getchell (cont.)	2003: (Turquoise Ridge) 6,000,000 tons, 0.57 opt Au (proven reserves); 2,400,000 tons, 0.62 opt Au (probable reserves); 4,400,000 tons, 0.3 opt Au (indicated material); 2,800,000 tons, Au 0.4 opt Au (indicated material); 4,800,000 tons, 0.49 opt Au (inferred material) 2005: Turquoise Ridge Mine (included Turquoise Ridge and Getchell Footwall deposits) 7,600,000 tons, 0.56 opt Au (proven and probable reserves); 5,600,000 tons, 0.42 opt Au (measured and indicated resource); 400,000 tons, 0.54 opt (inferred resource) 2006: Turquoise Ridge Mine (included Turquoise Ridge and Getchell Footwall deposits) 8,436,000 tons, 0.544 opt Au (proven and probable reserves); 4,801,000 tons, 0.432 opt Au (measured and indicated resource); 1,961,000 tons, 0.493 opt (inferred resource) 2007: Turquoise Ridge Mine (included Turquoise Ridge and Getchell Footwall deposits) 11,239,000 tons, 0.458 opt Au (proven and probable reserves); 3,291,000 tons, 0.409 opt Au (measured and indicated resource); 2,000,000 tons, 0.444 opt (inferred resource) 2008: Turquoise Ridge Mine 10,614,000 tons, 0.501 opt Au (proven and probable reserves); 3,289,000 tons, 0.435 opt Au (measured and indicated resource); 4,440,000 tons, 0.505 opt (inferred resource) 2009: Turquoise Ridge Mine 10,680,000 tons, 0.507 opt Au (proven and probable reserves); 2,307,000 tons, 0.431 opt Au (measured and indicated resource); 5,033,000 tons, 0.456 opt (inferred resource) 2010 Turquoise Ridge Mine: 12,339,000 tons, 0.456 opt Au (proven and probable reserve, 92% recovery); 85,625,000 tons, 0.131 opt Au (measured and indicated resource); 43,427,000 tons, 0.160 opt Au (inferred resource) 2011 Turquoise Ridge Mine: 15,981,000 tons, 0.442 opt Au, 7,054,000 oz Au, (proven and probable reserve, 92% recovery); 83,192,000 tons, 0.122 opt Au, 10,188,000 oz Au (measured and indicated resource); 33,992,000 tons, 0.13 opt Au, 4,404,000 oz Au (inferred resource) 2012 Turquoise Ridge Mine: 20,358,000 tons, 0.381 opt Au, 7,755,000 oz Au, (proven and probable reserve, 92% recovery); 80,690,000 tons, 0.123 opt Au, 9,912,000 oz Au (measured and indicated resource); 39,014,000 tons, 0.131 opt Au, 5,089,000 oz Au (inferred resource)	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 2007: 251,133 oz Au 2008: 168,808 oz Au 2009: 177,333 oz Au 2010: 161,579 oz Au 2011: 178,283 oz Au 2012: 191,754 oz Au		
Hycroft (formerly Crofoot/Lewis) (Sulphur district)	1988: 25,000,000 tons, 0.025 opt Au 1999: 23,800,000 tons, 0.0204 opt Au (proven and probable reserves); 2,300,000 tons, 0.0177 opt Au (indicated reserves) 2000: 41,900,000 tons, 0.0196 opt Au (measured and indicated resource); 14,100,000 tons, 0.0152 opt Au (inferred resource) 2004: 47,479,000 tons, 0.016 opt Au (measured and indicated); 12,029,000 tons, 0.011 opt Au (inferred resource) 2005: 33,320,000 tons, 0.02 opt Au (proven and probable reserves); 52,700,000 tons 0.019 opt Au (measured and indicated resource); 8,700,000 tons, 0.015 opt Au (inferred resource) 2007: 33,320,000 tons, 0.020 opt Au (proven and probable reserves, January 2008); 19,780,000 tons, 0.018 opt Au (measured and indicated resource, January 2008); 283,392,000 tons, 0.019 opt Au (inferred resource, May 2008)	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 oz Ag 2002: 1,771 oz Au, 217 oz Ag 2003: 644 oz Au, 100 oz Ag 2004: 61 oz Au 2008: 1,000 oz Au, 3,000 oz Ag 2009: 53,189 oz Au, 65,753 oz Ag 2010: 102,483 oz Au,	Camel conglomerate, rhyolite dikes	1-2 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Hycroft (cont.)	2008 (October 2008): 73,159,508 tons, 0.016 opt Au (proven and probable reserves; 141,300,000 tons, 0.014 opt Au (measured and indicated resource, 0.005 opt Au cut-off grade); 180,200,000 tons, 0.012 opt Au (oxide inferred resource, 0.005 opt Au cut-off grade) 199,400,000 tons, 0.20 opt Au (sulfide inferred resource, 0.013 opt Au cut-off grade) 2010: 177,228,000 tons, 0.014 opt Au, 0.18 opt Ag (proven and probable oxide reserves); 366,991,000 tons, 0.013 opt Au, 0.22 opt Ag (measured and indicated oxide resource) 143,927,000 tons, 0.018 opt Au, 0.72 opt Ag (measured and indicated sulfide resource); 95,510,000 tons, 0.011 opt Au, 0.33 opt Ag (inferred oxide resource); 148,804,000 tons, 0.017 opt Au, 0.85 opt Ag (inferred sulfide resource) 2010 (year-end): 196,000,000 tons, 0.013 opt Au, 0.25 opt Ag (proven and probable oxide heap leach reserves); 720,000,000 tons, 0.007 opt Au, 0.15 opt Ag (measured and indicated oxide and transitional heap leach resource); 620,000,000 tons, 0.014 opt Au, 0.71 opt Ag (measured and indicated oxide, transitional and sulfide mill resource); 181,000,000 tons, 0.015 opt Au, 0.56 opt Ag (inferred oxide, transitional and sulfide resource) 2011: 1,134,669,000 tons, 0.011 opt Au, 12,651,000 oz Au, 0.42 opt Ag, 481,881,000 oz Ag (proven and probable reserves, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 939,619,000 tons, 0.009 opt Au, 8,170,000 oz Au, 0.25 opt Ag, 236,851,000 oz Ag (measured and indicated resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 534,938,000 tons, 0.01 opt Au, 0.253 opt Ag (inferred resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade) 2012: 1,108,078,000 tons, 0.011 opt Au, 11,875,000 oz Au, 0.46 opt Ag, 509,559,000 oz Ag (proven and probable reserves, 0.005 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 1,596,780,000 tons, 0.008 opt Au, 12,429,000 oz Au, 0.23 opt Ag, 360,148,000 oz Ag (measured and indicated resource, 0.004 opt Au heap leach cut-off grade, 0.009 opt Au mill cut-off grade); 628,251,000 tons, 0.01 opt Au, 0.26 opt Ag (inferred resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade)	233,974 oz Ag 2011: 104,002 oz Au, 479,440 oz Ag 2012: 114,705 oz Au, 696,114 oz Ag		
Lone Tree (Buffalo Mountain district)	1990: 5,400,000 tons oxide mill ore, 0.159 opt Au, 5,700,000 tons heap-leach ore, 0.025 opt Au and 1,200,000 oz Au in sulfide ore 1994: 4,000,000 oz Au 2000: 40,800,000 tons, 0.060 opt Au proven and probable reserves (Lone Tree Complex) 2001: 29,200,000 tons, 0.065 opt Au (proven and probable reserves); 7,900,000 tons, 0.032 opt Au (mineralized material) 2002: 21,000,000 tons, 0.069 opt Au (proven and probable reserves); 2,000,000 tons, 0.057 opt Au (measured and indicated mineralized material); 1,000,000 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)	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 2007: 182,768 oz Au, 37,172 oz Ag	Havallah Formation, Antler sequence, and dacite porphyry	38 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Lone Tree (cont.)	2005: 4,000,000 tons, 0.080 opt Au (proven and probable reserves); 3,000,000 tons, 0.032 opt Au (measured and indicated resource) 2007: 4,200,000 tons, 0.022 opt Au (measured and indicated resource) 2012: 2,200,000 tons, 0.023 opt Au, 50,000 oz Au (indicated resource); 5,000,000 tons, 0.032 opt Au, 80,000 oz Au (inferred resource)	2008: 16,775 oz Au 1,897 oz Ag 2009: 12,011 oz Au 2,309 oz Ag 2010: 1,313 oz Au 2011: 19,619 oz Au 28 oz Ag 2012: 29,738 oz Au 5,789 oz Ag		
Marigold (Battle Mountain district)	1987: 8,000,000 tons, 0.0935 opt Au 1990: 4,300,000 tons, 0.105 opt Au mill ore, 7,600,000 tons, 0.026 opt Au heap-leach ore 1999: 19,090,000 tons, 0.032 opt Au 2000: 30,200,000 tons, 0.035 opt Au (proven and probable reserves); 20,700,000 tons, 0.029 opt Au measured and (indicated resource) 2001: 75,500,000 tons, 0.027 opt Au (proven and probable reserves); 109,900,000 tons, 0.014 opt Au (measured and indicated resource) 2002: 79,100,000 tons, 0.026 opt Au (proven and probable reserves); 129,700,000 tons, 0.014 opt Au (mineral resource) 2003: 9,366,000 tons, 0.031 opt Au (proven Reserves); 83,909,000 tons, 0.023 opt Au (probable reserves); 19,937,000 tons, 0.020 opt Au (measured reserves); 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 resource); 21,000,000 tons, 0.014 opt Au (inferred resource) 2005: 98,210,000 tons, 0.021 opt Au (proven and probable reserves); 157,480,000 tons, 0.020 opt Au (measured and indicated resource, includes reserves); 163,230,000 tons, 0.013 opt Au (inferred resource) 2006: 102,870,000 tons, 0.021 opt Au (proven and probable reserves); 94,587,000 tons, 0.018 opt Au (measured and indicated resource); 88,212,000 tons, 0.011 opt Au (inferred resource) 2007: 84,660,000 tons, 0.020 opt Au (proven and probable reserves); 46,410,000 tons, 0.020 opt Au (measured and indicated resource); 122,530,000 tons, 0.013 opt Au (inferred resource) 2008: 69,600,000 tons, 0.020 opt Au (proven and probable reserves); 42,660,000 tons, 0.016 opt Au (measured and indicated resource); 44,810,000 tons, 0.013 opt Au (inferred resource) 2009: 150,000,000 tons, 0.016 opt Au (proven and probable reserves) 42,190,000 tons, 0.015 opt Au (indicated resource); 75,000,000 tons, 0.015 opt Au (inferred resource) 2010: 143,529,000 tons, 0.016 opt Au (proven and probable reserves); 80,526,000 tons, 0.014 opt Au (indicated resource); 46,638,000 tons, 0.014 opt Au (inferred resource) 2011: 226,889,000 tons, 0.015 opt Au (proven and probable reserves); 32,935,000 tons, 0.012 opt Au (measured and indicated resource); 11,037,000 tons, 0.013 opt Au (inferred resource) 2012: 324,770,000 tons, 0.015 opt Au 4,920,000 Contained oz Au (proven and probable reserves); 50,130,000 tons, 0.012 opt Au, 621,000 contained oz Au (measured and indicated resource); 89,559,000 tons, 0.012 opt Au, 1,113,000 contained Oz 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 2007: 140,840 oz Au, 2,233 oz Ag 2008: 144,106 oz Au, 5,037 oz Ag 2009: 146,842 oz Au, 4,239 oz Ag 2010: 136,754 oz Au, 3,729 oz Ag 2011: 153,741 oz Au, 4,162 oz Ag 2012: 144,382 oz Au, 2,729 oz Ag	Paleozoic chert, argillite, and carbonate rocks	

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
North Stonehouse (Buffalo Mountain district)	1991: 2,500,000 tons, 0.103 oz Au mill ore		Havallah Formation and porphyry dikes	39 Ma
Pinson (Potosi district)	1980: 3,245,000 tons, 0.119 opt Au 1989: 480,000 oz Au 1996: 2,600,000 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) 2012: 1,738,738 tons, 0.369 opt Au, 642,236 contained oz Au (proven and probable, cut-off grade, 0.2 opt Au); (open pit): 25,466,300 tons, 0.039 opt Au, 981,700 oz Au (measured and indicated resource, 0.01 opt Au cut-off grade, Mag Pit and South Zone deposits); 824,000 tons 0.034 opt Au, 28,300 oz Au (inferred resource, 0.01 opt Au cut-off grade, Mag Pit and South Zone deposits) (underground): 2,919,800 tons, 0.368 opt Au, 1,078,000 oz Au (measured and indicated resource, 0.2 opt Au cut-off grade); 2,236,200 tons, 0.378 opt Au, 845,000 oz Au (inferred resource, 0.2 opt Au cut-off grade)	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 2012, 1,378 oz Au	Comus Formation	Eocene?
Preble (Potosi district)	1985: 1,800,000 tons, 0.062 opt Au 1986: 3,160,000 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?
Rabbit Creek (Potosi district)	1989: 4,100,000 oz Au (additional geologic resource of 100,000 Au in refractory material) 1992: reserves-3,260,000 oz Au 1993: see Twin Creeks	1990-92: 296,000 oz Au 1993: see Twin Creeks	Ordovician	Eocene?
Sandman (Tenmile district)	2007: 8,033,000 tons, 0.034 opt Au (measured and indicated resource) 1,418,000 tons, 0.027 opt Au (inferred resource) 2012: 1,300,000 tons, 0.036 opt Au, 0.199 opt Ag, 50,000 oz Au, 300,000 oz Ag (indicated resource) 1,100,000 tons, 0.063 opt Au, 0.167 opt Ag, 70,000 oz Au, 200,000 oz Ag (inferred resource)			
Sleeper (Awakening district)	1985: 4,200,000 tons, 0.13 opt Au, 0.73 opt Ag 1989: 1,975,000 oz Au 1990: 44,100,000 tons, 0.038 opt Au, 0.152 opt Ag 1999: 2,100,000 oz Au at average grade of 0.025 opt Au; 18,100,000 oz Ag at average grade of 0.208 opt Ag 2008: 29,718,000 tons, 0.025 opt Au (indicated resource) 22,046,000 tons, 0.017 opt Au 2011(oxide): 47,167,350 tons, 0.011 opt Au, 511,872 oz Au, 0.12 opt Ag, 5,781,121 oz Ag (measured and indicated resource, 0.006 opt Au cut-off grade) 14,541,139 tons, 0.009 opt Au, 136,145 oz Au, 0.1 opt Ag, 1,450,516 oz Ag (inferred resource, 0.006 opt Au cut-off grade)	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

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Sleeper (cont.)	2011 (sulfide): 143,269,803 tons, 0.015 opt Au, 2,113,527 oz Au, 0.14 opt Ag, 19,556,454 oz Ag (measured and indicated resource, 0.007 opt Au cut-off grade) 75,409,000 tons, 0.013 opt Au, 0.09 opt Ag (inferred resource, 0.006 opt Au cut-off grade) 2012 (oxide): 79,798,000 tons, 0.008 opt Au, 659,000 oz Au, 0.11 opt Ag, 8,588,000 oz Ag (measured and indicated resource, 0.003 opt Au cut-off grade) 32,667,000 tons, 0.007 opt Au, 214,000 oz Au, 0.093 opt Ag, 3,030,000 oz Ag (inferred resource, 0.003 opt Au cut-off grade) 2012 (sulfide): 280,614,000 tons, 0.01 opt Au, 2,820,000 oz Au, 0.11 opt Ag, 32,018,000 oz Ag (measured and indicated resource, 0.003 opt Au cut-off grade) 188,960,000 tons, 0.008 opt Au, 1,532,000 oz Au, 0.083 opt Ag, 15,708,000 oz Ag (inferred resource, 0.003 opt Au cut-off grade) 2012 (alluvial): 168,000 tons, 0.059 opt Au 10,000 oz Au; (mine dumps): 24,707,000 tons, 0.009 opt Au, 216,000 oz Au, 0.07 opt Ag, 1,712,000 oz Ag (inferred resource, 0.003 opt Au cut-off grade)			
Trenton Canyon (includes Valmy and North Peak) (Buffalo Valley district)	1994 oxide resource: 14,600,000 tons, 0.035 opt Au, (517,000 oz Au) 1999: 995,000 tons, 0.021 opt Au (North Peak); 10,800,000 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 2007: 1,768 oz Au, 360 oz Ag		
Trout Creek (Battle Mountain district)	1989: 50,000 oz Au			
Twin Creeks (Chimney and Rabbit Creeks) (Potosi district)	1993: 5,700,000 oz Au 1999: 87,100,000 tons, 0.079 opt Au (proven and probable) 2000: 75,200,000 tons, 0.086 opt Au (proven and probable) 2002: 47,600,000 tons, 0.081 opt Au (proven and probable reserves); 55,000,000 tons, 0.057 opt Au (measured and indicated mineralized material); 1,800,000 tons, 0.046 opt Au (inferred mineralized material) 2003: 14,000,000 tons, 0.085 opt Au (proven reserves); 48,200,000 tons, 0.074 opt Au (probable reserves); 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: 61,200,000 tons, 0.074 opt Au (proven and probable reserves); 19,900,000 tons, 0.049 opt Au (measured and indicated resource); 3,100,000 tons, 0.033 opt Au (inferred resource) 2006: 64,800,000 tons, 0.077 opt Au (proven and probable reserves); 25,000,000 tons, 0.058 opt Au (measured and indicated resource); 3,100,000 tons, 0.033 opt Au (inferred resource) 2007: 52,100,000 tons, 0.078 opt Au (proven and probable reserves); 21,000,000 tons, 0.063 opt Au (measured and indicated resource); 2,600,000 tons, 0.030 opt Au (inferred resource) 2008: 51,700,000 tons, 0.077 opt Au (proven and probable reserves); 31,100,000 tons, 0.051 opt Au (measured and indicated resource); 10,800,000 tons, 0.018 opt Au (inferred resource) 2009: 50,200,000 tons, 0.077 opt Au (proven and probable reserves); 35,000,000 tons, 0.050 opt Au (measured and indicated resource); 11,300,000 tons, 0.018 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 2007: 488,457 oz Au, 99,344 oz Ag 2008: 512,190 oz Au, 57,913 oz Ag 2009: 437,830 oz Au, 84,159 oz Ag 2010: 452,744 oz Au, 211,935 oz Ag 2011: 484,449 oz Au, 290,802 oz Ag 2012: 408,751 oz Au, 79,574 oz Ag	Paleozoic	41-43 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Twin Creeks (cont.)	2010: 57,800,000 tons, 0.076 opt Au (proven and probable reserve, 79% recovery); 37,900,000 tons, 0.039 opt Au (measured and indicated resource); 12,000,000 tons, 0.0194 opt Au (inferred resource) 2011: 48,700,000 tons, 0.078 opt Au (proven and probable reserve, 80% recovery); 46,000,000 tons, 0.045 opt Au (measured and indicated resource); 13,500,000 tons, 0.026 opt Au (inferred resource) 2012: 58,300,000 tons, 0.058 opt Au, 3,400,000 oz Au (proven and probable reserve, 80% recovery); 41,900,000 tons, 0.059 opt Au, 2,470,000 oz Au (measured and indicated resource); 3,900,000 tons, 0.061 opt Au 240,000 oz Au (inferred resource)			
Winnemucca Mountain (Winnemucca district)	1998: 130,000 to 140,000 oz Au proven, 300,000 oz Au indicated			

LANDER COUNTY

Austin Gold Venture (Birch Creek district)	1986: 1,750,000 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
Battle Mountain Complex (Battle Mountain district)	1992: 500,000 oz Au 1995: resource (overall Battle Mountain complex)-60,200,000 tons, 0.036 opt Au, including reserves-46,600,000 tons, 0.040 opt Au 1999 (Phoenix): 5,680,000 oz Au (proven and Probable); 1,500,000 oz Au (additional Mineralization) 2000: 175,200,000 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
Buffalo Valley Gold Project (Buffalo Valley district)	1988: 1,500,000 tons, 0.05 opt Au 1994: 4,800,000 tons, 0.07 opt Au 1997: 600,106 oz Au resource; 100,797 oz Au, other mineralized material 2010: 18,300,000 tons, 0.020 opt Au (indicated resource); 900,000 tons, 0.017 opt Au (inferred resource) 2011: 16,500,000 tons, 0.019 opt Au (indicated resource); 2,900,000 tons, 0.014 opt Au (inferred resource) 2012: 23,100,000 tons, 0.063 opt Au 470,000 oz Au (indicated resource); 715,000 tons, 0.035 opt Au 14,300 oz Au (inferred resource)	1988-90: 39,668 oz Au		Eocene?
Copper Basin (Battle Mountain district)	1996: 638,000 oz Au, 1,228,000 oz Ag, 164,000,000 lbs Cu (estimated endowment) 2012: 1,200,000 oz Au, 2,300,000 oz Ag, 164,000,000 lbs Cu (resource)	1870-1987: Intermittent N/A		
Cortez Joint Venture (Bullion district) CJV includes original Cortez Mine, Pipeline, South Pipeline, Gold Acres (2007 and on includes Cortez Hills)	1968: 3,600,000 tons, 0.279 opt Au (Cortez deposit) 1987: 4,800,000 tons, 0.105 opt Au 1999: 189,400,000 tons, 0.050 opt Au (proven and probable); 119,100,000 tons, 0.035 opt Au mineralized material 2000: 151,300,000 tons, 0.047 opt Au (proven and probable); 60,000,000 tons, 0.047 opt Au (mineralized material) 2001: 191,100,000 tons, 0.044 opt Au (proven and probable); 76,600,000 tons, 0.040 opt Au (resource)	1942-84: 2,400,000 tons, 0.13 opt Au; 2,000,000 tons, 0.041opt 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	Roberts Mountains Formation, Wenban Limestone, Valmy Formation, quartz porphyry dikes	

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Cortez Joint Venture (cont.)	2002: 229,300,000 tons, 0.034 opt Au (proven and probable reserves); 281,700,000 tons, 0.025 opt Au (measured and indicated mineral resource) 2003: 88,131,000 tons, 0.061 opt Au (proven reserves); 49,623,000 tons, 0.045 opt Au (probable reserves); 44,617,000 tons, 0.046 opt (measured resource); 130,580,000 tons, 0.027 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): 275,800,000 tons, 0.040 opt Au (proven and probable reserves); 309,000,000 tons, 0.033 opt Au (measured and indicated resource); 39,200,000 tons, 0.058 opt Au (inferred resource) 2006: 184,000,000 tons, 0.061 opt Au (proven and probable reserves); 44,470,000 tons, 0.041 opt Au (measured and indicated resource); 6,540,000 tons, 0.131 opt Au (inferred resource) 2007: 144,090,000 tons, 0.080 opt Au (proven and probable reserves); 76,240,000 tons, 0.045 opt Au (measured and indicated resource); 19,340,000 tons, 0.153 opt Au (inferred resource) 2008: 222,125,000 tons, 0.060 opt Au (proven and probable reserves); 81,088,000 tons, 0.046 opt Au (measured and indicated resource); 29,912,000 tons, 0.129 opt Au (inferred resource) 2009: 243,669,000 tons, 0.058 opt Au (proven and probable reserves); 46,622,000 tons, 0.074 opt Au (measured and indicated resource); 30,128,000 tons, 0.144 opt Au (inferred resource) 2010: 317,081,000 tons, 0.046 opt Au (proven and probable reserves); 60,463,000 tons, 0.072 opt Au (measured and indicated resource); 50,337,000 tons, 0.103 opt Au (inferred resource) 2010: 317,081,000 tons, 0.046 opt Au (proven and probable reserves); 60,463,000 tons, 0.072 opt Au (measured and indicated resource); 50,337,000 tons, 0.103 opt Au (inferred resource) 2010: 317,081,000 tons, 0.046 opt Au (proven and probable reserves); 60,463,000 tons, 0.072 opt Au (measured and indicated resource); 50,337,000 tons, 0.103 opt Au (inferred resource) 2011: 306,879,000 tons, 0.047 opt Au, 14,488,000 contained oz Au (proven and probable reserves); 54,391,000,000 tons, 0.069 opt Au, 3,757,000 contained oz Au (measured and indicated resource); 21,881,000,000 tons, 0.074 opt Au, 1,615,000 contained oz Au (inferred resource) 2012: 306,190,000 tons, 0.049 opt Au 15,058 contained oz Au (proven and probable reserves); 50,943,000 tons, 0.053 opt Au, 2,701,000 contained oz Au (measured and indicated resource); 25,174,000 tons, 0.065 opt Au, 1,633,000 contained oz Au (inferred resource)	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 2007: 534,173 oz Au, 47,240 oz Ag 2008: 464,253 oz Au (6,804 oz Au from Cortez Hills), 69,278 oz Ag 2009: 517,512 oz Au, 74,080 oz Ag 2010 (open pits): 791,978 oz Au, 45,477 oz Ag 2010 (underground): 47,988 oz Au 2011 (open Pits): 1,119,910 oz Au, 19,721 oz Ag 2011 (underground): 301,129 oz Au, 4,775 oz Ag 2012 (open Pits): 939,004 oz Au, 25,155 oz Ag 2012 (underground): 430,962 oz Au, 9,986 oz Ag		
Cortez Hills	2005 (Sept 1): 71,300,000 tons, 0.079 opt Au 5,545,000 oz Au (proven and probable reserves); 5,7500,000 tons, 0.42 opt Au, 2,421,667 oz Au (measured and indicated resource, underground); 13,800,000 tons, 0.13 opt Au, 1,856,667 oz Au (inferred resource, open pit and underground) 2006: 8,500,000 oz Au (proven and probable reserves)	2010-2012: Production combined with Cortez Joint Venture	Roberts Mountains Formation, Wenban Limestone	

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Cortez Hills (cont.)	2008 (Nov.): 15,620,000 tons, 0.127 opt Au, 1,983,740 oz Au (proven reserve); 128,150,000 tons, 0.074 opt Au, 9,483,000 oz Au (probable reserve) 2010 (open pit): 31,531,000 tons, 0.139 opt Au (proven and probable reserve) 2010 (underground, breccia zone): 2,251,000 tons, 0.595 opt Au (proven and probable reserve) 2010 (underground, middle zone): 3,173,000 tons, 0.370 opt Au (proven and probable reserve) 2011 (open pit): 32,591,000 tons, 0.131 opt Au, 4,275,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 237,000 tons, 0.08 opt Au, 19,000 oz Au (measured and indicated resource); 1,351,000 tons, 0.025 opt gold, 33,000 oz Au (inferred resource) (underground): 6,516,000 tons, 0.446 opt Au, 2,908,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 6,476,000 tons, 0.379 opt Au, 2,456,000 oz Au (measured and indicated resource); 3,197,000 tons, 0.337 opt gold, 1,078,000 oz Au (inferred resource)			
Cortez NW Deepes (Bullion district)	2011: 4,689,000 tons, 0.047 opt Au, 218,000 oz Au (measured and indicated resource); 3,951,000 tons, 0.065 opt gold, 259,000 oz Au (inferred resource)		Roberts Mountains Formation, Hanson Creek Formation	
Crescent Pit	1994: 1,970,000 tons mill grade, 0.125 opt Au, 2,200,000 tons heap-leach, 0.029 opt Au 1997: included in Cortez Joint Venture			
Crescent Valley (Bullion district)	1994: placer reserves-8,000,000 cu yd, 0.031 oz Au/cu yd 1995: placer resource-6,000,000 cu yd, 0.03 oz Au/cu yd			
Crossroads (Bullion district)	2010: 125,842,000 tons, 0.027 opt Au (proven and probable reserve) 2011: 129,391,000 tons, 0.03 opt Au, 3,937,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 23,895,000 tons, 0.015 opt Au, 370,000 oz Au (measured and indicated resource); 7,273,000 tons, 0.015 opt gold, 112,000 oz Au (inferred resource)			
Dean (Lewis district)	1995: proven reserves-11,000 oz Au possible to probable resource-240,000 oz Au			
Elder Creek Project/Shoshone (Lewis district)	1989: 91,500 oz Au 1990: 1,500,000 tons, 0.041 opt Au	1990-91: 20,102 oz Au	Valmy Formation	Cretaceous or Eocene
Fire Creek (northeast of Bullion district)	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) 2008 (April): 2,654,650 tons, 0.479 opt Au (indicated resource, 0.233 opt Au cut-off grade); 1,184,202 tons, 0.396 opt Au (inferred resource, 0.233 opt Au cut-off grade) 2011: 2,364,745 tons, 0.513 opt Au, 1,215,019 oz Au (indicated resource, 0.204 opt Au cut-off grade); 611,824 tons, 0.366 opt Au, 223,794 oz Au (inferred resource, 0.204 opt Au cut-off grade) 2011: 5,705,560 tons, 0.289 opt Au, 1,647,052 oz Au (indicated resource, 0.117 opt Au cut-off grade); 1,910,008 tons, 0.240 opt Au, 458,084 oz Au (inferred resource, 0.117 opt Au cut-off grade)	1983-84: 767 oz Au 2012: 191 oz Au, 286 oz Ag	basaltic andesite	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Fortitude Complex (Battle Mountain district)	1984: 16,000,000 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
Fortitude Extension (Battle Mountain district)	1992: 500,000 oz Au 1993: <i>geologic resource</i> -900,000 oz Au 1996: included in Battle Mountain Complex			
Independence Battle Mountain district)	2010: 14,802,000 tons, 0.014 opt Au, 0.27 opt Ag (measured and indicated oxide resource) 5,997,000 tons, 0.011 opt Au, 0.066 opt Ag (inferred oxide resource); 4,182,000 tons, 0.19 opt Au (inferred sulfide resource, 0.25 opt Au cut-off grade, skarn mineralization) 2011 Shallow Deposit: 16,056,000 tons, 0.014 opt Au, 223,300 oz Au; 0.236 opt Ag, 3,784,000 oz Ag (proven and probable reserve, 0.008 opt Au cut-off grade); 4,592,000 tons, 0.01 opt Au, 46,400 oz Au, 0.046 opt Ag, 211, 200 oz Ag (inferred resource); Deep Skarn Deposit: 4,182,000 tons, 0.19 opt gold, 796,200 oz Au (inferred resource)			
Gap (Bullion district)	2010: 53,571,000 tons, 0.015 opt Au (proven and probable reserve) 2011: 48,151,000 tons, 0.016 opt Au, 772,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 9,259,000 tons, 0.013 opt Au, 124,000 oz Au (measured and indicated resource); 2,504,000 tons, 0.013 opt gold, 32,000 oz Au (inferred resource)	2011: Production combined with Cortez Joint Venture	Wenban Limestone	
Gold Acres (Bullion district)	2011: 5,032,000 tons, 0.097 opt Au, 487,000 oz Au (measured and indicated resource); 778,000 tons, 0.092 opt Au, 72,000 oz Au (inferred resource)	1942-1993: Production included with Cortez Joint Venture	Roberts Mountains Formation, Wenban Limestone, Valmy Formation	
Hilltop (Hilltop district)	1984: 10,300,000 tons, 0.073 opt Au 1989: 10,000,000 tons, 0.049 opt Au 2005: 121,000,000 tons, 0.019 opt Au (measured and indicated resource)		Valmy Formation	Oligocene?
Klondike property	1989: 100,000 oz Au equivalent			
McCoy/Cove (McCoy district)	1981: 2,500,000 tons, 0.08 opt Au, 1 opt Ag (McCoy) 1987: 14,000,000 tons, 0.05 opt Au (McCoy); 4,000,000 oz Au, 25000,000 oz Ag (Cove) 1989: proven and probable reserves 2,900,000 oz Au, 128,000,000 oz Ag <i>geologic resource</i> -3,500,000 oz Au, 1,500,000 oz Ag 1999: 11,800,000 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: 4,700,000 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 2010 (Helen Zone): 684,855 tons, 0.77 opt Au (inferred resource)	1986: 50,000 oz Au 1987-98: 3,046,660 oz Au, 85,790,000 oz Ag 1999: 124,500 oz Au, 8,430,000 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

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
McCoy/Cove (cont.)	2011 (Helen Zone): 391,600 tons, 0.59 opt Au (inferred resource)			
Mud Springs (Bald Mtn. Zone) (Bullion district)	1993: <i>geologic resource</i> -42,000 oz Au			
Mule Canyon (Argenta district)	1992: 8,500,000 tons, 0.136 opt Au 1996: 9,000,000 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 2007: 22,466 oz Au, 4,565 oz Ag	basalt and basaltic andesite	15-16 Ma
Pediment (Cortez district)	2010: 47,316,000 tons, 0.024 opt Au (proven and probable reserve) 2011: 49,469,000 tons, 0.024 opt Au, 1,163,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 805,000 tons, 0.008 opt Au, 6,000 oz Au (inferred resource)			
Phoenix (Battle Mountain district)	2001: 174,200,000 tons, 0.034 opt Au (proven and probable reserves); 156.3 00,000 tons, 0.17% Cu (proven and probable reserves); 73,800,000 tons, 0.026 opt Au mineralized material; 99,600,000 tons, 0.14% Cu (mineralized material) 2002: 174,200,000 tons, 0.034 opt Au (probable reserves); 156,300,000 tons, 0.16 % Cu (probable reserves); 1,,500,000 tons, 0.033 opt Au (measured and indicated mineralized material); 72,300,000 tons, 0.026 opt Au (inferred mineralized material); 63,500,000 tons, 0.14 % Cu (inferred mineralized material) 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,,400,000 tons, 0.029 opt Au (proven and probable reserves); 22,200,000 tons, 0.023 opt Au (measured and indicated resource); 16,500,000 tons, 0.026 opt Au (inferred resource) 2006: 295,200,000 tons, 0.027 opt Au (proven and probable reserves); 92,800,000 tons, 0.017 opt Au (measured and indicated resource) 23,200,000 tons, 0.022 opt Au (inferred resource) 2007: 278,100,000 tons, 0.027 opt Au (proven and probable reserves); 92,800,000 tons, 0.017 opt Au (measured and indicated resource); 22,900,000	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, 6,235,096 lbs Cu 2007: 181,313 oz Au, 664,787 oz Ag, 10,808,206 lbs Cu 2008: 175,259 oz Au, 1,040,563 oz Ag 15,853,706 lbs Cu 2009: 218,732 oz Au 1,212,153 oz Ag 23,733,389 lbs Cu 2010: 214,142 oz Au 921,350 oz Ag 19,008,818 lbs Cu 2011: 205,658 oz Au 1,152,312 oz Ag 23,897,865 lbs Cu. 2012: 158,843 oz Au 1,325,200 oz Au 27,809,189 lbs Cu		Eocene

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Phoenix (cont.)	tons, 0.022 opt Au (inferred resource) 2008: 299,800,000 tons, 0.021 opt Au (proven and probable reserves); 61,600,000 tons, 0.015 opt Au (indicated resource); 34,000,000 tons, 0.019 opt Au (inferred resource) 2009: 285,000,000 tons, 0.020 opt Au (probable reserves); 158,400,000 tons, 0.013 opt Au (indicated resource); 35,400,000 tons, 0.015 opt Au (inferred resource) 2010: 329,800,000 tons, 0.018 opt Au (probable reserve, 73% recovery); 150,900,000 tons, 0.013 opt Au (indicated resource); 54,300,000 tons, 0.015 opt Au (inferred resource) 2011: 447,100,000 tons, 0.016 opt Au, 7,250,000 oz Au; 450,300,000 tons, 0.244 opt Ag, 109,980,000 oz Ag (proven and probable reserve 36% recovery: Au 72%, Ag 36%); 216,400,000 tons, 0.012 opt Au, 0.173 opt Ag (indicated resource); 132,300,000 tons, 0.012 opt Au, 0.197 opt Ag (inferred resource) 2012: 439,900,000 tons, 0.017 opt Au, 7,430,000 oz Au, 443,200,000 tons, 0.254 opt Ag, 112,580,000 oz Ag (proven and probable reserve, recovery: Au 73%, Ag 36%); 198,100,000 tons, 0.013 opt Au, 0.186 opt Ag, 2,520,000 oz Au, 36,900,000 oz Ag (measured and indicated resource); 117,200,000 tons, 0.012 opt Au, 0.202 opt Ag, 1,390,000 oz Au, 23,700,000 oz Ag (inferred resource); stockpiles: 2,300,000 tons, 0.089 opt Ag, 200,000 oz Ag (inferred resource)			
Pipeline (Bullion district)	1991: <i>geologic resource</i> -11,300,000 tons, 0.237 opt Au 1996: 136,700,000 tons, 8,700,000 oz Au (measured resource, includes South Pipeline) 1997: included in Cortez Joint Venture 2010: 41,453,000 tons, 0.017 opt Au (proven and probable reserve) 2011: 35,704,000 tons, 0.02 opt Au, 707,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade, Pipeline/South Pipeline); 4,803,000 tons, 0.018 opt Au, 84,000 oz Au (measured and indicated resource); 2,022,000 tons, 0.012 opt gold, 24,000 oz Au (inferred resource)	1996-2009: included in Cortez Joint Venture	Roberts Mountains Formation	Eocene?
Robertson (Bullion district)	1988: 11,000,000 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: 22,900,000 tons, 0.031 opt Au (measured and indicated resource) 9,408,000 tons, 0.046 opt Au (inferred resource) 2007: 91,300,000 tons, 0.025 opt Au (inferred resource) 2009: 178,924,188 tons, 0.0189 opt Au (inferred resource, used higher gold price than in 2007) 2011: 191,725,418 tons, 0.0143 opt Au, 2,741,673 oz Au (inferred resource, 0.0067 opt Au cut-off grade)	1989: 3,700 oz Au	Valmy Formation	early Oligocene
Slaven Canyon property (Bateman Canyon district)	1994: 50,000 oz Au 2002: 1,600,000 tons, 0.043 opt Au			
South Pipeline (Bullion district)	1992: 900,000 tons, 0.082 opt Au 1994: <i>geologic resource</i> -76.500,000 tons, 0.048 opt Au 1996: see Pipeline 1997: included in Cortez Joint Venture 2011: see Pipeline		Roberts Mountains Formation	Eocene?

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Surprise (Battle Mountain district)	1987: 225,000 oz Au 1988-91: production and reserves included in Fortitude figures 1994: mined out	1987: 2,000 oz Au	skarn	37 Ma
Toiyabe	1988: 813,400 tons, 0.066 opt Au 2009: 4,975,000 tons, 0.035 opt Au (indicated resource)	1988: 32,000 oz Au, 10,300 oz Ag 1990-91: 20,480 oz Au, 15,125 oz Ag	lower Paleozoic calcareous siltstone	Eocene?
Victorine (Kingston district)	1992: 915,000 tons, 0.304 opt Au 1995: proven and probable reserves- 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	

LINCOLN COUNTY

Atlanta gold property (Atlanta district)	1980: 1,100,000 tons, 0.08 opt Au, 1.6 opt Ag 1996: 300,000 oz Au, 3,000,000 oz Ag 2011 Main Zone: 6,391,000 tons, 0.047 opt Au, 302,797 oz Au, 0.25 opt Ag, 1,569,689 oz Ag (indicated resource, 0.015 opt Au cut-off grade) 4,330,227 tons, 0.031 opt Au, 133,662 oz Au, 0.56 opt Ag, 2,404,717 oz Ag (inferred resource, 0.015 opt Au cut-off grade) East-West Zones: 1,610,800 tons, 0.046 opt Au, 73,072 oz Au, 0.13 opt Ag, 212,154 oz Ag (indicated resource, 0.015 opt Au cut-off grade) 830,783 tons, 0.039 opt Au, 32,479 oz Au, 0.23 opt Ag, 190,083 oz Ag (inferred resource, 0.015 opt Au cut-off grade) 2012: 15,503,000 tons, 0.037 opt Au, 572,100 oz, Au, 0.38 opt Ag, 5,893,500 oz Ag (measured and indicated resources, 0.015 opt Au cut-off grade) 18,538,000 tons, 0.029 opt Au, 544,300 oz, Au, 0.213 opt Ag, 3,955,400 oz Ag (inferred resources, 0.015 opt Au cut-off grade)	1954: 22,000 tons ore 1960s: 27,000 tons ore 1975-1985: 1,500,000 tons, 0.09 opt Au, 1.25 opt 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
Caliente property (Pennsylvania district)	1997: <i>geologic reserves</i> -50,000 tons, 0.03 opt Au, 0.80 opt Ag; <i>geologic</i>		Tertiary diorite Tertiary andesite	
Easter and Delamar Project (Delamar district)	1994: <i>geologic resource</i> -3,360,000 tons, 0.069 opt Au 1995: 1,500,000 tons, 0.069 opt Au 2010 (Easter project): 2,640,000 tons, 0.0386 opt Au, 0.408 opt Ag (indicated resource) 200,000 tons, 0.0333 opt Au, 0.350 opt Ag (inferred resource)		Cambrian quartzite	Miocene
Gold Spring (Eagle Valley district)	2012: (Grey Eagle Zone): 3,196,276 tons, 0.02 opt Au 62,482 Au, 0.02 opt Ag, 632,617 oz Ag (inferred resource, 0.009 opt Au equivalent cut-off grade)		Miocene latite to andesite	

LYON COUNTY

Dayton Resource Area (Comstock Mine Project) (Silver City District)	2010: 4,970,000 tons, 0.034 opt Au, 0.244 opt Ag (measured and indicated resource) 1,210,000 tons, 0.026 opt Au, 0.298 opt Ag (inferred resource) 2011 (Alhambra, Dayton, and Kossuth Mines): 8,330,000 tons, 0.029 opt Au, 0.213 opt Ag (measured and indicated resource, 0.007 opt Au,		Santiago Canyon tuff; Alta Formation	
--	--	--	--------------------------------------	--

MAJOR PRECIOUS-METAL DEPOSITS, LYON COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Dayton Resource Area (cont.)	cut-off grade); 8,590,000 tons, 0.024 opt Au, 0.131 opt Ag (inferred resource, 0.007 opt Au, cut-off grade)			
Fire Angel (Como district)	1989: 5,600 oz Au, <i>geologic resource</i> –148,500 oz Au			
Hercules (Como district)	1997 (Hydra-Hercules): 259,329 oz Au, 1,956,511 oz Ag 2012: 7,703,522 tons, 0.0125 opt Au, 96,525 oz Au, 0.107 opt Ag, 821,581 oz Ag (indicated resource) 31,121,649 tons, 0.0121 opt Au, 377,506 oz Au, 0.135 opt Ag, 4,211,693 oz Ag (inferred resource)		Tertiary andesite	
Pine Grove (Wilson district)	1994: 2,500,000 tons, 0.061 opt Au 2008 (0.010 opt Au cut-off grade): 2,738,000 tons, 0.25 opt Au (inferred resource, Wilson deposit) 3,321,000 tons, 0.075 opt Au (inferred resource, Wheeler deposit) 2011 (0.010 opt Au cut-off grade, Wilson and Wheeler deposits): 5,316,000 tons, 0.033 opt Au (indicated resource) 4,136,000 tons, 0.028 opt Au (inferred resource) 2012 Wheeler: 2,867,000 tons, 0.038 opt Au, 109,900 oz Au (measured and indicated Resource, 0.007 opt Au cut-off grade) 96,000 tons, 0.027 opt Au, 7,500 oz Au (inferred resource, 0.007 opt Au cut-off grade) Wilson: 3,189,000 tons, 0.03 opt Au, 96,100 oz Au (measured and indicated Resource, 0.007 opt Au cut-off grade) 732,000 tons, 0.026 opt Au, 34,300 oz Au (inferred resource, 0.007 opt Au cut-off grade)			
South Comstock Joint Venture (Silver City district)	1994: 3,000,000 tons, 0.05 opt Au 1995: 100,000 oz Au			
Talapoosa (Talapoosa district)	1988: 2,500,000 tons, 0.041 opt Au, 0.53 opt Ag oxide 14,900,000 tons, 0.03 opt Au, 0.49 opt Ag sulfide 1995: <i>geologic resource</i> –45,000,000 tons, 0.025 opt Au and 0.33 opt Ag, including proven and probable reserves of 29,900,000 tons, 0.026 opt Au and 0.4 opt Ag 2010 Bear Creek Zone (sulfide): 20,130,000 tons, 0.027 opt Au, 549,000 oz Au, 0.35 opt Ag, 7,053,000 oz Ag (measured and indicated resource, 0.015 opt Au cut-off grade); 10,401,000 tons, 0.027 opt Au, 277,000 oz Au, 0.326 opt Ag, 3,391,000 oz Ag (inferred resource, 0.015 opt Au cut-off grade); Main Zone (oxide): 2,921,000 tons, 0.028 opt Au, 83,000 oz Au, 0.4 opt Ag, 1,169,000 oz Ag (measured and indicated resource, 0.015 opt Au cut-off grade); 2,194,000 tons, 0.03 opt Au, 49,000 oz Au, 0.391 opt Ag, 858,000 oz Ag (inferred resource, 0.015 opt Au cut-off grade) 2013: 31,264,470 tons, 0.032 opt Au, 1,012,802 oz Au, 0.437 opt Ag, 13,649,358 oz Ag (measured and indicated resource, 0.013 opt Au cut-off grade); 11,198,000 tons, 0.021 opt Au, 233,532 oz Au, 0.194 opt Ag, 10,158,000 oz Ag (inferred resource, 0.013 opt Au cut-off grade)		Kate Peak Formation	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Aurora Mine (Aurora district)	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
Aurora Partnership (Aurora district)	1983: 1,500,000 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
Borealis (Borealis district)	1981: 2,100,000 tons, 0.08 opt Au, 0.5 opt Ag 1988: 1,792,000 tons, 0.046 oz Au/ton 2000: 33,400,000 tons, 0.044 opt Au, 0.22 opt Ag cumulative resource 2005 (May): 44,700,000 tons, 0.03 opt Au (measured and indicated resource) 34,800,000 tons, 0.02 opt Au (inferred resource) 2006: 8,235,000 tons, 0.022 opt Au, 0.158 opt Ag (measured and indicated resource, oxide) 35,157,000 tons, 0.032 opt Au, 0.164 opt Ag (measured and indicated resource, oxide, partially oxidized, sulfides) 16,909,000 tons, 0.028 opt Au, 0.106 opt Ag (inferred resource, oxide, partially oxidized, and sulfides) 2008: 29,560,000 tons, 0.045 opt Au, 0.273 opt Ag (measured and indicated resource, combined sulfide, partially oxidized and oxide); 36,161,000 tons, 0.027 opt Au, 0.196 opt Ag (inferred resource, combined sulfide, partially oxidized and oxide); 8,546,000, 0.028 opt Au, 0.222 opt Ag (measured and indicated resource, oxide and partially oxidized, 13,706,000 tons, 0.018 opt Au, 0.096 opt Ag (inferred resource, oxide and partially oxidized, 2009: 16,650,000 tons, 0.023 opt Au, 0.19 opt Ag (measured and indicated resource, oxide, partially oxidized) 2010: 14,294,000 tons, 0.023 Au (proven and probable reserve, in situ, oxide, partially oxidized); 16,650,000 tons, 0.023 Au (proven and probable reserve, in situ leach pads and dumps, oxide, partially oxidized); 35,643,000 tons, 0.040 opt Au (measured and indicated resource, in situ leach pads and dumps, oxide, partially oxidized, and sulfide); 50,225,000 tons, 0.022 opt Au (inferred resource, in situ leach pads and dumps, oxide, partially oxidized, and sulfide)	1981-84: 170,000 oz Au 1986-88: 116,256 oz Au 1989-90: 107,495 oz Au 52,401 oz Ag 2011: 3,171 oz Au 1,992 oz Ag 2012: 32,066 oz Au 13,871 oz Ag	rhyolite flow dome, andesite flows, breccias, volcaniclastic rocks	5 Ma
Candelaria Mine (Candelaria district)	1982: 18,500,000 tons, 1.09 opt Ag, 0.009 opt Au 1988: 24,000,000 tons, 1.267 opt Ag, 0.011 opt Au 1999: 27,300,000 tons, 3.4 opt Ag unmined resource; additional 800,000 oz Ag in low-grade stockpile 2000: 48,000 oz Au and 45,400,000 oz Ag indicated reserves	1982: 1,700,000 oz Ag, 9,000 oz Au 1987: total production was 1000,000 oz Ag as of June 1987 1988-98: 30,6700,000 oz Ag, 95,218 oz Au 1999: 96,896 oz Ag, 237 oz Au	Candelaria Formation serpentinite, granitic dikes	Cretaceous
Denton-Rawhide (Rawhide district)	1986: 24,100,000 tons 0.045 opt Au, 0.47 opt Ag 1989: reserves-29,400,000 tons, 0.040 oz Au and 0.368 opt Ag; <i>geologic resource</i> -59,300,000 tons, 0.0274 opt Au, 0.298 opt 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	rhyolite plugs, flows, tuffs, breccias	16 Ma

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Denton-Rawhide (cont.)	1997: 447,000 oz Au, 3,900,000 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 2007: 19,597 oz Au, 160,964 oz Ag 2008: 17,731 oz Au, 150,493 oz Ag 2009: 19,370 oz Au, 209,528 oz Ag 2010: 20,159 oz Au, 342,382 oz Ag 2011: 24,828 oz Au, 438,023 oz Ag 2012: 24,052 oz Au, 339,044 oz Ag		
Esmeralda (Aurora district)	2003: 30,710,500 tons, 0.031 opt Au bulk-minable measured and indicated resource 9,206,300 tons, 0.025 opt Au bulk-minable inferred resource 192,152 tons, 0.50 opt Au underground-minable resource	2009: 5,212 oz Au, 24,980 oz Ag (no new mining)	andesite rhyolite	10 Ma
Marietta (Marietta district)	1990s Silver Glance: 853,000 tons, 0.036 opt Au, 1.07 opt Ag; Sultana Zone: 176,000 tons, 0.02 opt Au, 3.0 opt Ag; Endowment Mine: 45,000 tons, 0.15 opt Au, 20 opt Ag (estimated resources)			
Mina Gold (Bell district)	1997: 1,770,000 tons, 0.055 opt Au <i>geologic resource</i>	1997: exploration	Tertiary feldspar porphyry	
Mindora (Garfield district)	1988: 1,000,000 tons, 0.037 opt Au and 1.78 opt Ag	1988: exploration		
Santa Fe (Santa Fe district)	1984: 8,000,000 tons, 0.032 opt Au, 0.26 opt Ag 1990: 6,800,000 tons, 0.035 opt Au and 0.241 opt Ag	1989-95: 345,499 oz Au, 710,629 oz Ag	Luning Formation	Miocene

NYE COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Baxter Springs (Manhattan district)	1988: 1,000,000 tons, 0.050 opt Au 1990: <i>geologic resource</i> -5,000,000 tons 0.050 opt Au			
Bruner property, Duluth zone (Bruner district)	1992: <i>geologic resource</i> -15,000,000 tons, 0.026 opt Au	1993: exploration	Tertiary volcanic rocks	Miocene
Bullfrog (Bullfrog district)	1989: 18,600,000 tons, 0.097 opt Au 1996: 10,200,000 tons, 0.062 opt Au proven and probable reserves; 3,700,000 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
Cimmaron (San Antone district)	2004: 1,730,600 tons, 0.035 opt Au inferred material			
Corcoran Canyon (Barcelona district)	2004: 1,774,700 tons, 0.025 opt Au, 5.11 opt Ag indicated and inferred material		rhyolitic ash-flow tuff	
Daisy (Bare Mountain district)	1993: 4,700,000 tons, 0.024 opt Au <i>geologic resource</i> -430,000 oz Au 1998: 4,200,000 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(?)

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gold Bar (Bullfrog district)	1987: 1,230,000 tons Au ore 1993: idle		silicic volcanic rocks	Miocene
Golden Arrow (Golden Arrow district)	1997: 12,400,000 tons, 0.039 opt Au resource 2009: 12,172,000 tons, 0.024 opt Au, 0.33 opt Ag (measured and indicated resource, oxide and sulfide); 3,790,000 tons, 0.013 opt Au, 0.33 opt Ag (inferred resource, oxide and sulfide); 6,736,000 tons, 0.019 opt Au, 0.23 opt Ag (measured and indicated resource, oxide) 2,040,000 tons, 0.009 opt Au, 0.25 opt Ag (inferred resource, oxide)		Tertiary rhyolite tuff	
Gold Hill property (Round Mt. district)	1998: 306,620 oz Au, 4,871,890 oz Ag potential resource 2003: (included in Round Mt.)	2012: included with Round Mountain	rhyolite ash-flow tuff	26 Ma(?)
Gold Wedge property (Manhattan district)	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)	2008: 406 oz dore		
Longstreet property (Longstreet district)	1989: 400,000 tons, 0.024 opt Au, <i>geologic resource</i> -9,600,000 tons, 0.024 opt Au 2011: 4,369,836 tons, 0.024 opt Au, 103,969 oz Au, 0.66 opt Ag, 2,879,683 oz Ag (indicated resource, 0.01 opt AuEq cut-off grade); 867,050 tons, 0.024 opt Au, 20,809 oz Au, 0.66 opt Ag, 606,935 oz Ag (inferred resource, 0.01 opt AuEq cut-off grade)		rhyolitic volcanic rocks	Oligocene
Manhattan property (Manhattan district)	1989: <i>geologic resource</i> -100,000 tons, 0.50 opt Au 1997: 1,700,000 tons, 0.13 opt Au (proven and probable)		Cambrian Gold Hill Formation	
Midway (Rye Patch district) Midway (cont.)	1997: 270,000 oz Au (preliminary resource) 2005: 5,526,000 tons, 0.039 opt Au (inferred resource) 2011: 114,000 tons, 0.3017 opt Au, 34,394 oz Au (inferred resource, 0.1 opt Au cut-off grade)		Ordovician Palmetto Formation Tertiary volcanic rocks	
Montgomery Shoshone (Bullfrog district)	1988: 3,100,000 tons, 0.072 opt Au, 0.240 opt Ag		rhyolitic ash-flow tuff	9.5 Ma
Nevada Mercury (Bare Mountain district)	1994: <i>geologic resource</i> -50,000 oz Au			
North Bullfrog (Bullfrog district)	2008: 2,226,600 tons, 0.026 opt Au (indicated resource); 1,047,200 tons, 0.023 opt Au (inferred resource) 2011: 26,268,000 tons, 0.0085 opt Au, 223,880 oz Au, 0.011 opt Ag, 300,460 oz Ag (Jolly Jane and Mayflower oxide indicated resource, 0.003 opt Au cut-off grade) 515,380,000 tons, 0.0055 opt Au, 2,834,566 oz Au, 0.023 opt Ag, 12,007,678 oz Ag (Connection oxide and Mayflower and Sierra Blanca oxide and unoxidized inferred resource, 0.003 opt Au cut-off grade) 2012: 40,465,000 tons, 0.008 opt Au, 307,860 oz Au, 0.011 opt Ag, 443,230 oz Ag (Jolly Jane and Mayflower oxide indicated resource, 0.003 opt Au cut-off grade) 243,230,000 tons, 0.0053 opt Au, 1,288,970 oz Au, 0.023 opt Ag, 5,760,000		Miocene Crater Flat Tuff	

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
North Bullfrog (cont.)	oz Ag (Connection Jolly Jane, Mayflower, and Sierra Blanca oxide inferred resource, 0.003 opt Au cut-off grade)			
Northumberland (Northumberland district)	1988: 12,000,000 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) 2008 (June): 36,518,000 tons, 0.06 opt Au (measured and indicated resource); Au (measured and indicated resource); 7,418,000 tons, 0.10 opt Au (inferred resource)	1939-42: 32,700 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	
Paradise Peak/Ketchup Flats pit (Fairplay district)	1984: 10,000,000 tons, 0.1 opt Au, 3 opt Ag 1989: 5,220,000 tons, 0.09 opt Au, 3.62 opt Ag, mill ore; 11.5200,000 tons, 0.036 opt Au, 0.445 opt Ag, leachable 1996: 5,000,000 tons, 0.022 opt Au, 0.2 opt Ag (Ketchup Flats)	1986-88: 560,000 oz Au, 8,500,000 oz Ag 1989-94: 1,054,084 oz Au, 15,600,000 oz Ag	rhyolite and andesite flows, ash-flow and air-fall tuffs	Miocene
Reward property (Bare Mountain district)	1998: 77,500 oz Au 2007: 5,181,340 tons, 0.0266 opt Au (proven and probable reserves); 6,423,571 tons, 0.0245 opt Au (measured and indicated resource) 2009: 7,147,721 tons, 0.0243 opt Au (proven and probable reserves) 2010: 7,709,000 tons, 0.023 opt Au (proven and probable reserves) 2011: 11,856,200 tons, 0.0224 opt Au, 265,800 oz Au (proven and probable reserves) 18,055,000 tons, 0.0201 opt Au, 362,000 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade) 4,757,000 tons, 0.0138 opt Au, 65,600 oz Au (inferred resource, 0.006 opt Au cut-off grade) 2012: 12,347,000 tons, 0.022 opt Au, 269,248 oz Au (proven and probable reserves) 18,055,000 tons, 0.02 opt Au, 362,600 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade) 4,757,000 tons, 0.014 opt Au, 65,600 oz Au (inferred resource, 0.006 opt Au cut-off grade)		Cambrian Wood Canyon Formation	
Round Mountain (Smoky Valley) (Round Mountain district)	1977: 12,000,000 tons, 0.061 opt Au, 0.07 opt Ag 1989: <i>geologic resource</i> -27100,000 tons, 0.032 opt Au 1999: 320,000,000 tons, 0.018 opt Au (proven and probable reserves); 126,000,000 tons, 0.016 opt Au (mineralized material) 2000: 273,200,000 tons, 0.019 opt Au (proven and probable reserves); 18,700,000 tons, 0.022 opt Au (mineralized material) 2002: 192,100,000 tons, 0.020 opt Au (proven and probable reserves); 54.600,000 tons, 0.012 opt Au (mineral resource) 2003: 129,866,000 tons, 0.017 opt Au (proven reserves); 49,838,000 tons, 0.020 opt Au (probable reserves); 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 reserves); 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 Ag, 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 2007: 587,445 oz Au, 955,681 oz Ag	rhyolite ash-flow tuff	26 Ma

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Round Mountain (cont.)	2006: 226,084,000 tons, 0.017 opt Au (proven and probable reserves); 26,134,000 tons, 0.019 opt Au (measured and indicated resource); 32,898,000 tons, 0.013 opt Au (inferred resource) 2007: 141,736,000 tons, 0.018 opt Au (proven and probable reserves); 30,632,000 tons, 0.022 opt Au (measured and indicated resource); no released inferred resource 2008: 185,162,000 tons, 0.018 opt Au (proven and probable reserves); 57,140,000 tons, 0.019 opt Au (measured and indicated resource); 12,982,000 tons, 0.012 opt Au (inferred resource) 2009: 157,614,000 tons, 0.019 opt Au (proven and probable reserves); 87,824,000 tons, 0.021 opt Au (measured and indicated resource); 57,208,000 tons, 0.017 opt Au (inferred resource) 2010: 146,034,000 tons, 0.018 opt Au (proven and probable reserves); 101,736,000 tons, 0.022 opt Au (measured and indicated resource); 49,740,000 tons, 0.018 opt Au (inferred resource) 2011: 165,376,000 tons, 0.017 opt Au, 2,822,000 contained oz Au (proven and probable reserves); 166,840,000 tons, 0.016 opt Au 2,672,000 contained oz Au (measured and indicated resource); 77,694,000 tons, 0.012 opt Au 928,000 contained oz Au (inferred resource) 2012: 141,356,000 tons, 0.018 opt Au, 2,485,000 contained oz Au (proven and probable reserves); 88,586,000 tons, 0.021 opt Au, 1,850,000 contained oz Au (measured and indicated resource); 56,246,000 tons, 0.015 opt Au 310,000 contained oz Au (inferred resource)	2008: 477,499 oz Au, 931,368 oz Ag 2009: 414,941 oz Au, 850,878 oz Ag 2010: 358,614 oz Au, 651,457 oz Ag 2011: 360,020 oz Au, 644,329 oz Ag 2012: 367,595 oz Au, 926,284 oz Ag		
Sterling (Bare Mountain district)	1983: 200,000 tons, 0.20 opt Au 1989: 469,000 tons, 0.21 opt Au 1996: 129,000 tons, 0.245 opt Au 2006: 214,554 tons, 0.216 opt Au 2012: 144 Zone: 509,712 tons, 0.133 opt Au, 67,792 oz Au (measured and indicated resource, 0.07 opt Au cut-off grade); Panama Zone: 103,040 tons, 0.082 opt Au, 8,449 oz Au (measured and Indicated resource, 0.02 Au cut-off grade)	1983-88: 75,900 oz Au 1990-91: 24,841 oz Au 1995-98: 36,811 oz Au 1999: 3,093 oz Au 2012: 12,000 oz Au	Wood Canyon and Bonanza King Formations	14 Ma
South Monitor (west of Ellendale district)	1996: 250,000 oz Au 1997: 14,000,000 tons, 0.026 opt Au, 0.12 opt Ag		Tertiary volcanic rock	
Sullivan (Fairplay district)	1987: 10,200,000 tons, 0.039 opt Au, 0.086 opt Ag and 0.37% Cu 1995: proven and possible-17,000,000 tons of 0.34% Cu, 0.0255 opt Au, + 8,500,000 tons of 0.32% Cu		Mesozoic granodiorite and metavolcanic rocks	Mesozoic
PERSHING COUNTY				
Bunce (Velvet district)	1989: <i>geologic reserves</i> -600,000 tons, 0.04 opt Au 1990: 500,000 tons, 0.04 opt Au		rhyolite	Miocene?
Colado Gold (Willard district)	1997: 15,000,000 tons, 0.022 opt Au resource 2007 (May 2008): 22,707,000 tons, 0.012 opt Au (oxide, measured and indicated resource); 594,000 tons, 0.070 opt Au (sulfide, measured and indicated resource); 79,129,000 tons, 0.015 opt Au (inferred resource)		Triassic-Jurassic metasedimentary rocks	

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Florida Canyon/ Standard (Imlay district)	1987: 22,000,000 tons, 0.023 opt Au 1988: 37,000,000 tons, 0.023 opt Au 1997: reserves-45,500,000 tons, 0.024 opt Au proven and probable mineralized material- 122,800,000 tons, 0.022 opt Au 2002: 20,000,000 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) 2010 reserve: 832,000 oz Au; resource: 746,700 oz Au 746,700 oz Au ("resource") 2012: 1,124,800 oz Au (reserves) 761,000 oz Au (resources)	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, 7,571 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 2007 (Florida Canyon): 31,916 oz Au, 28,152 oz Ag 2007 (Standard): 11,814 oz Au, 24,735 oz Ag 2008 (Florida Canyon): 47,095 oz Au, 40,745 oz Ag 2008 (Standard): 2,625 oz Au, 3,644 oz Ag 2009 (Florida Canyon): 44,814 oz Au, 39,760 oz Ag 2009 (Standard): 1,510 oz Au, 3,270 oz Ag 2010 (Florida Canyon): 54,975 oz Au, 39,903 oz Ag	Grass Valley Formation	2 Ma
Goldbanks Project (Goldbanks district)	1994: 900,000 oz Au 1996: 80,800,000 tons, 0.019 opt Au (proven and probable reserves); 7,400,000 tons, 0.014 opt Au (possible reserves); 106,800,000 tons, 0.028 opt (Au drill indicated resource) 2000: 569,000 oz Au and 1,700,000 oz Ag indicated reserves 2006: 28,310,000 tons, 0.02 opt Au (inferred resource, Main and KW zones)			
Lincoln Hill (Rochester district)	2010: 17,215,000 tons, 0.02 opt Au, 0.5 opt Ag 2012: Oxide: 3,846,000 tons, 0.012 opt Au 47,000 oz Au, 0.34 opt Ag, 1,292,000 oz Ag (measured resource, 0.003 opt Au cut-off grade); 19,985,000 tons, 0.011 opt Au, 221,000 oz Au, 0.29 opt Ag, 5,648,000 oz Ag (indicated resource, 0.003 opt Au cut-off grade); Sulfide: 395,000 tons, 0.015 opt Au 6,000 oz Au, 0.56 opt Ag, 219,000 oz Ag (measured resource, 0.006 opt Au cut-off grade); 4,878,000 tons, 0.012 opt Au, 60,000 oz Au, 0.5 opt Ag, 2,457,000 oz Ag (indicated resource, 0.006 opt Au cut-off grade); Oxide: 8,412,000 tons, 0.008 opt Au 66,000 oz Au, 0.24 opt Ag, 2,017,000 oz Ag (inferred resource, 0.003 opt Au cut-off grade); Sulfide: 7,227,000 tons, 0.014 opt Au, 99,000 oz Au, 0.57 opt Ag, 4,138,000 oz Ag (inferred resource, 0.006 opt Au cut-off grade) Jessup			
Relief Canyon (Antelope Springs district)	1983: 9,000,000 tons, 0.032 opt Au 1988: ~ 1,300,000 tons, 0.03 opt Au 1996: 8,600,000 tons, 0.022 opt Au 2013 (Jan.): 32,541,000 tons, 0.017 opt Au (mineralized material)	1984: 24,500 oz Au 1987-88: 82,000 oz Au 1989-90: 34,266 oz Au, 39,235 oz Ag 2009: 92 oz Au, 342 oz Ag	Natchez Pass Limestone, Grass Valley Formation	Tertiary
Rochester (Rochester district)	1981: 75,000,000 tons, 1.5 opt Ag 1989: <i>geologic resource</i> -94,500,000 tons, 0.012 opt Au, 1.40 opt Ag 1997: 74,200,000 oz Ag, 603,000 oz Au 2000: 50,000,000 oz Ag, 410,000 oz Au (includes Nevada Packard) 2001: 51,400,000 tons, 0.85 opt Ag, 0.007 opt Au (proven and probable reserves); 61,800,000 tons, 0.75 opt Ag, 0.005 opt Au (mineralized material)	1986-98: 810,329 oz Au, 59,300,000 oz Ag 1999: 70,396 oz Au, 6,200,000 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,	Koipato Group, Weaver Rhyolite, Rochester Rhyolite	Late Cretaceous

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Rochester (cont.)	2002: 46,900,000 tons, 0.008 opt Au, 0.85 opt Ag (proven and probable reserves); 33,800,000 tons, 0.009 opt Au, 0.77 opt Ag (mineralized material) (includes Nevada Packard) 2003: 32,700,000 tons, 0.01 opt Au, 0.91 opt Ag proven and probable reserves; 40,300,000 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 resource; 8,551,000 tons, 0.010 opt Au, 0.96 opt Ag indicated resource; 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 reserves); 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 reserves); 15,235,000 tons, 0.010 opt Au, 0.94 opt Ag (measured and indicated resource) 2007: 32,664,000 tons, 0.010 opt Au, 0.86 opt Ag (measured and indicated resource) 2008: 114,058,000 tons, 0.005 opt Au, 0.54 opt Ag (measured and indicated resource) 2010: 48,271,000 tons, 0.005 opt Au, 0.57 opt Ag (proven and probable reserve); 215,602,900 tons, 0.003 opt Au, 0.44 opt Ag (measured and indicated resource); 21,984,300 tons, 0.003 opt Au, 0.65 opt Ag (inferred resource) 2012: 79,923,000 tons, 0.56 opt Ag, 44,896,000 Oz Ag, 0.004 opt Au, 308,000 oz Au (proven and probable reserve); 264,283,000 tons, 0.46 opt Ag, 120,717,000 oz Ag, 0.003 opt Au, 865,000 oz Au (measured and indicated resource) 45,643,300 tons, 0.6 opt Ag, 27,201,000 oz Ag, 0.003 opt Au, 123,000 oz Au (inferred resource)	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 2007: 50,408 oz Au, 4,614,779 oz Ag 2008: 21,041 oz Au, 3,033,720 oz Ag 2009: 12,633 oz Au, 2,181,788 oz Ag 2010: 9,641 oz Au, 2,023,423 oz Ag 2011: 6,276 oz Au, 1,392,433 oz Ag 2012: 38,071 oz Au, 2,801,501 oz Ag		
Rosebud Project (Rosebud district)	1992: 570,000 oz Au (0.362 opt), 5,500,000 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
Spring Valley (Spring Valley district)	2005-2006: 10,030,000 tons, 0.024 opt Au (measured and indicated resource) 7,753,000 tons, 0.025 opt Au (inferred resource) 2007: 50,600,000 tons, 0.0196 opt Au (inferred resource) 2008: 87,750,000 tons, 0.021 opt Au (inferred resource) 2011: 159,641,000 tons, 0.013 opt Au (measured and indicated resource) 114,567,000 tons, 0.017 opt Au (inferred resource)			
Standard (Imlay district)	2002: 17,200,000 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) 2010 reserve: 292,000 oz Au; resource: 14,300 oz Au	1939-42, 1946-49: 45,743 oz Au, 127,451 oz Ag 2004-2010: included with Florida Canyon 2011: 41,161 oz Au, 46,896 oz Ag 2012: 43,575 oz Au, 50,983 oz Ag	Natchez Pass Limestone, Grass Valley Formation argillite	

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Tag-Wildcat (Farrel district)	1989: <i>geologic resource</i> -1,500,000 tons, 0.043 opt Au; reserves-416,000 tons, 0.076 opt Au 2003: see Wildcat		Tertiary volcanic rocks	Miocene
Trinity (Trinity district)	1987: 1,000,000 tons, 5.25 opt Ag Sulfide resource: ~4,000,000 tons, 2.5 opt Ag 2012: 19,790,000 tons, 1.07 opt Ag, 21,265,000 oz Ag, 0.217% Pb, 85,987,000 lbs, Pb, 0.354% Zn, 140,253,000 lbs. Zn (inferred resource, 0.8 opt Ag cut-off grade)	1987-89: ~5-600,000 oz Ag	rhyolite porphyry, rhyolite tuff	26 Ma
Wildcat (Farrel district)	2003: 38,108,000 tons, 0.018 opt Au (indicated resource); 28,355,000 tons, 0.015 opt Au (inferred resource)		Tertiary volcanic	Miocene
Wilco –Colado (Willard district)	2012: Oxide: 6,399,000 tons, 0.009 opt Au 58,000 oz Au, 0.047 opt Ag, 300,000 oz Ag (measured resource, 0.003 opt Au cut-off grade); 37,571,000 tons, 0.008 opt Au, 285,000 oz Au, 0.047 opt Ag, 1,753,000 oz Ag (indicated resource, 0.003 opt Au cut-off grade); Sulfide: 3,449,000 tons, 0.014 opt Au 49,000 oz Au, 0.195 opt Ag, 672,000 oz Ag (measured resource, 0.006 opt Au cut-off grade); 16,864,000 tons, 0.012 opt Au, 197,000 oz Au, 0.162 opt Ag, 2,735,000 oz Ag (indicated resource, 0.006 opt Au cut-off grade); 39,032,000 tons, 0.007 opt gold, 541,000 oz Au, 0.082 opt Ag, 6,100,000 oz Ag (inferred resources)		Jurassic-Triassic Auld Lang Syne Group	
Wilco –Section Line (Willard district)	2012: Oxide: 12,279,000 tons, 0.011 opt Au 140,000 oz Au, 0.113 opt Ag, 1,393,000 oz Ag (measured resource, 0.003 opt Au cut-off grade); 23,676,000 tons, 0.008 opt Au, 193,000 oz Au, 0.081 opt Ag, 1,906,000 oz Ag (indicated resource, 0.003 opt Au cut-off grade); Sulfide: 5,558,000 tons, 0.015 opt Au 81,000 oz Au, 0.128 opt Ag, 710,000 oz Ag (measured resource, 0.006 opt Au cut-off grade); 20,024,000 tons, 0.014 opt Au, 274,000 oz Au, 0.126 opt Ag, 2,517,000 oz Ag (indicated resource 0.006 opt Au cut-off grade); 18,947,000 tons, 0.014 opt gold, 258,000 oz Au, 0.154 opt Ag, 2,917,000 oz Ag (inferred resources)		Jurassic-Triassic Auld Lang Syne Group	
Willard (Willard district)	2007: 17,295,000 tons, 0.016 opt Au (oxide, measured and indicated resource) 448,000 tons, 0.070 opt Au (sulfide, measured and indicated resource) 20,849,000 tons, 0.015 opt Au (inferred resource)	Late 1980s to early 1990s: ~90,000 oz Au	Jurassic-Triassic Grass Valley Formation	6 Ma

STOREY COUNTY

Comstock heap leach project (Comstock district)	1992: 475,000 tons, 0.072 opt Au, 0.60 opt Ag 1996: 100,000 oz Au, 1.200,000 oz Ag			
Comstock Mine Project (Comstock/Silver City districts)	2011 (Lucerne and Dayton Resource Areas): 51,260,000 tons, 0.029 opt Au, 1,508,000 oz Au, 0.28 opt Ag, 14,360,000 oz Ag (measured and indicated resource, 0.007 opt Au, cut-off grade) 33,580,000 tons, 0.026 opt Au, 881,000 oz Au, 0.179 opt Ag, 6,030,000 oz Ag (inferred resource, 0.007 opt Au, cut-off grade) 2012: 61,880,000 tons, 0.029 opt Au, 1,824,000 oz Au, 0.276 opt Ag, 17,100,000 oz Ag (measured and indicated resource, 0.007 opt Au, cut-off grade); 34,890,000 tons, 0.022 opt Au 758,000	2004-2012: Production under Lucerne Resource Area	Santiago Canyon tuff; Alta Formation	

MAJOR PRECIOUS-METAL DEPOSITS, STOREY COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Comstck Mine Project (cont.)	oz Au, 0.166 opt Ag, 5,790,000 oz Ag (inferred resource, 0.007 opt Au, cut-off grade)			
Flowery (Golden Eagle) (Comstock district)	1989: 100,000 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 100,000 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
Lucerne Resource Area (Comstock Mine Project/Hartford Hill Complex) (Comstock district)	2010 (Billy the Kid and Lucerne Mines: 26,540,000 tons, 0.028 opt Au, 0.354 opt Ag (measured and indicated resource) 12,660,000 tons, 0.023 opt Au, 0.252 opt Ag (inferred resource) 2011 (Billy the Kid, Hartford, and Lucerne Mines): 42,930,000 tons, 0.03 opt Au, 0.293 opt Ag (measured and indicated resource, 0.007 opt Au, cut-off grade); 26,990,000 tons, 0.027 opt Au, 0.196 opt Ag (inferred resource, 0.007 opt Au, cut-off grade)	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) 2012: 2,588 oz Au, 26,738 oz Ag	Santiago Canyon tuff; Alta Formation	
Oliver Hills (Comstock district)	1990: 3,370,000 tons, 0.054 opt Au, 1.2 opt Ag 1993: 400,000 tons, 0.05 opt Au, 0.5 opt Ag, <i>geologic resource</i> -225,000 oz Au and 2.2500,000 oz Ag	1991: 573 oz Au, 6,947 oz Ag		

WASHOE COUNTY

Mountain View Gold Project (Deephole district)	1995: 19,500,000 tons, 0.027 opt Au 1998: 10,700,000 tons, 0.055 opt Au 2002: 23,219,000 tons, 0.013 opt Au indicated resource; 4.46600,000 tons, 0.039 opt Au inferred resource		rhyolite	Miocene
Olinghouse (Olinghouse district)	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
Hog Ranch (Leadville district)	1984: 2,500,000 tons, 0.085 opt Au 1988: 5,500,000 tons, 0.064 opt Au (proven and probable reserves); 20,100,000 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
Wind Mountain (San Emidio)	1988: 15,000,000 tons, 0.021 opt Au, 0.42 opt Ag 2007: 33,657,553 tons, 0.012 opt Au (measured and indicated resource) 9,758,547 tons, 0.009 opt Au (inferred resource) 2011 Oxide: 58,816,000 tons, 0.1 opt Au, 564,000 oz Au, 0.25 opt Ag, 14,539,000 oz Ag (indicated resource, 0.005 opt Au cut-off grade); 19,866,000 tons, 0.006 opt Au, 125,200 oz Au, 0.17 opt Ag, 3,443,000 oz Ag (inferred resource, 0.005 opt Au cut-off grade) Mixed and unoxidized: 498,000 tons, 0.12 opt Au, 5,900 oz Au, 0.4 opt Ag, 197,000 oz Ag (indicated resource, 0.01 opt Au cut-off grade); 14,595,000 tons, 0.016 opt Au, 229,100 oz Au, 0.16 opt Ag, 6,672,000 oz Ag (inferred resource, 0.01 opt Au cut-off grade)	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

MAJOR PRECIOUS-METAL DEPOSITS, WHITE PINE COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Alligator Ridge (Bald Mountain district)	1983: 500,000 tons, 0.09 opt Au 1989: 100,000 tons, 0.064 opt Au 1992: 11,500,000 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
Bald Mountain (Bald Mountain district)	1989: 6,700,000 tons, 0.069 opt Au 1999: 32,600,000 tons, 0.041 opt Au, (proven and probable reserves); 31,700,000 tons, 0.044 opt Au, (mineralized material) 2000: 509,000 oz Au (proven and probable); 2,030,000 oz Au (measured and indicated resource) 2002: 508,000 oz Au (proven and probable reserves); 2,030,000 oz Au (measured mineral resource) 2003: 10,143,000 tons, 0.033 opt Au (proven reserves; 8,549,000 tons, 0.040 opt Au (probable reserves; 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 (includes Alligator Ridge): 105,050,700 tons 0.032 opt Au (proven and probable reserves) 35,000,000 tons 0.023 opt Au (measured and indicated resource); 14,868,000 tons, 0.026 opt Au (inferred resource) 2006 (includes Alligator Ridge): 109,922,000 tons, 0.031 opt Au (proven and probable reserves); 23,289,000 tons, 0.035 opt Au (measured and and indicated resource); 17,290,000 tons, 0.023 opt Au (inferred resource) 2007 (includes Alligator Ridge): 128,093,000 tons, 0.024 opt Au (proven and probable reserves); 36,493,000 tons, 0.024 opt Au (measured and indicated resource); 24,648,000 tons, 0.017 opt Au (inferred resource) 2008 (includes Alligator Ridge): 57,675,000 tons, 0.018 opt Au (proven and probable reserves) 90,374,000 tons, 0.019 opt Au (measured and indicated resource); 71,004,000 tons, 0.021 opt Au (inferred resource) 2009 (includes Alligator Ridge): 227,346,000 tons, 0.020 opt Au (proven and probable reserves); 99,338,000 tons, 0.012 opt Au (measured and indicated resource); 40,184,000 tons, 0.012 opt Au (inferred resource) 2010 (includes Alligator Ridge): 246,711,000 tons, 0.019 opt Au (proven and probable reserves); 151,944,000 tons, 0.011 opt Au (measured and indicated resource); 60,636,000 tons, 0.011 opt Au (inferred resource) 2011 (includes Alligator Ridge): 307,162,000 tons, 0.017 opt Au, 5,102,000 contained oz Au (proven and probable reserves); 123,191,000 tons, 0.013 opt Au 1,623,000 contained oz Au (measured and indicated resource); 72,491,000 tons, 0.011 opt Au, 787,000 contained oz Au (inferred resource) 2012 (includes Alligator Ridge): 295,559,000 tons, 0.017 opt Au, 5,815,000 contained oz Au (proven and probable reserves); 125,190,000 tons, 0.012 opt Au 1,472,000 contained oz Au (measured and indicated resource); 88,864,000 tons, 0.009 opt Au, 762,000 oz 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 2007: 125,998 oz Au, 21,702 oz Ag 2008: 103,610 oz Au, 15,352 oz Ag 2009: 75,037 oz Au, 12,389 oz Ag 2010: 60,333 oz Au, 15,000 oz Ag 2011: 92,818 oz Au, 14,615 oz Ag 2012: 171,154 oz Au, 40,954 oz Ag	quartz porphyry, Cambrian shale and limestone	Jurassic?

MAJOR PRECIOUS-METAL DEPOSITS, WHITE PINE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Bellview (White Pine district)	1988: 277,000 tons, 0.04 opt Au, <i>geologic resource</i> -1,000,000 tons, 0.036 opt Au			
Casino/Winrock (Bald Mountain district)	1989: Casino -804,000 tons, 0.054 opt Au; Winrock 1,300,000 tons, 0.037 opt Au 1990: Winrock -993,000 tons, 39,000 oz Au 1992: <i>see</i> Alligator Ridge	1990-92: 46,800 oz Au	late Paleozoic sedimentary rocks	Eocene
Golden Butte (Cherry Creek district)	1989: 4,230,000 tons, 0.031 opt Au	1989-91: 43,519 oz Au, 16,911 oz Ag	Chainman Shale	Cretaceous or Eocene
Gold Rock (Easy Junior/ Nighthawk Ridge) (White Pine district)	1989: 5,680,000 tons, 0.031 opt Au 1991: 137,000 oz Au 1997: 510 oz Au, 76 oz Ag 2011: 14,284,000 tons, 0.022 opt Au, 310,000 oz Au (indicated resource, 0.008 opt Au cut-off grade); 19,724,000 tons, 0.017 opt Au, 331,000 oz Au (inferred resource, 0.008 opt Au cut-off grade)	1990: 11,500 oz Au, 900 oz Ag	Devonian and Mississippian rocks	Eocene
Griffon Gold property (White Pine district)	1993: <i>geologic resource</i> -60,000 oz Au 1994: <i>geologic resource</i> -50,454 oz Au, 0.039 opt Au 1995: proven and probable reserves- 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	
Horseshoe (Bald Mountain district)	1991: 1,500,000 tons, 0.039 opt Au		Pilot Shale and intrusive quartz porphyry	36-38 Ma
Illipah (Illipah district)	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?
Limousine Butte (Butte Valley district)	1987: 57,000 oz Au 2009 (0.012 opt Au cut-off grade): 10,600,000 tons, 0.023 opt Au (measured and indicated resources) 2,500,000 tons, 0.020 opt Au (inferred resource)	1987: ~25,000 oz Au/year 1988: 25,324 oz Au, mining ended 1989: 3,874 oz Au, heap-leached	Paleozoic sedimentary rocks	Eocene?
Little Bald Mtn. (Bald Mountain district)	1986: 1,000,000 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
Mt. Hamilton (White Pine district)	1988: 7,700,000 tons, 0.05 opt Au, 0.5 opt Ag 1994: reserve-9,040,000 tons, 0.052 opt Au, 0.38 opt Ag 1996: 10,800,000 tons, 0.038 opt Au, 0.24 opt Ag 1997: 7,720,000 tons, 0.035 opt Au 2009: 12,617,000 tons, 0.031 opt Au, 0.144 opt Ag (measured and indicated resource); 1,491,000 tons, 0.012 opt Au, 0.122 opt Ag (inferred resource) 2011 (Centennial deposit): 22,527,000 tons, 0.022 opt Au, 487,100 oz Au, 0.134 opt Ag, 3,028,200 oz Ag (proven and probable reserves, 0.006 opt AuEq cut-off grade); 23,650,000 tons, 0.022 opt Au, 526,854 oz Au, 0.133 opt Ag, 3,152,624 oz Ag (measured and indicated resource, 0.006 opt AuEq cut-off grade); 3,454,000 tons, 0.018 opt Au, 60,859 oz Au, 0.079 opt Ag, 273,457 oz Ag (inferred resource,	1995-97: 99,500 oz Au, 207,500 oz Ag	Dunderberg Shale	Cretaceous

MAJOR PRECIOUS-METAL DEPOSITS, WHITE PINE COUNTY (continued)

Mt. Hamilton (cont.)	0.006 opt AuEq cut-off grade) 2012 (Seligman deposit): 6,960,000 tons, 0.022 opt Au, 154,388 oz Au, 0.097 opt Ag, 676,665 oz Ag (indicated resource); 3,770,000 tons, 0.021 opt Au, 78,044 oz Au, 0.144 opt Ag, 543,671 oz Ag (inferred resource)		
Pan (Pancake district)	1989: 241,000 oz Au 1998: 10,860,000 tons, 0.022 opt Au Drill-indicated and inferred 2003: 17,890,000 tons, 0.019 opt Au indicated resource; 7,986,000 tons, 0.016 opt Au inferred resource 2009 (0.006 opt au cut-off grade: 34,650,000 tons, 0.018 opt Au (measured and indicated resource) 1,600,000 tons, 0.017 opt Au (inferred resource) 2010 (0.004 opt au cut-off grade: 42,750,352 tons, 0.016 opt Au (measured and indicated resource); 1,600,000 tons, 0.017 opt Au (inferred resource) 2011: 53,253,000 tons, 0.016 opt gold, 864,220 oz Au (proven and probable reserves, 0.006 opt Au cut-off grade); 88,226,224 tons, 0.128 opt Au, 1,129,809 oz Au (measured and indicated resource, 0.004 opt Au cut-off grade); 4,330,080 tons, 0.105 opt Au, 45,261 oz Au (inferred resource, 0.004 opt Au cut-off grade)		Mississippian rocks
Robinson (Robinson district)	1989: 46,000,000 tons, 0.019 opt Au; geologic resource-100,000 oz Au 1991: geologic resource-20000,000 tons 0.012 opt Au 1999: 194,000,000 tons, 0.59% Cu, 0.007opt Au, proven and probable reserves 2003: 146.300,000 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 reserves) 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 reserves) 2007: 103,788,000 tons, 0.68% Cu, 0.0067 opt Au (proven and probable reserves) 2008: 121,693,000 tons, 0.54% Cu, 0.0067 opt Au (proven and probable reserves) 2009: 103,059,000 tons, 0.53% Cu, 0.0062 opt Au (proven and probable reserves) 2010: 121,250,000 tons, 0.50%Cu, 0.0053 opt Au (proven and probable reserves) 716,490,000 tons, 0.33% Cu, 0.0044 opt Au (measured and indicated resource) 154,320,000 tons, 0.29% Cu, 0.0041 opt Au (inferred resource)	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, 370,000,000 lbs Cu 1999: 26,250 oz Au, 153,104 oz Ag, 6200,000 lbs Cu 2004: 12,228 oz Au, 27,00,000 lbs Cu 2005: 80,941 oz Au, 191,479 oz Ag, 126,000,000 lbs Cu 2006: 75,074 oz Au, 156,839 oz Ag, 121,319,197 lbs Cu, 260,000 lbs Mo 2007: 108,118 oz Au, 179,238 oz Ag, 131,986,134 lbs Cu, 62,033 lbs Mo 2008: 137,628 oz Au, 183,903 oz Ag, 159,684,092 lbs Cu, 78,855 lbs Mo 2009: 99,000 oz Au, 200,819 oz Ag, 122,000,000 lbs Cu, 88,711 lbs Mo 2010: 72,998 oz Au, 245,746 oz Ag, 108,967,015 lbs Cu, 226,688 lbs Mo 2011: 31,969 oz Au, 116,774 oz Ag, 88,893,372 lbs Cu, 1,261,309 lbs Mo 2012: 30,948 oz Au, 225,421 oz Ag, 117,509,548 lbs Cu, 449,001 lbs Mo	Rib Hill Sandstone, Cretaceous Riepe Spring Limestone, intrusions

MAJOR PRECIOUS-METAL DEPOSITS, WHITE PINE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Taylor (Taylor district)	1980: 10,000,000 tons, 3 opt Ag 1988: 5,920,000 tons, 2.7 opt Ag (resource) 2007: 6,433,000 tons, 2.31 opt Ag (measured and indicated resource) 757,000 tons, 2.54 opt Ag (inferred resource) 2013: 8,894,000 tons, 1.89 opt Ag, 16,820,000 oz Ag (measured and indicated resource, 1 opt Ag cut-off grade); 1,716,000 tons, 2.3 opt Ag 3,941,000 oz Ag (inferred resource, 1 opt Ag cut-off grade)	1981-1984: 3,800,000 oz Ag, 3,000 oz Au	Guilmette and Joana Limestones, rhyolite dikes	Eocene or Oligocene
White Pine (White Pine district)	1989: 63,000 oz Au, 0.04 opt Au	1989: 20,654 oz Au	Pilot Shale	Oligocene?
Yankee (Bald Mountain district)	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
2007	1,322,001	268,875
2008	1,320,019	149,254
2009	1,172,790	225,431
2010	934,282	69,430
2011	917,973	76,938
2012	987,959	192,333

NA= not available

Other Metallic Deposits

by David A. Davis and John L. Muntean

This is a compilation, in progress, of metallic deposits other than gold and silver. Initially, active projects with recently released reserves, resources, and production were included and earlier published data are included as found. 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 active mines are shown on page 2, and contact information is listed in the Directory of Mining and Milling Operations.

Deposit name	Metals	Reserves/resources	Production
CHURCHILL COUNTY			
Buena Vista (Mineral Basin District)	Fe	2012: 148,7000,000 tons, 18.8% Fe, (indicated resource), 28,900,000 tons 19.6% Fe (inferred resource)	1951-1959: ~983,000 tons Fe
CLARK COUNTY			
Boulder City (Las Vegas district)	Mn	1949: 1,000,000 tons, 7.5% Mn or 15,000,000 tons, 3% Mn (resource)	
DOUGLAS COUNTY			
Buckskin (Buckskin district)	Cu, Au	1973: 678,400 tons, averaging 0.15 opt Au, 0.45 opt Ag, 1.3% Cu 1978: 561,500 tons, 0.18 opt Au, 0.5 opt Ag, 1.3% Cu	1918-50 intermittent: est 10,000 tons Au, Cu ore
Pine Nut (Gardnerville district)	Mo	2007: 82,000,000 tones, 0.06% Mo	
ELKO COUNTY			
Carlin Vanadium (Carlin district)	V	2010: 28,000,000 tones, 0.515% V ₂ O ₅ (inferred resource)	
Contact (Contact district)	Cu	2009: 33,578,000 tons, 0.293% Cu (proven and probable reserve); 89,551,000 tons, 0.268% Cu (measured and indicated resource); 50,520,000 tons, 0.302% Cu (inferred resource) 2012: 215,710,000,000 tons, 0.25% Cu 1,058,998,000 lbs. Cu (measured and indicated resource, 0.1% Cu cut-off grade); 70,9210,000,000 tons, 0.24% Cu, 340,421,000,000 lbs. Cu (inferred resource, 0.1% Cu cut-off grade)	
Hot Spot No. 1 (Mountain City district)	U	1956: 13,200 tons, 0.137% U ₃ O ₈ in eight small deposits (indicated ore)	
Indian Springs (Delano district)	W	2007: 10.800,000 tons, 0.171% WO ₃ (indicated resource); 8.200,000 tons, 0.167% WO ₃ (inferred resource)	

OTHER METALLIC DEPOSITS, ELKO COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Rio Tinto (Mountain City District)	Cu	1976 Footwall deposit: 600,000 tons, 1% copper (one-third mined)	1931-1947: 1,109,878 tons, 9.7% Cu, 0.3 opt Ag, 0.006
Spruce Mountain (Spruce Mountain district)	Cu, Mo	1984 two areas: 105,000,000 tons and 80,000,000 tons (low grade porphyry Cu-Mo resource)	
Victoria (Dolly Varden district)	Cu, Ag	1973: 3,500,000 tons, 2.45% Cu (reserves) 1976 underground: 2,068,650 tons, 3% Cu (proven and probable reserves) 1981: 1,375,425 tons, 2.15% Cu, 0.35 opt Ag (proven and probable reserves)	1975-1977: 6,000 tons Cu 1980-1981: 124,575 tons, 1.56% Cu, 0.32 opt Ag

ESMERALDA COUNTY

Deposit name	Metals	Reserves/resources	Production
Black Horse (Black Horse district)	W, Mo	1982: 300,000 tons, 0.05% WO ₃ , 0.08% Mo	1940-1978 (Intermittant): 6,000 units WO ₃
Cucomungo (Tule Canyon district)	Mo	2006 Basalt Cap Zone: 30,000,000 tons, 0.11% MoS ₂ (0.066% Mo, drill-indicated resource); Roper Tunnel Zone: 9,000,000 tons 0.125% to 0.25% MoS ₂ (0.075% to 0.15% Mo, possible resource)	

EUREKA COUNTY

Gibellini (Gibellini district)	V	2011: 19,970,000 tons 0.30% V ₂ O ₅ (proven and probable reserves, Gibellini Hill, part of the measured and indicated resource); 23,050,000 tons, 0.29% V ₂ O ₅ (measured and indicated resource, Gibellini Hill); 14,230,000 tons, 0.17% V ₂ O ₅ (inferred resource, reduced material)	
Mount Hope (Mount Hope district)	Mo	2007: 965,926,000 tons 0.068% Mo (proven and probable reserves); 109,641,000 tons, 0.030% Mo (measured and indicated resource); 191,308,000 tons, 0.063% Mo (inferred resource)	

HUMBOLDT COUNTY

Ashdown (Vicksburg district)	Mo	1983: 10,000 tons molybdenite on dump 2006 (Sylvia Vein): 21,550 tons, 8% Mo	2006: 10,500 lbs Mo 2007: 247,466 lbs Mo 2008: 202,597 lbs Mo 2009: 214,714 lbs Mo 2010: 189,035 lbs Mo 2011: 648,853 lbs Mo 2012: 44,092 lbs Mo
Cordero (Opalite district)	Ga	2007: 1000,000 tons, 47.7 ppm Ga (measured and indicated resource); 6,600,000 tons, 43.7 ppm Ga (inferred resource)	
Kings Valley (Disaster district)	U	2006: 2,978,000 tons, 0.081% U ₃ O ₈ (inferred resource)	
McDermitt (Opalite district)	Hg	1982: 1,325,000 tons, 10 lbs per ton Hg (measured reserve)	1974-1990: N/A

OTHER METALLIC DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Uranium Lode Star (Virgin Valley district)	U	1984: 15 to 20,000,000 tons low grade uranium-bearing material ("submarginal" resource)	
LANDER COUNTY			
Apex (Reese River district)	U	2006: 1,119,928 tons, 0.07% U ₃ O ₈ (inferred resource)	1954-1960, 1963-1966: 106,000 lbs. U ₃ O ₈
Black Rock (Buffalo Valley district)	Mn	1942: 39,000 tons, 16.5% Mn	1942-1947: 11,150 tons, 13.5-39.9% Mn 1950-1953: 10,126 tons ore
Buckingham (Battle Mountain district)	Mo	1984: 1.1 billion tons, 0.06% MoS ₂ (resource)	
Phoenix (Battle Mountain district)	Cu	2007: 279,600,000 tons, 0.13% Cu (proven and probable reserves); 91,300,000 tons, 0.16% Cu (measured and indicated resource); 23,900,000 tons, 0.16% Cu (inferred resource) 2008: 302,000,000 tons, 0.15% Cu (proven and probable reserves); 91,700,000 tons, 0.20% Cu (measured and indicated resource); 95,953,000 tons, 0.23% Cu (inferred resource) 2009: 287,500,000 tons, 0.16% Cu (proven and probable reserves); 199,687,000 tons, 0.18% Cu (measured and indicated resource); 91,815,000 tons, 0.23% Cu (inferred resource) 2010 (non-leach): 332,600,000 tons, 0.15% Cu (probable reserve, 61% recovery) 150,900,000 tons, 0.13% Cu (indicated resource); 56,600,000 tons, 0.12% Cu (inferred resource) 2010 (leach): 132,900,000 tons, 0.23% Cu (probable reserve, 53% recovery) 25,900,000 tons, 0.19% Cu (indicated resource); 45,900,000 tons, 0.22% Cu (inferred resource) 2011 (non-leach): 450,300,000 tons, 0.15% Cu, 1,300,000,000 lbs. Cu (proven and probable reserve, 61% recovery); 216,400,000 tons, 0.09% Cu (indicated resource); 132,300,000 tons, 0.1% Cu (inferred resource) 2011 (leach): 170,200,000 tons, 0.21% Cu, 690,000,000 Cu, (proven and probable reserve, 52% recovery); 14,100,000 tons, 0.2% Cu (indicated resource); 54,100,000 tons, 0.2% Cu (inferred resource) 2012 (non-leach): 443,200,000 tons, 0.15% Cu, 1,290,000,000 lbs Cu, (proven and probable reserve, 61% recovery); 198,100,000 tons, 0.08% Cu, 310,000,000 lbs Cu (measured and indicated resource); 119,600,000 tons, 0.1% Cu, 230,000,000 lbs Cu (inferred resource); 2012 (leach): 177,100,000 tons, 0.24% Cu, 850,000,000 lbs Cu, (probable reserve, 58% recovery); 22,300,000 tons, 0.25% Cu 120,000,000 lbs Cu (measured and indicated resource); 16,900,000 tons, 0.2% Cu, 70,000,000 lbs Cu (inferred resource)	2006: 6,235,096 lbs Cu 2007: 10,808,206 lbs Cu 2008: 15,853,706 lbs Cu 2009: 23,733,389 lbs Cu 2010: 19,008,818 lbs Cu 2011: 23,897,865 lbs Cu 2012: 27,809,189 lbs Cu (See Major Precious Metal Deposits also.)

OTHER METALLIC DEPOSITS, LINCOLN COUNTY

Deposit name	Metals	Reserves/resources	Production
Pan American (Comet district)	Pb, Zn	1982: 2,196,000 tons, 1.17% Pb, 2.45% Zn, (proven reserve)	1947-1978: N/A

LYON COUNTY

Deposit name	Metals	Reserves/resources	Production
Ann Mason (Yerington district)	Cu Cu, Mo	2010: 1,409,960,000 tons, 0.336% Cu, (inferred resource, (0.2% Cu cut-off grade) 315,220,000 tons, 0.485% Cu, (inferred resource, 0.4% Cu cut-off grade) 2012: 1,253,000,000 tons, 0.33% Cu, 8,150,000,000 lbs. Cu, 0.006% Mo, 150,000,000 lbs. Mo; 0.0006 opt Au, 0.017 opt Ag (indicated resource, 0.2% Cu cut-off grade); 962,000,000 tons, 0.29% Cu, 5,590,000,000 lbs. Cu, 0.004% Mo, 80,000,000 lbs. Mo; 0.0009 opt Au, 0.019 opt Ag (inferred resource, 0.2% Cu cut-off grade)	
Blue Hill (Yerington district)	Cu, Mo	2012: Oxide Zone: 52,290,000 tons, 0.17% Cu, 179,370,000 lbs. Cu; Mixed Zone: 27,220,000 tons, 0.18% Cu, 98,120,000 lbs. Cu (inferred resource, 0.1% Cu cut-off grade); Sulfide Zone: 54,960,000 tons, 0.23% Cu, 253,460,000 lbs. Cu, 0.005% Mo, 0.0003 opt Au, 0.009 opt Ag (inferred resource, 0.15% Cu cut-off grade)	
MacArthur (Yerington district)	Cu	2008: 57,365,000 tons, 0.239% Cu, (measured and indicated resource, oxide and chalcocite material) 75,832,000 tons, 0.283% Cu, (inferred resource, oxide and chalcocite material) 2010: 143,721,000 tons, 0.192% Cu (measured and indicated resource, oxide and chalcocite material, 0.12% Cu cut-off grade) 215,043,000 tons, 0.197% Cu (inferred resource, oxide and chalcocite material, 0.12% Cu cut-off grade) 74,090,000 tons, 0.256% Cu (inferred resource, primary sulfide material, 0.15% Cu cut-off grade) 2011: 159,094,000 tons, 0.212% Cu, 675,513,000 lbs. Cu (measured and indicated resource, oxide and chalcocite material, 0.12% Cu cut-off grade) 243,417,000 tons, 0.201% Cu, 979,510,000 lbs. Cu (inferred resource, oxide and chalcocite material, 0.12% Cu cut-off grade) 1,098,000 tons, 0.292% Cu, 6,408,000 lbs. Cu (measured and indicated resource, primary sulfide material, 0.15% Cu cut-off grade) 134,900,000 tons, 0.283% Cu 764,074,000 lbs. Cu (inferred resource, primary sulfide material, 0.15% Cu cut-off grade)	
Pumpkin Hollow (Yerington district)	Cu, Fe, Cu	2007: 342,735,000 tons, 0.579% Cu, 0.0019 opt Au, 0.0700 opt Ag, 15.67% Fe (measured and indicated resource) 438,164,000 tons, 0.446% Cu, 0.0015 opt Au, 0.0700 opt Ag, 10.23% Fe (inferred resource) 2009 (0.2% Cu cut-off grade): 488,228,000 tons, 0.58% Cu, 0.002 opt Au, 0.069 opt Ag (measured and indicated resource) 440,826,000 tons, 0.42% Cu, 0.001 opt Au, 0.048 opt Ag (inferred resource)	

OTHER METALLIC DEPOSITS, LYON COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Pumpkin Hollow (cont.)	Fe	2009 (10% Fe cut-off grade) 306,420,000 tons, 30.04% Fe (measured and indicated resource) 440,138,000 tons, 20.67% Fe (inferred resource)	
	Cu	2010: 531,042,000 tons, 0.55% Cu, 0.003 opt Au, 0.079 opt Ag (total measured and indicated resource, 0.2% Cu cut-off grade) 495,129,000 tons, 0.37% Cu, 0.001 opt Au, 0.044 opt Ag (total inferred resource, 0.2% Cu cut-off grade) 33,544,000 tons, 1.74% Cu, 0.010 opt Au, 0.244 opt Ag (measured and indicated resource, eastern underground deposits, 1% Cu cut-off grade) 249,155,000 tons, 0.6% copper, 0.002 opt gold, 0.067opt Ag (measured and indicated resource, western open pit deposits, 0.3% Cu cut-off grade)	
	Fe	2010: 340,898,000 tons, 32.59% Fe (measured and indicated resource, western open pit deposits, 20% Fe cut-off grade); 29,769,000 tons, 25.6% Fe (inferred resource, western open pit deposits, 20% Fe cut-off grade)	
	Cu, Au, Ag	2011 Western open pit deposits: 560,599,000 tons, 0.39% Cu, 4,311,274,000 lbs. Cu, 0.002 opt Au, 1,061,000 oz Au, 0.053 opt Ag, 29,689,000 oz Ag (measured and indicated resource, 0.15% Cu cut-off grade) 387,757,000 tons, 0.3% Cu, 12,288,414,000 lbs. Cu, 0.001opt Au, 385,000 oz Au, 0.039 opt Ag, 14,960,000 oz Ag (inferred resource, 0.15% Cu cut-off grade) Eastern underground deposits: 50,589,000 tons, 1.45% Cu, 1,459,824,000 lbs. Cu, 0.009 opt Au, 449,000 oz Au, 0.213 opt Ag, 10,817,000 oz Ag (measured and indicated resource, 0.75% Cu cut-off grade) 12,098,000 tons, 1.11% Cu, 267,533,000 lbs. Cu, 0.002 opt Au, 24,000 oz Au 0.065 opt Ag, 792,000 oz Ag (inferred resource, 0.75% Cu cut-off grade)	
	Fe	2011: Western open pit deposits: 340,898,000 tons, 32.59% Fe, 71,162,000 tons Fe (measured and indicated resource, western, 20% Fe cut-off grade)	
	Cu, Au, Ag	2012 Western open pit deposits: 732,056,000 tons, 0.37% Cu, 5,448,225,000 lbs. Cu, 0.001 opt Au, 981,000 oz Au, 0.046 opt Ag, 34,034,000 oz Ag (measured and indicated resource, 0.15% Cu cut-off grade) 225,073,000 tons, 0.31% Cu, 1,388,107,000 lbs. Cu, 0.001 opt Au, 219,000 oz Au 0.041 opt Ag, 9,296,000 oz Ag (inferred resource, 0.15% Cu cut-off grade)	
	Fe	2012: Western open pit deposits: 400,226,000 tons, 32.2% Fe, 128,899,000 tons Fe (measured and indicated resource, western, 20% Fe cut-off grade)	
Yerington (Yerington District)	Cu	2011: 18,391,000 tons, 0.23% Cu, 85,886,000 lbs. (measured and indicated resource, oxide and chalcocite material, 0.12% Cu cut-off grade) 24,703,000 tons, 0.2% Cu, 97,873,000 lbs. Cu (inferred resource, oxide and chalcocite material, 0.12% Cu cut-off grade); 102,526,000 tons, 0.26% Cu, 531,495,000 lbs. Cu (measured and indicated resource, primary material, 0.15% Cu cut-off grade) 160,104,000 tons, 0.2% Cu 629,209,000 lbs. Cu (inferred resource, primary material, 0.12% Cu cut-off grade)	1952-1979: 1,744,000,000 lbs. Cu
MINERAL COUNTY			
New York Canyon (Santa Fe District)	Cu	2010: 26,250,000 tons, 0.43% Cu (indicated resource, 0.2% Cu cut-off grade), 2,900,000 tons, 0.31% Cu (inferred resource, 0.2% Cu cut-off grade)	

OTHER METALLIC DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Pine Tree (Pilot Mtns. District)	Mo, Cu, Ag	2011: 240,840,000 tons, 0.04% MoS ₂ , 173.3 00,000 lbs. MoS ₂ , 0.09% Cu, 428.700,000 lbs. Cu, 0.044 opt Ag, 10.6800,000 oz Ag (indicated resource, 0.01% MoS ₂ cut-off grade) 196,760,000 tons, 0.3% MoS ₂ , 106.200,000 lbs. MoS ₂ , 0.09% Cu, 324.400,000 lbs. Cu, 0.039 opt Ag, 7.7800,000 oz Ag (inferred resource, 0.01% MoS ₂ cut-off grade)	

NYE COUNTY

B and C Springs (Paradise Peak district)	Mo, Cu	1983: 131,000,000 tons, 0.12% Mo 2007 Open pit: 105,902,046 tons, 0.048% Mo, 101,126,000 lbs. Mo., 0.068% Cu, 144,282,000 lbs Cu (indicated resource, \$10 cut-off grade at \$25/lb. Mo); Underground: 2,846,524 tons, 0.234% Mo, 0.334% Cu (indicated resource, \$75 cut-off grade at \$25/lb. Mo)	
Bisoni McKay (Gibellini District)	V	2008: Area A North: 8,073,844 tons, 0.43% V ₂ O ₅ (indicated resource, 0.3% V ₂ O ₅ cut-off grade); Area A North: 4,744,214 tons, 0.48% V ₂ O ₅ (inferred resource, 0.3% V ₂ O ₅ cut-off grade); Area A South: 5,490,356 tons, 0.48% V ₂ O ₅ (inferred resource, 0.3% V ₂ O ₅ cut-off grade)	
Liberty (formerly known as Hall-Tonopah) (San Antone district)	Mo Mo, Cu	2007 (April 2008): 432,951,000 tons, 0.071% Mo, 0.07% Cu (proven and probable reserves); 109,336,000 tons, 0.052% Mo, 0.11% Cu (measured and indicated resource); 127,200,000 tons, 0.051% Mo, 0.08% Cu (inferred resource) 2011: 541,420,000 tons, 0.068% Mo, 0.08% Cu (proven and probable reserves, 0.02% Mo cut-off grade) 105,194,000 tons, 0.052% Mo, 0.05% Cu (measured and indicated resource, 0.02% Mo cut-off grade) 252,647,000 tons, 0.04% Mo, 0.13% Cu (inferred resource, 0.02% Mo cut-off grade)	1982-1991: 50,000,000 tons, 0.11% Mo
Tonopah (San Antone district)	Cu	1999: 98,000,000 tons, 0.343% Cu (proven reserve); 137,800,000 tons, 0.314% Cu (resource)	1999-2001: N/A

PERSHING COUNTY

Fencemaker (Table Mountain district)	Sb	1981: 100,000 tons (probable reserve) 400,000 tons (possible reserve) 2012: 34,125 tons, 2.92% Sb (inferred resource)	1880s: 1 ton Sb metal 1940: 2 tons ore, 50% Sb 1966-1981: N/A
Springer (Mill City district)	W	1983: 3.5900,000 tons, 0.446% WO ₃ (historical General Electric resource) 2009 (Sutton beds): 274,000 tons, 0.619% WO ₃ (indicated resource) 1,097,000 tons, 0.562% WO ₃ (inferred resource)	
Trinity (Trinity district)	Pb, Zn, Ag	2012: 19,790,000 tons, 1.07 opt Ag, 21,265,000oz Ag, 0.217% Pb, 85,987,000 lbs, Pb, 0.354% Zn, 140,253,000 lbs. Zn (inferred resource, 0.8 opt Ag cut-off grade)	

OTHER METALLIC DEPOSITS, WASHOE COUNTY

Deposit name	Metals	Reserves/resources	Production
Red Bluff (Pyramid district)	U	1991: 200,000 tons, 0.13% U ₃ O ₈ (resource, 0.05% U ₃ O ₈ cut-off grade); 100,000 tons, 0.24% U ₃ O ₈ (resource, 0.1% U ₃ O ₈ cut-off grade)	

WHITE PINE COUNTY

Monte Cristo (White Pine District)	W, Mo	1980: 5,500,000 tons, 0.3% WO ₃ , 0.2% Mo (estimated reserve)	
Mt. Wheeler (Lincoln District)	Be	1959:100,000 tons, 0.75% BeO	
Robinson (Robinson district)	Cu, Mo	2006: 122,401,000 tons, 0.69% Cu (proven and probable reserves) 2007: 103,788,000 tons, 0.68% Cu (proven and probable reserves) 2008: 121,693,000 tons, 0.54% Cu (proven and probable reserves) 2009: 103,059,000 tons, 0.53% Cu (proven and probable reserves) 2010: 121,250,000 tons, 0.50% Cu (proven and probable reserves) 716,490,000 tons, 0.33% Cu (measured and indicated resource) 154,320,000 tons, 0.29% Cu (inferred resource)	2006: 121,319,197 lbs Cu, 260,000 lbs Mo 2007: 131,986,134 lbs Cu, 62,033 lbs Mo 2008: 159,684,092 lbs Cu, 78,855 lbs Mo 2009: 122,000,000 lbs Cu, 88,711 lbs Mo 2010: 108,967,015 lbs Cu, 226,688 lbs Mo 2011: 88,893,372 lbs Cu, 1,261,309 lbs Mo 2012: 117,509,548 lbs Cu, 440,001 lbs Mo (See Major Precious Metal Deposits also.)

Industrial Minerals

by David A. Davis

The total value of industrial minerals produced in Nevada in 2012 was estimated at \$392.8 million, an increase of 2% from 2011. Minus the value of aggregate, the total value was \$229,900,000, an increase of 22%. In decreasing order of estimated value, Nevada industrial minerals with production values of more than \$10,000,000 in 2012 were aggregate, barite, diatomite, lithium, lime and limestone, gypsum, and silica. Industrial mineral commodities with production values of less than \$10,000,000 were clay, magnesia, dolomite, cement, perlite, iron ore, salt, opal, and dimension stone. Zeolite was processed in Nevada but mined in California, and as such was 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 (NDOM), the Nevada Department of Taxation, the U.S. Bureau of Land Management (BLM), the U.S. Geological Survey (USGS) or directly from companies that produced the commodities. Data are given in short tons unless otherwise noted. USGS data cited are from commodity reports on the agency's website at <http://minerals.usgs.gov/minerals/pubs/commodity>.

Aggregate (Sand and Gravel, Crushed Stone)

According to the USGS, domestic production of construction sand and gravel increased 5% in 2012 to an estimated 928,000,000 tons valued at \$6.4 billion, and crushed stone increased 7% to an estimated 1,370,000,000 tons valued at \$11,000,000,000. 2012 was the second annual increase in production of construction sand and gravel since 2010, but was still down 36% from the 2006 peak of 1,460,000,000 tons. Apparent consumption of construction sand and gravel increased 5% to an estimated 931,000,000 tons, but was still 36% down from the 2006 peak of 1,460,000,000 tons. The apparent consumption of crushed stone increased 7% to an estimated 1,410,000,000 billion tons, but was still 27% down from the 2006 peak of 1,920,000,000 tons. The average price of construction sand and gravel increased 2% to \$6.94 per ton in 2012. The average price of crushed stone increased 1% to \$8.87 per ton in 2012.

According to the USGS, Nevada produced an estimated 18,740,000 tons of construction sand and gravel valued at \$89,800,000 and an estimated 7,330,000 tons of crushed stone valued at \$73,100,000. The production and value of construction sand and gravel decreased 9% and

increased 8% respectively, and the production and value of crushed stone decreased 2% and increased 1% respectively from 2011. Production from sand and gravel deposits accounted for about 72%, slightly up from 70% in 2011, of aggregate production statewide, with crushed stone and lightweight aggregate making up the balance. The total production value of \$162,900,000 makes construction aggregate the fourth most valuable commodity produced in the state.

An estimated 17,000,000 tons of construction aggregate were produced in the Las Vegas area with sand and gravel operations accounting for about 75% of the aggregate production. As in past years, the Lone Mountain area in northwest Las Vegas remained the most important source of sand and gravel. Significant production also came from sand and gravel pits and stone quarries south and northeast of Las Vegas and in Ivanpah Valley south-southwest of Las Vegas. Portable crushers at construction sites were also important producers of base aggregate in Las Vegas.

The major producers in the Las Vegas area were Aggregate Industries, Las Vegas Paving Corp., Impact Sand and Gravel, Nevada Ready Mix Corp., Wells Cargo, and Boulder Sand and Gravel. Las Vegas Paving, a major producer of asphalt concrete, mostly produced sand and gravel from their Blue Diamond, Lone Mountain, and Primm 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 series of pits in alluvium in the Lone Mountain area, with minor production coming from quarries in adjacent bedrock. Aggregate Industries, through their subsidiary Frehner, Inc., mined and crushed limestone from its Sloan property a few miles south of Las Vegas. According to the BLM LR2000 Database, community pits and other aggregate mining facilities administered by the BLM and operated by a number of companies, including some of those already mentioned, contributed an estimated 1.8 million tons to the total production of the Las Vegas area.

The Cind-R-Lite Block Company shipped lightweight aggregate to the Las Vegas market from their cinder operation in a Quaternary basaltic cinder cone near Amargosa Valley in Nye County. Most of the material shipped was minus 3/8-inch aggregate for the manufacture of cinder blocks and pavers. Cind-R-Lite has two manufacturing sites in the Las Vegas Valley and one in the Amargosa Valley.

In 2006, Service Rock Products Corp. of California submitted an application to the BLM to build and operate an aggregate pit called the Sloan Aggregate Mine in T23S, R61E. In 2007, CEMEX submitted for an adjacent section an application to build and operate an aggregate pit called the Mohave Minerals Project. Mining from the two pits would eventually grow into one large 2,500-foot deep pit covering about 640 acres. Planned production was 100,000,000 tons of mostly limestone and dolomite over a 20- to 30-year period. The sale request for the material, referred to as the Sloan Hills Competitive Minerals Sale, exceeded the volume limitations for noncompetitive sales and had to be done on a competitive basis. The sites would be auctioned as two separate parcels, and there was no guarantee that Service Rock and CEMEX would be the winning bidders. The public scoping meetings ended in January 2008, and the mining plan of operation was filed with the BLM in February 2009. A draft Environmental Impact Statement was completed in the summer of 2011. The project was strongly opposed by local residents, most of who lived in several housing developments within five miles of the proposed project, and by Senator Harry Reid. In the final Environmental Impact Statement and Record of Decision released in February 2013, the BLM did not authorize the Sloan Hills Competitive Minerals Sale. (BLM news release, 4/26/2013; *Proposed Sloan Hills Competitive Minerals Sales Final Environmental Impact State and Record of Decision*, 2/2013).

An estimated 6,400,000 tons of construction aggregate were produced in the Reno-Sparks-Carson City area with crushed rock accounting for about 75% of the total. Granite Construction and Martin Marietta Materials Inc. were the two largest producers. Granite Construction operated several pits in the area, but most of the company's production was crushed Tertiary andesite and Mesozoic meta-andesite from its Lockwood pit. Granite Construction's Hidden Canyon quarry did not produce in 2012. Martin Marietta Materials, Inc., operated two pits. The Spanish Springs (Rocky Ridge) Quarry north of Sparks produces crushed granitic rock and some decomposed granite. Its Mustang Pit did not produce in 2012. Lightweight aggregate, an important component of crushed rock production in the area, was produced by CEMEX, Rilite Inc., and Basalite Concrete Products. CEMEX owns the former All-Lite Aggregate crushed rhyolite pit and also operates the sand and gravel operation at the Paiute pit, which is leased from the Pyramid Lake Paiute Tribe. Sierra Nevada Construction Inc. reopened and produced aggregate from its Mustang pit in 2012. Cinderlite Trucking Inc. produced a small amount of decorative rock and sand and cinder for deicing from their Black and Red Cinder pits northeast of Carson City.

About 2,700,000 tons of aggregate were produced outside of the major metropolitan areas, mostly from BLM administered pits on public lands. Nye County had the largest rural aggregate production, most of which came from pits in the Pahrump area. Elko, Douglas, and Churchill Counties tend to be the next largest rural producers with the remaining counties usually producing less than 100,000 tons each. A quarry operation on Barrick Gold Corporation's Turquoise Ridge Mine property in Humboldt County produced 40,000 tons per month of aggregate for use as backfill for underground gold mine at Turquoise Ridge.

Ames Construction Inc. proposed mining gravel at the Saddler Brown Gravel Pit project along State Route 278 in section 1, T22N, R52E, Eureka County, for the construction industry and public works projects in the county. The proposal is to mine up to 186,000 tons of gravel over a 5-year period. The operation would initially disturb 12 acres and eventually expand to disturb another 49 acres as economic conditions permit. An environmental assessment was being prepared for release in 2013 (Environmental Assessment No. DOI-BLM-NV-B010-2013-0026-EA, 4/2013).

Barite

According to the USGS, domestic production of mined barite decreased 8% to an estimated 721,000 tons of barite valued at about \$58,000,000. This is down from 783,000 tons in 2011, which had been the highest production since 815,000 tons was produced in 1985. Most of this production came from Nevada, and the remainder came from a mine in Georgia. Estimated apparent consumption increased 13% to 3,650,000 tons. Imported barite, mostly from China and some from India and Morocco, increased 21% to about 3,100,000 tons. About 95% of the barite sold in the United States is used as a weighting agent for drilling. Barite mined in Nevada is crushed in Nevada and Wyoming and sold mainly to customers drilling for gas in Colorado, New Mexico, North Dakota, Utah, and Wyoming with some crude barite being shipped to a grinding mill in Lethbridge, Alberta, for the western Canada drilling mud market. Imported barite came through Louisiana and Texas ports mostly for use in oil and gas drilling offshore in the Gulf of Mexico and onshore in Louisiana, Oklahoma, and Texas. The estimated average price of barite remained high, increasing 3% to \$80.74 per ton according to the U.S. Geological Survey.

According to data from NDOM, Nevada's barite production comes from four operations, which shipped 744,764 tons, an increase of 6.7% from 2011, which is still less than 30% of the high of 2,482,000 tons produced in 1981. Any differences in reported production are because the U.S. Geological

Survey reports run-of-mine, flotation, or other beneficiated material that is sold or used by the producer, while NDOM reports what is shipped, which can include some material from stockpiles. According to the Nevada Department of Taxation, the gross proceeds reported were \$72,062,134, an increase of 21% from 2011.

M-I SWACO was the largest Nevada barite producer. The company shipped 302,987 tons of crude and ground barite from the Greystone Mine and Battle Mountain plant, both in Lander County, an increase of 3% from 2011. A small amount of barite was also taken from old stockpiles in the nearby Mountain Springs Mine for blending at the plant. The barite of the Greystone Mine is in black chert and minor argillite and shale of the Devonian Slaven Chert. M-I SWACO is owned by Schlumberger, Ltd.

Baroid Drilling Fluids, a subsidiary of Halliburton Co., was the second largest producer in Nevada. The company shipped 257,500 tons, an increase of 28% from 2011. This was the fourth year in a row of increased production. The company mined barite from the Rossi Mine in Elko County and processed it at the Dunphy Mill in Eureka County. The barite occurs in chert of the Ordovician Vinini Formation.

Baker Hughes Oilfield Operations, Inc., formerly Baker Hughes Drilling Fluids, shipped 138,432 tons of barite from its Argenta operation near Battle Mountain in Lander County, an increase of 22% from 2011. This was the fourth year in a row of increased production as well. The barite deposits are in the Slaven Chert.

National Oilwell Varco shipped 45,845 tons of barite previously concentrated at the Big Ledge Mine and the adjacent Dry Creek Jig Plant, a decrease of 48% from 2011. The mine operated between April 26 and December 14, 2012, and then was temporarily shut down. The barite at the Big Ledge Mine occurs in argillite and chert of the Ordovician Valmy Formation (Elko Daily Free Press Spring 2012 Mining Quarterly; Elko Daily Free Press, 9/14/2012).

Halliburton Energy Services Inc. started a drilling program, approved by the BLM, at its Pleasant View project located in the Bateman Canyon Mining District in Lander County. The project is in the area of the Pleasant View Mine, which consisted of four pits and produced over 100,000 tons of barite prior to 1979. The barite occurs in beds up to 10 feet thick in Devonian Slaven Chert. Up to 35 reverse circulation holes were approved. 2,100 tons will be removed from a stockpile from previous mining operations to evaluate the barite grade (Halliburton Energy Services, Inc., Environmental Assessment, 11/2012; Bureau of Mining Regulation and Reclamation Permit 0341, 3/20/2013).

The BLM was working with the Forest Service to permit a new barite mine, known as the Ann Project and owned by Halliburton Energy Services, Inc. The project is on the east side of the Toquima Range in the Northumberland Mining District. The mine will be located on lands in the Humboldt-Toiyabe National Forest, but the facilities will be on BLM land. At year's end, the project was undergoing baseline environmental analyses. The company staked the Chris group of 38 lode claims in this area and also proposed drilling at up to 12 sites. Barite in the area forms beds up to 10 feet thick occurring with chert and subordinate mudstone of probable Devonian age (NBMG Bulletin 98; U.S. Forest Service File No. 2810, 8/25/2011; U.S. Forest Service Decision Memo, 11/7/2012; BLM LR2000 Database; BLM Battle Mountain District Annual Report, 1/2013).

Baker Hughes Drilling Fluids staked a block of over 200 lode claims covering over 4,000 acres in portions of just south of the its Argenta Mine in the Argenta and Bateman Canyon Mining Districts. These claims either include or are adjacent to the Beacon, Clementine, P-H, and Tripod deposits described in NBMG Bulletin 98, *Barite in Nevada*. The barite occurs in beds up to at least 10 feet thick hosted in black chert, limestone, and argillite of the Slaven Chert (NBMG Bulletin 98; BLM LR2000 Database).

The descriptions of 181 Nevada barite deposits are compiled in Nevada Bureau of Mines and Geology Bulletin 98, *Barite in Nevada*, 1984, by Keith Papke. A collection of Nevada barite samples acquired by Keith Papke is also available at the Nevada Bureau of Mines and Geology Great Basin Science Sample and Records Library.

Cement

According to the USGS, domestic cement production increased 8% to an estimated 80,000,000 tons with a value of \$7,500,000,000. Estimated apparent consumption increased 10% to an estimated 87,200,000 tons with the difference between production and consumption being made up by imports mainly from Canada, China, South Korea, and Mexico. The estimated average mill price was \$86.00 per ton, an increase of 6% from 2011. 2012 marks the first price increase since 2007.

The only cement producer in Nevada is Nevada Cement Co. (a subsidiary of Eagle Materials, Inc. of Dallas, Texas), which has a plant in Fernley in Lyon County. Production is confidential, but the company's website reported over 500,000 tons of cement were being produced annually. Also, according the Nevada Department of Taxation, the gross proceeds reported were \$2,018,424 for the limestone mine and cement plant, a decrease of 37% from 2011.

The plant produces Type I/II, low alkali, moderate sulfate-resistant cement; Type II/V, low alkali, high sulfate-resistant cement; IP portland-pozzolan moderate sulfate-resistant cement; and Class N pozzolan. The cement is manufactured from limestone mined from two areas, and from other raw materials that come from northern Nevada and elsewhere. Most of the limestone comes from Tertiary lacustrine limestone deposits mined in the Nevada Cement Company quarry a few miles south of Fernley. Small amounts of marble of Mesozoic age are also mined from a quarry in the Trinity Range about 40 miles east of the plant (Nevada Cement website, <http://www.nevadacement.com>).

Nevada Cement serves markets in northern Nevada and California, where the company has a rail terminal in Sacramento. Overall, Eagle Materials reported their total 2012 cement sales volume and overall cement sales revenue were up 22% and 25% from 2011. Their average price was \$92.15 per ton, an increase of 2% from 2011 (Eagle Materials Inc., 10-K Report, 5/24/2013; Eagle Materials Inc., website www.eaglematerials.com).

Infrastructure Materials Corp. of Reno, Nevada, staked a large number of claims in 2009, and owns 12 projects for cement-grade limestone in Nevada. These projects were summarized in NBMG MI2009. In 2010, a report titled *Nevada Cement Study Update*, looked at potential markets for two of its projects: Blue Nose in Lincoln County and Morgan Hill in Elko County. The Blue Nose appeared to have the higher potential of these two prospects and exploration has been concentrated there. The Blue Nose Claim Group consists of 255 claims located in T8S, R68-69E along the south edge of the Clover Mountains about 25 miles southeast of Caliente, Nevada, and covers limestone of the Mississippian Monte Cristo Formation. The property was mapped, sampled, and drilled in 2009 and 2010, and a 43-101 technical report was released. In late 2012, the company hired Geos Mining Mineral Consultants of New South Wales, Australia to prepare a Net Present Valuation to develop a cement plant at the Blue Nose project (Infrastructure Materials Corp. Management Discussion and Analysis, 2/13/2013; Infrastructure Materials Corp. 43-101 Technical Report, 8/15/2011; Infrastructure Materials Corp. website, www.infrastructurematerialscorp.com).

In 2010 and 2011, Chapparral Limestone and Cement Co. of Provo, Utah, staked 25 lode claims and 36 160-acre association placer claims covering 6,260 acres mostly in T15S, R67E in the Moapa District in Clark County. The company completed a 43-101 technical report, and the volume of the deposit on the property was estimated to be between 182,000,000 tons to over 200,000,000 tons based on the depth of the deposit. Assays from surface samples and three test drill holes show the

calcium carbonate to be between 80% and 95% with MgO at equal to or less than 2.5%. The company expects to open a new cement powder plant in the next 5 years, but is also interested in forming a joint venture for the project. The facility would serve the Las Vegas market (BLM LR2000 Database; Chapparral Limestone and Cement Co. website, www.chaparralcement.com).

Clay

According to the USGS, domestic clay production increased 2% to an estimated 28,300,000 tons with a sales value of \$1,570,000,000. The U.S. Geological Survey divides output into: ball clay, bentonite, common clay, fire clay, fuller's earth, and kaolin. Estimated apparent consumption increased 2% to 23.9 million tons. The difference between production and consumption was mainly exported.

Nevada has never been a large clay producer, and the state's 2012 clay production only accounts for 0.1% of domestic production. According to data from NDOM, Nevada clay production was an estimated 25,000 tons, which is about the same amount that was produced in 2011. According to the Nevada Department of Taxation, the gross proceeds reported for clay were \$6,729,272, an increase of 11% from 2011.

IMV Nevada produced 20,300 tons of sepiolite, saponite, and bentonite from deposits in the Ash Meadows-Amargosa Flat area of Nye County. This is the same amount that was produced in 2011. 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 and 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 seven feet. IMV Nevada is the only commercial producer of sepiolite and saponite in North America. IMV Nevada, formerly owned by Mud Camp Mining Company, LLC, was bought out by Lhoist North America in December 2012 (Lhoist North America, news release, 12/12/2012).

Two companies campaign 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 2012, the company did not actively mine but did ship smectite from the New Discovery Mine just south of Beatty. The company did mine as well as ship smectite from the Blanco Mine located about 40 miles west-

southwest of Tonopah in the Coaldale Mining District in Esmeralda County, and from the Buff and Satin Mines about 10 miles northeast of Lovelock in the Willard Mining District in Pershing County.

The American Colloid Co. mined about 2,000 tons of calcium bentonite from its Nassau property in Coal Canyon in the Willard Mining District for use in specialty clay products. The clay is in altered rhyolite tuff-breccia of probable Miocene-Pliocene age.

The Art Wilson Company mined halloysite on an as-needed basis for the Nevada Cement Co., which owns the Flanagan pit in the Terraced Hills about 8 miles northwest of Pyramid Lake. Because of its high alumina content, it is used in the production of Portland cement at the Nevada Cement Co. plant at Fernley. This halloysite production is not included in NDOM's annual clay production estimates for Nevada.

Specialty Clays Corp. of Reno began efforts to restart the its Fallon Bentonite Project to mine a deposit of sodium bentonite in T18N, R30E, sections 23 through 26 and 36 and T18N, R31E, sections 18 and 19 in the Lahontan Mountains in the Sand Springs Marsh Mining District in Churchill County. No mill is planned, and the sodium bentonite would be hauled to railcars. Granite Construction Co. was contracted to be the operator. Twenty test pits were dug, and proven reserves of 34,000,000 tons were reported on 100 acres. The company brought in its first contract for sodium bentonite drilling mud and stockpiled 7,000 tons of API/ISO grade material for shipment. The area is largely underlain by clay, silt, and mud of the Quaternary Middle Sehuo lacustrine deposits and Tertiary claystone, tuffaceous siltstone and sandstone, and tuff (NBMG Map 168; Specialty Clays Corp. news releases, 9/2012, 10/1/2012, 10/24/2012, 11/1/2012; Specialty Clays Corp. website, <http://specialtyclays.com>).

Kent Exploration, Inc., of Vancouver, British Columbia, assumed full control of the Ivanhoe Creek placer claims in the Ivanhoe Mining District, Elko County by acquiring the remaining 50% interest that Senator Minerals Inc. had retained. The claims are situated directly over the company's Ivanhoe Creek Gold Project lode claims and are readily accessible from the access road to the Hollister gold mine. Drilling in 2007 indicated a "near surface" deposit containing about 2.2 million tons of "high quality" bentonite, and one bulk sample assayed at 93% calcium bentonite (Kent Exploration, Inc., news release, 4/21/2012; Kent Exploration, Inc., audited annual financial statement, 4/30/2013; Kent Exploration, Inc., website <http://www.kent-exploration.com>).

Western Lithium USA Corp. owns the Kings River Valley Lithium Project, which is described in more detail in the section on lithium. The property is within the McDermitt caldera, and contains high-lithium clays including hectorite with significant

amounts of clay formed by hydrothermal alteration of volcanoclastic sedimentary rocks making up the moat deposits in the western part of the caldera. In 2011, Western Lithium recognized that processed hectorite was being used as a specialty drilling mud additive by the oil and gas drilling industry. The company outfitted a clay laboratory facility in Nevada, hired personnel with expertise in the clay processing industry, and spent two years developing products and a strategy to enter the specialty drilling mud business. The hectorite clay would have to be processed using an extruder and combined with several additives to produce an organoclay. Organoclay typically sells for between \$2,000 and \$4,500 per ton FOB shipping point. The company planned to follow through with this by constructing a 10,000 ton per year processing facility at a proposed industrial site (Western Lithium USA Corp. Management Discussion and Analysis, 2/14/2013; Western Lithium USA Corp. news releases, 9/14/2012, 10/11/2012; Western Lithium USA Corp. website, <http://www.westernlithium.com>).

The descriptions of 31 Nevada clay deposits are compiled in Nevada Bureau of Mines and Geology Bulletin 76, *Montmorillonite, Bentonite, and Fuller's Earth Deposits in Nevada*, 1970, by Keith Papke. A collection of Nevada clay samples acquired by Keith Papke is also available at the Nevada Bureau of Mines and Geology Great Basin Science Sample and Records Library.

Diatomite

The United States is the largest producer of diatomite worldwide. According to the USGS, domestic production increased 1% to an estimated 904,000 tons of diatomite valued at \$226 million. Estimated apparent consumption increased 2% to 800,000 tons, but exports decreased 8% to 108,000 tons in 2012 after a large increase in 2011. Production was from seven companies with ten mining areas and nine processing facilities in California, Nevada, Oregon, and Washington with California and Nevada accounting for most of it.

Nevada's production is confidential, but according to the Nevada Department of Taxation, the gross proceeds reported were \$39,589,467, an increase of 2% from 2011. 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. The estimated average price of diatomite was \$249 per ton, an increase of 2% from 2011. The world's two largest producers, both of which have operations in Nevada, increased prices in 2012. Imerys, a large French industrial minerals company, increased prices between 3% to 5% at the start of the year and then raised prices for filtration

and functional filler shipped within North America between 3% and 9% in July largely due to increases in energy costs. EP Minerals, LLC, a subsidiary of EaglePicher Corp. and the world's second largest diatomite producer, also increased prices between 3% to 7% due in November to offset higher production costs (*Industrial Minerals*).

EP Minerals LLC produced most of Nevada's diatomite. EP Minerals' Colado plant and mine 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 from a series of pits about 15 miles to the northwest in the Velvet Mining District. The diatomite occurs as thick beds interbedded with fresh-water tuffaceous sedimentary rocks of probable Miocene age. The company also produced diatomite used in fillers and absorbents at its Clark plant and mine in the Clark Mining District, Storey County, about 20 miles east of Reno and diatomite used in insulation from a pit near Hazen in Lyon County. The diatomite at Clark occurs with diatomaceous shale and thin beds of volcanic tuff within the Miocene-Pliocene Kate Peak Formation and consists of about 90% of the diatom *Melosira granulata*.

Imerys Minerals of California, Inc., (formerly Celite Corp. and World Minerals, Inc.) operated a plant in Fernley that produced functional fillers from diatomite mined from the company's Nightingale deposit north of Fireball Ridge in Churchill County. The company's Hazen Pit, which had been mined since 1950 and still has reserves, was placed on standby in 2009. The Moltan Company shipped absorbent products, cat litter, and soil conditioner under several labels from their mine and plant complex in Churchill County about 20 miles northeast of Fernley in the Desert Mining District. The diatomite deposits mined by both of these companies are interbedded with Pliocene lacustrine tuffaceous shale, sandstone, and limestone, and siliceous tuff (NBMG Bulletin 83).

The Grefco Minerals, Inc. diatomite operation near the Esmeralda/Mineral county line is small relative to other Nevada diatomite companies but has been producing diatomite for many years, mainly for fillers. The company campaign mines and then processes material from the resulting stockpiles. The mine was idle from 2004 through 2011 but mining resumed in 2012. The deposit is in Miocene-Pliocene lacustrine sedimentary rocks consisting of diatomite, argillaceous and calcareous diatomite, clay, sand, and volcanic ash, and the main diatoms are *Melosira granulata*, *Stephanodiscus aslraea*, and *Eunotia robusta*.

Global Silica LLC of Las Vegas is developing the Monte Cristo Diatomaceous Earth project in the Monte Cristo Range in northern Esmeralda County. The project area covers 540

acres in portions of T3N, R36E and T4N, R36-37E. The company plans to mine diatomite and process and sell it as amorphous silica. In 2012, the company issued an environmental assessment. Two areas, the Northwest and Southeast Mine Areas, are proposed to be mined to an average depth of 30 feet. Depending on the production rate, 150,000 to 300,000 tons of material containing diatomite would be mined annually with a mine life of 25 years. Diatomite occurs in the Miocene "sedimentary rocks of McLeans", which largely consists of siltstone, shale, and fine-grained argillaceous sandstone (USGS Miscellaneous Field Studies Map MF-2260; Environmental Assessment DOI-BLM-NV-B020-2011-0086-EA, 11/2012).

EP Minerals staked 161 20-acre placer claims in four areas in Pershing and Churchill Counties. The Big L group of 16 claims was staked mostly in the west half of section 28, T27N, R32E in the Muttelbury Mining District, Pershing County. The area is largely underlain by Quaternary lake deposits. The MC group of 145 claims was staked in three places in Churchill County. A group of 108 claims was staked in the central and southeastern part of T23N, R27E in the Desert Mining District. The area contains several diatomite pits probably mined prior to 1940. A group of 20 claims was staked in section 22, T20N, R26E adjacent to Black Butte just north of Hazen, and a group of 17 claims was staked section 36, T25N, R28E in the Copper Valley Mining District. These areas are partially underlain by the Pliocene Truckee Formation, which consists of diatomite, silicic tuff, and tuffaceous shale and sandstone and is overlain by basalt (Desert Peak 15' topographic map; NBMG Bulletins 83, 89; BLM LR2000 Database).

Dimension Stone and Landscape Rock

According to the USGS, the estimated domestic production of dimension stone and its value increased 0.5% and 5% respectively to 1,900,000 tons and \$308,000,000. Estimated apparent consumption increased 22% to \$2,100,000,000 in 2012. The difference between production and consumption was due to imports, largely from China and Brazil. Production in Nevada was small and supplied local and regional markets.

Mt. Moriah Stone Quarries LLC, quarried 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. The operation was temporarily shut down during the first quarter of 2012 and then was back in production for most of the rest of the year.

Las Vegas Rock produced cut decorative slabs, flagstone, ashlar, boulders, and crushed landscape rock from its Rainbow Quarries near Goodsprings, about 32 miles southwest of Las Vegas at the base of Mount Potosi. The operation consists of a main quarry and a number of satellite quarries located according to the color of the stone. The stone is mined from the Jurassic Aztec Sandstone, and technical data including hardness, strength, and composition are available on the company's website (Las Vegas Rock website <http://vegasrock.com>).

In 2010, D and H Mining leased their pits located about 5 miles north of Beatty to Kalamazoo Materials Inc. of Tucson, Arizona. Kalamazoo Materials referred to these pits as the Beatty Quarry and mined crushed stone for landscaping. These pits are in Pliocene tuff, which in the past, D and H Mining mined and sold the rock under the name of "Spicerite" (strong, bright white, hydrothermally altered tuff used to make brick and blocks) (Kalamazoo Materials website, <http://www.kalamazoomaterials.com>).

Fluorspar

The USGS reports only U.S. production of fluorspar equivalent (equivalent to 92% fluorspar) derived as a by-product in the form of fluorosilicic acid from phosphate rock processed for phosphoric acid. Domestic production was an estimated 141,000 tons of fluorspar equivalent, an increase of 3% from 2011. Apparent consumption was 667,000 tons, a decrease of 10% from 2011. Imports, mostly from Mexico and China and some from South Africa made up the difference. The average price of metallurgical grade fluorspar remained stable throughout 2012 despite weak demand, especially in the global fluorochemicals industry. According to *Industrial Minerals*, prices for metallurgical grade fluorspar from China (the world's largest producer) were between \$277 and \$350 per ton for most of 2012.

There has not been fluorspar mining in Nevada since 1991. According to NBMG Bulletin 93, *Fluorspar in Nevada*, Nevada produced an estimated 556,000 tons between 1928 and 1976, 91% of which came from four mines. According to the USGS commodity reports, production from mines in Nevada continued through 1991 and then from stockpiles for several years afterwards.

Tertiary Minerals, PLC, took out a 50-year renewable lease with the option buy the BM Project of Nevada Fluorspar Inc. around the Bisoni deposit in the Fish Creek Mining District in Eureka County, also known as McCullough's Butte. In the 1960s, Union Carbide drilled 80 holes exploring for

beryllium. These holes showed that fluorite mineralization extended over an area of 5,200 feet by 2,600 feet, and the deepest hole was mineralized throughout its entire length of 430 feet. Later companies drilled at least another 28 holes including 15 by Asarco, and a resource of over 120,000,000 tons grading 10% CaF₂ was outlined. Bear Creek Mining Co. drilled a hole down to 1,300 feet which intercepted mineralized zones to the bottom. The mineralization occurs in pegmatitic quartz veins, skarn veins, greisen veins, and quartz veins spatially associated with late Cretaceous granite porphyry dikes in dolomitized limestone of the Orodvician Antelope Valley Formation. Fluorite is the ore mineral, which occurs with sphalerite, molybdenite, beryl, and scheelite. (BLM LR2000 Database; NBMG Bulletin 93; Tertiary Minerals, PLC, news releases, 9/3/2012; Tertiary Minerals, PLC, annual report, 9/30/2012; Tertiary Minerals, PLC, website, <http://www.tertiaryminerals.com>)

The descriptions of 62 Nevada fluorspar deposits are compiled in Nevada Bureau of Mines and Geology Bulletin 93, *Fluorspar in Nevada*, 1979, by Keith Papke. A collection of Nevada fluorspar samples acquired by Keith Papke is also available at the Nevada Bureau of Mines and Geology Great Basin Science Sample and Records Library.

Gemstones

Precious opal is produced from several small mines in the Virgin Valley area of northern Humboldt County. Virgin Valley is a well-known source of gemstones in North America. The best known mines are the Royal Peacock, Rainbow Ridge, and Bonanza Mines, which produce about 100 pounds of opal annually from pay-to-dig operations. The opal occurs in lacustrine sedimentary rock, volcanic ash and tuff, and bentonite of the Miocene Virgin Valley Beds of Merriam. According to the Nevada Department of Taxation, the gross proceeds reported were \$146,378, a decrease of 3% from 2011. Turquoise was produced from the Damele Mine in Lander County and the Royston claims, Nye County, in 2011, but no turquoise production was reported in 2012.

Gypsum

According to the USGS, domestic crude gypsum production increased 11% to an estimated 10,900,000 tons valued at \$69,300,000. Estimated apparent consumption increased 4% to 27,100,000 tons. Decreased production of crude gypsum has been offset by the production of synthetic gypsum. Synthetic gypsum is largely produced from scrubbed emissions from coal-fired power plants. Production

of synthetic gypsum surpassed the production of crude gypsum for the first time in 2010. The production of synthetic gypsum was 13,000,000 tons in 2012. The difference between production and consumption was mostly made up with imports from Canada and some from Mexico and Spain. The estimated price of crude gypsum remained the same as in 2011, at \$6.35 per ton.

Nevada ranked fourth in the list of five states that accounted for 58% of domestic production. According to data from NDOM, Nevada's gypsum production increased 47% to 1,481,000 tons, which is the first increase in eight years. According to the Nevada Department of Taxation, the gross proceeds reported were \$17,124,624, an increase of 35% from 2011.

PABCO Gypsum in Clark County northeast of Las Vegas was the largest Nevada producer with production of 1,033,681 tons, an increase of 46% from 2011. PABCO Gypsum processes the gypsum into wallboard at a plant adjacent to their mining operation. The gypsum ore occurs 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.

Material from two smaller operations is used in cement and agricultural applications. The Art Wilson Company of Carson City produced 342,985 tons of gypsum and anhydrite from the Adams Mine in Lyon County, an increase of 43% from 2011. The Adams deposit is a folded body associated with limestone in Triassic metavolcanic rocks. The Pioneer Gypsum Mining Company produced 61,345 tons of gypsum from the Pioneer Mine about 10 miles east of Las Vegas, a decrease of 71% from 2011. The Pioneer Mine exploits the same late Miocene gypsite deposit as the PABCO operation.

Georgia-Pacific Gypsum LLC operates a plant at Apex using synthetic gypsum and crude gypsum imported from St. George, Utah, for the production of drywall and related products. It also owns the Weiser Ridge quarry about 10 miles west of Overton. They have not actively mined the quarry since 1995 but are planning to resume mining to provide crude gypsum for their Apex plant. The quarry is in gypsum interbedded with limestone of the Permian Toroweap and Kaibab Formations.

CertainTeed Gypsum Manufacturing Inc. now owns the plant at Blue Diamond, Clark County, and produced sheet rock from there in 2012. The Black Rock Mine in Mohave County, Arizona, is the source of its gypsum. (CertainTeed website, <http://www.certainteed.com>).

The descriptions of 26 Nevada gypsum deposits are compiled in Nevada Bureau of Mines and Geology Bulletin 103, *Gypsum Deposits in Nevada*, 1987, by Keith Papke. A collection of Nevada gypsum samples acquired by Keith Papke is also available at the Nevada Bureau of Mines and

Geology Great Basin Science Sample and Records Library.

Iron Oxide

The USGS reports iron ore that is not used in general iron and steel production as iron oxide pigments (IOP). This includes use in concrete and other construction materials (60%); coatings and paint (25%); foundry uses (5%); and animal food, magnetic tapes, and other uses (6%). Mine production was withheld, but the estimated combined production of finished natural and synthetic IOP was 53,000 tons in 2012. Estimated apparent consumption of combined naturally and synthetically produced IOP was 209,000 tons. About 80% of IOP consumed was imported. The estimated average price was \$13.95 per ton. Nevada's production of IOP was small and not reported, but two companies sold iron oxide from stockpiles in 2012. According to the Nevada Department of Taxation, the reported gross proceeds for IOP, which was reported as iron ore, were \$858,863, an increase of 11% from 2011.

Saga Exploration Company shipped iron oxide from stockpiles at the old Nevada Barth Mine in Eureka County, accounting for 99% of Nevada's IOP proceeds. The iron ore consists mostly of hematite and some magnetite, and is used in the manufacturing of cement by the Nevada Cement Company in Fernley. The American Smelting and Refining Company leased the property from the Central Pacific Railroad Company and mined 544,295 tons of iron ore between 1903 and 1918 for use as flux in their lead smelter in Salt Lake City. Lessees continued to work the property off and on afterwards with some mining in the 1960s and 1970s. Saga Exploration has shipped iron ore from stockpiles since 1993.

Standard Industrial Minerals, Inc., of Bishop, California, sold several hundred tons of iron oxide from stock piles from the old Minnesota Mine near Yerington. The material was sold to a company for use as an additive in agricultural products. The iron oxide is magnetite that replaced dolomitized limestone in the Triassic Oreana Peak Formation.

Lime, Limestone, and Dolomite

According to the USGS, domestic production of quicklime and hydrate increased 2% to an estimated 21,500,000 tons valued at \$2,300,000,000. Apparent consumption increased 2% to 21,800,000 tons. In 2012, the average price at the plant increased 8% to \$128 per ton for quicklime and increased 7% to \$153 per ton for hydrate.

In 2012, 6,598,670 tons of limestone were mined in Nevada, a 1% decrease from 2011. This includes all limestone mined for crushed rock,

cement, lime and agricultural products, but does not include dolomite. Nevada's production of quicklime and hydrate is confidential, but it was the seventh of seven states producing more than 1 million tons in 2012. Nevada has two large lime producers and several small specialty dolomite and limestone producers. The Nevada Department of Taxation reported the 2012 gross proceeds at \$32,512,987, an increase of 4% from 2011.

Nevada's largest lime producer, the Pilot Peak high-calcium lime operation of Graymont Western US, Inc. (formerly Continental Lime, Inc.) is in the Toano Range about 10 miles northwest of Wendover in Elko County. The 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. Pilot Peak mainly markets lime to gold-mining operations for use in cyanide-solution pH control. Gross proceeds for Pilot Peak reported to the Nevada Department of Taxation increased 12% in 2012 to \$17,312,960. Production is mainly from the Devonian Devils Gate Limestone.

Nevada's other lime producer, Lhoist North America (formerly Chemical Lime Co.), produces lime at Apex in the Apex Mining District 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, Lhoist North America also shipped crushed limestone. Gross proceeds reported to the Nevada Department of Taxation in 2012 were \$11,284,272, an increase of 12% from 2011. Production is from the Devonian Sultan Limestone.

Of Nevada's specialty dolomite and limestone producers, the Nutritional Additives Corp. produces agricultural and nutritional dolomite products along the northwest edge of the Sonoma Range about five miles south of Winnemucca. Production is from the Triassic Dun Glen Formation. Min-Ad, Inc., a subsidiary of Inter-Rock Minerals Inc. of Toronto, Canada, also produced dolomite from the Dun Glen Formation about three miles south of the Nutritional Additives Corp. operation. Their dolomite is mostly sold to Midwestern states and as far as New York and Alberta for use in beef and dairy feed. Art Wilson Company of Carson City produced some pure calcitic limestone from the Adams Mine. The limestone is used for soil pH control and reportedly contains no detectable magnesium.

Lithium

According to the USGS, the estimated domestic consumption of lithium remained at 2,200 tons, the same as in 2011 after increasing 82% from 2010. Nevada is the only state with domestic production of lithium raw materials, and since this production is from one company, actual production and consumption figures are kept confidential. The Nevada Department of Taxation reported the gross proceeds of \$18,369,781, an increase of 80% from 2011. The price for lithium carbonate delivered in the U.S. was \$2.50-3.00 per pound throughout 2012, an increase of about 17% from \$2.30-2.40 per pound throughout 2010 and 2011 (*Industrial Minerals*).

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, but the Nevada operation, initiated at Silver Peak in Esmeralda County in 1966 by Cyprus Mines, was the first to extract lithium as primary product from brine. This operation was the world's dominant lithium producer until the late 1980s, when lithium brine operations began in Chile. South American sources, two brine operations in Chile and two in Argentina with several more under development, now dominate the world market. China also produced from brine operations. U.S. lithium imports in 2012 were 2,980 tons. Exports were 1,430 tons in 2012. Lithium-based rechargeable battery sales accounted for 22% of the global lithium market. Ceramics and glass account for 30%, and lubrication grease for 11%. The remainder includes air treatment, metallurgy, polymers, pharmaceuticals, aluminum production, and other uses.

Rockwood Lithium, Inc. (formerly Chemetall Foote Mineral Co.) owns and operates the Silver Peak lithium facility. The company produces lithium carbonate, lithium hydroxide monohydrate, and lithium hydroxide anhydrite. The lithium chemicals are produced by solar evaporation pre-concentration and subsequent refining techniques from brine that is pumped from beneath the Clayton Valley playa. The brine varies between 100 and 300 ppm lithium. Production figures are confidential, but according to 1998 Securities and Exchange Commission data, about 12,000,000 pounds of lithium carbonate and 5,000,000 pounds of lithium hydroxide were produced, and *Industrial Minerals* (July 2012) reported 8,800 tons of production from Nevada not counted in the total world production. *Industrial Minerals* (July 2008) reported the remaining economic reserves to be about 44,000 tons. The company also was upgrading and doubling the lithium carbonate production capacity at Silver Peak at a cost of \$75 million (*Industrial Minerals*).

American Lithium Minerals Inc. of Henderson, Nevada, dropped their mining claims that cover its Borate Hills Project and their corporate status is listed as in default. The Borate Hills Project covered over 3,400 acres between 15 and 20 miles west-northwest of Silver Peak. In the 1980s, U.S. Borax drilled 57 holes up to 2,000 feet deep totaling 50,000 feet in the North Borate Hills and South Borate Hills areas and identified a large deposit up to 1,300 feet thick, which ranks as the second largest boron deposit in the country. Surface mineralization extends for at least 1.5 miles, and recent surface sampling at South Borate Hills assayed over 1% boron and up to 2,750 ppm lithium. The boron and lithium mineralization is stratabound within a claystone and tuff unit (BLM LR2000 Database; Nevada Business Search).

AmeriLithium of Henderson, Nevada, owns the Clayton Deep and Full Monty Projects and had gravity surveys and controlled-source audio-frequency magneto-telluric (CSAMT) surveys conducted over both projects in 2010 and 2011. At the Clayton Deep Property, the company was preparing a 43-101 technical report for release in 2013 and received approval from the BLM to conduct a 10-hole drilling program in 2013 designed around the gravity and CSAMT results. The Clayton Deep Project consisted of 83 placer claims covering 6,640 acres less than 10 miles southwest of Silver Peak. The Full Monty Project consists of 66 placer claims covering 5,400 acres near the center of T5N, R41E in Smoky Valley about 25 miles north of Clayton Valley. The claim block covers a large gravity low. (AmeriLithium Corp. 10-K Report, 4/16/2013; AmeriLithium Corp. website, <http://www.amerilithium.com>; AmeriLithium Corp. 43-101 Technical Report, 2/27/2013).

In 2011, AmeriLithium acquired the Jackson Wash property, which consisted of 65 placer claims covering about 2,450 acres in the eastern portion of T4S, R41E and the western portion of T4S, R42E in Jackson Wash west of the Goldfield Hills. The property covers a gravity low, and six obsidian samples from the property assayed an average of 107.6 ppm lithium. It completed a surface sampling program and a CSAMT survey in 2011, and received approval from the BLM in 2012 to conduct a 10-hole drilling program in 2013 designed around the survey results. It was also preparing a 43-101 technical report for release in 2013. AmeriLithium also owns the Paymaster Canyon Project which consists of 78 placer claims covering 5,880 acres just northeast of Clayton Valley in the eastern portions of T1N, R40E and T1S, R40E. In 2011, the company completed three holes of a planned eight-hole drilling program but reported no further work on the property for 2012 (AmeriLithium Corp. 10-K Report, 4/16/2013; AmeriLithium Corp. website

<http://www.amerilithium.com>; AmeriLithium Corp. 43-101 Technical Report, 5/1/2013).

First Liberty Power Inc. of Las Vegas entered into a purchasing agreement with GeoXplor Corp. and was granted a four-year exploration license involving the Lida Valley and Smoky Valley properties in Esmeralda County. The Lida Valley property consisted of 58 placer claims covering 9,280 acres, mostly in T5-6S, R43E, and the Smokey Valley property consisted of 70 placer claims covering 11,200 acres, mostly in T1S, R39E in Esmeralda County. The company completed a gravity survey on the Smoky Valley property. The company was trying to raise money to conduct drilling programs in 2013 (First Liberty Power, Inc., 10-K Report, 11/13/2012; First Liberty Power, Inc. website, www.firstlibertypower.com).

Great American Energy, Inc., of Denver, Colorado, entered into an option agreement with GeoXplor Corp. for the exclusive right to acquire a 100% interest in its Big Smoky Valley Lithium project (BSV claims) in Esmeralda County. The block consisted of 48 160-acre association placer claims covering 7,680 acres mostly in T2S, R39E, in the Silver Peak Mining District just northwest of the Silver Peak Lithium Operation (BLM LR2000 Database; Great American Energy, Inc., 10-K Report, 4/1/2013; Great American Energy, Inc., website, www.gamericanenergy.com).

In 2011, International Lithium Corp. was spun off from TNR Gold Corp. of Vancouver, Canada, with three lithium brine properties in Nevada: Fish Lake, Runway, and Sarcobatus Flats. The Fish Lake project consisted of 48 placer claims covering 3,200 acres in portions of T1N, R36E and T1S, R36E in Fish Lake Valley, Esmeralda County, about 47 miles southwest of Tonopah. The USGS sampled Fish Lake Valley in 1976 and found lithium brines on the surface that contained up to 200 ppm lithium. The Runway Project covered 7,200 acres located about 8 miles east-southeast of Tonopah near the Tonopah Airport in Ralston Valley in Nye County. It covers two interpreted basement lows in T2N, R43-44E. The Sarcobatus Flats Project consisted of 105 placer claims covering 2,660 acres located about 66 miles south of Tonopah mostly in the southwestern part of T8S, R44E in Sarcobatus Flat near Bonnie Claire, Nye County. A preliminary sampling program of surface sediments contained assays ranging between 210 and 340 ppm lithium. The company abandoned and wrote off the exploration and evaluation assets of the Fish Lake and Runway Projects in 2012. The company had a purchase option for the Sarcobatus Flats Project with Tonogold Resources Inc. since 2009. The company terminated the agreement and wrote off the exploration and evaluation assets of that project in 2012 (International Lithium Corp. website:

<http://internationallithium.com>; International Lithium Corp. Annual Audited Financial Statements, 3/13/2013).

Lithium Corp. conducted a sonic drilling program on the Fish Lake Valley property, which consisted of 40 80-acre association placer claims covering 3,200 acres mostly within T1N, R36E and T1S, R36E, Esmeralda County, about 22 miles northwest of the Silver Peak Operation. The drilling program consisted of 20 holes ranging between 34 feet and 81 feet deep, averaging 62 feet deep, and totaling 1,241 feet were drilled at 17 sites. The program was done in conjunction with geophysical studies and a brine sampling program conducted in 2010 and 2011 and outlined a boron/lithium/potassium anomaly measuring 1,476 feet by 2,461 feet. The anomaly was not fully delineated because soft ground restricted access to other potential drill sites. The drill results returned values ranging between 7.6 to 151.3 mg/L lithium, 146 to 2,161 mg/L boron, and 0.1 to 1.3% potassium and averaging 47.05 mg/L lithium, 992.7 mg/L boron, and 0.54% potassium. Using a 50 mg/L lithium cut-off to define anomalous zone, the average contents are 90.97 mg/L lithium, 1,533 mg/L boron, and 0.88% potassium (Lithium Corp. 10-K Report, 12/31/2012; Lithium Corp. news release 1/24/2013; Lithium Corp. website: www.lithiumcorporation.com).

Lithium Corp. conducted a drilling program on the San Emidio Property, which was staked in 2011. It consists of 20 80-acre placer claims covering 1,600 acres in T29N, R23E in the San Emidio Desert, Washoe County, about 65 miles north-northeast of Reno. The drilling program consisted of seven holes ranging between 90 feet and 160 feet deep, and totaling 846 feet. The program was done in conjunction with a near-surface brine sampling program and a high resolution geophysical survey conducted in 2011. The drilling program helped better define a lithium-in-brine anomaly discovered in early 2012 measuring about 0.6 miles by 3 miles and containing a peak value of 23.7 mg/L lithium. The drilling program also indicated the anomaly occurs at or near the intersection of several faults which may have provided the structural setting necessary for a buried lithium-rich brine deposit to form (Lithium Corp. 10-K Report, 12/31/2012; Lithium Corp. news releases, 11/5/2012, 12/13/2012; Lithium Corp. website: www.lithiumcorporation.com).

Lithium Corp. abandoned its Salt Wells property, which covered 6,400 acres mostly in T17N, R30-31E within the Salt Wells Basin about 15 miles southeast of Fallon, Churchill County. Early in 2011, the company discovered a lithium anomaly covering an area about 1.5 by 1.75 miles in the immediate subsurface with modest lithium levels that reached 38 mg/l. The company conducted a shallow drilling

program and a gravity survey over a four-square-mile area covering the anomaly. Of 31 sites tested, 23 encountered brine, 4 were almost brine, 3 were considered brackish, and the rest were fresh water. The results were disappointing which resulted in the company dropping the claims (Lithium Corp. 10-K Report, 12/31/2012; Lithium Corp. website: www.lithiumcorporation.com).

Pure Energy Minerals Ltd. contracted a CSAMT survey of the Alkali Flats Lithium Project, which consisted of 32 association placer claims (AF claims) covering about 5,120 acres, mostly in T2S, R41E, in the Montezuma Mining District in Esmeralda County. The survey was to refine the definition of a potential reservoir basin for lithium-bearing brines. (BLM LR2000 Database; Pure Energy Minerals, Ltd., Audited Annual Financial Statement, 10/26/2012; Pure Energy Minerals, Ltd., Management and Discussion Analysis, 11/23/2012; Pure Energy Minerals, Ltd., news releases, 10/18/2012, 11/19/2012, 12/19/2012).

Rodinia Lithium owns the Clayton Valley Lithium Project, which consists of 1,012 claims covering 72,340 acres in Clayton Valley, surrounding most of Chemetall Foote's Silver Peak operation. In 2011, the company reported a 460-foot intersection consisting of mixed clay, sand, and gravel starting at a depth of 560 feet, that ranged between 5.4 and 27 mg/L and averaged 18 mg/L boron, 240 and 400 mg/l and averaged 285 mg/L lithium, between 360 and 550 mg/L magnesium, and between 3,500 and 7,000 mg/L and averaged 4,758 mg/L potassium. In 2012, the company reported no exploration but did receive conditional approval from the BLM for its plan of operation for Clayton Valley, which includes a drill program. The drill program would target a southern valley trench, which may contain higher lithium concentrations as a potential extension of aquifers intersected by previous drilling to the north and adjacent to the Silver Peak operation. (Rodinia Lithium Management Discussion and Analysis, 4/30/2013; Rodinia Lithium news release, 3/1/2012; Rodinia Lithium website: <http://www.rodinialithium.com>).

Western Lithium USA Corp. continued with exploration, testing, and evaluation of the lithium resources on its Kings River Valley Project, Nevada. The property consisted of 1,882 unpatented lode claims covering 37,641 acres, mainly in the Disaster Mining District in northern Humboldt County. The company completed a two-year in-fill drilling program and feasibility study in 2011 and staked 100 new lode claims in late 2012. The results of testing by the Department of Energy's Argonne National Laboratory of lithium carbonate from Kings Valley for lithium ion batteries were announced in 2012 and proved that Western Lithium can produce high purity lithium product for use in multiple types of lithium ion battery chemistries. The company was also awarded

a patent (US 8,431,005) for developing a process in separating lithium and potassium from hectorite and other lithium-rich clays. If all goes according to plan, Western Lithium proposes to have the deposits in production in 2015. Plans for producing hectorite clay for a specialty drilling mud additive are discussed in the section on clay (BLM LR2000 database; Western Lithium USA Corp. Management Discussion and Analysis, 5/14/2012; Western Lithium USA Corp. news release 5/9/2013; Western Lithium USA Corp. website, <http://www.westernlithium.com>).

The property is within the McDermitt caldera. The lithium largely occurs in high-lithium clays, including hectorite, with significant amounts of clay formed from the hydrothermal alteration of the volcanoclastic sedimentary rocks making up the moat deposits in the western part of the caldera. These lithium-bearing moat deposits extend north through the western Montana Mountains and Disaster Peak into Oregon. Significant lithium mineralization was originally defined in five areas referred to as: PCD, South Lens, South Central Lens, North Central Lens, and North Lens by Chevron, who drilled the area in 1985. These areas are now referred to as Stages I through V by Western Lithium. In each area, the high lithium clay occurs in thick, apparently continuous accumulations in the zones between 3 and 300 feet thick (Western Lithium USA Corp. website, <http://www.westernlithium.com>).

Magnesia

According to the USGS, domestic production of magnesium compounds was estimated to be 330,000 tons in 2012. About 55% of domestic magnesia production came from seawater and natural brines, and the rest was produced from mining magnesite and minor brucite in Nevada and olivine in North Carolina and Washington. Estimated apparent consumption was 610,000 tons with most of the difference between consumption and production being made up by imports, mostly from China. About 55% of the magnesium compounds is used for refractories, and the rest is used in agricultural, chemical, construction, environmental, and industrial operations. The average price for calcined magnesite delivered from China to the U.S., ranged between \$290 and \$325 per ton in May 2012 and remained stable throughout the rest of the year (*Industrial Minerals*).

Premier Chemicals LLC of Cleveland, Ohio, owns the Gabbs magnesia operation in Nye County, which is the only place in the country to mine magnesite. Magnesite and some brucite (<5%) have been mined at Gabbs since 1935. The Nevada Department of Taxation reported gross proceeds of \$5,809,698 from the Gabbs operation in 2012. The magnesite and brucite occur as complex

replacement bodies in Triassic dolomite in an area of about 1,300 acres in the Paradise Range just east of the town of Gabbs. The resource was estimated to be about 64 million tons (*Magnesia Supplement, Industrial Minerals*, May 2010, p. 50-67) and is thought to be sufficient for more than 50 years of production at present mining rates.

Nevada Clean Magnesium Inc. (formerly Molycor Gold Corp.) owns the Tami-Mosi magnesium property, which consisted of 84 lode claims covering about 1,680 acres in sections 22, 28, 33, and 34, T16N, R64E and sections 3 and 4, T15N, R64E in the western foothills of the Schell Creek Range southeast of Ely. The company performed no work on the property in 2012. Magnesium is contained in high-purity dolomite (Nevada Clean Magnesium, Inc., Management and Discussion Analysis, 2/28/2013; Nevada Clean Magnesium, Inc., website, <http://www.nevadacmi.com>).

Perlite

According to the USGS, the estimated domestic production of perlite in 2012 was 467,000 tons valued at \$24.5 million. The U.S. was again the world's largest producer in 2012. Estimated apparent consumption was 614,000 tons, and imports were 185,000 tons. About 54% of perlite production is used in building construction products, the manufacture of which declined with the drop in construction. Most of the rest is used in fillers, filters, and horticulture. The estimated average price was \$53 per ton in 2012.

Nevada has large perlite resources, and several deposits in central Pershing, northern Lincoln, and southern Clark Counties were mined extensively in the past. 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 accounted for about 2% of domestic production in 2012. Nevada's actual production is confidential, but the Nevada Department of Taxation reported gross proceeds at \$1,780,546.

Wilkin Mining and Trucking Inc. mined perlite from the Tenacity Perlite Mine in the South Pahroc Range Mining District about 25 miles west of Caliente, Lincoln County. The company has mined perlite in the area for more than 25 years. The company has a small popping plant in Caliente, and sales were almost entirely expanded perlite used for horticultural purposes. In most years, the company ships between 1,500 and 2,000 tons. The deposit consists of a large, flat-lying, 20-foot thick perlite flow with obsidian pellets in Tertiary rhyolitic volcanic rocks. In the 1950s, it was estimated to contain a reserve of over 15,000,000 tons.

EP Minerals processed and shipped a small amount of expanded perlite that is marketed as a filter aid from its Colado diatomite plant in Pershing County. Plant capacity is reportedly about 8,000 tons per year. The crude perlite comes from the Popcorn Mine about 15 miles south of Fallon, in Churchill County. It is only mined a week or two every year.

Potassium Sulfate and Sodium Sulfate

During the lithium extraction process, potassium sulfate and sodium sulfate can be recovered as a by-product. A 2012 feasibility study for the Kings Valley Project by Western Lithium Corp. (see section on lithium) noted proven and probable reserves of 15,375,000 tons grading 0.404% lithium, 3.82% potassium, and 1.45% sodium. The study proposes an 82.7% recovery rate for potassium sulfate and a 77.7% recovery rate for sodium sulfate. The combined potassium sulfate and sodium sulfate production is estimated to make up about 25% of the proposed revenues of the Kings Valley Project. (Western Lithium Corp. Annual Information Form, 12/24/2012; Western Lithium Corp. 43-101 Technical Report, 1/27/2012; Western Lithium Corp. website, <http://www.westernlithium.com>).

Rare Earths

According to the USGS, Molycorp's Mountain Pass Mine in California restarted production of rare earth elements (REE) from the fluorocarbonate mineral bastnasite in 2012. Mountain Pass is the only rare earth producer in the U.S. and produced 7,700 tons of bastnasite concentrates (60-70% rare earth oxides). Estimated imports of REEs into the United States decreased 27% in 2012. The estimated value of imported refined rare earths was \$615,000,000, a decrease of 23% from 2011. China has about half of the world reserves and accounted for 86% of the world's production of 121,000 tons in 2012 and 86% of U.S. imports between 2008 and 2011.

Largely because of its own increasing consumption, China cut its exports by 70% in 2010, resulting in an overall 40% drop for 2010 and 65% during the first nine months of 2011. China's domestic consumption increased 200% in 2011. In addition to restricting exports, China proposed issuing no new mining licenses until 2015. This resulted in the consolidation of the number of companies mining REEs. The export restrictions resulted in price increases ranging from 23% to 1,265% on various rare earth elements especially in the second half of 2010, and price increases ranging between 15% and 570% continued through 2011. However, sluggish economic conditions and

improved efficiency in material processing resulted in price decreases ranging between 49% and 74% depending upon the element through 2012. The world has little near-term production capacity outside of China. Only the operations at Nolans Bore in Australia and Mountain Pass have potential to add to capacity. This has led to an increase in exploration (*Industrial Minerals*).

Elissa Resources Ltd drilled 21 core holes totaling 7,251 feet on the company's Thor Rare Earth Elements Property located mostly in T28-29S, R61E in the Crescent District in Clark County. Exploration in 2010 and 2011 identified significant REEs and some thorium mineralization at nine sites in four zones referred to as the Lopez Trend, Black Butte, NED and Santos Trend. The Lopez Trend and NED area were targeted by the drilling program. Some significant intercepts included 32 feet grading 1.05% total rare earth oxide (TREO) containing 5 feet grading 1.82% TREO and 1.8 feet grading 3.28% TREO; 1.4 feet grading 1.77% TREO; and 2.8 feet grading 0.95% TREO in three holes in the Lopez Trend and 5 feet grading 1.04% TREO in the NED area. The drilling also discovered a possibly extensive REE-bearing alkali granite/syenite unit in the northern part of the Lopez Trend with most of the higher grade TREO assays containing up to 18.5% heavy rare earth oxides. The project area is thought to contain some common features with the Mountain Pass REE deposit 16 miles to the west. It occurs in in Precambrian rocks but, unlike Mountain Pass with rare earths in bastnaesite, the REEs occur in monazite, apatite, and xenotime. (BLM LR2000 Database; Elissa Resource, Ltd., news release, 6/19/2012; Elissa Resource, Ltd., website, <http://www.elissaresources.com>; <http://www.sedar.com>).

Salt

According to the USGS, the estimated domestic production of salt decreased 11% to 44,300,000 tons valued at \$1,600,000,000. According to data from NDOM, Nevada's only producer, the Huck Salt Co., produced 28,700 tons. The Nevada Department of Taxation reported gross proceeds at \$423,907. The salt is mainly used for deicing roads; thus, production levels are dependent on weather. It is also used for water softeners. The salt is mined from a playa on Fourmile Flat about 25 miles southeast of Fallon, Churchill County, where it has been harvested almost continuously since the 1860s, when it was hauled to help process silver and gold ore from the Comstock Lode.

Silica

The USGS includes silica under *Industrial Sand and Gravel*. The U.S. is by far the world's

largest silica sand producer, and the estimated domestic production increased 13% in 2012 to 55,500,000 tons, an all-time high, valued at \$2,200,000,000. Estimated apparent consumption in 2012 was 49,700,000 tons. The U.S. is a major exporter of silica, and estimated exports were 5,200,000 tons. The estimated average price was \$40.62 per ton.

The Nevada Department of Taxation reported gross proceeds of \$11,812,079 for silica in 2012. The main uses of silica are hydraulic fracturing sand, well-packing and, cement sand, manufacturing glass, foundry sand, fillers, building products, and other uses. Most silica production in Nevada goes to manufacturing glass and foundry castings and construction materials with a small amount to golf sand. None was used for hydraulic fracturing in 2012.

According to data from NDOM, Nevada's major silica producer, Simplot Silica Products at Overton in Clark County, shipped 415,244 tons of silica sand. 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 facility produces four grades of sand based on coarseness, AFS 55, 60, 70, and 100. AFS 70 is used mainly in manufacturing glass and foundry castings.

James Hardie Building Products Inc. produced high purity silica from the Lucky Boy Quarry in the Lucky Boy District about 10 miles southwest of Hawthorne in Mineral County. The company did not mine or process any material, but shipped from stockpiles to its plant near Reno. Production is confidential, but the Nevada Department of Taxation reported gross proceeds at \$1,054,131, an increase of 28% from 2011. The silica is used as feed for the company's fiber-cement siding manufacturing plant in the Tahoe-Reno Industrial Park east of Sparks. The company's lease on the mines expires in January 2014 but includes an option to buy. The Lucky Boy Quarry is in a 1,300-foot by 350-foot body of milky quartz hosted in granodiorite. In the past the company has mined the Kramer Hill deposit about 1.5 miles south of Golconda, in Humboldt County, but has not since 2008. The Kramer Hill Quarry is in the Cambrian Osgood Mountain Formation, which consists of white to light gray quartzite.

Southern Nevada Liteweight mined silica sand from the Hidden Valley South quarry about 20 miles south of Las Vegas. The quarry produced mostly plaster and concrete sand for stucco and masonry block and some golf course sand.

Zeolite

Nevada contains large known resources of zeolite; however, zeolite production has been small, and no zeolite is currently mined in Nevada. Saint Cloud Mining Co. of Winston, New Mexico, operated the Ash Meadows plant, which annually ships 1,000 to 5,000 tons of clinoptilolite used in water filtration, odor control, and nuclear clean-up from their plant in Amargosa Valley, Nye County. The plant, which has a 40,000 ton annual capacity, also produces zeolite based cement for building materials and oil and gas projects. The clinoptilolite is mined from a small open pit just over the state line in Inyo County, California, in a large area of zeolite deposits that extends into Nevada. (Saint Cloud Mining Co. website, <http://www.stcloudmining.com>)

KMI Zeolite, Inc. operated its plant in Sandy Valley about 32 miles southwest of Las Vegas. The source is a deposit reportedly containing about 60,000,000 tons of largely clinoptilolite in California about 85 miles northwest of the mill. The mill is capable of producing 55,000 tons per year. (KMI Zeolite Inc. website, <http://www.kmizeolite.com>).

Industrial Mineral Deposits

by David A. Davis

This is a compilation, in progress, of industrial mineral deposits. 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 active mines and contact information are listed in the Directory of Mining and Milling Operations.

Deposit name	Minerals	Reserves/resources	Production
CHURCHILL COUNTY			
Fallon Bentonite Project (Sand Springs Marsh district)	Bentonite	2012: 34,000,000 tons, Na-Bentonite (proven reserves)	2012: 7,000 tons stockpiled
CLARK COUNTY			
Anderson (Moapa district)	Gypsum	1936: 1,500,000 tons, (estimated reserve)	
Chapparral (Moapa district)	Limestone	2012: 182,000,000-200,000,000 tons, 80-95% CaCO ₃ (resource, <2.5% MgO)	
Lone Mountain	Aggregate	2008: Public Lands: 177,000,000 cubic yards; Private Property: 63,000,000 cubic yards (proposed for extraction)	1980-2012: N/A
Mica Peak (Gold Butte district)	Vermiculite	2007: 2,000,000-3,000,000 tons, (estimated recoverable reserve)	
Overton (Moapa district)	Magnesite	1936: 850,000 tons 38% MgO; 3,700,000 tons 34% MgO; 5,100,000 tons 30% MgO (resource)	1920s: small
Pabco (Apex) (Muddy Mountains district)	Gypsum	1958: 750,000,000 tons (estimated reserves)	1940s: N/A 1959-1988: N/A 1989-2005: 12,712,287 tons 2006: 1,438,886 tons 2007: 1,148,624 tons 2008: 829,801 tons 2009: 715,701 tons 2010: 682,000 tons 2011: 710,033 tons 2012: 1,033,681 tons
Searchlight Insulation (Searchlight district)	Perlite	1951: 10,581,000 tons (indicated reserves)	1940s-1955: N/A
Sloan (Sloan district)	Dolomite	1952: 48,000,000 tons (indicated ore) 22,000,000 tons (inferred ore)	1928-2012: N/A
Sloan Hills (Sloan district)	Dolomite Limestone	2011: 126,000,000 tons (material proposed to be mined)	
ELKO COUNTY			
Ivanhoe Creek (Ivanhoe district)	Bentonite	2007: 2,200,000 tons, Ca-Bentonite (inferred resource)	
Lakes (Beaver district)	Barite	1982: 8,000,000 tons, 4.1 sp. gr. (resource)	1959-1965; 1973-1981: <1,000,000 tons

INDUSTRIAL MINERAL DEPOSITS (continued)

Deposit name	Minerals	Reserves/resources	Production
ESMERALDA COUNTY			
Silver Peak (Disaster district)	Li	2008: 44,000 tons (economic reserves)	1966-1997: N/A 1998: 1,200,000 lbs LiCO ₃ , 500,000 lbs LiOH 1999-2012: N/A
EUREKA COUNTY			
Bisoni (Fish Creek) (Fish Creek district)	Fluorspar	1970s: "many00,000s" tons, 10% CaF ₂ 1987: >120,000,000 tons, 10% CaF ₂	
HUMBOLDT COUNTY			
Kings Valley (Disaster district)	Li, K, Na	2011: 0.327% Li cut-off grade: 16,465,000 tons, 0.4% Li, 3.85% K, 3.7% Na (proven reserves); 13, 445,000 tons, 0.388% Li, 3.93% K, 3.93% Na (probable reserves)	
	Li, K, Na	2012: 0.32% Li cut-off grade: 13,396,000 tons, 0.405% Li, 3.83% K, 1.46% Na (proven reserves); 1, 980,000 tons, 0.396% Li, 3.77% K, 1.45% Na (probable reserves)	
LANDER COUNTY			
Blazer (Iowa Canyon district)	Fluorspar	1970s: 300,000 tons, 30% CaF ₂ 1974: 437,500 tons, 25.8% CaF ₂	
Bradshaw (Bullion district)	Barite	1975: 78,760 tons (reserve, shipping grade 4.22 sp. gr.); 5,100 tons (low grade resource)	1975-1982: N/A
LINCOLN COUNTY			
Acoma (Acoma district)	Perlite	1951: 38,700,000 tons (indicated reserves) 21,850,000 tons (inferred reserves)	
Blue Nose (Viola district)	Limestone	2011: 227,725,000 tons (indicated resource; low, <5%, MgO); 30,595,000 tons [inferred resource, low; <5%, MgO]; 16,649,000 tons (indicated resource, high MgO); 2,086,000 tons (inferred resource, high MgO)	
Boyd (Boyd district)	Clay	1936: 800,000 cubic feet	1920-1930: N/A
Eccles and Minto (Acoma district)	Perlite	1951: 15,281,000 tons (indicated reserves) 9,640,000 tons (inferred reserves)	
Fairview (Silverhorn district)	Perlite	1951: 4,038,000 tons (indicated reserves) 2,000,000 (inferred reserves)	Bef. 1951: 5,000 tons
Free (Wilson Creek Range district)	Perlite	1951: 450,000 tons (indicated reserves) 1,000,000 (inferred reserves)	

INDUSTRIAL MINERAL DEPOSITS, LINCOLN COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
Hollinger (Wilson Creek Range district)	Perlite	1951: 1,150,000 tons (indicated reserves) 3,000,000 (inferred reserves)	1940s-1968: over 250,000 tons
Johnson-Fitchett	Perlite	1951: 2,680,000 tons (indicated reserves) 1,000,000 tons (inferred reserves)	
Kopenite (South Pahroc Range district)	Perlite	1951: 10,460,000 tons (indicated reserves) 5,000,000 tons (inferred reserves)	Bef. 1951: several 1,000 tons
Leech (Wilson Creek Range district)	Perlite	1951: 1,150,000 tons (indicated reserves) 3,000,000 (inferred reserves)	
Robb (South Pahroc Range district)	Perlite	1951: 16,000,000 tons (indicated reserves) 8,000,000 (inferred reserves)	
Snow (Eagle Valley district)	Perlite	1951: 29,615,000 tons (indicated reserves)	

MINERAL COUNTY

Fluftrok (Aurora district)	Perlite	1950s: 300,000 tons (resource)	
--------------------------------------	---------	--------------------------------	--

NYE COUNTY

Horseshoe (Quinn Canyon district)	Fluorspar	1956: 410,000 tons, abt. 40% CaF ₂ (estimated reserves)	
Mammoth (Quinn Canyon district)	Fluorspar	1956: 3,125,000 tons, 30-35% CaF ₂ (estimated reserves)	
Premier (Gabbs district)	Mg	2010: 64,000,000 tons (resource)	1935-2012: N/A
Shannon Queen (Quinn Canyon district)	Fluorspar	1956: 12,000 tons, abt. 51% CaF ₂ (estimated reserves)	
Spar (Quinn Canyon district)	Fluorspar	1956: 33,000 tons, abt. 80% CaF ₂ (estimated reserves)	

PERSHING COUNTY

Nassau (Nevada district)	Bentonite	2012: 535,000 tons, Ca-Bentonite (wet tons of reserves)	1981-2011: <2,000 tons annually 2012: <2,000 tons
Valery (Imlay district)	Fluorspar	1965: 800,000 tons, 25% CaF ₂	1953-1955: 1,932 tons

WHITE PINE COUNTY

Hampton Creek Garnet (Mount Moriah district)	Garnet	1990: 12,000 to 60,000 tons (1-5% alluvial resource)	Early 1960s: test lots
Tami-Mosi (Nevada district)	Mg	2011: 454,000,000 tons, 12.3% Mg (inferred resource, 12% cut-off grade)	

Geothermal Energy

by Lisa Shevenell and Benjamin McDonald

During 2012 the Nevada Division of Minerals (NDOM) issued 50 geothermal well permits, which were 50 fewer than 2011 and 69 fewer than 2010. The 50 permits issued in 2012 included the following: 13 industrial production well permits, 11 industrial injection well permits, no domestic well permits, seven gradient well permits, 18 observation well, and two project area permits. A total of 17 geothermal wells of all types (see table of Nondomestic Geothermal Wells below for complete listing) were reported as drilled during 2012: six of those were permitted in 2011.

Nevada geothermal electrical production in 2012 from federal and private lands combined was 3,137,656 megawatt-hours (MWh) gross and 2,410,336 MWh net. This was an increase in gross production of 419,720 MWh, compared to the 2011 production and an increase in net production of 236,855 MWh from 2011. According to the Nevada Department of Taxation (2013), the total 2012 gross proceeds from geothermal power generation in Nevada were \$162,466,512, over \$9.5 million greater than in 2011. The largest gross proceeds were \$41 million generated by the Steamboat complex, \$2 million less than 2011. Steamboat was followed by Dixie Valley at \$31.4 million, nearly \$10 million less than in 2011. These proceeds were not entirely from power generation but also included Elko Heat Company's \$203,899 gross proceeds from commercial heating and Nevada Geothermal Utility Company's \$133,361 (Warren and Manzanita Estates, Moana geothermal system). No taxation information is published by the Department of Taxation for the Peppermill Hotel Casino, which uses geothermal waters produced on site to heat their hotel towers.

Currently installed equipment, or nameplate, capacity (gross) at 14 existing geothermal power production sites (23 power plant units) in Nevada is 512 megawatts (MW), a 37 MW increase from 2011. Table 1 lists operators, plant locations, and energy production for individual Nevada geothermal power producers at the end of 2011 (based on data supplied to the Nevada Division of Minerals by individual companies). Figure 1 shows the

location of these power plants. Nevada is second only to California in total installed geothermal generating capacity in the U.S.

In Nevada during 2012, there were eight new authorized federal leases covering approximately 27,834 acres, of a total of 33 leases (94,829 acres) offered for bid. This shows a steep decline from previous years since 2007 in both the number of leases sold and the percent of available leases sold. For instance, in 2007 and 2008, 100% of the parcels offered were sold, whereas in 2012, only 24% of the parcels offered were sold, part of a steady decline that began in 2009. Figure 2 shows the location of active geothermal leases in Nevada, with 2011 and 2012 data obtained from BLM-provided shape files at http://www.blm.gov/nv/st/en/prog/minerals/leaseable_minerals/geothermal0/ggeothermal_leasing/prior_sales.html.

Information for earlier years was generated from data obtained by the now defunct online BLM Geocommunicator.

On January 24, 2012, the lease sale resulted in the sale of the eight parcels and yielded a total lease sale income in Nevada of only \$112,540 in comparison to the peak year of 2008 in which \$28,207,806 were generated. (Tables 2 and 3; <http://www.blm.gov/pgdata/etc/medialib/blm/nv/minerals/geothermal/leasesales.Par.68186.File.dat/Mar2011.non.competitive.geo.sale.results.pdf>). Only 0.4% of the dollars generated from BLM lease sales in the peak year of 2008 were collected from lease sales in 2012, which is a further indication of the decline in geothermal development activity in Nevada. Furthermore, all 2012 competitive leases were sold at the minimum sale price of \$2 per acre (Table 2).

Seventy-five percent of BLM lease sale income went to the State of Nevada (25% had gone to the counties of Nevada prior to the 2009 state budget crisis), and 25% went to the U.S. Department of Interior to help support BLM's geothermal program (http://www.blm.gov/nv/st/en/prog/minerals/leaseable_minerals/geothermal0/ggeothermal_leasing/prior_sales.html ; BLM web site, 2012).

Table 1. Nevada geothermal power plants, 2012.

Plant name	Nameplate	Flash or	Commission	2012 Production (MWh)		Location	Operator
	Capacity (MW)	Binary	Year	Gross	Net		
Beowawe	16.6	F	1985	121,937	102,404	S13,T31N,R47E	TerraGen Power, LLC
Blue Mountain	49.5	B	2009	342,286	257,190	S14,T34N, R34E	Nevada Geothermal Power
Bradys	26.1	F/B	1992	117,250	66,790	S12,T22N,R26E	Ormat Nevada
Desert Peak			1985	0	0	Decommissioned	Ormat Nevada
Desert Peak II ²	23.0	B	2006	127,681	98,218	S21,T22N,R27E	
Dixie Valley ³	64.7	F	1988	532,972	477,541	S7,T24N,R37E S33,T25N,R37E	TerraGen Power, LLC
Empire	11.8	B	1987	40,386	30,045	S21,T29N,R23E	USG Nevada LLC
Jersey Valley	22.5	B	2011	76,324	56,942	S28,T27N,R40E	Ormat Nevada
McGinness Hills	30.0	B	2012	193,450	161,058	S15, T20N, R45E	Ormat Nevada
Salt Wells	23.6	B	2009	144,886	105,676	S36,T17N,R30E	Enel North America
Soda Lake No. 1	5.1	B	1987	14,657	9,001	S33,T20N,R28E	Magma Energy Corp
Soda Lake No. 2	18.0	B	1991	89,766	55,419	S33,T20N,R28E	
Steamboat I*	8.4	B	1986	0	0	S29,T18N,R20E	Ormat Nevada
Steamboat I-A	2.4	B	1986	1,283	1,050	S29,T18N,R20E	
Steamboat II	23.9	B	1992	124,665	81,994		
Steamboat III	23.9	B	1992	131,527	91,612		
Galena 1	30.0	B	2005	182,605	151,494		
Galena 2	13.5	B	2007	84,866	66,914		
Galena 3	30.0	B	2008	205,610	159,373		
Steamboat Hills	13.2	F	1988	175,865	144,756	S5,6,T17N,R20E	
(1988, formerly Yankee Caithness)							
Total MW at Steamboat						136.9	
Stillwater (1989) isolated from the grid			1989			S1,T19N,R30E	Enel Stillwater
Stillwater 2	47.2	B	2009	236,361	151,697	S6,T19N,R31E	
Tuscarora	32.0	B	2012	175,843	130,248	S2, T41N, R52E	Ormat Nevada
Wabuska	5.6	B	1984	17,437	10,345	S15,16,T15N,R25E	Homestretch Geothermal
Total:	538.9			3,137,656	2,409,767		

* Ormat decommissioned the Steamboat I plant. The 8.4 MW is not included in the total.

Footnotes to Table 1.

¹Nameplate capacity is the manufacturer's rating of equipment output capacity as reported to the Nevada Division of Minerals by the plant operators (as of February, 2013) and does not necessarily reflect the capability of the currently developed resource. These nameplate capacities are estimates, and several different values can be found in the literature. Generator nameplate capacity actually refers to the size of the actual generator but not to the turbine size or the actual capacity of the power plant. There are no public documents breaking down nameplate capacity of the turbines or gross power so these numbers may not adequately reflect actual generation (Dan Fleischmann, personal communication, June 2010).

²Desert Peak II is a newer 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 online on August 1, 2006 with a generation capacity of 23 MW, more than twice that of the original power plant.

Addresses, telephone numbers, and websites for companies listed in Table 1 follow (as of spring 2013):

Table 2. Geothermal power plant operator contact information.			
Operator	Local (Nevada) Office	Project	MW
Enel North America	Enel North America	Salt Wells	23.6
One Tech Drive	1755 East Plumb Lane, Ste 155	Stillwater	47.2
Suite 220	Reno, NV 89502		
Andover, MA 01810	(775) 786-5681		
Phone: 978-681-1900	http://www.enel.it/northamerica/		
	Homestretch Geothermal	Wabuska	5.6
	10 Julian Lane		
	Yerington, NV 89447		
	(775) 463-4633		
	No Web Site		
Nevada Geothermal Power	Nevada Geothermal Power	Blue Mountain	49.5
Suite 900 - 409 Granville Street	657 Anderson St	(Faulkner 1)	
Vancouver, BC, Canada, V6C 1T2	Winnemucca, NV 89445		
(866) 688-0808	(775) 625-4515		
	http://www.nevadageothermal.com/s/Home.asp		
	Ormat Technologies, Inc.	Bradys	26.1
	6225 Neil Rd	Desert Peak	23
	Reno, NV 89511	Jersey Valley	22.5
	(775) 356-9029	Steamboat	136.9
	http://www.ormat.com/	McGinness Hills	30
		Tuscarora	32
Alterra Power Co.	Magma Energy (USA) Corp	Soda Lake No. 1	5.1
410 - 625 Howe Street	5500 Soda Lake Road	Soda Lake No. 2	18
Vancouver, BC V6C 2T6	Fallon, NV 89406		
Canada	(775) 867.5093		
(604) 687-0407	http://www.alterrapower.ca/		
Terra-Gen Power, LLC	Terra-Gen Power, LLC	Beowawe	16.6
1095 Avenue of the Americas	9590 Prototype Ct., #220	Dixie Valley	64.7
25th Floor, Suite A	Reno, NV 89521		
New York, NY 10036	(775) 829-3900		

(646) 829-3900	http://www.terra-genpower.com/		
USG Nevada LLC	USG Nevada LLC	Empire	11.75
1505 Tyrell Lane	P.O. Box 10	(San Emidio)	
Boise, Idaho 83706	Empire, NV 89405		
(208) 424-1027	(775) 557-2015		
	http://www.usgeothermal.com/index.aspx		
	Total Installed MW (nameplate capacity)		512.55

Power Plants

- ▲ pre- 2005
- 2005 - 2011
- 2012

- ▲ 1. Beowawe - 16.6 MW
- 2. Blue Mountain - 49.5 MW
- ▲ 3. Bradys - 26.1 MW
- ▲ 4. Desert Peak - 23 MW
- ▲ 5. Dixie Valley - 64.7 MW
- ▲ 6. Empire - 4.8 MW
- 7. Jersey Valley - 22.5 MW
- 8. McGinness Hills - 30 MW
- 9. Patua (Hazen) - 60 MW
- 10. Salt Wells - 23.6 MW
- ▲ 11. Soda Lake - 23.1 MW
- ▲ 12. Steamboat - Binary - 58.6 MW
- 13. Galena 1 - 30 MW
- 14. Galena 2 - 13.5 MW
- 15. Galena 3 - 30 MW
- ▲ 16. Steamboat Hills - Flash - 13.2 MW
- ▲ 17. Stillwater - 47.2 MW
- ▲ 18. Wabuska - 5.6 MW
- 19. Tuscarora - 32 MW

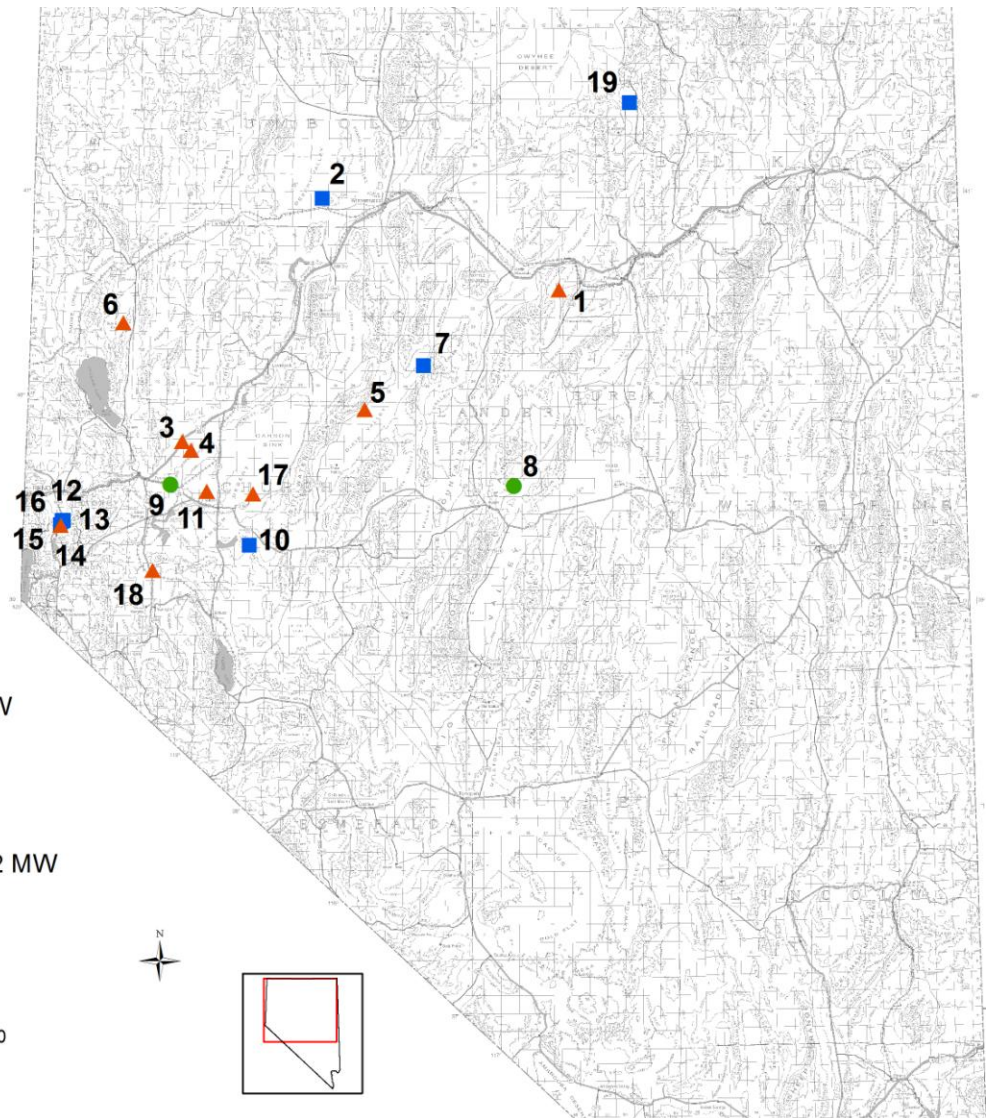


Figure 1. Locations of existing power plants noted in Table 1 (as of July, 2013; modified from Shevenell and Zehner, 2011). The noted year indicates the year of plant commissioning. Note that construction at Patua was not complete as of October 2013.

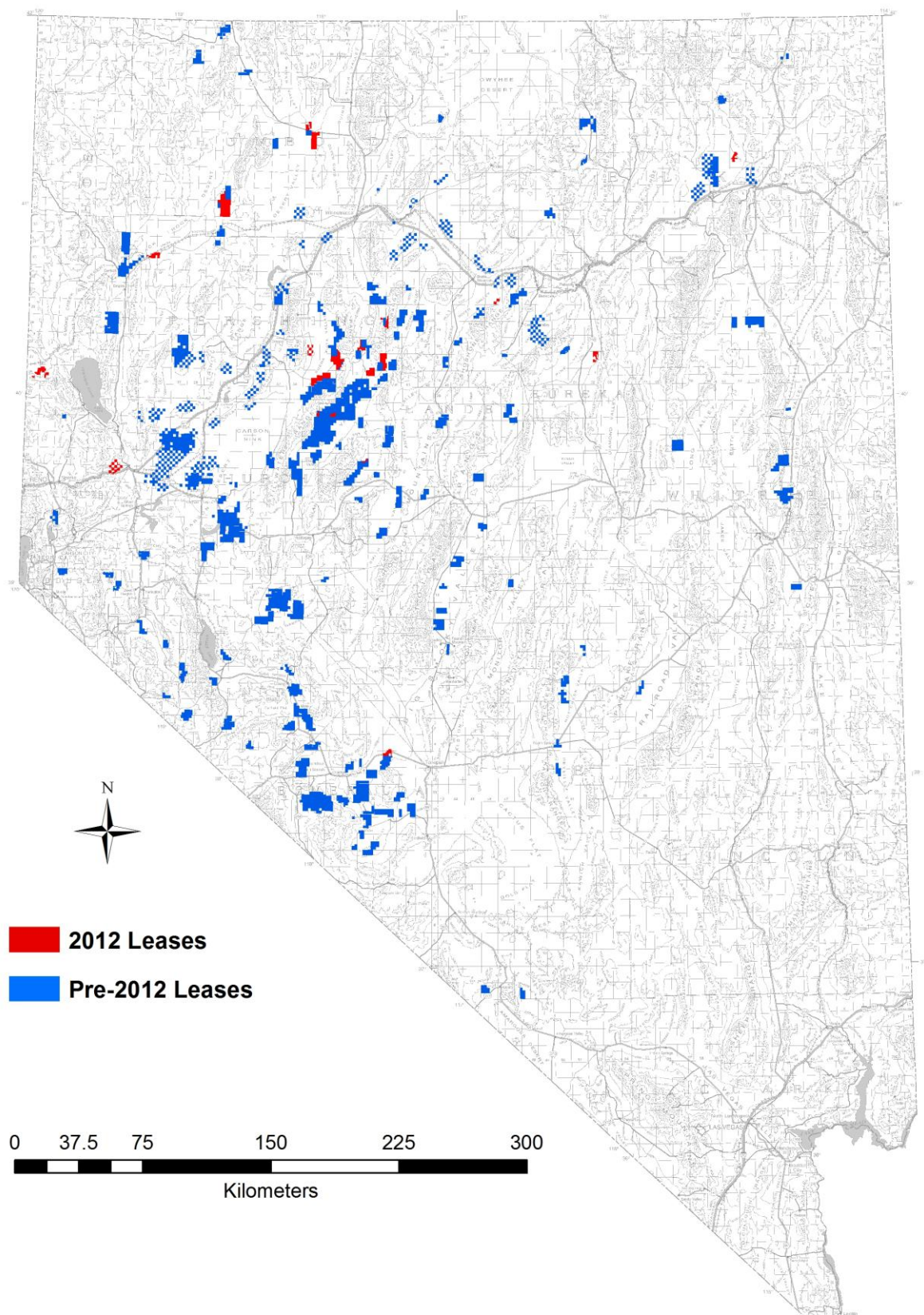


Figure 2. Locations of active leases in Nevada, highlighting those offered in 2012 in red.

Table 3. 2012 BLM competitive lease results from January 24, 2012 lease sale.

Location	Company	(N)	(E)	Sec	BID/ACRE	ACRES	TOTAL Bonus Bid
MacFarlane Hot Springs	ORMAT NEVADA INC	36	29	16	\$2.00	3667 (1483 ha)	\$7,334
MacFarlane Hot Springs	ORMAT NEVADA INC	37	29	33	\$2.00	1848 (748 ha)	\$3,698
MacFarlane Hot Springs	ORMAT NEVADA INC	37	30	29	\$2.00	5092 (2061 ha)	\$10,186
MacFarlane Hot Springs	ORMAT NEVADA INC	36	30	16	\$2.00	4667 (1889 ha)	\$9,334
MacFarlane Hot Springs	ALLIED NEVADA GOLD CORP	36	30	28	\$2.00	2411 (976 ha)	\$4,822
New York Canyon	TGP NEW YORK CANYON LLC	26	36	15	\$2.00	5108 (2067 ha)	\$10,216
New York Canyon	TGP NEW YORK CANYON LLC	26	35	24	\$2.00	4480 (1813 ha)	\$8,960
Tungsten Mountain	ORMAT NEVADA INC	21	38	13	\$2.00	560 (227 ha)	\$1,120

Following the competitive leases on January 24, 2012, 25 parcels were available for non-competitive lease, of which one parcel of 3,640 acres sold for total revenue of \$4,020.

As can be seen from Tables 3 and 4, geothermal leasing activity had declined dramatically by 2011 and 2012, with only minimum-bid offers on all the properties, and revenues in 2012 at only 0.4% of those collected by BLM in 2008. Of the total number (321) of leases sold from 2007-2013 (including non-competitive),

135 of the leases were relinquished, allowed to expire, or terminated by BLM by fall 2013. These relinquished leases account for 42% of all leases sold between 2007 and 2013. . Geothermal lease activity in Nevada had clearly experienced a precipitous decline by 2012, apparently continuing into 2013.

Table 4. Geothermal competitive leasing activity in Nevada, 2007-2012.

Year	Parcels Offered	Acres Offered	Parcels Sold	Acres Sold	Total receipts	Average per acre	% Acres Sold	% Parcels Sold
2007	43	122,849	43	122,849	\$11,669,821	\$95	100%	100%
2008	35	105,212	35	105,212	\$28,207,806	\$268	100%	100%
2009	108	323,222	82	243,727	\$8,909,445	\$28	75%	76%
2010	114	328,020	75	212,370	\$2,762,292	\$13	65%	66%
2011	51	151,119	17	42,627	\$456,353	\$11	28%	33%
2012	33	94,829	8	27,834	\$112,540	\$4.04	29%	24%
Totals:	384	1,125,251	260	754,619	\$52,118,257	\$70		

Source:

http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing/prior_sales.html

According to the Geothermal Energy Association, at the end of 2012, there were 75 projects in various stages of development in Nevada, which could result in the construction of between 1,056 and 1,061 MW of additional power generation capacity over the next 5 to 10 years (GEA, 2013). However, as detailed below, activity had waned in 2012 in terms of leasing, relinquished leases, and drilling activity.

Plant nameplate capacity by year is shown in Table 1 and Figure 3, price and production data appear in Figure 4, and production wells drilled by year are listed in Figure 5, with detail on those wells listed in Table 5. Despite a decline in new exploration activity documented by BLM leasing activity, power production has continued to increase through 2012 (Figures 3 and 4) as projects under development and leased in previous years continue to come on-line. This upward trend in capacity (Figure 3) demonstrates that many good geothermal prospects leased in previous years continue to be developed.

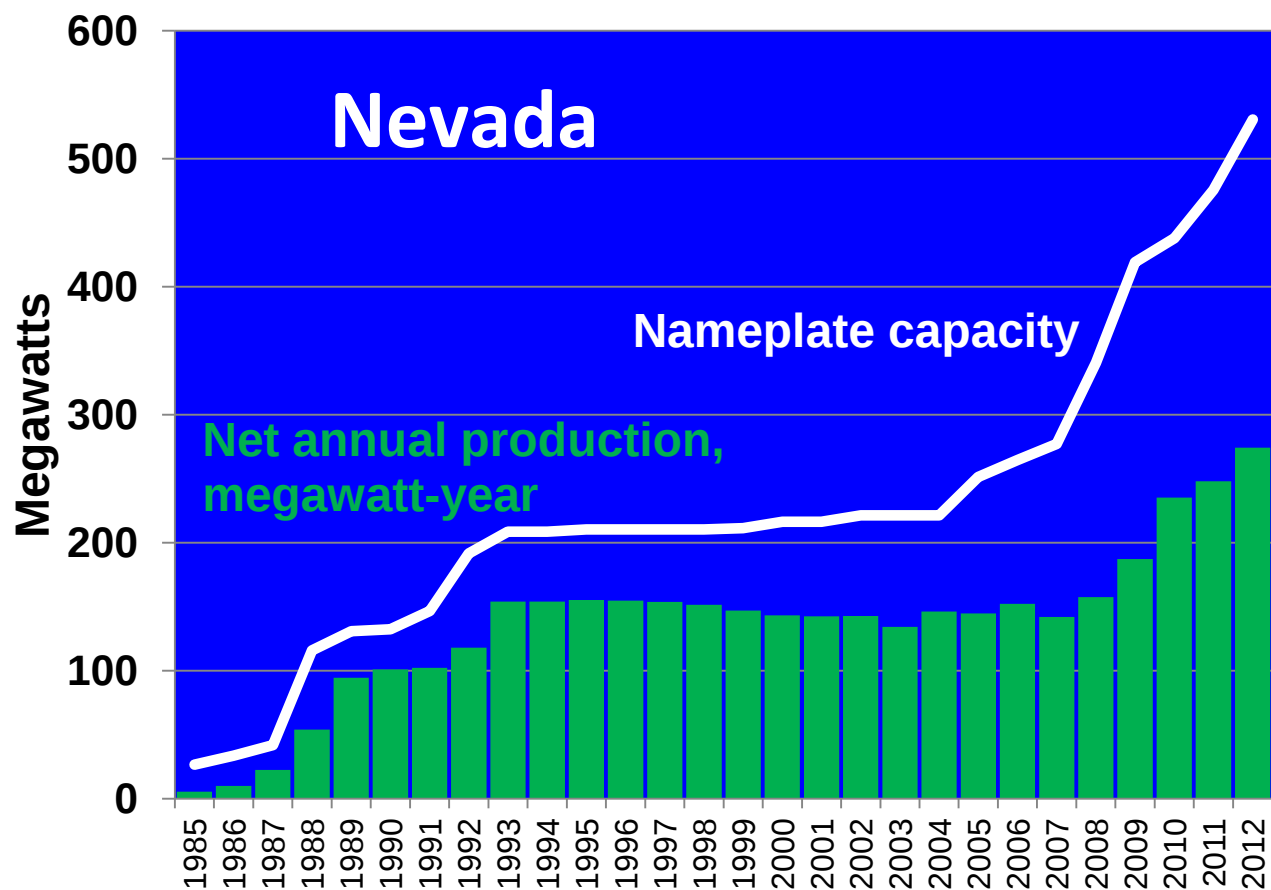


Figure 3. Graph of annual geothermal electric power based on reported nameplate capacity to the Division of Minerals by year from 1985-2012. Average net output is annual sales in megawatt-hours divided by the number of hours in a year (8,760). No commercial geothermal power was produced in Nevada before 1985.

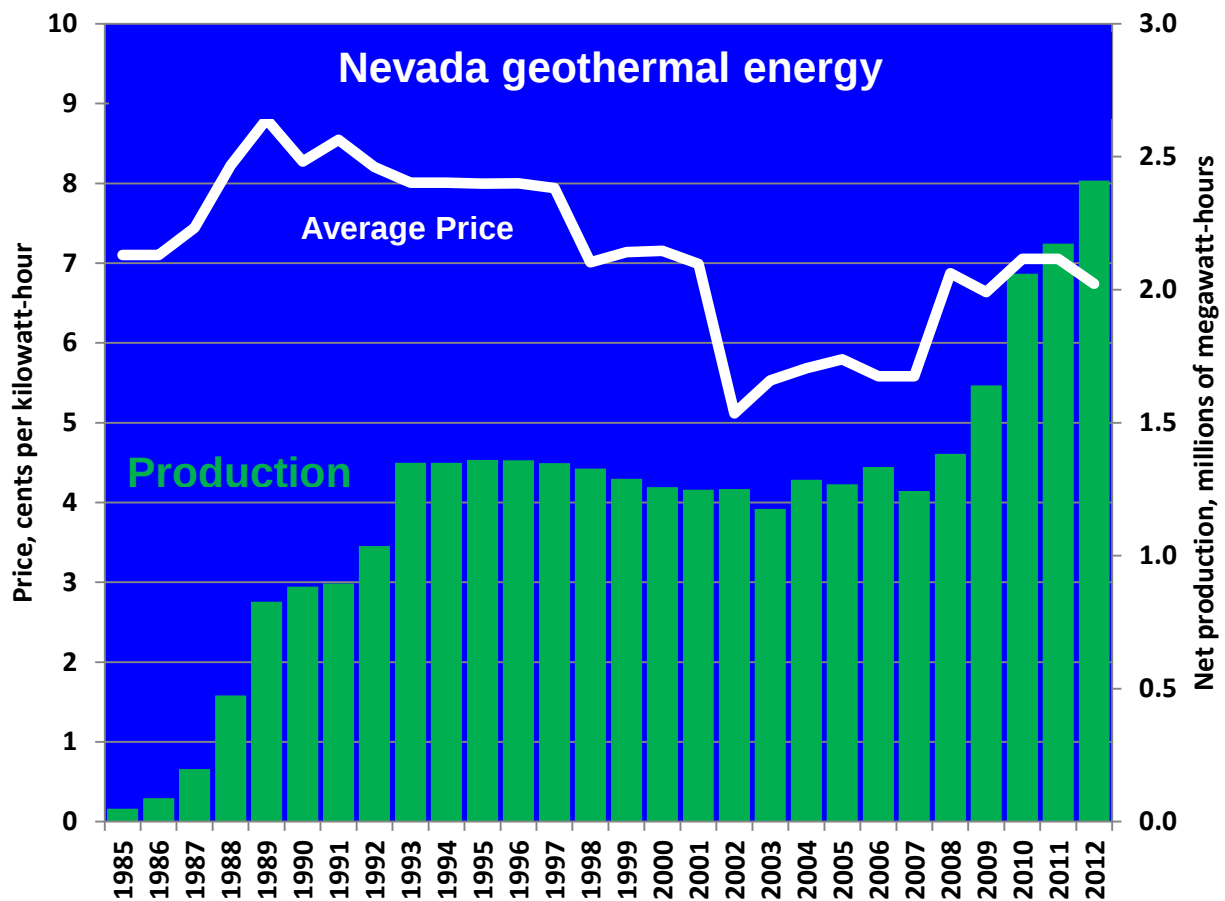


Figure 4. Graph of annual, net geothermal electric power production and average priced-based gross receipts and reported gross production through 2012. Note that average price is based on the total MWh produced and total receipts. Actual price for any individual power plant may vary and is held confidential by the state Energy Office.

Table 5. Geothermal wells reported as drilled, re-drilled or completed in 2012.

Area	Company Name	Well Type ¹	Well Number	PRMT #	Location	Permitted Depth (ft)	SPUD Date
County							
CARSON LAKE	ORNI 16	O	18-5	1280	SW/4 SW/4 S 5, T17N, R30E	3,000	3/15/2012
DIXIE HOPE	ORNI 32	TG	86-7	1303	NE/4 SE/4 S 7, T22N, R35E	1,000	8/6/2012
	ORNI 32	TG	22B-8	1305	NW/4 NW/4 S 8, T22N, R35E	1,000	7/17/2012
SALT WELLS	ENEL SALT WELLS	O	61-2	1295	NW/4 NE/4 S 2, T17N, R30E	±1,000	5/29/2012
	ENEL SALT WELLS	O	44-35	1296	SE/4 NW/4 S 35, T17N, R30E	±1,000	6/5/2012
	ENEL SALT WELLS	O	68-35	1297	SW/4 SE/4 S 35, T17N, R30E	±1,000	5/31/2012
	ENEL SALT WELLS	P	46A-35 (PW-6)	1317	NE/4 SW/4 S 35, T17N, R30E	±1,000	11/9/2012
TUNGSTEN MTN	ORNI 43	O	67-22	1294	SW/4 SE/4 S 22, T21N, R38E	4,000	5/11/2012
Elko County							
TUSCARORA	HSS II	P	65C-8	1285	NW/4 SE/4 S 8, T41N, R52E	±5,045	8/1/2012
Esmeralda County							
SILVER PEAK	ROCKWOOD LITHIUM	O	47-24	1325	S 24, T2S, R39E	5,000	12/19/2012
Lyon County							
PATUA 1	PATUA PROJECT	P	21-28	1319	NW/4 NW/4 S 28, T20N, R26E	9,400	12/5/2012
Mineral County							
WILD ROSE	ORNI 47	P	54A-11	1286	SW/4 NE/4 S 11, T11N, R32E	1,500	8/16/2012
	ORNI 47	P	65-11	1289	NW/4 SE/4 S 11, T11N, R32E	1,800	9/3/2012
	ORNI 47	I	85A-11	1307	NW/4 NW/4 S 11, T11N, R32E	1,600	9/29/2012
	ORNI 47	P	5A-11	1314	NW/4 SE/4 S 11, T11N, R32E	1,800	10/26/2012
Persing County							
JERSEY VALLEY	ORNI 15	I	15-27	1308	NW/4 SW/4 S 27, T27N, R40E	4,200	9/4/2012
Washoe County							
SAN EMIDIO	ORNI 15	I	15-27	1308	NW/4 SW/4 S 27, T27N, R40E	4,200	9/4/2012

¹ I = Injection, O = Observation, P = Production, TG = Thermal Gradient, D = Domestic

A comparison shows the steady increase in geothermal activity between federal fiscal years 2007 and 2009 (Table 6). Note that wells are not necessarily drilled in the same year in which they are permitted. Drilling permits are valid for two years from the date of approval. Additionally, Table 4 shows the changes in BLM permitting results over six years (one lease sale was conducted each year). The peak in revenue was in 2008, whereas the peak in acres and parcels sold was in 2009, consistently decreasing thereafter. However, Table 6 shows that while there were fewer permits issued in 2012, this year had the largest percentage of production wells drilled of any of the previous six years in comparison to permits issued. This suggests that while new activity may be declining, the drilling that occurred in 2012 is more directly related to new power production than in previous, recent years.

The decline in exploration activity and total number of wells permitted and drilled between 2007 and 2012 is a function of a number of factors unrelated to the geothermal power production potential in Nevada. During this time, there was a serious, national financial crisis that resulted in

increasing difficulty in obtaining financing for projects. Additionally, low natural gas prices made geothermal power a somewhat less attractive alternative. The high apparent activity in 2007-2008 is mostly artificial in that many new geothermal companies came into the market as BLM had the first competitive lease sale in 2007 after a hiatus of two years during which no leases were issued. Many of the new companies (and companies new to geothermal) that sprang up as a result of this sudden availability of geothermal leases at auction have since gone out of business or abandoned their geothermal interests, with the original primary companies remaining to develop the properties they had leased. No actual development resulted from most of the new companies and new players that appeared during the boom in 2007-2009, indicating that the apparent boom in 2007-2009 was somewhat artificial and did not directly result in new development. The geothermal companies in existence prior to the boom that began in 2007 are primarily responsible for the increased geothermal production capacity over the six year period.

Table 6. Geothermal drilling activity, 2007-2012.

Year	Number of Permits	Number of wells Drilled	Number of production wells drilled
2007	71	41	5
2008	130	53	16
2009	195	71	16
2010	119	74	19
2011	85	37	19
2012	49	24	12

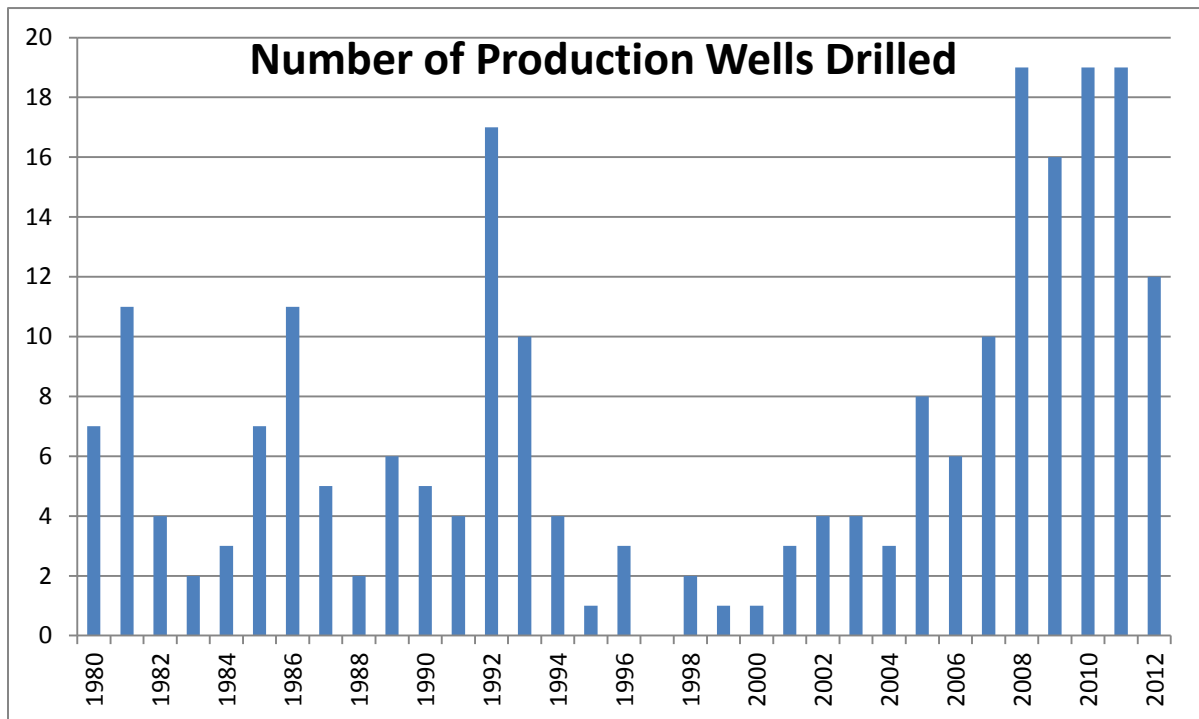


Figure 5. Industrial-class (power-generating) wells drilled in Nevada, 1985–2012 (excludes injection, observation and gradient wells).

ACTIVITY DURING 2012

The following sections summarize activities at specific geothermal areas in Nevada. Table 7 summarizes the status of existing BLM leases, where the information could be ascertained. Figure 6 shows the locations of active leases in Nevada as of December 31, 2012, with circled areas corresponding to those with significant activity in 2012 (power plant construction, plant expansions, or efficiency improvements). Text descriptions are

included for sites for which information was either available publicly or through direct communications with operators. Because of the downturn in geothermal during 2010 through 2012, it was not possible to ascertain the status of all of the sites that had either been explored or leased in previous years. Table 6 summarizes the information that could be gleaned, with unknown noted for several sites.

Table 7. Summary of geothermal project status in Nevada as of summer 2013.

ID	PROJECT	COMPANY	Status
5	Baltazor Hot Springs	Alterra Power Corp.	No known work in 2012 Leases apparently sold to ORMAT
7	Beowawe	Alterra Power Corp.	Leases dropped 2011
9	Buffalo Valley	Alterra Power Corp.	Leases dropped 2011
13	Columbus Marsh	Alterra Power Corp.	Leases dropped 2011
	Columbus Marsh	VENTURE PROSPECTS LLC	Leases relinquished 2012
	Columbus Marsh	TGP Development Company LLC	Leases relinquished 2012
18	Desert Queen	Alterra Power Corp.	No known work in 2012
20	Dixie Valley	Alterra Power Corp.	Leases apparently sold to TGP
32	Granite Springs	Alterra Power Corp.	Leases relinquished 2010
	Granite Springs	Earth Power Resources	Leases relinquished 2012
42	McCoy	Alterra Power Corp.	Unknown

	South of McCoy	Alterra Power Corp.	Leases relinquished 2010
46	Mopung Hills	Alterra Power Corp.	Leases dropped
51	Panther Canyon	Alterra Power Corp.	Leases dropped
55	Quartz Mountain	Alterra Power Corp.	Leases dropped
64	Soda Lake	Alterra Power Corp.	Operating
65	Soda Lake East	Alterra Power Corp.	Operating
			Alterra reduced the size of this lease block
71	Upsal Hogback	Alterra Power Corp.	Leases terminated 2012
	Upsal Hogback	Michael A Casey	Lease indicates Blue Sky Energy Partners
74	Whitehorse	Alterra Power Corp.	No work performed during 2012
14	Contact	Caldera Geothermal	Leases terminated 2012
43	McGee Mountain	Caldera Geothermal	No work performed during 2012
57	Rhodes Marsh	Caldera Geothermal	Leases relinquished 2012 & 2013
	Rhodes Marsh	TGP Development Company LLC	No work performed during 2012
69	Teels Marsh	Caldera Geothermal	Leases terminated 2012
	Teels Marsh	HOV Energy	Unknown
29	Gabbs Valley	GeoGlobal Energy	Leases terminated 2011
	Gabbs Valley	Kodali, Inc	Leases relinquished 2010
	2 miles from Gabbs Valley	Alterra Power Corp.	Leases relinquished 2012
	Northern Gabbs Valley	Earth Power Resources	No activity reported
4	Aurora	Gradient Resources2	No activity reported
12	Colado	Gradient Resources2	Leases relinquished 2012
	South of Colado	Earth Power Resources	See Text
35	Hazen/Patua	Gradient Resources2	No activity reported
39	Lee Allen	Gradient Resources2	No activity reported
47	New York Canyon	Gradient Resources2	Leases relinquished 2013
	New York Canyon	TGP Development Company LLC	No activity reported
59	Salt Wells	Gradient Resources	Leases relinquished 2011
	Salt Wells	Hilliard Energy Ltd	Unknown
10	Caliente	Gregory Barlow	Operating
73	Wabuska	Homestretch Geothermal LLC	No work performed in 2012
24	Edna Mountain	Nevada Geothermal	No work during 2012
50	North Valley (Black Warrior)	Nevada Geothermal	Leases relinquished 2012
53	Pumpnickle	Nevada Geothermal	Unknown
11	Carson Lake (Fallon NAS)	ORMAT	Active drilling - 2010 and 2011
15	Dead Horse	ORMAT	Operating
17	Desert Peak	ORMAT	Operating; See Text
38	Jersey Valley	ORMAT	Operating; See Text
44	McGuinness Hills	ORMAT	
	Tuscarora (Hot Sulphur Springs)	ORMAT	Operating; See Text
70			
2	Alligator Ridge	Oski Energy1	Leases relinquished 2012

34	Hawthorne (Whiskey Flat)	Oski Energy ¹	Leases relinquished 2012
36	Hot Pot	Oski Energy ¹	No known work during 2012
63	Silver State	Oski Energy ¹	No known work during 2012
66	Sodaville	Oski Energy ¹	No known work during 2012
58	Rye Patch	Presco Energy	Continued interpretation of geologic data
58	Florida Canyon	Florida Canyon Mining Inc	Operating; See Text Mapping, gravity, gradient holes
54	Pyramid Lake Geothermal	Pyramid Lake Paiute Tribe	
1	Alkali - Clayton Valley	RAM Power ¹	Leases relinquished 2013
3	Alum - Clayton Valley	RAM Power ¹	Leases relinquished 2013
6	Barren Hills	RAM Power ¹	Leases dropped
16	Delcer Buttes	RAM Power ¹	No known work during 2012.
21	Dixie Valley	RAM Power ¹	No known work during 2012.
23	Dixie Valley North	RAM Power ¹	No known work during 2012.
30	Gerlach	RAM Power ¹	No known work during 2012.
37	Howard Hot Springs	RAM Power ¹	No known work during 2012.
45	Montezuma - Clayton Valley Pearl Hot Springs - Clayton Valley	RAM Power ¹	Leases relinquished 2013
52	Valley	RAM Power ¹	Leases relinquished 2013
56	Reese River	RAM Power ¹	No known work during 2012
62	Silver Peak - Clayton Valley	RAM Power ¹	Leases relinquished 2013
67	Spencer Hot Springs	RAM Power ¹	No known work during 2012
68	Sulphur	RAM Power ¹	No known work during 2012
	Clayton Valley	RAM Power ¹	Leases relinquished 2013
25	Edwards Creek	ORMAT	See Text
26	Edwards Creek SW	ORMAT	See Text
40	Mary's River	Standard Steam Trust	Minimal activity in 2012
41	Mary's River SW	Standard Steam Trust	Minimal activity in 2012
8	Beowawe Bottoming Binary	Terra-Gen	Operating
19	Dixie Meadows Comstock	Terra-Gen	No known work during 2012
22	Dixie Valley Bottoming Binary	Terra-Gen	Operating
48	New York Canyon	TGP Development Company	Leases relinquished 2013
31	Gerlach	U.S. Geothermal	No known work during 2012
61	San Emidio	U.S. Geothermal	See Text
33	Hawthorne	U.S. Navy	Resource evaluations
28	Fish Lake Valley	HOV Energy	Leases terminated 2012
27	Fallon	Vista Verde LLC	Unknown
49	North Salt Wells	Western Geo Partners LLC	Unknown
60	Salt Wells	Western Geo Partners LLC	Unknown
72	Wells	Western Geo Partners LLC	WGP reduced the size of this lease block

¹ Both RAM Power and Oski Energy closed their Reno offices and have had limited company operations in Nevada for 2011 and 2012.

²The company focus has been on the Patua plant construction.

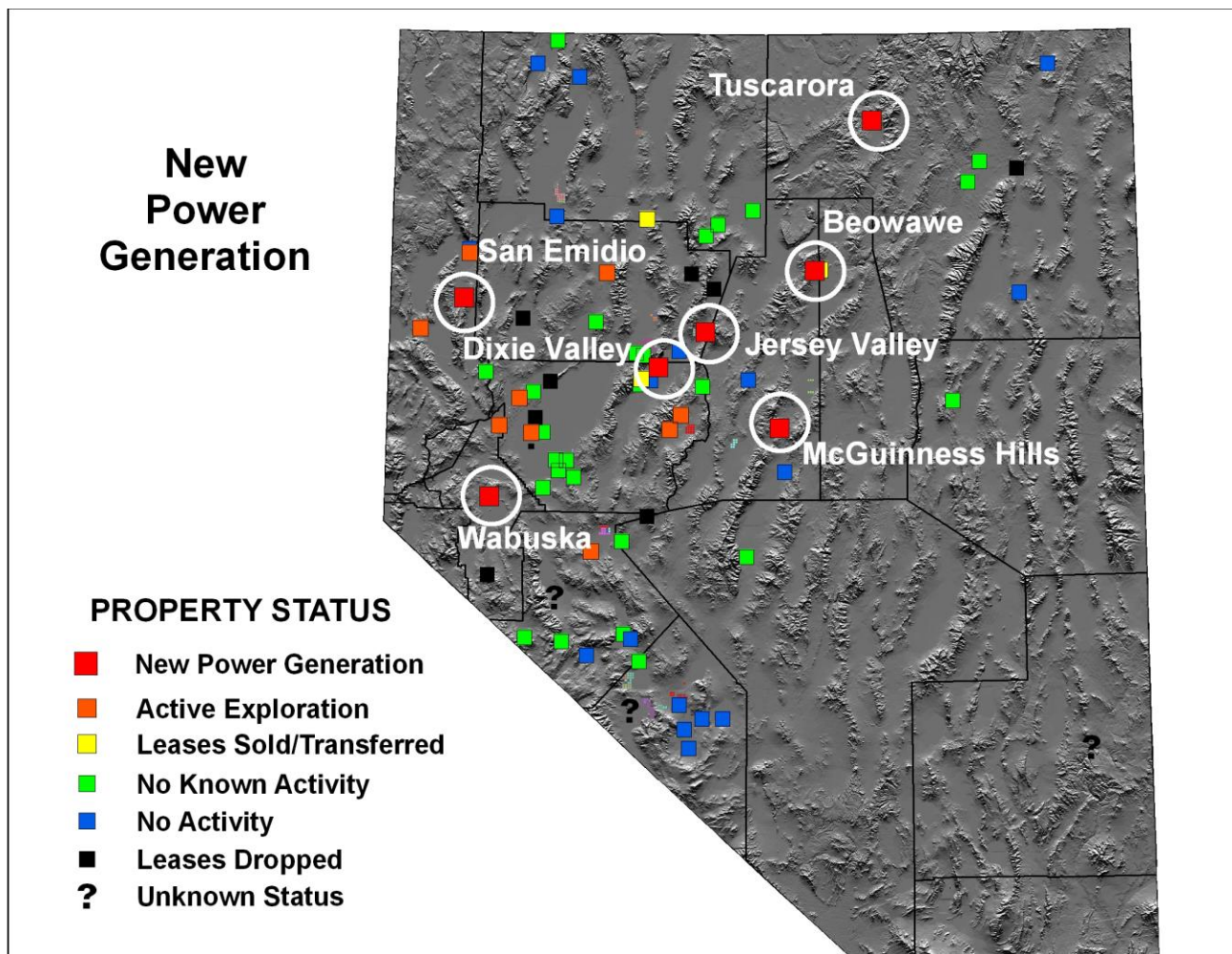


Figure 6. Status of geothermal projects in Nevada as of summer 2013. Circled sites show new or expanded power generation in 2011-2012.

BLUE MOUNTAIN, HUMBOLDT COUNTY - Alternative Earth Resources (Nevada Geothermal Power)

The **Nevada Geothermal Power, Inc. (NGP)** Blue Mountain project area covers approximately 17.2 square miles (44.5 km²) in T36N, R34E of Humboldt County, encompassing a blind geothermal system with no visible hydrothermal features at the surface. It was located during gold exploration drilling that encountered high temperature water (up to 88°C) in the early 1990s (Parr and Percival, 1991). Maximum temperatures encountered at the site are 188°C (370.4°F) at approximately 2,000 feet (610 m) (Niggemann et al., 2009).

The Nevada Geothermal Power Inc. (NGP) Blue Mountain property underwent some financial restructuring in 2012, in part as a result of the revised predicted lower power output and required reinjection strategy needed to meet loan covenants during the remaining 17 year contracted life of the project. GeothermEx revised their previous reservoir simulation model and showed an 8°F/yr decline in reservoir temperatures, reducing estimated power output from previous model estimates. The power output was projected to fall below the average amount of 34 MW in 2012, decreasing to about 15 MW by 2020. As such, NGP hired Canaccord Genuity as a financial advisor to evaluate restructuring of its mezzanine debt. As a result of the debt restructuring, Alternative Earth Resources now operates the Faulkner 1 power plant, under contract to Blue Mountain Power LLC (a subsidiary of EIG Global Energy Partners), through its subsidiary Nevada Geothermal Operating Company LLC.

During this restructuring, the plant began to shift injection locations to avoid previously noted injection returns that cooled the geothermal fluids in the production zone too quickly. The revised and recalibrated GeothermEx reservoir model using production data indicates that the re-distribution of injection to 3 wells (58A-15, 38-14 and 89-11) would allow for contracted power requirements to be met for the remaining 17 years of the plant. Two of the injectors would shift injection further to the northeast and northwest and one producer would target the inferred zone of deep western heat after injection in this area has been relocated. Annual, updated reservoir simulation modeling is now required under the company's loan agreement.

CARSON LAKE, CHURCHILL COUNTY – Ormat Technologies

An artesian well in NE¼ NE¼ Sec. 7, T17N, R30E had reported temperatures of 70 - 77°C (C.W. Klein, oral commun., 1977). This may be the same well reported by Trexler and others (1981, Table D1) as a 52.4 meter, 72.8°C well in SW¼ SW¼ Sec. 6, T17N, R30E. This area is at or near two hot springs shown in N½ NW¼ Sec. 7 on the Carson Lake 7.5-minute Quadrangle map.

Unocal well 72-7 (SE¼ Sec. 7, T17N, R30E), located about 0.6 km south of the mapped hot springs, exceeded 100°C at 300 m depth (Ross and others, 1996). Oxbow Power Services well 36-32 also measured hot water at 87.8°C at 426.4 m (GeothermEx, 2004, Fig. FAL00-3). This area is a few kilometers southeast of the Fallon Naval Air Station thermal anomaly, and falls within a broad, shallow anomaly about 6 km long along the west side of the Bunejug Mountains (Ross and others, 1996).

Ormat Technologies, Inc. announced that they signed a 20-year power purchase agreement with Nevada Power Company for the sale of energy to be produced from their Carson Lake geothermal power plant, which had originally been projected to be online in late 2009 (www.ormat.com/index_1.htm). However, as of summer 2013, the property was still under development. In 2012, one production well and two observation wells were permitted, yet only one observation well was drilled.

CLAYTON VALLEY, ESMERALDA COUNTY – Ram Power Corp

The Ram Power Corp (TSX) Clayton Valley project consisted of several leases including Montezuma, Alkali, Alum, Pearl Hot Springs and Silver Peak, all of which were bundled and designated as their Clayton Valley projects. However, not all lease blocks are physically present in Clayton Valley. RAM acquired several leases in 2009 during a BLM lease sale, in addition to leases acquired from Sierra Geothermal Power (Alum, Silver Peak) when RAM took over most of Sierra's properties in 2010. Ram conducted no work on any of the properties in 2011 or 2012, except for some minor reclamation work in 2011 at the Silver Peak lease.

In 2011, Ram Power Corp (TSX), which held several Nevada geothermal leases, closed their Reno offices when they focused their development activities on their San Jacinto, Nicaragua property. In December, 2012, Ram terminated its power purchase agreement (PPA) with Nevada Power for the properties comprising its Clayton Valley project.

COYOTE CANYON, CHURCHILL COUNTY – Terra-Gen Power

Terra-Gen (TGP) has proposed to construct a 62 megawatt geothermal power plant at Coyote Canyon. This property is located on 3,960-acres of Federal and 760 acres of private lands within Dixie Valley. Plans are to deliver power to an existing transmission line via a short tie-in line from the new power plant. In 2012, TGP received authorization from the Carson City BLM office to begin exploration activities at its Coyote Canyon South property, which is directly south of the Coyote Canyon geothermal project area that was previously analyzed. Up to 15 wells were proposed to be drilled to 6,000 to 10,000 feet. No drilling activity was reported by the Nevada Division of Minerals at this property in 2012.

DIXIE HOPE, CHURCHILL COUNTY – Ormat Technologies

The Dixie Hope geothermal area is located in T22N, R35E and has been leased by Ormat Technologies. In 2012, Ormat permitted three thermal gradient wells and drilled two of them to approximately 1000 feet. No additional information is available for this site.

EDWARDS CREEK AREA (Tungsten Mountain), CHURCHILL COUNTY - Ormat Technologies Inc.

The Edwards Creek project encompasses 4,160 acres (1,683 ha) along 6 miles (9.6 kilometers) of the Clan Alpine Mountains range-front fault in T21N, R38E, Churchill County. Areas of hydrothermal alteration occur along the fault, and boiling water was encountered at shallow depths by 23 mineral exploration wells. Cation and silica geothermometer temperatures from well waters suggest an approximately 175°C (~347°F) reservoir. The Great Basin Center for Geothermal Energy identified a shallow (2 m) thermal anomaly that is coincident with the location of the hot mineral exploration wells at the site identified at Tungsten Mountain. Standard Steam Trust (SST) completed a detailed gravity survey that showed a southeast dip of ~60° for the range-front fault, which would place the reservoir at feasible depths beneath SST's leaseholds. Ormat Technologies is currently developing the resource. In the latter part of 2011, Ormat permitted five 1000-foot temperature gradient wells in Sections 22 and 23 of T21N, R38E.

Another project in the Edwards Creek Valley southwest of and contiguous with the above project encompasses 7,617 acres (3,082ha) covering 8 miles (13 km) of the Clan Alpine Mountains range-front fault in T20N and R37 and R38E. SST's 2008 gravity survey identified the location of the Clan Alpine fault as well as a sub-parallel fault that lies basinward of the range-front fault. This sub-parallel fault may be the more significant of the two faults and is believed to be the fault associated with high-temperature ground water encountered by shallow exploration drilling at Edwards Creek in 2005 and 2006. Ormat Technologies is also developing this portion of the Edwards Creek Valley. Five observation wells were permitted, and one was drilled by Ormat in 2012.

FLORIDA CANYON, PERSHING COUNTY – Florida Canyon Mine/ElectraTherm

The Florida Canyon geothermal project is a small power generation unit associated with the Florida Canyon gold mine in T31N, R33E. This mine has been active for approximately 20 years, and is adjacent to the Rye Patch/Humboldt House geothermal area.

In 2009 and 2010 a small, 50-kW geothermal plant manufactured by ElectraTherm (Reno, NV) operated for a thousand hours at the Florida Canyon gold mine. This "Green Machine" used in the project is a low-temperature Organic Rankine Cycle (ORC) unit designed to convert low-temperature waste heat into electricity. Although the unit produced less than 5% of the mine's electrical needs, it produced electricity from otherwise unused heat from one of the mine's hot wells. ElectraTherm was awarded a \$982,000 Phase 1 DOE research grant at the end of 2010 to optimize their Green Machine to specifically use geothermal brines, with Florida Canyon as the test site. Successful R&D during 2011 caused the DOE to award additional funding for Phases II and III to manufacture and commission a newly developed, more powerful 75 kWe "geothermal" Green Machine with a cleanable heat exchanger. The unit has been built and was tested in 2011 at ElectraTherm. It was installed at the Florida Canyon Mine and successfully commissioned in 2012. The 75 kWe plant is operating on 225-230°F (107-110°C) water flowing into the unit at 150 gpm (Electratherm web site, July 2013; http://electratherm.com/case_studies/geothermal_in_nevada/). The only other unit in Nevada producing at such low temperatures is located at the Wabuska geothermal site, which was first commissioned in 1984.

HAZEN (PATUA), CHURCHILL COUNTY – Gradient Resources

Gradient Resources Inc., a privately held corporation headquartered in Reno, Nevada, has been conducting exploration and confirmation drilling and assessments on the Patua geothermal property for the last several years. The Patua geothermal project is located about 38 miles (61 kilometers) east of Reno and 10 miles (16.1 kilometers) east of Fernley. Thirteen hot springs occur in the project area that range in temperature from 28 to 96°C (82 to 204°F). In 1962, Magma Power drilled three wells from 300 to 750 ft (91 to 230 m), recording a maximum temperature of 132°C (270°F). (<http://www.vulcanpower.com/Pages/Patua.html>). In 2008 and 2009, Vulcan conducted an extensive exploration program including well drilling and core drilling; geological, geochemical, and geophysical surveys; and well discharge testing. Gradient Resources (formerly Vulcan) indicated a possible resource size of up to 120 MW (Jennejohn, 2011). "Currently, Gradient is focusing its development efforts on the southwestern portion of the Patua geothermal leases. Construction on the Patua Geothermal Power Plant site began during Q3 2011, with commercial operations slated for the end of 2012." (<http://www.gradient.com/portfolio/patua-nv/>) However, this commissioning date was not met, and as of

summer 2013, commercial operation had not yet begun although significant construction activities had been completed (pipelines, cooling towers).

The power plant itself is located on private property, although wells are located on federal lands under BLM lease in Churchill and Lyon counties. Initial construction work at the Patua site, located near Fernley, Nevada, began in 2011. The lending group, led by Union Bank, N.A., included Canadian Imperial Bank (CIBC), ING Capital LLC, and Siemens Financial Services. The Patua Project will proceed in phases, the first being a 30 MW power plant, under a Power Purchase Agreement (PPA) with Sacramento Municipal Utility District (SMUD). Gradient's Patua plant will become operational and is set to deliver power to the grid in October of 2013. Work began in 2011 on Patua II with the drilling of 4 thermal gradient holes. In total, Gradient has drilled 14 production wells, many of which were core holes. Drilling began in 2008 with three production wells; three observation wells were drilled in 2009, and five, three, and three production wells were drilled in 2010, 2011, and 2012, respectively.

JERSEY VALLEY, PERSHING COUNTY - Ormat Technologies Inc.

The Jersey Valley geothermal area is located at the base of the western flank of the Fish Creek Range in Pershing County (T27N, R40E) at the northern end of Dixie Valley at the Pershing/Lander county line, likely along the projection of a range-front fault shown by Stewart and Carlson (1976). Early temperature estimates using silica and Na-K-Ca geothermometers suggested reservoir temperatures of 142°C and 182°C, respectively (Mariner and others, 1974). Ormat Nevada Inc. began drilling in this area in 2007, encountering valley fill and metasedimentary rocks of the Fish Creek Range. A 20-year power purchase agreement (PPA) between Ormat Technologies Inc. and NV Energy was established. Ormat proceeded to drill three observation wells in 2007, two production wells in 2008, four production wells in 2009, one production well in 2010 and one injection well in 2011. One additional injection well was drilled in 2012, with another three injection wells permitted. On February 1, 2011, Ormat Technologies announced the completion of the new power plant at Jersey Valley. The 15 MW facility is operating under at 20 year power purchase agreement (PPA) with NV Energy (GRC Bulletin 40(2): 2011). Details of the exploration and development of the Jersey Valley property can be found in Drakos et al. (2010).

McGINNESS HILLS, LANDER COUNTY - Ormat Technologies Inc.

Ormat Technologies, Inc. has been actively engaged in geothermal development drilling since 2009 at the McGinness Hills property in Lander County. Precious metal exploration of surface sinter in Lander County identified an otherwise blind geothermal system at this Lander County site. Drilling of seven thermal gradient wells and two observation wells encountered hot water having high geothermometer temperatures, leading to a November 2009 announcement of a 20-year power purchase agreement (PPA) between Ormat Technologies, Inc. and NV Energy. Five production wells were drilled in 2010 and three in 2011, and one injection well in 2012. Construction of a 30 MWe (net) plant began in 2010 and continued through 2012. Commercial production at McGinness Hills commenced July 26, 2012.

MOANA, WASHOE COUNTY– City of Reno

The pool was demolished in 2012 after having been closed for five years due to high maintenance costs. Nevertheless, the district heating systems at Manzanita and Warren estates continue to operate, helping to maintain high home values in the area. Additionally, the Peppermill Casino developed a space heating project from this resource in 2010, with an estimated \$1.2 M annual savings in heating costs of its facilities.

REESE RIVER, LANDER COUNTY – Ram Power

The Reese River area is an approximately 150°C blind geothermal system that occupies a 10 km-long by 5 km-wide basin between the Shoshone Mountains and the Shoshone Range. Nick Hinz and James Faulds (NBMG) conducted geologic mapping in the area in 2009-2010. One map was published, which includes cross-sections (NBMG OFR 11-3), and a GRC paper in 2011 was also published, documenting the structural framework of the area (Hinz et al., 2011). Sierra Geothermal drilled 10 thermal gradient holes in late 2009 and also conducted an MT survey in the area in late 2009 and early 2010 (N.H. Hinz, personal commun., July 2013). Ram Power acquired the property from Sierra Geothermal by the second quarter of 2010.

No work was done on the property in 2011 and 2012, except for minor reclamation work. Ram Power has closed their Reno offices, and there is no current indication that development is proceeding on this property.

SALT WELLS, CHURCHILL COUNTY – Enel North America

On March 20, 2007 Enel North America, Inc. (a subsidiary of Enel S.p.A., Italy) purchased AMP Resources LLC from AMP Capital Partners and a minority investor. Salt Wells is one of the two properties acquired by Enel, the other being Stillwater. In April 2009, Enel North America inaugurated its new 18 MW gross-capacity binary geothermal power plant at Salt Wells, bringing the power plant facility to two binary power units in Sections 23, 24, 25, 26, 35, and 36 of T17N, R30E. Enel continues active drilling at Salt Wells with three additional observation wells and one production well drilled in 2012. Previous (2009-2010) exploration and drilling activity by Vulcan (now Gradient Resources) and Ormat in the Salt Wells/Eightmile Flat area are apparently on hiatus as these companies focus efforts on other properties.

SAN EMIDIO GEOTHERMAL AREAS, WASHOE COUNTY- US Geothermal

In 2007, U.S. Geothermal, Inc. announced the completion of a transaction with Michael Stewart and Empire Geothermal Power to acquire the Empire geothermal power plant and 28,358 acres of geothermal leases and ground-water rights in Washoe County (T29N, R23E) for \$16.62 million. The transaction also included assets from Granite Creek. The San Emidio property includes the Empire power plant and approximately 22,944 acres of leases and ground-water rights.

U.S. Geothermal had plans to develop a 35-megawatt power project for the San Emidio resource. A \$75- to \$85 million plan called for the construction of twin binary-cycle plants, with the anticipation that the current well field could provide approximately 75% of the geothermal fluid requirement for one of the binary plants, and an expanded production and injection well field could be drilled to provide the balance of the needed geothermal fluid for the second phase, to make, in total, a 27-megawatt development (U.S. Geothermal, Inc. <http://www.usgeothermal.com> and Nevada Geothermal Update, Nevada Division of Minerals, May 2008). The development was planned in two stages: repower and expansion. During the first stage, the existing 3.6 MW plant was replaced with a new, more efficient 11.75-MW power plant (8.6 MW net) that utilizes the existing, proven geothermal reservoir. The second stage requires drilling new production wells and the construction of an upgraded transmission line to allow for increased power production. This expansion is expected to produce an additional 26 MW.

Construction on the 11.75 MW gross (8.6 MW net) replacement of the existing 3.6 MW binary plant proceeded through most of 2011, and plant startup and power generation began in the last quarter of 2011. However, various mechanical difficulties prevented commercial production from being achieved until 2012.

Regarding exploration at San Emidio, USG encountered the highest temperatures found to date at the property (160°C, 320°F) after deepening well 45-21 beyond 800 feet. Also in Section 21, well OW-10 intersected +149°C (300°F) temperatures with accompanying permeability. Several miles east of the plant area, USG drilled three <3,000-foot observation wells in Section 16. One of these wells, OW-8, encountered shallow- and intermediate-depth permeable zones and had a recorded bottom-well temperature of 157°C (315°F).

In January, 2012, U.S. Geothermal Inc. announced that the Nevada Public Utility Commission approved a 19.9 megawatt amended power purchase agreement (PPA) with its wholly owned subsidiary, USG Nevada LLC, for the San Emidio Project. The amended PPA expands the existing 3.6 megawatt agreement to provide for the purchase of electric power by the Sierra Pacific Power Company ("SPCC") for up to 19.9 MW from two power generation units at San Emidio. The PPA has a term of 25 years with the starting price for power of \$89.75 per megawatt-hour subject to an annual escalation rate of 1%. The new Phase I power plant, which is an 8.6 megawatt (net) water cooled facility, was constructed to replace the original plant using no additional wells. This new unit uses the cost-efficient working fluid R134a, which is non-flammable, non-toxic and non-corrosive, reducing capital and operating costs.

In early 2012, USG started performance testing on the new 8.6 net MW facility. Performance testing included guaranteed output, capacity, reliability, and continuous operation tests that the plant must pass to achieve commercial operation under the PPA. The plant experienced several operational and mechanical issues that were resolved to eliminate difficulties that include defective capacitors, the mechanical failure of the 2,500 horsepower process pump, and excessive vibration in the turbine gear box.

Commercial operations began in May 2012, and the new San Emidio plant is projected to generate approximately 75,000 MWh of electrical power each year. The old unit that this plant replaces generated approximately 23,000 MWh annually for 20 years (since 1987). Hence, the new, more efficient TAS unit is producing more than double the power output of the aging unit, while using no additional wells.

In April 2012, the Phase II project, a second 8.6 net megawatt power plant, was granted a Special Use Permit by the Washoe County Planning Commission. Drilling for Phase II began in September 2013.

SILVER PEAK, ESMERALDA COUNTY – Rockwood Lithium

Silver Peak Hot Springs are located near the western edge of Clayton Valley playa, just north of Silver Peak (shown at NW¼ SE¼ SE¼ Sec. 15, T2S, R39E on the Goldfield 30' x 60' topographic map). Eleven springs were originally reported in the area, and the water was used for the municipal water supply (Waring, 1965). By 1980, the site was reported to be dry (Trexler, et al., 1981; Table E2).

The springs had a maximum reported temperature of 47.8°C (Waring, 1965). Mariner et al. (1983, p. 105) estimated the reservoir temperature to be 140°C and 142°C using silica and Na-K-Ca geothermometers, respectively, and Reed et al. (1983, p. 40) reported a flow rate of 1,890 L/min. Silver Peak Hot Springs were reportedly quite radioactive, but contained very small amounts of uranium (Garside, 1973).

A mild thermal anomaly can be found 3 km SW of Silver Peak, at the 24.6°C monitor well pumping station (Sec. 28, T2S, R39E). NBMG field samplers were allowed access in June 2008 by Chemetall Foote. The estimated reservoir temperatures are 74.8°C (Ca-Na-K; Fournier and Potter, 1979) and 66.8°C (chalcedony; Fournier, 1977). A monitor well 1 km NE measured warm (Jennings, personal comm., 2008), as did a second pumping station well (26°C; NWIS Well 143 S02 E39 28BDBB1; see Penfield et al., 2012).

Chemetall Foote (a subsidiary of Rockwood Lithium, the operator at Silver Peak) plans to double the capacity of its lithium carbonate production. Rockwood obtained a Department of Energy grant to be used to help install a geothermal power plant at the site, which the company hopes will supply the majority of electric power needs for the lithium mine (Company web site: http://www.rockwoodlithium.com/news_events/news/news_1089.en.html, July 2013). Toward this end, Rockwood Lithium drilled one observation well that was permitted as a geothermal well to a depth of approximately 5,000 ft in December, 2012. Details of the results of this well are not available.

STILLWATER, CHURCHILL COUNTY – Enel North America

In 2004, AMP Resources LLC. purchased the Stillwater Power Plant and associated geothermal resources from Stillwater Holdings LLC. 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 PUC approved a permit to build a 26-MW power plant to replace the existing Stillwater plant, online since 1989. Enel North America subsequently acquired the Stillwater property from AMP Resources.

On November 16, 2007 Enel Stillwater, LLC received a special use permit from Churchill County to construct the Stillwater 2 power plant. In April 2009, Enel North America, Inc., a subsidiary of Enel S.p.A., Italy, inaugurated its new 47.2 MW gross-capacity Stillwater binary plant.

In 2011, Enel commissioned the first hybrid geothermal-solar power plant in the world, with plant capacities of 24 MW (solar) and 33.1 MW (geothermal) (<http://www.enelgreenpower.com/en-GB/ena/>). In March 2012, Enel Green Power (through its subsidiary Enel Green Power North America) expanded the capacity of the Stillwater solar power plant from 24 MW to 26 MW (89,000 solar panels). Enel subsequently won the 2012 Geothermal Energy Association Technology Advancement Award for its unique contributions to advancing geothermal power production. The Enel geothermal-solar hybrid unit has the advantages of increased power production from the solar plant during times of decreased efficiency in geothermal power production in mid-day in the summer months. And when the solar unit produces less power in the winter months, geothermal power production is more efficient. This allows the hybrid plant to better follow the power-demand load.

TUSCARORA, ELKO COUNTY (HOT SULPHUR SPRINGS) – Ormat Technologies, Inc.

The Tuscarora geothermal project is located on the west side of the Independence Mountains at the north end of the Independence Valley graben. The geothermal area includes six springs, one geyser, and one fumarole. These occur in a narrow belt approximately 3 km long along a northerly striking fault zone (Dering and Faulds, 2012). Waters from the hot springs were analyzed and subsurface temperatures of 228°C and 167°C (442°F and 333°F) were indicated by the Na-K-Ca and silica geothermometers, respectively. In an AMAX Exploration, Inc., Tuscarora Area, Nevada, Final Report, (August 1981, NBMG files), H.D. Pilkington reported that a test discovery well, with a total depth of 5,454 feet, encountered a low-temperature reservoir. There was some difficulty in completing the well due to some lost circulation zones. Drilling on the well had to be stopped short of target and before a high temperature reservoir was discovered. The well was flow tested at approximately 1,200 barrels per hour with temperatures ranging from 69° to 108°C (156° to 225°F). In 2003-2004 Earth Power Resources, which had the lease on the resource rights at that time, discovered a geothermal resource over 166°C (330°F) between the depths of 2,950 and 3,810 feet. Eventually this lease was transferred to TG Power LLC.

In 2007, TG Power LLC began to move forward with the development of a 48-MW-net power plant at Hot Sulphur Springs. However, no activity occurred on the property in 2008 and 2009. Ormat Technologies ultimately acquired the leases to the property and drilled three production wells in 2010 for the planned 18 MW power plant. Work on Ormat's 30 MW (gross), 18 MW (net) air-cooled binary plant continued through 2011 and achieved commercial production in the first quarter of 2012.

The Tuscarora project's success is the result of years of work by several private companies. Earth Power Resources signed a PPA with NV Energy but could not demonstrate commercial viability, and sold the project to TG Power in 2006. TG Power drilled a moderately successful production hole in 2007, but ran out of money and sold the project to the Energy Investment Fund in 2008. After the passage of Nevada's bill AB522 in 2009, ORMAT became interested in Tuscarora and found a way, using tax adjustments, to make the project commercially viable. (http://www.elkocountynv.net/meetings/board_of_commissioners/docs/Ormat.pdf)

WILD ROSE, MINERAL COUNTY – Ormat Technologies

Ormat Technologies is developing the blind geothermal project at Wild Rose, located in Gabbs Valley approximately 22 miles west of Gabbs in Mineral County. This system is apparently associated with intersections between northwest-striking Walker Lane dextral faults and northeast-striking normal faults. Plans are to construct and operate a 15-35MW net (up to 40 MW gross) geothermal power plant and electrical substation, which includes construction and operation of a 22-mile, 120-kV generation-tie to highway 261, along with a switching station. Plans call for drilling, testing, and operation of 18 geothermal production and injection wells, and possible conversion of exploration wells to production or injection wells in subsequent phases of development. One observation well was completed in 2011, and one injection, one observation and three production wells were completed in 2012 to depths of 1,500 to 1,800 ft (permitted depths).

ACKNOWLEDGMENTS

The authors thank Larry Garside (Nevada Bureau of Mines and Geology, emeritus) and Lowell Price (Nevada Division of Minerals) for their data, assistance, and review of this paper.

REFERENCES

- BLM, 2012, http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing/prior_sales.html
- Casteel, J., Trazona, R., Melosh, G., Niggemann, K., and Fairbank, B., 2009, A Preliminary conceptual model for the Blue Mountain geothermal system, Humboldt County, Nevada: Geothermal Resources Council Transactions, v. 33, p. 917-920.

- Department of Taxation (Division of Assessment Standards), 2012, 2011-2012 Net Proceeds of Minerals Bulletin. May 29, 2012, 27 p. http://tax.state.nv.us/DOAS_FORMS/2011-12%20NPM%20Bulletin.pdf
- [Dering, G., and J.E. Faulds, 2012. Structural Controls of the Tuscarora Geothermal Field Elko County, Nevada. Geothermal Resources Council Transactions, v. 36, p. 41-46.](#)
- Drakos, P., Spielman, P., and Bjornsson, G., 2010, Jersey Valley exploration and development: Geothermal Resources Council Transactions, v. 25, p. 751-759.
- GEA, 2013, 2013 Annual U.S. Geothermal power production and development report - April 2013: Geothermal Energy Association, 38 p.
- Hinz, N.H., Faulds, J.E., and Stroup, C., 2011, Stratigraphic and structural framework of the Reese River geothermal area, Lander County, Nevada: A new conceptual structural model. Geothermal Resources Council Transactions 35: 827-832.
- Hodgson, S., 2011, Jersey Valley plant on line. Geothermal Resources Council Bulletin, v. 40(2) [2011].
- Mariner, R.H., Brook, C.A., Reed, M.J., Bliss, J.D., Rapport, A.L., and Lieb, R.J., 1983, Low-Temperature Geothermal Resources in the Western United States, in Reed, M.J., (Editor), Assessment of Low-Temperature Geothermal Resources of the United States-1982, U.S. Circular 892, p. 31-50.
- Mariner, R.H., J.B. Rapp, L.M. Willey, and T.S. Presser, 1974. [The chemical composition and estimated minimum thermal reservoir temperatures of the principal hot springs of northern and central Nevada](#). U.S. Geological Survey Open File Report 74-1066, 35 p.
- NV Energy, 2011, NV Energy portfolio standard annual report; Compliance year 2010, April 1, 2011 (available on the Public Utilities Commission of Nevada website; Docket #11-04001), 328 p. <http://pucweb1.state.nv.us>
- NV Energy, 2010, NV Energy portfolio standard annual report; Compliance year 2009, Table 18, April 1, 2010 (available on the Public Utilities Commission of Nevada website; <http://pucweb1.state.nv.us>), p. 72.
- Niggemann, K., Samuel, A., Morriss, A. V., and Hernández, R., 2009, Foamed cementing geothermal 13 3/8-in. intermediate casing – NGP #61-22: Geothermal Resources Council Transactions, v. 33, p. 217-222.
- Reed, M.J., Mariner, R.H., Brook, C.A., and Sorey, M.L., 1983, Selected Data for Low Temperature (Less Than 90 Degrees C) Geothermal Systems in the United States; (Reference Data for USGS Circular 892): U.S. Geological Survey Open-File Report 83 250, 129 p.
- Shevenell, L., and Zehner, R., 2012, Recent exploration activity in Nevada – Spring 2012: Geothermal Resources Council Bulletin May/June, 2012, p 29-39.
- Shevenell, L., and Zehner, R., 2011, Status of Nevada geothermal resource development – Spring 2011: Geothermal Resources Council Transactions, v. 35, p. 67-72.
- Stewart, J.H. and Carlson, J.E., 1976, Geologic map of north-central Nevada, 1:250,000. Nevada Bureau of Mines and Geology Map 50.
- Trexler, D.T., Koenig, B.A., Flynn, T., Bruce, J.L., and Ghusn, G., Jr., 1981, Low-to-Moderate Temperature Geothermal Resource Assessment for Nevada; Area Specific Studies, Final Report, June 1, 1980-August 30, 1981: U.S. Department of Energy, DOE/NV/10039 3, 203 p.
- Waring, G.A., 1965, Thermal Springs of the United States and Other Countries of the World: U.S. Geological Survey Professional Paper 492, 383 p.

Geothermal Bibliography and Web Links to Other Geothermal Information

For further information on geothermal resources in Nevada check the following Websites or contact David Davis at (775) 682-8766 or via e-mail at ddavis@unr.edu:

Map of Geothermal Resources in Nevada, NBMG Map 161, available online in PDF-file format: <http://www.nbmq.unr.edu/dox/m161.pdf> . (includes zipped file of GIS layers)

Nevada Bureau of Mines and Geology Geothermal Resources of Nevada Website at <http://www.nbmq.unr.edu/geothermal/gthome.htm>. This site contains geothermal exploration data, interactive maps, lease and information, and numerous geothermal digital data sets. These data are increasingly being made available through the National Geothermal Data System (www.geothermaldata.org)

Nevada Commission on Minerals, Nevada Division of Minerals at <http://minerals.state.nv.us/> .

GEO-HEAT CENTER, at <http://geoheat.oit.edu/>, Oregon Institute of Technology, Klamath Falls, Oregon. This site focuses on direct use applications of geothermal energy.

DOE/INEEL Geothermal Resource Location Maps for 13 Western States in PDF, JPG, and e00 file formats at <http://geothermal.id.doe.gov/maps/index.shtml>.

Nevada Bureau of Mines and Geology geothermal web page: <http://www.nbmq.unr.edu/Geothermal/index.html>

The Nevada Geothermal Resources map in PDF file format is found at <http://geothermal.id.doe.gov/maps/nv.pdf>.

The Renewable Resource Data Center (RReDC) provides access to an extensive collection of renewable energy resource data, maps, and tools. Geothermal, biomass, solar, and wind resource data for locations throughout the United States on the RReDC site at <http://www.nrel.gov/rredc/>.

Southern Methodist University Geothermal Lab, specializing in geothermal gradient data and maps of the entire country, posts information at <http://www.smu.edu/geothermal/>.

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://pubs.usgs.gov/of/1999/of99-425/webmaps/home.html>.

The Bureau of Land Management Land and Mineral Records-LR2000 system Web address is <http://www.blm.gov/lr2000/>, provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, rights-of-ways, coal and other mineral development, land and mineral title, mining claims, withdrawals, classifications, and more on federal lands or on federal mineral estate.

The U.S. Department of Energy (DOE) Geothermal Technologies Program (<http://www1.eere.energy.gov/geothermal/>) 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 <http://www.osti.gov/energycitations/>.

Oil and Gas

by David A. Davis

PRODUCTION

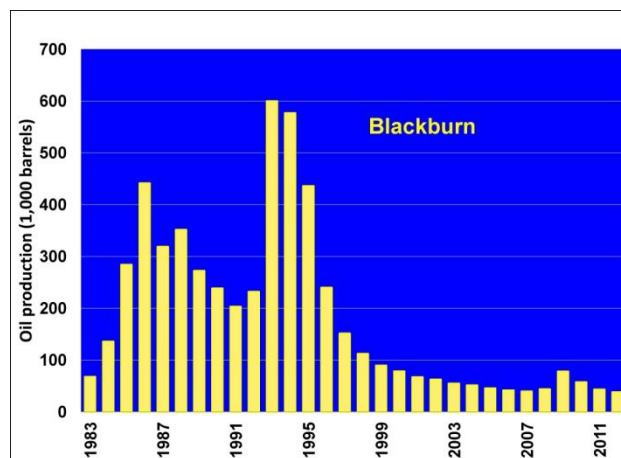
According to the Nevada Division of Minerals, Nevada's net oil production in 2012 was 367,994 barrels, which accounted for 0.016% of total domestic production. Production was down 10% from 407,999 barrels in 2011 and the lowest since 143,101 barrels were produced in 1976 (NBMG Bulletin 104). Production came from 66 actively producing wells in ten fields in Railroad Valley, Nye County, which accounted for 86.5% of the state's production, and six wells in two fields in Pine Valley, Eureka County. One other minor field was shut in throughout 2012 and four other minor fields are plugged and abandoned. Nevada ranked 27 out of the 31 oil-producing states (<http://www.eia.doe.gov>). According to the Division of Minerals, the average per barrel net wellhead price for Nevada crude oil was \$91.02 in 2012, which was an increase of 29% from \$70.72 in 2011. The sales volume (or gross yield) increased 16% to \$33,494,026 in 2012 from \$28,855,080 in 2011 (2012-2013 Net Proceeds of Minerals Bulletin).

Production from Nevada's 73 actively producing wells ranged up to 113 barrels of oil per day and up to 3,142 barrels of water per day. The daily averages were 19 barrels of oil and 296 barrels of water per day. Thirty-four wells were strippers (wells producing less than ten barrels of oil per day), and nine produced more than 500 barrels of water per day. Twenty-four wells were shut in for the entire year.

Grant Canyon No. 10, located in Railroad Valley, was Nevada's most productive well in 2012. In 2012 it averaged 113 barrels of oil and 778 barrels of water per day. It went into production in May, 2010. Nevada's second highest volume producer in 2012 was Munson Ranch 12-43. It averaged 71 barrels of oil and less than 1 barrel of water per day. Trap Spring No. 19, which averaged 44 barrels of oil and 34 barrels of water per day, was Nevada's third highest ranking producing well in 2012.

The Bacon Flat Field in Railroad Valley averaged 16 barrels of oil and five barrels of water per day and accounted for less than 2% of Nevada's total oil production. The field produces from dolomite in the Devonian Guilmette Formation between about 4,960-5,350 feet. Only one well has been active in the field for the last 20 years.

The Blackburn Field, located in Pine Valley south of the town of Carlin, produces from the Oligocene Indian Well Formation (tuff and tuffaceous sandstone), Mississippian Chainman Shale (sandstone), and Devonian Nevada Formation (dolomite) between about 6,700 and 6,750 feet. The field had five active producers all of which produced for 297 days. The field averaged 128 barrels of oil and 4,770 barrels of water per day, and accounted for about 10% of Nevada's total oil production. Oil production from the field decreased 12% in 2012, and water production increased 6%. Daily per well oil production ranged between three and 32 barrels and averaged 26 barrels. Daily per well water production ranged between 46 and 1,965 barrels and averaged 954 barrels. The field also had two inactive producers.



The Eagle Springs Field in Railroad Valley produces from Oligocene ignimbrites, the Eocene Sheep Pass Formation (lacustrine carbonates), and the Pennsylvanian Ely Limestone between about 5,780 and 7,360 feet. The field had 15 active producers. The average amount of days that these wells were producing was 192 days. The field averaged 231 barrels of oil and 1,881 barrels of water per day and accounted for 12% of Nevada's total oil production. Oil and water production decreased 25% and 44% respectively. Daily per well oil production ranged between 2 and 24 barrels and averaged 15 barrels. Daily per well water production ranged between 3 and 665 barrels and averaged 125 barrels. Oil production increased in six wells and decreased in nine wells.

Production from Nevada's oil fields (barrels)

Compiled from producer's reports filed with the Nevada Division of Minerals

Field (year discovered)	1954-2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Eagle Springs (1954) (Railroad Valley)	5,058,974	45,176	54,362	54,708	56,992	58,683	53,851	57,394	58,900	44,422	5,543,462
Trap Spring (1976) (Railroad Valley)	13,607,948	181,937	170,896	163,299	159,821	196,089	181,320	175,352	166,415	156,991	15,160,068
Currant (1979) (Railroad Valley)	1,484	9	3	0	81	108	111	109	119	159	2,183
Bacon Flat (1981) (Railroad Valley)	973,352	10,612	7,556	8,112	8,301	7,968	7,764	7,427	6,358	5,690	1,043,140
Blackburn (1982) (Pine Valley)	5,040,288	51,372	45,369	41,491	39,477	43,600	77,730	57,260	43,198	38,004	5,477,789
Grant Canyon (1983) (Railroad Valley)	20,715,336	73,879	68,944	70,158	62,236	56,247	60,036	68,927	77,683	58,897	21,312,343
Kate Spring (1986) (Railroad Valley)	2,115,034	45,656	44,288	41,124	38,411	36,863	38,347	33,824	32,719	30,833	2,457,099
Spencer Lease (1986) (Railroad Valley)	86	0	0	0	0	0	0	0	0	0	86
Tomera Ranch (1987) (Pine Valley)	32,642	124	0	0	0	0	0	0	0	11,705	44,471
North Willow Creek (1988) (Pine Valley)	44,837	377	2,064	2,552	1,256	56	0	0	0	0	51,142
Three Bar (1990) (Pine Valley)	23,837	0	0	0	0	0	0	0	0	0	23,837
Duckwater Creek (1990) (Railroad Valley)	17,791	200	185	122	150	120	120	118	115	117	19,038
Sans Spring (1993) (Railroad Valley)	254,332	4,169	3,324	3,265	2,971	2,407	1,419	1,494	1,404	1,498	276,283
Ghost Ranch (1996) (Railroad Valley)	394,613	36,423	37,874	30,255	26,070	23,615	24,011	21,630	18,605	17,022	630,118

(continued)

Production from Nevada's oil fields (barrels).....continued

Compiled from producer's reports filed with the Nevada Division of Minerals

Deadman Creek (1996) (Elko County)	367	0	0	0	0	0	0	0	0	0	367
Sand Dune (1998) (Railroad Valley)	80,548	13,124	11,878	10,618	10,562	10,467	9,883	3,687	2,483	2,656	155,906
Toano Draw (2007) (Elko County)	48,361,469				1,916	48	0	0	0	0	1,964
Total	48,361,469	463,058	446,743	425,704	408,244	436,271	454,592	427,222	407,999	367,994	52,199,296
Change from previous year		-6%	-4%	-5%	-4%	7%	4%	-6%	-4%	-10%	

Production of water from Nevada's oil fields (barrels)

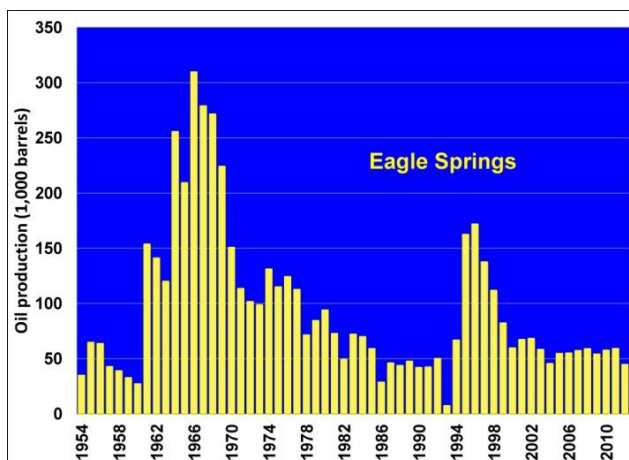
Compiled from producer's reports filed with the Nevada Division of Minerals

Field (year discovered)	1994-2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Eagle Springs (1954) (Railroad Valley)	4,122,049	428,375	501,462	804,428	842,435	699,950	699,147	644,703	361,101	9,103,650
Trap Spring (1976) (Railroad Valley)	27,450,397	2,427,226	2,298,300	2,371,513	2,356,016	2,307,911	2,289,505	2,450,742	2,460,099	46,411,709
Currant (1979) (Railroad Valley)	0	0	0	0	0	0	2	0	0	2
Bacon Flat (1981) (Railroad Valley)	366,878	4,694	4,899	2,153	10,204	33,664	5,331	1,810	1,765	431,398
Blackburn (1982) (Pine Valley)	20,813,177	1,840,581	1,537,556	1,582,937	1,558,039	1,588,194	1,623,338	1,334,105	1,418,780	33,296,707
Grant Canyon (1983) (Railroad Valley)	3,852,943	391,017	506,854	442,826	638,822	624,493	709,918	644,303	640,311	8,451,487 (continued)

Production of water from Nevada's oil fields (barrels).....continued

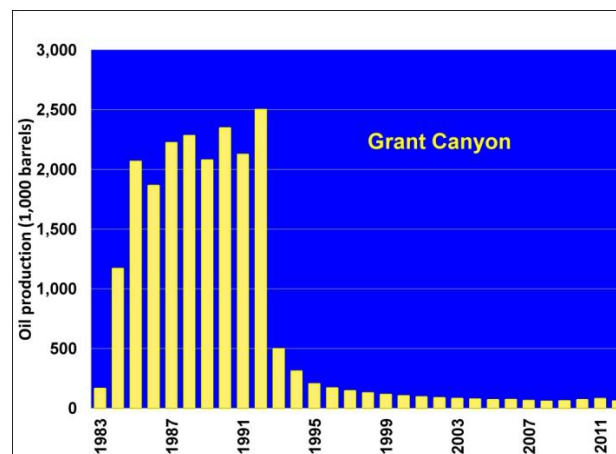
Compiled from producer's reports filed with the Nevada Division of Minerals

Kate Spring (1986) (Railroad Valley)	5,331,749	424,809	416,752	437,983	416,983	520,099	494,605	450,155	426,896	8,920,031
Spencer Lease (1986) (Railroad Valley)	0	0	0	0	0	0	0	0	0	0
Tomera Ranch (1987) (Pine Valley)	505,881	0	0	0	0	0	0	0	0	505,881
North Willow Creek (1988) (Pine Valley)	3,632	268	83	0	0	0	0	0	773	4,756
Three Bar (1990) (Pine Valley)	5,958	0	0	0	0	0	0	0	0	5,958
Duckwater Creek (1990) (Railroad Valley)	65,226	1,410	855	1,350	1,080	1,080	1,080	1,080	1,080	74,241
Sans Spring (1993) (Railroad Valley)	3,243,125	238,854	261,500	244,756	217,288	0	0	0	0	4,205,523
Ghost Ranch (1996) (Railroad Valley)	1,342,824	569,511	641,022	690,599	711,865	496,553	529,423	514,379	479,013	5,975,189
Deadman Creek (1996) (Elko County)	0	0	0	0	0	0	0	0	0	0
Sand Dune (1998) (Railroad Valley)	230,724	31,935	27,043	31,044	32,684	29,998	37,399	50,857	55,225	526,909
Toano Draw (2007) (Elko County)				25,614	3,507	0	0	0	0	29,121
Total	67,334,563	6,358,680	6,196,326	6,635,203	6,788,923	6,301,942	6,389,748	6,092,134	5,845,043	117,942,562
Change from previous year		-56%	-3%	7%	2%	-7%	1%	-4%	-4%	

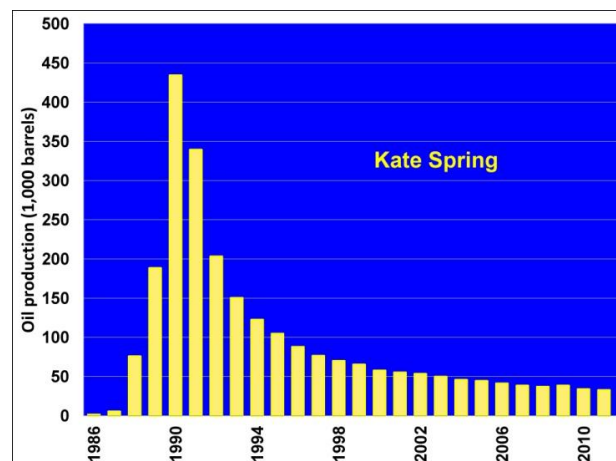


The Ghost Ranch Field in Railroad Valley produces from dolomites of the Devonian Guilmette Formation between about 4,350 and 4,620 feet. In 2012, the field had four active producers, all of which produced the entire year. The field averaged 47 barrels of oil and 1,309 barrels of water per day and accounted for less than 5% of Nevada's total oil production in 2012. Oil and water production decreased 9% and 7% respectively from 2011. Daily per well oil production ranged between 8 and 17 barrels and averaged 12 barrels. Daily per well water production ranged between 290 and 398 barrels and averaged 327 barrels. Oil production decreased in all four producing wells.

The Grant Canyon Field in Railroad Valley also produces from dolomites of the Devonian Guilmette Formation between about 2,160 and 4,300 feet. The field had four active producers that each averaged 311 days of production in 2012. The field averaged 189 barrels of oil and 2,059 barrels of water per day and accounted for 16% of Nevada's total oil production. Oil and water production decreased 24% and 1% respectively. Daily per well oil production ranged between 11 and 113 barrels and averaged 47 barrels. Daily per well water production ranged between 38 and 894 barrels and averaged 515 barrels. In the four active producers, oil production increased in three and decreased in one.



The Kate Spring Field, located in Railroad Valley, produces from the Tertiary Horse Camp Formation (breccia) and the Devonian Guilmette Formation between about 4,450 and 4,820 feet. It averaged 84 barrels of oil and 1,166 barrels of water per day, and accounted for 8% of Nevada's total oil production. Oil and water production decreased 6%, and 5% respectively. Oil production decreased in all four of the field's producing wells. All four active wells also produce natural gas. A total of 3,901 thousand cubic feet of gas was produced in 2012. The gas is used to operate production and related equipment at the lease sites of Makoil, Inc., and Western General, Inc.

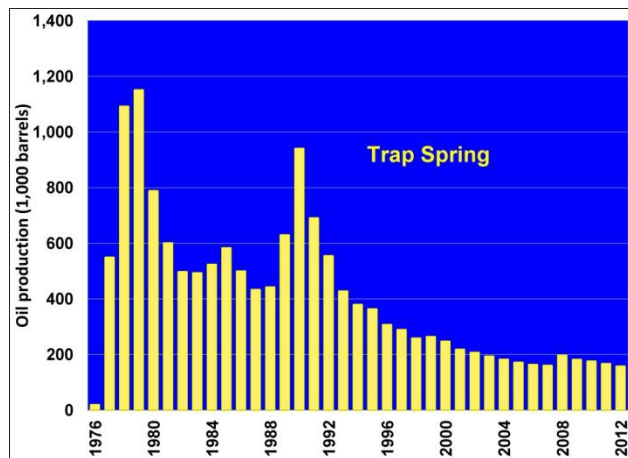


The Sand Dune Field, located in Railroad Valley, produces from Permian and Pennsylvanian limestones between about 5,970 and 6,200 feet. It's only well was active for 352 days and averaged 8 barrels of oil and 157 barrels of water per day and accounted for 0.7% of Nevada's total oil production. Oil production decreased 9% and water production increased 9%.

The Sans Spring Field in Railroad Valley produces from the Oligocene Garrett Ranch Group (volcaniclastic rocks and ignimbrites) between about 5,640 and 5,770 feet. It's only active well produced for 22 days and averaged 68 barrels of oil per day with no water. It accounted for 0.4% of Nevada's total oil production.

In the Tomera Ranch field in Pine Valley, Andromeda Oil, LLC, completed its new Tomera Ranch No. 3 well and put it in production on February 8, 2012. The well was drilled to 1,170 feet, and production is from an unnamed conglomerate unit in the bottom three feet of the well. Over 333 days, it averaged 35 barrels of oil per day with no water per day, and its 2012 production equaled 36% of the total production of the two previous producers. The past two production wells from the Tomera Ranch Field produced from the Oligocene Indian Well Formation (tuffaceous sandstone) between about 1,150 and 1,950 feet. They were plugged and abandoned in 2007.

The Trap Spring Field, located in Railroad Valley, produces from the Oligocene Tuff of Pritchards Station between about 3,210 and 4,950 feet. The field had 34 active producers which averaged 303 days of production each. The field averaged 518 barrels of oil and 8,119 barrels of water per day and accounted for 44% of Nevada's total oil production. Oil production increased in 12 wells and decreased in 22.



Two minor fields in Railroad Valley produced 274 barrels of oil. The Currant Field's only production well averaged 14.5 barrels of oil per day and no water for 11 days. It produced from the

Eocene Sheep Pass Formation between about 6,850 and 7,080 feet. The Duckwater Creek Field's only production well averaged 10 barrels of oil and 90 barrels of water per day for 12 days. It produced from the tuffs of the Oligocene Garrett Ranch Group between about 5,680 and 5,830 feet.

Most of Nevada's 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 8,000-barrel-per-day capacity refinery near Currant in Railroad Valley, which is owned by Foreland Refining Corporation.

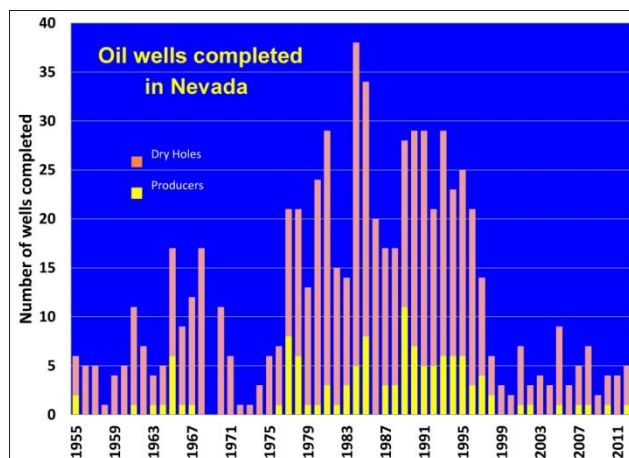
NEW PRODUCERS

Besides the Tomera Ranch No. 3 well, which began production in 2012 as pointed out in the last section, the only other well that was technically a new producer was from a well drilled by Empire Petroleum at its Gabbs Valley prospect in northwest Nye County. In 2010, Paradise Unit No. 2-12 was drilled by Empire Petroleum. Oil was indicated at several zones on the mud logs, and a drill stem test recovered oil and confirmed pressures and permeability. Based on these tests, the BLM determined the well was capable of commercial production and extended the lease. A completion program was started on August 1, 2011, and a fluid level test indicated 3,100 feet of oil and water in the well bore above the perforation zone between 3,700 and 3,782 feet. Swabbing from a completion rig produced 97 barrels of fluid consisting of a paraffinic oil with a 19.5 API gravity water. Pumping operations were commenced and 200 barrels of fluid were produced in December before the oil gelled due to low temperatures. Work resumed in early May 2012, and a fluid level test indicated a 1,920-foot fluid column in the well bore above the pump, but pumping efforts produced no fluid to the surface. The well was treated with hot water and chemicals and then produced fluid consisting of an oil/water mix. About 27 barrels of crude oil were sold to Foreland Refining Corporation. In late May 2012, it was determined that a hot oil pump was needed to keep the oil in a fluid state for pumping. The pump rods and down hole pump were pulled, and the well has been shut in since then. In October, the company wrote off the value of the property (American Liberty Corporation, 10K Report, 2/14/2013; 10-Q Report, 3/30/2013).

EXPLORATION

Thirteen wells were permitted for oil and gas in 2012, up from five permitted in 2011. Seven wells were spudded, up from four in 2011, and drilling was completed on five of these wells. Three were plugged and abandoned, one has had no completion

data turned in, and two are still confidential. One spudded late in 2012 was still being drilled at year's end, and another spudded in 2012 was being tested. One spudded in 2011 was completed as a producer in 2012. Completion data for two wells spudded and completed in 2011 were not yet submitted in 2012. The wells completed totaled 10,707 feet, up 38% from 7,751 feet drilled in 2011. Based on reports filed with the state for 2012, one drill rig operated in January and February; two operated in May and August; four operated in September and October; and two operated in November and December.



In 2012, 1,856 oil leases covering 3,386,418 acres were in effect on public lands in Nevada. This represents a 3% increase in the number of leases and a 7% decrease in acreage. The acreage covers 7% of the 47.3 million acres of public lands managed by the U.S. Bureau of Land Management (BLM) in Nevada.

Noble Energy Inc. of Houston, TX, plans to spend as much as \$130 million on oil and gas exploration in the Elko area. The company owns leases covering 350,000 acres between Elko and Wells, 66% of which are on private property. The company has been doing preliminary work since 2010 and believes they may have a 55% chance of discovering oil and gas by drilling a series of wells between 6,000 and 12,000 feet deep. The company conducted a 3-D seismic survey in parts of T38-39N, R60-61E in 2012, and plans more surveys in 2013. This will be followed up with testing by drilling five to eight vertical holes and then switching to horizontal drilling depending upon the results. The company estimates the area may hold a potential resource of between 190 million and 1.4 billion equivalent barrels of oil with a potential production of up to 50,000 barrels per day (Noble Energy website <http://www.nobleenergyinc.com>; *Noble Plans 3-D Seismic Project in Elko County, Nevada*, *IHS Drilling Wire, Rocky Mountain Region*, Four Corners Edition, vol. 85, no. 101, 5/23/2012; Anna Driver, *Noble Oil Rolls the Dice on Nevada*, Thomson Reuters,

10/11/2012; John Seelmeyer, *Noble Energy Launches Big Oil Exploration Program Near Elko*, *Northern Nevada Business Weekly*, 10/15/2012; Noble Energy Analyst Conference, 12/6/2012; *Noble Energy Proposes Seismic Surveys on Public Land*, *BLM Nevada News*, Elko District Office No. 2013-023, 1/30/2013).

Through its subsidiary Major Oil International LLC, U.S. Oil and Gas PLC drilled its Eblana No. 1 well in Hot Creek Valley and was conducting tests at the end of 2012. Eight zones were perforated and tested, two of which reportedly contained a net pay zone of 150 feet. Six more zones were planned for testing after analysis of 3-D reservoir modeling that was planned for completion in early 2013 (U.S. Oil and Gas, PLC, news release, 12/21/2012; U.S. Oil and Gas, PLC, website: <http://www.usoil.us>).

On March 13, 2012, the Nevada State Office of the Bureau of Land Management (NSO-BLM) held an oil and gas lease sale on 42 parcels covering 72,144 acres in Elko and Eureka Counties. The bids totaled \$1,788,595 on all 42 parcels, which averaged \$24.79 per acre. The highest bid was \$91 per acre by Lonewolf Exploration and Production Co. of Billings, MT, for Parcel 44 (Serial No. NVN090950) consisting of 2,174 acres covering portions of sections 7, 8, 17, 18, 19, and 20, T30N, R56E. Lonewolf also had the second and third highest bids: \$89 per acre for Parcel 49 (Serial No. NVN090954) consisting of 2,440 acres covering section 28 and portions of sections 26, 27, 33, 34, and 35, T31N, R56E; and \$82 per acre for Parcel 42 (Serial No. NVN090948) consisting of 1,080 acres covering portions of sections 4, 9, and 16, T30N, R56E. All three parcels are in Elko County. Lonewolf paid \$503,845 for all three bids. Five parcels went for bids over \$50 per acre, 17 parcels went for bids between \$12 and \$50 per acre, and 18 parcels went for between \$4 and \$9 per acre. Only one parcel went for the \$2-per-acre minimum bid (NSO-BLM Oil and Gas Lease List, December 9, 2011; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, March 13, 2012; NSO-BLM Sale Results, March 13, 2012).

On June 12, 2012, the NSO-BLM held an oil and gas lease sale on 38 parcels covering 48,573 acres in Esmeralda and White Pine Counties. The bids totaled \$305,102.50 on 27 parcels covering 39,377 acres, which averaged \$7.77 per acre. The highest bids were \$9 per acre by Tsar LMD, LLC, of Dallas, TX, on eight parcels in White Pine County. These included: 1) Parcel 27 (Serial No. NVN091168) consisting of 1,918 acres covering section 11 and portions of sections 2, 3, and 10, T24N, R64E; 2) Parcel 32 (Serial No. NVN091170) consisting of 1,809 acres covering portions of sections 1, 2, and 3, T25N, R64E; 3) Parcel 34 (Serial No. NVN091172) consisting of 2,400 acres

covering sections 11, 13, 14, and portions of section 12, T25N, R64E; 4) Parcel 36 (Serial No. NVN091174) consisting of 1,280 acres covering sections 22 and 27, T25N, R64E; 5) Parcel 37 (Serial No. NVN091175) consisting of 2,560 acres covering sections 23, 24, 25, and 26, T25N, R64E; 6) Parcel 39 (Serial No. NVN091177) consisting of 2,000 acres covering sections 25, 36, and portions of sections 26 and 35, T26N, R64E; 7) Parcel 42 (Serial No. NVN091178) consisting of 1,122 acres covering sections 19, 29, and 30, T25N, R65E; and 8) Parcel 44 (Serial No. NVN091179) consisting of 954 acres covering portions of sections 30 and 31, T26N, R65E. Tsar LMD paid \$117,084 for all of the bids. Thirteen parcels went for bids of \$5 and \$9 per acre, 13 parcels went for bids between \$3 and \$5 per acre, and only one parcel went for the \$2-per-acre minimum bid (NSO-BLM Oil and Gas Lease List, March 14, 2011; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, June 12, 2012; NSO-BLM Sale Results, June 12, 2012).

On September 11, 2012, the NSO-BLM held an oil and gas lease sale on 86 parcels covering 114,348 acres in Lincoln, Nye, and White Pine Counties. The bids totaled \$194,828.50 on 20 parcels covering 32,328 acres, which averaged \$6.02 per acre. The highest bid was \$19 per acre by Adwin America, Inc., of Cedar Grove, NJ, for Parcel 59 (Serial No. NVN091409) consisting of 1,030 acres covering sections 12, 13, and portions of

section 1, T7N, R61E. Adwin America paid \$9,589. The second and third highest bids were both \$18.00 per acre by John L. Osbourn, Jr. of Littleton, CO, for Parcel 57 (Serial No. NVN091407) consisting of 1,920 acres covering all of sections 29 and 33 and portions of sections 30 and 31, T7N, R61E and Parcel 58 (Serial No. NVN091408) consisting of 1,900 acres covering portions of sections 6, 7, and 18, T7N, R62E. Mr. Osbourn paid \$68,778. All three parcels are in, White River Valley, Nye County. The remaining parcels sold for the \$2-per-acre minimum bid (NSO-BLM Oil and Gas Lease List, June 13, 2012; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, September 11, 2012; NSO-BLM Sale Results, September 11, 2012).

On December 11, 2012, the NSO-BLM held an oil and gas lease sale on 49 parcels covering 107,101 acres in Dixie and Edwards Creek Valleys, Churchill County. No bids were offered for any of the leases (NSO-BLM Oil and Gas Lease List, September 11, 2012; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, December 11, 2012).

Status of Nevada's oil and gas production wells in 2012

This table gives the amount of oil and water produced and the number of production days in 2012. 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
EAGLE SPRINGS (Nye Co., 1954)								
Kirkwood Oil and Gas, LLC								
Eagle Springs Federal No. 44-35	813	05/98	SI 2004-2011	SE/4, NW/4, S35, T9N, R57E	42	929		1
Eagle Springs Federal No. 54-35	726	10/94	Prod	SW/4, NE/4, S35, T9N, R57E	8,259	58,841		357
Eagle Springs Unit No. 1-34	107	07/67	SI 1986	SE/4, NE/4, S34, T9N, R57E	0	0		0
Eagle Springs Unit No. 1-35	4	05/54	WD 1978	NE/4, NW/4, S35, T9N, R57E				
Eagle Springs Unit No. 1-36	76	02/65	SI 2008	SW/4, NE/4, S36, T9N, R57E	0	0		0
Eagle Springs Unit No. 2-36	80	07/65	Prod; SI 1996- 2006	NW/4, SE/4, S36, T9N, R57E	6,146	67,440		289
Eagle Springs Unit No. 4-36	86	10/65	SI 1997	NW/4, SE/4, S36, T9N, R57E	0	0		0
Eagle Springs Unit No. 5-36	94	04/66	Prod	NW/4, NE/4, S36, T9N, R57E	7,080	2,639		355
Eagle Springs Unit No. 15-35	21	07/55	Prod; SI 1995- 2002	NW/4, SW/4, S35, T9N, R57E	326	3,438		56
Eagle Springs Unit No. 35-35	17	03/55	Prod	NE/4, SW/4, S35, T9N, R57E	2,077	10,301		319
Eagle Springs Unit No. 43-36	83	08/65	Prod	NE/4, SE/4, S36, T9N, R57E	147	227		86
Eagle Springs Unit No. 62-35	46	01/60	Prod	NW/4, NE/4, S35, T9N, R57E	72	2,112		31
Eagle Springs Unit No. 73-35	69	10/63	Prod	SE/4, NE/4, S35, T9N, R57E	5,554	66,503		333
Eagle Springs Unit No. 74-35	71	04/64	Prod; SI 1998- 2001	SE/4, NE/4, S35, T9N, R57E	1,841	45,534		208
Eagle Springs Unit No. 84-35	77	01/65	SI 1997	SE/4, NE/4, S35, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 13-36	744	02/96	Prod	SW/4, NW/4, S36, T9N, R57E	312	2,371		31
Eagle Springs/Plains Petroleum No. 23-36	733	10/95	Prod	SW/4, NW/4, S36, T9N, R57E	8,638	5,267		353
Eagle Springs/Plains Petroleum No. 24-36	737	11/94	Prod	SW/4, NW/4, S36, T9N, R57E	419	1,121		236
Eagle Springs/Plains Petroleum No. 55-35	761	11/95	SI 1997	SW/4, NE/4, S35, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 64-35	755	09/95	Prod	SW/4, NE/4, S35, T9N, R57E	387	292		31
Eagle Springs/Plains Petroleum No. 82-35	734	10/94	Prod	NE/4, NE/4, S35, T9N, R57E	2,738	82,855		149
Eagle Springs/Plains Petroleum No. 83-35	754	07/95	Prod	SE/4, NE/4, S35, T9N, R57E	384	11,230		48

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
TRAP SPRING (Nye Co., 1976)								
J. N. Oil and Gas Federal No. 1	449	09/85	PA 1999	NE/4, NW/4, S34, T9N, R56E				
Munson Ranch No. 12-42	572	06/90	PA 2008	SE/4, NE/4, S12, T9N, R56E				
Munson Ranch No. 12-44X	445	07/85	PA 2008	SE/4, SE/4, S12, T9N, R56E				
Frontier Exploration Co.								
Munson Ranch No. 13-1	435	08/85	Prod	SE/4, NW/4, S13, T9N, R56E	2,833	2,237		366
Munson Ranch No. 13-45	547	08/89	Prod	NW/4, SW/4, S13, T9N, R56E	1,197	4,180		366
Munson Ranch No. 13-46	548	07/89	SI 1992	NE/4, SW/4, S13, T9N, R56E	0	0		0
Munson Ranch No. 14-33	513	07/89	Prod	NW/4, SE/4, S14, T9N, R56E	972	1,505		281
Munson Ranch No. 14-49	550	08/89	SI 2010	NE/4, SE/4, S14, T9N, R56E	0	0		0
Munson Ranch No. 14-49X	562	02/90	Prod	NE/4, SE/4, S14, T9N, R56E	259	0		27
Trap Spring No. 14-42	523	10/88	Prod	SE/4, NE/4, S14, T9N, R56E	1,428	4,016		366
Makoi, Inc.								
Britton No. 13-21	224	04/78	SI 1991	NE/4, NW/4, S13, T9N, R56E	0	0		0
East Inselberg No. 36-33	860	04/05	SI 2006-2010	NW/4, SE/4, S36, T10N, R56E	29	0		N/A
Munson Ranch No. 12-14	688	05/95	Prod	SW/4, SW/4, S12, T9N, R56E	471	586		48
Munson Ranch No. 12-23	596	11/90	SI 1998	NE/4, SW/4, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-24	432	04/85	Prod	SE/4, SW/4, S12, T9N, R56E	3,545	10,788		366
Munson Ranch No. 12-32	559	12/89	Prod	SW/4, NE/4, S12, T9N, R56E	5,193	24,464		364
Munson Ranch No. 12-33	423	03/85	SI 1996	NW/4, SE/4, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-34	406	10/84	Prod	SW/4, SE/4, S12, T9N, R56E	2,883	2,925		365
Munson Ranch No. 12-43	880	03/08	Prod	NE/4, SE/4, S12, T9N, R56E	25,995	25		364
Munson Ranch No. 13-11	622	11/91	SI 2003	NW/4, NW/4, S13, T9N, R56E	0	0		0
Munson Ranch No. 13-11R	840	11/01	Prod	NW/4, NW/4, S13, T9N, R56E	4,150	30,872		366
Munson Ranch No. 13-14	623	09/91	Prod; SI 2001- 2006	SW/4, SW/4, S13, T9N, R56E	8,259	140,563		363
Munson Ranch No. 13-21X	640	05/92	Prod	NE/4, NW/4, S13, T9N, R56E	4,629	27,345		364
Munson Ranch No. 13-24	218	08/79	Prod	SE/4, SW/4, S13, T9N, R56E	427	185		48

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
Munson Ranch No. 13-31	382	07/84	Prod	NW/4, NE/4, S13, T9N, R56E	2,643	15,193		366
Munson Ranch No. 13-32	373	08/84	Prod	SW/4, NE/4, S13, T9N, R56E	5,697	44,066		366
Munson Ranch No. 13-33	211	11/78	Prod	NW/4, SE/4, S13, T9N, R56E	2,356	9,560		366
Munson Ranch No. 13-41X	448	09/85	Prod	NE/4, NE/4, S13, T9N, R56E	6,640	51,092		364
Munson Ranch No. 13-42	222	11/78	Prod	SE/4, NE/4, S13, T9N, R56E	1,578	64,239		364
Munson Ranch No. 14-23	313	08/81	Prod	NE/4, SW/4, S14, T9N, R56E	2,428	22,176		366
Munson Ranch No. 14-24	354	10/83	SI 1996	SE/4, SW/4, S14, T9N, R56E	0	0		0
Munson Ranch No. 14-32	455	09/87	Prod	SW/4, NE/4, S14, T9N, R56E	4,221	76,651		366
Munson Ranch No. 14-34	287	11/80	SI 2009	SW/4, SE/4, S14, T9N, R56E	1,056	16,779		357
Munson Ranch No. 14-34X	522	08/88	Prod	SW/4, SE/4, S14, T9N, R56E	2,735	11,100		366
Munson Ranch No. 14-41	538	07/89	Prod	NE/4, NE/4, S14, T9N, R56E	6,935	67,986		366
Munson Ranch No. 14-44	528	08/89	Prod	SE/4, SE/4, S14, T9N, R56E	3,037	110,672		366
Trap Spring No. 2	185	02/77	Prod	SE/4, SW/4, S27, T9N, R56E	8,788	1,936		364
Trap Spring No. 3	188	04/77	Prod	NW/4, NE/4, S34, T9N, R56E	10,267	1,149,808		366
Trap Spring No. 8	196	09/77	Prod	SE/4, SW/4, S23, T9N, R56E	419	192		92
Trap Spring No. 9	197	09/78	Prod	NW/4, NW/4, S26, T9N, R56E	15,986	341,071		366
Trap Spring No. 16	232	09/78	Prod	NW/4, SE/4, S23, T9N, R56E	2,301	217,576		366
Trap Spring No. 19	219	12/77	Prod	SE/4, NW/4, S23, T9N, R56E	16,372	12,314		364
Trap Spring No. 23-41	574	06/90	Prod	NE/4, NE/4, S23, T9N, R56E	1,222	77		304
Zuspann No. 24-1	198	06/77	SI 1986	NW/4, SW/4, S24, T9N, R56E	0	0		0
Zuspann No. 24-3	208	09/77	Prod	NE/4, NW/4, S24, T9N, R56E	40	0		11
CURRENT (Nye Co., 1979)								
Makoi, Inc.								
Currant No. 1	241	10/78	Prod; SI 2005- 2007	SE/4, SW/4, S26, T10N, R57E	159	0		11

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
BACON FLAT (Nye Co., 1981)								
Grant Canyon Oil and Gas, LLC								
Bacon Flat No. 1	316	07/81	SI 1988	C, SW/4, S17, T7N, R57E	0	0		0
Bacon Flat Federal No. 23-17	657	09/92	SI 1993	NE/4, SW/4, S17, T7N, R57E	0	0		0
Bacon Flat Federal No. 23-17A	710	01/94	Prod	NE/4, SW/4, S17, T7N, R57E	5,690	1,765		353
BLACKBURN (Eureka Co., 1982)								
Grant Canyon Oil and Gas, LLC								
Blackburn No. 3	324	03/82	SI 1998	SW/4, SW/4, S8, T27N, R52E	0	0		0
Blackburn No. 10	350	09/83	Prod	SW/4, NW/4, S8, T27N, R52E	7,808	16,589		359
Blackburn No. 14	442	07/85	Prod; SI 2001-2008	NE/4, SE/4, S7, T27N, R52E	10,716	23,110		356
Blackburn No. 16	458	12/85	SI 2009	SE/4, NE/4, S7, T27N, R52E	0	0		0
Blackburn No. 18	660	11/92	Prod	NE/4, SE/4, S7, T27N, R52E	9,870	589,640		310
Blackburn No. 19	724	06/94	Prod	NW/4, SW/4, S8, T27N, R52E	9,253	703,301		359
Blackburn No. 21	802	09/97	Prod	NE/4, SE/4, S7, T27N, R52E	357	86,140		99
GRANT CANYON (Nye Co., 1983)								
Grant Canyon No. 4	376	07/84	PA 1992	NE/4, NW/4, S21, T7N, R57E				
Grant Canyon No. 5	400	08/84	PA 1995	E/2, NE/4, S20, T7N, R57E				
Grant Canyon Oil and Gas, LLC								
Grant Canyon No. 3	375	08/84	SI 1992	SW/4, SW/4, S16, T7N, R57E	0	0		0
Grant Canyon No. 7	625	08/91	Prod; SI 1993-2007	NW/4, NW/4, S21, T7N, R57E	1,746	23,524		161
Grant Canyon No. 9	642	04/92	Prod	NW/4, NW/4, S21, T7N, R57E	9,392	13,621		361
Grant Canyon No. 10	706	07/11	Prod; PA 1993-2010	NW/4, NW/4, S21, T7N, R57E	41,171	281,898		365
Grant Canyon No. 22-21	705	01/94	Prod	SE/4, NW/4, S21, T7N, R57E	6,588	321,268		357

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
KATE SPRING (Nye Co., 1986)								
Makoil, Inc.								
Kate Spring No. 12-2	544	08/89	Prod	NW/4, NW/4, S2, T8N, R57E	6,691	105,254	1,309	358
Western General, Inc.								
Kate Spring No. 1	436	01/86	Prod	W/2, SW/4, S2, T8N, R57E	5,000	47,000	304	N/A
Kate Spring No. 1A	560	12/89	Prod	NW/4, SW/4, S2, T8N, R57E	15,793	159,281	1,670	N/A
Kate Spring No. 1C	592	09/91	SI 1997	SW/4, SW/4, S2, T8N, R57E	0	0	0	0
Taylor Federal No. 1	497	10/87	Prod	NE/4, SE/4, S3, T8N, R57E	3,349	115,361	318	N/A
Taylor Federal No. 2	536	06/89	SI 1993	SE/4, NE/4, S3, T8N, R57E	0	0	0	0
SPENCER LEASE (Nye Co., 1986)								
Spencer Federal No. 32-29	446	12/85	PA 1986	SW/4, NE/4, S29, T9N, R57E				
TOMERA RANCH (Eureka Co., 1987)								
Tomera Ranch No. 33-1	591	10/90	PA 1997	SW/4, SW/4, S33, T31N, R52E				
Southern Pacific Land Co. No. 1-5R	647	05/92	PA 2007	NE/4, NE/4, S5, T30N, R52E				
Tomera Ranch No. 33-2RR	841	01/02	PA 2007	SW/4, SW/4, S33, T31N, R52E				
Andromeda Oil, LLC								
Tomera Ranch No. 3	923	02/12	Prod	SE/4, SW/4, S33, T31N, R52E	11,705	0		333
Foreland Corp.								
Southern Pacific Land Co. No. 1-5	492	08/87	WD 1992	NE/4, NE/4, S5, T30N, R52E				
NORTH WILLOW CREEK (Eureka Co., 1988)								
North Willow Creek No. 5-27	646	06/93	PA 1998	SE/4, NW/4, S27, T29N, R52E				
Kirkwood Oil and Gas, LLC								
North Willow Creek No. 6-27	648	09/93	SI 2008	NE/4, SW/4, S27, T29N, R52E	0	773		N/A
Southern Pacific Land Co. No. 1-27	633	01/92	SI 2002	NW/4, SE/4, S27, T29N, R52E	0	0		0

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
THREE BAR (Eureka Co., 1990)								
Three Bar Federal No. 24-13A	566	09/90	PA 2000	SW/4, SW/4, S24, T28N, R51E				
Three Bar Federal No. 5	679	07/93	PA 2001	SE/4, NE/4, S25, T28N, R51E				
Three Bar Federal No. 25-A	556	10/90	PA 2001	C, NE/4, S25, T28N, R51E				
DUCKWATER CREEK (Nye Co., 1990)								
Makoi, Inc.								
Duckwater Creek No. 19-11	542	03/90	Prod	NW/4, NW/4, S19, T9N, R57E	117	1,080		12
SANS SPRING (Nye Co., 1993)								
Grant Canyon Oil and Gas, LLC								
Federal No. 5-14	635	02/93	SI 1998	SW/4, NW/4, S14, T7N, R56E				
Sans Springs No. 5-14A	792	05/97	Prod	SW/4, NW/4, S14, T7N, R56E	1,498	0		22
Federal No. 12-14	673	06/93	SI 1993	SW/4, SW/4, S14, T7N, R56E				
GHOST RANCH (Nye Co., 1996)								
Makoi, Inc.								
Ghost Ranch Springs No. 2-21X	800	08/97	Prod	NE/4, NW/4, S2, T8N, R57E	6,099	106,183		366
Kirkwood Oil and Gas, LLC								
Ghost Ranch Springs No. 38-35	793	01/97	Prod	SE/4, SW/4, S35, T9N, R57E	3,011	145,712		366
Ghost Ranch Springs No. 47-35	799	03/97	Prod	SE/4, SW/4, S35, T9N, R57E	5,150	105,264		365
Ghost Ranch Springs No. 48-35	779	07/96	Prod	SE/4, SW/4, S35, T9N, R57E	2,762	141,854		366
DEADMAN CREEK (Elko Co., 1996)								
Deadman Creek No. 44-13	342	01/96	PA 1998	SE/4, SE/4, S13, T39N, R65E				

(continued)

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
SAND DUNE (Nye Co., 1998)								
Kirkwood Oil and Gas, LLC Sand Dune Federal No. 88-35	816	07/98	Prod	SE/4, SE/4, S35, T9N, R57E	2,656	55,225		352
TOANO DRAW (Elko Co., 2007)								
Toano Draw No. 15-19	856	12/06	PA 2008	NW/4, SW/4, S19, T39N, R66E				

Nevada oil producers and refinery *(Nevada Oil Patch; unpublished well files)*

Company	Field/Refinery	Contact	Addresses, Phone and FAX Numbers, and Websites
Andromeda Oil, LLC	Tomera Ranch	Sam Webb	4055 South 700 East No. 203 Salt Lake City, UT 84107 Phone: 801-432-0632
Breck Energy (Nevada), LLC (Grant Canyon Oil and Gas, LLC after 2012)	Bacon Flat Sans Spring	Stephen Barnes	717 17th Street, No. 1400 Denver, CO 80202 Phone: 303-295-1906 FAX: 303-298-0049
Frontier Exploration Company	Trap Spring	Andy Pierce	3006 Highland Drive, No. 206 Salt Lake City, UT 84106 Phone: 801-486-5555 FAX: 801-486-5575
Grant Canyon Oil and Gas, LLC	Blackburn Grant Canyon	Michael O'Neal Rod Prosceno	717 17th Street, No. 1400 Denver, CO 80202 Phone: 303-297-2777 FAX: 303-298-0049
Kirkwood Oil and Gas	Eagle Springs Ghost Ranch North Willow Creek Sand Dune	Robert Kirkwood	120 South Durbin Street P.O. Box 2859 Casper, WY 82602 Phone: 307-265-5178 FAX: 307-265-1791 Web: http://www.kirkwoodoilandgasltd.com
Makoil, Inc.	Currant Duckwater Creek Ghost Ranch Kate Spring Trap Spring	Gregg Kozlowski	25391 Commercentre Drive, No. 120 Lake Forest, CA 92630 Phone: 949-462-9010 FAX: 949-462-9012 Website: http://www.makoil.com
Western General	Kate Spring	Rick Taylor	801 Noahs Star Street Las Vegas, NV 89145-0609 Phone: 702-233-1490
Foreland Refining Corp.	Currant Refinery		HC 34 Box 34830 Ely, NV 89301 Phone: 775-863-0229

TRANSFERS

Breck Energy (Nevada), LLC, prepared to transfer their production wells to Grant Canyon Oil and Gas LLC on January 1, 2013. Breck Energy is a managing member of Grant Canyon Oil and Gas. The wells to be transferred include the three producers in the Sans Spring Field, and the three producers in the Bacon Flat Field.

OTHER DEVELOPMENTS

In 2011, Secretary of the Interior Kenneth Salazar announced a review of commercial rules for the development of oil shale resources on public lands. The BLM began the process by updating the 2008 programmatic environmental impact statement (PEIS) and developing regulations that reflect current information and fair royalty rates (*IHS Drilling Wire, Wyoming Edition*, Section I, April 19, 2011). The updated PEIS entitled, *Proposed Land Use Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming and Final Environmental Impact Statement* was completed in November 2012 and is posted at <http://ostseis.anl.gov/documents/peis2012/index.cfm>. The Record of Decision being prepared for release in 2013 would severely restrict the acreage for oil shale and tar sand exploration and development from 2,455,000 in the 2008 PEIS to 810,000 acres in the new PEIS. The decision also deals with the use of surface mining technologies; environmental, social, and economic effects; and land use exchanges. This document, *Approved Land Use Amendments/Record of Decision (ROD for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming* is posted at http://ostseis.anl.gov/documents/docs/2012_OSTS_ROD.pdf.

Though the present focus is on Colorado, Wyoming, and Utah, it should be noted that northeastern Nevada has an estimated 600 million barrels of shale oil in the lacustrine Eocene Elko Formation (12,000 barrels were produced between 1917 and 1924) and a potentially large resource in related rocks (L. J. Garside, 1983, *Nevada Oil Shale*, Nevada Bureau of Mines and Geology Open-File report 83-5; S. W. Moore, H. B. Madrid, and G. T. Server, Jr., 1982, *Results of Oil-Shale Investigations In Northeastern Nevada*, U.S. Mineral

Management Service Administrative Report; G. T. Server, Jr., and B. J. Solomon, 1983, *Geology and Oil Shale Deposits of the Elko Formation, Pinion Range, Elko County, Nevada*, U.S. Geological Survey Map MF-1546; B. J. Solomon and S. W. Moore, 1982, *Geology and Oil Shale Deposits of the Elko West Quadrangle, Elko County, Nevada*, U.S. Geological Survey Map MF-1410; B. J. Solomon and S. W. Moore, 1982, *Geology and Oil Shale Deposits of the Elko East Quadrangle, Elko County, Nevada*, U.S. Geological Survey Map MF-1421). The decisions involving oil shale resources in Colorado, Utah, and Wyoming may eventually form the precedent for rules involving the development of such resources in Nevada.

Secretary Salazar released a proposed set of rules covering hydraulic fracturing (fracking) on public lands. The rules would require companies to publicly disclose the chemicals used in hydraulic fracturing operations on public and Indian lands, with appropriate protections for proprietary information. The new rules would also improve assurances on well-bore integrity to verify that fluids used in wells during fracking are not escaping; and confirm that operators have a water management plan in place for handling fracturing fluids that flow back to the surface (BLM News Release, (BLM Press Release, 5/4/2012).

U.S. OIL PRODUCTION AND CONSUMPTION

According to the Energy Information Agency of the U.S. Department of Energy (<http://www.eia.doe.gov>), the total petroleum products supplied to the U.S. averaged 18.6 million barrels per day, down 2% from 18.9 million barrels per day in 2011, and down 11% from the all-time high of 20.8 million barrels per day in 2005. Domestic crude oil production averaged 6.51 million barrels per day, up 15% from 5.65 million barrels per day in 2011. The annual production is the highest since 1995, when production was 6.56 million barrels per day, and the first time since the early 1980s that production has increased four years in a row. Imported crude oil averaged 8.49 million barrels per day, down 5% from 8.94 million barrels per day in 2011, and down 16% from the all-time high of 10.13 million barrels per day in 2005. Imported crude oil accounted for 57% of the total, down from 61% in 2011. The average price of domestic oil decreased 1% to \$94.53 per barrel from an average of \$95.73 per barrel in 2011.

Directory of Mining and Milling Operations

By David A. Davis

Compiled from information supplied by the Nevada Div. of Minerals, Mine Safety and Training Section of the Div. of Industrial Relations, and companies.

Except for larger BLM community pits, aggregate 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, N/A: not available, OP: open-pit mine, OS: other surface, PL: placer, UG: underground

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CARSON CITY							
Black and Red Cinder Pits	Cinderlite Trucking, Inc.	S21, 22, T16N, R20E	cinder decorative stone	OP, ML	mining screening	2	1665 South Sutro Terrace Carson City, NV 89706 Phone: 775-882-4483 FAX: 775-882-1671 Web: http://www.cinderlite.com
Goni Pit	Cinderlite Trucking Corp.	S28, T16N, R20E	decomposed granite sand gravel	OP, ML	mining crushing screening	6	1665 South Sutro Terrace Carson City, NV 89706 Phone: 775-882-4483 FAX: 775-882-1671 Web: http://www.cinderlite.com
CHURCHILL COUNTY							
Huck Salt	Huck Salt Co.	S11, 12, 13, T16N, R31E; S7, T16N, R32E	salt	OS	mining evaporation	8	2900 Phritzie Lane Fallon, NV 89406 Phone: 775-423-2055 FAX: 775-423-0467
Moltan Mine and Plant	Moltan Company, LP	S28, 32, T23N, R27E	diatomite	OP, ML	mining crushing drying packaging screening	47	P.O. Box 860 I-80 Frontage Rd. Fernley, NV 89408-0860 Phone: 775-423-6668 FAX: 775-423-6411 Web: http://www.moltan.com
Churchill Limestone Project	Nevada Cement Co.	S31, T25N, R29E	limestone	OP	mining	7 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web: http://www.eaglematerials.com
Fallon Bentonite Project	Specialty Clays Corp.	S23-36, T25N, R30E; S18, 19, T18N, R31E	clay	OP	stockpile	N/A	71 Washington Street Reno, NV 89503 Phone: 775-530-3908 FAX: 775-201-0138 Web: http://www.specialtyclays.com
Nightingale Pit	World Minerals, Inc.	S17, 18, 19, 20, T24N, R26E	diatomite	OP	mining	2	100 Front St. Fernley, NV 89408 Phone: 775-575-2536 FAX: 775-575-1570 Web: http://www.worldminerals.com
Popcorn Mine	EP Minerals, LLC	S24, T16N, R28E; S19, T16N, R29E	perlite	OP	mining	2	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7715 Web: http://www.epminerals.com
CLARK COUNTY							
Apex Landfill Pit	Las Vegas Paving Corp.	S19, T18S, R64E	sand gravel	OP, ML	mining crushing screening	19	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Apex Quarry and Plant	Lhoist North America	S14, 22, 23, 26, 27, 34, 35, T18S, R63E	limestone	OP, ML	mining calcining crushing screening	135 (Mine and plant combined)	P.O. Box 363068 North Las Vegas, NV 89036 Phone: 702-643-7702 FAX: 702-643-9517 Web: http://www.lhoist.us
Blue Diamond Pit	Las Vegas Paving Corp.	S26, T22S, R60E	sand gravel	OP, ML	mining crushing screening	9	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
Boulder Ranch Quarry	Quarry 187, LLC	S15, 22, T23S, R63E	sand gravel	OP, ML	mining crushing screening	23	250 Pilot Rd., Suite No. 160 Las Vegas, NV 89120 Phone: 702-597-1010 FAX: 702-597-3406 Web: http://www.impactsandandgravel.com
Georgia-Pacific Gypsum Plant	Georgia-Pacific Gypsum, LLC	S34, 35, T18S, R63E	gypsum	ML	crushing	99	P.O. Box 337350 11401 U. S. Highway 91 North Las Vegas, NV 89033 Phone: 702-643-8100 FAX: 702-643-2049 Web: http://www.gp.com
Henderson Community Pits	F2M, Inc.	S14, T21S, R62E	sand gravel	OP	mining	N/A	4725 North Grand Canyon Dr. Las Vegas, NV 89129 Phone: 702-655-5377
Henderson Community Pits	Various (U.S. Bureau of Land Management manages pit)	S14, T21S, R62E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 Phone: 702-515-5000 Web: http://www.blm.gov
Henderson Plant	Lhoist North America	S12, T22S, R62E	lime	ML	calcining	135 (Mine and plant combined)	P.O. Box 127 BMI Complex 8000 West Lake Mead Dr. Henderson, NV 89015 Phone: 530-878-7368 Phone: 530-878-7368 Web: http://www.lhoist.us
KMI Zeolite Plant	KMI Zeolite, Inc.	S3, T25S, R57E	zeolite	ML	processing	5	HCR 37 Box 52 3100 East Sandy Valley Rd. Sandy Valley, NV 89019 Phone: 702-723-5415 Web: http://www.kmizeolite.com
Las Vegas Plant	CertainTeed Gypsum Manufacturing, Inc.	S5, 8, T22S, 59E	gypsum	ML	processing	N/A	Highway 159 Blue Diamond, NV 89004 Phone: 702-875-4111 FAX: 702-875-4213 Web: http://www.certainteed.com
Lone Mountain	Las Vegas Paving Corp.	S35, 36, T19S, R59E; S2, T20S, R60E	sand gravel	OP, ML	mining crushing screening	7	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Lone Mountain	Nevada Ready Mix Corp.	S36, T19S, R59E	sand gravel	OP, ML	mining crushing screening	32	601 West Bonanza Las Vegas, NV 89106 Phone: 702-457-1115 Web: http://www.nevadareadymix.com
Lone Mountain Community Pit	Various (U.S. Bureau of Land Management manages pit)	S36, T19S, R59E; S1, T20S, R59E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 Phone: 702-515-5000 Web: http://www.blm.gov
Mesquite Community Pit	Various (U.S. Bureau of Land Management manages pit)	S20, T13S, R71E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 Phone: 702-515-5000 Web: http://www.blm.gov
Money Pit	Southern Nevada Liteweight, Inc.	S9, T25S, R61E	silica sand	OP, ML	mining milling	5	1101 E. Alexander Rd. Las Vegas, NV 89030 Phone: 702-399-8621 FAX: 702-633-4062 Web: http://www.snlsand.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
PABCO Gypsum-Apex Pit	Pacific Coast Building Products, Inc.	S7, 18, T20S, R64E	gypsum	OP, ML	mining crushing washing	132/3	P.O. Box 364329 North Las Vegas, NV 89036 Phone: 702-407-3700 FAX: 702-643-6249 Web: http://www.paccoast.com
Primm Quarry	Las Vegas Paving Corp.	S8, T27S, R59E	sand gravel	OP	mining crushing screening	7	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegapaving.com
Pioneer Gypsum Mine	Pioneer Gypsum Mining Co.	S19, 20, 29, 30, T20S, R64E	gypsum	OP, ML	mining crushing screening	8/1	4880 Donovan Way North Las Vegas, NV 89081 Phone: 702-399-5939 FAX: 702-399-8353
Rainbow Quarries	Las Vegas Rock, Inc.	S34, T25S, R58E	gravel stone	OP, ML	mining crushing sawing	11	2 Prison Rd. P.O. Box 19118 Jean, NV 89019 Phone: 702-791-7625 FAX: 702-874-1881 Web: http://www.vegasrock.com
Sierra Ready Mix Quarry	Sierra Ready Mix, LLC	S6, 7, T25S, R60E	sand gravel	OP, ML	mining crushing screening	5	4150 Smily Rd. North Las Vegas, NV 89081 Phone: 702-664-3000 FAX: 702-664-1736 Web: http://www.sierrareadymix.com
Simplot Silica Products Pit	J. R. Simplot Co.	S11, T17S, R67E	silica sand	OP, ML	mining drying flotation screening	40	P.O. Box 308 Overton, NV 89040 Phone: 702-397-2667 FAX: 702-397-2798 Web: http://www.simplot.com
Sloan Quarry and Mill	Aggregate Industries	S13, T23S, R60E	sand gravel	OP, OS, ML	mining crushing screening	40	3101 East Craig Rd. North Las Vegas, NV 89030 Phone: 702-649-6250 FAX: 702-642-2213 Web: http://www.aggregate-us.com
South Lean Pit	Service Rock Products	S21, 28 T25S, R60E	sand gravel	OP	mining	5	151 Cassia Way Henderson, NV 89014 Phone: 702-798-0568 Phone: 702-798-0580 Web: http://www.srevice-rock.com
Spring Mountain Pit and Mill	Wells Cargo, Inc.	S10, 15; T21S, R60E	sand gravel	OP, ML	mining gravity	12	9127 West Russell Rd., Suite 210 Las Vegas, NV 891148 Phone: 702-876-5090 FAX: 702-876-3977 Web: http://www.wciltv.com
DOUGLAS COUNTY							
Bing Materials Pit and Mill	Bing Materials Co.	S16, T12N, R20E	sand gravel	OP, ML	mining crushing screening	12	P.O. Box 487 Minden, NV 89423 Phone: 775-265-3641
Wasbuska Iron Mine	Standard Industrial Minerals, Inc.	S19, T14N, R24E	iron ore	OP	stockpile	N/A	199 1st Street Bishop, CA 93514 Phone: 760-873-6780
ELKO COUNTY							
Big Ledge Mine and Dry Creek Jig Plant	National Oilwell Varco	S26, T42N, R61E	barite	OP, ML	mining gravity jigging	16/14	P.O. Box 900 Wells, NV 89935 Phone: 775-752-2300 FAX: 775-752-2303 Web: http://www.nov.com
Elburz Pit	Vega Construction and Trucking Co.	S9, T33N, R52E	sand gravel	OP, ML	mining crushing screening	8	P.O. Box 1630 Elko, NV 89803 Phone: 775-738-5381 FAX: 775-738-6311

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
ELKO COUNTY (continued)							
Emigrant Mine	Newmont Mining Corp.	S2, T31N, R53E; S26, 35 T32N, R53E	gold	OP, ML	mining milling	131	1655 Mountain Hwy. Elko, NV 89803 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Hollister Mine	Rodeo Creek Gold, Inc., and Great Basin Gold, Inc.	S4, 5, T37N, R48E; S32, T38N, R48E	gold silver	UG	mining	177/52	P.O. Box 2610 Winnemucca, NV 89446 Phone: 775-623-5760 FAX: 775-623-5769 Web: http://www.greatbasingold.com
Jerritt Canyon Mine	Veris Gold USA, Inc.	S3, 4, T40N, R54E; S33, 34, T41N, R54E	gold silver mercury	UG, ML, CIL	mining heap leach milling roasting	441/125	HC31 Box 78 Elko, NV 89801 Phone: 775-738-5600 FAX: 775-758-9233 Web: http://www.yukon-nevadagold.com
Meikle Mine	Barrick Goldstrike Mines, Inc.	S12, 13, T36N, R50E	gold silver	UG, ML	mining milling roasting	637	P.O. Box 29 Elko, NV 89803 Phone: 775-748-1001 FAX: 775-748-1240 Web: http://www.barrick.com
Midas Mine	Newmont Mining Corp.	S21, 22, 27, 28, 33, 34; T39N, R46E	gold silver	UG, ML	mining milling	241/103	HC66 Box 125 Midas, NV 89414 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
Pilot Peak Quarry and Plant	Graymont Western US., Inc.	S14, 15, 22, 23, 26, T34N, R68E	limestone	OP, ML	mining calcining rotary kiln	55	P.O. Box 2520 West Wendover, NV 89883 Phone: 775-483-5463 FAX: 775-483-5149 Web: http://www.graymont.com
Rossi Mine	BAROID/Halliburton Energy Services, Inc.	S14-16, 21-23, 26-28, 34-35, T37N, R49E	barite	OP, ML	mining	16/65 (Mine and plant combined)	912 Dunphy Ranch Rd. Battle Mountain, NV 89820 Phone: 775-468-0515 FAX: 775-468-2060 Web: http://www.halliburton.com
Storm Mine	Barrick Goldstrike Mines, Inc.	S12, 13, T36N, R49E	gold	UG, ML	mining roasting	3	P.O. Box 29 Elko, NV 89803 Phone: 775-748-1001 FAX: 775-748-1240 Web: http://www.barrick.com
ESMERALDA COUNTY							
Basalt Plant	Grefco Minerals, Inc.	S29, T2N, R34E	diatomite	OP, ML	mining drying milling	14	P.O. Box 278 Dyer, NV 89010 Phone: 775-573-2422 FAX: 775-573-2422 Web: http://www.dicalite.com
Blanco Mine	Vanderbilt Minerals Corp.	S22, T1N, R37E	clay	OP	bagging grinding screening	3 (Combined Vanderbilt Mines)	3561 East Burgundy Dr. P.O. Box 6660 Pahrump, NV 89048 Phone: 775-537-6976 FAX: 775-537-6879 Web: http://www.rtvanderbilt.com
Mineral Ridge	Mineral Ridge Gold, LLC	S1, T2S, R38E	gold silver	OP, HL, ML	mining heap leach	78/22	No. 1 Coyote Summit Silver Peak, NV 89047 Phone: 775-753-4778 FAX: 775-753-4780 Web: http://www.scorpiogold.com
Silver Peak Operations	Rockwood Lithium, Inc.	T2S, R39-40E	lithium carbonate	OS, ML	mining evaporation precipitation	75/10	P.O. Box 98 Silver Peak, NV 89047 Phone: 775-937-2222 FAX: 775-937-2250 Web: http://www.chemetall.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
EUREKA COUNTY							
Betze/Post Mine	Barrick Goldstrike Mines, Inc.	S23-26, T36N, R49E; S12, 20, 29, 30; T36N, R50E	gold	OP, CIL, HL, ML	mining heap leach milling roasting	1156	P.O. Box 29 Elko, NV 89803 Phone: 775-748-1001 FAX: 775-748-1240 Web: http://www.barrick.com
Carlin North - Genesis Complex	Newmont Mining Corp.	S33, T36N, R50E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2359/815 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Carlin North - Post and adjacent mines	Newmont Mining Corp.	S19, T36N, R50E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2359/815 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Carlin South - Carlin and adjacent mines	Newmont Mining Corp.	S14, T35N, R50E	gold	UG, HL, ML	mining bioleaching heap leach milling roasting	2359/815 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Carlin South - Gold Quarry and adjacent mines	Newmont Mining Corp.	S3, T33N, R51E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2359/815 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Dunphy Mill	BAROID/Halliburton Energy Services, Inc.	S14-16, 21-23, 26-28, 34-35, T37N, R49E	barite	OP, ML	crushing gravity grinding	16/65 (Mine and plant combined)	912 Dunphy Ranch Rd. Battle Mountain, NV 89820 Phone: 775-468-0515 FAX: 775-468-2060 Web: http://www.halliburton.com
Nevada Barth Iron Mine and Mill	Saga Exploration Co.	S7, T31N, R51E	iron	OP, ML	screening	4	2339 Dickerson Rd. Reno, NV 89503 Phone: 775-322-9994
Ruby Hill Mine	Barrick Goldstrike Mines, Inc.	S9-11, 14, 15, T19N, R53E	gold silver	OP, CIL, CIP, HL, ML	heap leach milling	136/1	P.O. Box 676 Eureka, NV 89316 Phone: 775-237-6060 FAX: 775-237-5408 Web: http://www.barrick.com
HUMBOLDT COUNTY							
Ashdown Mine	Win-Eldrich Mines, Ltd.	S14, T45N, R29E	molybdenum gold	UG, ML	mining flotation milling	2/2	P.O. Box 210 Denio, NV 89404 Phone: 775-941-0274 FAX: 775-941-0271 Web: http://www.ashdownproject.com
Bonanza Opal Mine	Bonanza Opal Mines, Inc.	S6, 7, T45N, R26E	precious opal	OP	mining	1	P.O. Box 127 Denio, NV 89404 Phone: (Summer) 775-941-0111 Phone: (Winter) 864-597-1421 Web: http://www.bonanzaopals.net
Hycroft Mine	Hycroft Resources and Development, Inc.	S26, T35N, R29E	gold silver	OP, HL	mining heap leach	472/250	P.O. Box 3030 Winnemucca, NV 89446 Phone: 775-623-5260 FAX: 775-623-0215 Web: http://www.alliednevada.com/
Lone Tree Mine	Newmont Mining Corp.	S1, 11, 13, 15, 23, T34N, R42E	gold silver	OP, HL, ML	flotation heap leach milling	64/79	P.O. Box 388 Valmy, NV 89438-0388 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
Marigold Mine	Goldcorp, Inc.	S8, 9, 18-20; T33N, R43E	gold silver	OP, HL, ML	mining heap leach milling	328/25	P.O. Box 160 Valmy, NV 89438 Phone: 775-635-2317 FAX: 775-635-2551 Web: http://www.goldcorp.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
HUMBOLDT COUNTY (continued)							
MIN-AD Mine	MIN-AD, Inc.	S28, T35N, R38E	dolomite	OP, ML	mining grinding	14/2	P.O. Box 39 Winnemucca, NV 89446 Phone: 775-623-5944 FAX: 775-623-9028 Web: http://www.min-ad.com
Pinson Mine	Atna Resources, Ltd.	S29, T38N, R42E	gold silver	UG	mining	17	P.O. Box 969 Winnemucca, NV 89446-0969 Phone: 775-529-5026 FAX: 775-529-5030 Web: http://www.atna.com
Rainbow Ridge Opal Mine	Rainbow Ridge Opal Mines, Inc.	S22, 23, T45N, R26E	opalized wood precious opal	OP	mining	1	P.O. Box 97 Denio, NV 89404 Phone: (Summer) 775-941-0270 Phone: (Winter) 541-548-4810 Web: http://www.nevadaopal.com
Royal Peacock Opal Mine	Walter Wilson	S30, T45N, R26E	precious opal	OP	mining	1	P.O. Box 165 Denio, NV 89404 Phone: (Summer) 775-941-0374 Phone: (Winter) 775-272-3201 Web: http://www.royalpeacock.com
Turquoise Ridge Joint Venture	Barrick Gold Corp.	S33, T39N, R42E	gold silver	UG	mining	394	HC 66 Box 220 Golconda, NV 89414-9702 Phone: 775-529-5001 FAX: 775-529-0753 Web: http://www.barrick.com
Turquoise Ridge Quarry	Barrick Gold Corp.	S33, T39N, R42E	gold silver	UG	mining	20	HC 66 Box 220 Golconda, NV 89414-9702 Phone: 775-529-5001 FAX: 775-529-0753 Web: http://www.barrick.com
Twin Creeks Mine	Newmont Mining Corp.	S3-10, 15-22, 27-32, T39N, R43E	gold silver	OP, HL, ML	mining heap leach milling	602/273	P.O. Box 69 Golconda, NV 89414 Phone: 775-635-9400 FAX: 775-635-4602 Web: http://www.newmont.com
LANDER COUNTY							
3D Pit	John Davis Trucking Co.	S2, T32N, R45E	sand	OP, ML	mining	7	P.O. Box 457 Battle Mountain, NV 89820 Phone: 775-635-2805 FAX: 775-635-8017
Argenta Mill	Baker Hughes Oilfield Operations, Inc.	S6, T32N, R47E	barite	ML	gravity grinding	28/40 (Mine and plant combined)	P.O. Box 277 Battle Mountain, NV 89820 Phone: 775-635-5441 FAX: 775-635-5455 Web: http://www.bakerhughes.com
Argenta Mine	Baker Hughes Oilfield Operations, Inc.	S13, 14, T32N, R46E; S18, 19, T32N, R47E	barite	OP	mining	28/40 (Mine and plant combined)	P.O. Box 277 Battle Mountain, NV 89820 Phone: 775-635-5441 FAX: 775-635-5455 Web: http://www.bakerhughes.com
Battle Mountain Grinding Plant	M-I Swaco	S18, T32N, R45E	barite	ML	gravity grinding	56	P.O. Box 370 2 North Second Street Battle Mountain, NV 89820 Phone: 775-635-5135 FAX: 775-635-2645 Web: http://www.slb.com/services/miswaco.aspx
Cortez Hills Open Pit Mine	Barrick Cortez, Inc.	S31, T27N, R48E	gold	OP, ML	mining milling	983/750 (Combined Pipeline and Cortez Hills Pit Mines)	HC 66 Box 1250 Crescent Valley, NV 89821-1250 Phone: 775-468-4400 FAX: 775-468-4496 Web: http://www.barrick.com
Cortez Hills Underground Mine	Barrick Cortez, Inc.	S31, T27N, R48E	gold	UG, ML	mining milling	304/35	HC 66 Box 1250 Crescent Valley, NV 89821-1250 Phone: 775-468-4400 FAX: 775-468-4496 Web: http://www.barrick.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
LANDER COUNTY (continued)							
Cortez Pipeline Mine	Barrick Cortez, Inc.	S31, T28N, R47E	gold silver	OP, HL, ML	mining heap leach milling	983/750 (Combined Pipeline and Cortez Hills Pit Mines)	HC 66 Box 1250 Crescent Valley, NV 89821-1250 Phone: 775-468-4400 FAX: 775-468-4496 Web: http://www.barrick.com
Fire Creek	Klondex Mines, Ltd.	S15, 22 T30N, R47E	gold silver	UG	development	12/40	1250 Lamoille Highway, Suite 312 Elko, NV 89801 Phone: 775-738-6070 FAX: 775-738-5070 Web: http://klondexmines.com
Greystone Mine	M-I Swaco	S35, T28N, R45E	barite	OP, ML	mining gravity	55	P.O. Box 370 2 North Second Street Battle Mountain, NV 89820 Phone: 775-635-5135 FAX: 775-635-2645 Web: http://www.slb.com/services/miswaco.aspx
Mountain Springs Mine	M-I Swaco	S8, 9, T28N, R44E	barite	OP, ML	stockpile	N/A	P.O. Box 370 2 North Second Street Battle Mountain, NV 89820 Phone: 775-635-5135 FAX: 775-635-2645 Web: http://www.slb.com/services/miswaco.aspx
Phoenix Mine	Newmont Mining Corp.	S22, 27, 33, 34, T31N, R43E	gold silver	OP, HL, ML	mining heap leach	518/318	P.O. Box 1657 Battle Mountain, NV 89820 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
LINCOLN COUNTY							
Tenacity Perlite Mine and Mill	Wilkin Mining and Trucking Co., Inc.	S34, T4S, R62E	perlite	OP, ML	mining crushing	8	HC 34 Box 199 Caliente, NV 89008 Phone: 775-728-4463 FAX: 775-728-4456
LYON COUNTY							
Adams Claim Gypsum Mine	Art Wilson Co.	S25, T16N, R20E	gypsum limestone	OP, ML	mining crushing grinding screening pelletizing	64/1	P.O. Box 20160 Carson City, NV 89702-1160 Phone: 775-882-0700 FAX: 775-882-0790 Web: http://www.awgypsum.com
Celite Plant	World Minerals, Inc.	S11, T20N, R24E	diatomite	ML	classification drying grinding milling	12/2	100 Front St. Fernley, NV 89408 Phone: 775-575-2536 FAX: 775-575-1570 Web: http://www.worldminerals.com
Hazen Pit	EP Minerals, LLC	S6, 9, T19N, R26E	diatomite	OP	mining	2/4	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7715 Web: http://www.epminerals.com
Nevada Cement Mine	Nevada Cement Co.	S3-6, 9, T19N, R25E; S31-33, T20N, R25E	limestone	OP	mining	7 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web: http://www.eaglematerials.com
Nevada Cement Plant	Nevada Cement Co.	S10, 11, T20N, R24E	limestone clay	ML	crushing dry milling rotary kiln	98	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web: http://www.eaglematerials.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
MINERAL COUNTY							
Borealis Mine	Gryphon Gold Corp.	S8, 9, 16, 17; T6N, R29E	gold silver	HL, ML	heap leach milling	48/2	611 North Nevada St. Carson City, NV 89703 Phone: 775-883-1456 FAX: 604-608-3263 Web: http://www.gryphongold.com
Denton-Rawhide Mine	Rawhide Mining, LLC	S4, 5, 8, 16, 17, T13N, R32E	gold silver	OP, HL	mining heap leach	41/69	P.O. Box 2070 Fallon, NV 89407 Phone: 775-945-1015 FAX: 775-945-1213
Esmeralda Mine	Antler Peak Gold, Inc.	S2-4, 7-11, 15-20, 29-32, T5N, R28E	gold silver	OP, HL	milling	39	P.O. Box 2570 Hawthorne, NV 89415 Phone: 775-546-5010
Lucky Boy Quarry	James Hardie Building Products Inc.	S34, T7N, R29E	quartzite	OP	mining	1/6	3000 Waltham Way McCarran, NV 89434 (775) 355-3000 Web: http://www.jameshardie.com
NYE COUNTY							
Ash Meadows Plant	Zeox Mineral Materials Corp.	S25, T18S, R50E	unaltered ash zeolite	ML	crushing screening packaging	6	HCR 70 Box 7006 East Spring Meadows Rd. Amargosa Valley, NV 89020 Phone: 775-372-5524 FAX: 775-372-5524 Web: http://www.zeoxcorporation.com
Beatty Quarry	Kalamazoo Materials, Inc.	S16, T11S, R47E	landscape rock	OP, ML	mining crushing screening	3	6975 North Oracle Rd. Tucson, AZ 85704 Phone: 520-575-9601 FAX: 520-575-9604 Web: http://www.kalamazoomaterials.com
Cinder Cone Pit	Allied Building Materials, Inc. and Cind-R-Lite Company	S36, T14S, R48E; S31, T14S, R49E; S1, T15S, R48E; S6, T15S, R49E	cinder	OP, ML	mining screening	9	4745 Mitchell St. North Las Vegas, NV 89081 Phone: 702-651-1550 FAX: 702-651-1551 Web: http://www.abmnv.com
Gamebird Pit	Wulfenstein Construction Co., Inc.	S2, T20S, R53E	sand gravel	OP	mining crushin screening	6	2281 East Postal Dr. P.O. Box 38 Pahrump, NV 89048 Phone: 702-727-5900 FAX: 702-727-6010
IMV Pits	IMV Nevada	S28, 29, T17S, R49E	clay	OP, ML	mining classification crushing grinding screening	32	P.O. Box 86 Amargosa Valley, NV 89020 Phone: 775-372-5341 FAX: 775-372-5640 Web: http://www.imvnevada.com
Manhattan Gulch Mine	A.U. Mines, Inc.	S21, T8N, R43E	gold silver	PL	mining gravity	10	1325 Airmotive Way Reno, NV 89502 Phone: 775-657-8751 FAX: 775-657-8752 Web: http://www.imvnevada.com
New Discovery Mine	Vanderbilt Minerals Corp.	S13, 24, T12S, R46E S18, 19, T12S, R47E	clay	OP	bagging grinding screening	3 (Combined Vanderbilt Mines)	3561 East Burgundy Dr. P.O. Box 6660 Pahrump, NV 89048 Phone: 775-537-6976 FAX: 775-537-6879 Web: http://www.rtvanderbilt.com
Pahrump Community Pit	Various (U.S. Bureau of Land Management manages pit)	S28, 29, T20S, R54E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 Phone: 702-515-5000 Web: http://www.blm.gov
IMV Pits	IMV Nevada	S28, 29, T17S, R49E	clay	OP, ML	mining classification crushing grinding screening	32	P.O. Box 86 Amargosa Valley, NV 89020 Phone: 775-372-5341 FAX: 775-372-5640 Web: http://www.imvnevada.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
NYE COUNTY (continued)							
Manhattan Gulch Mine	A.U. Mines, Inc.	S21, T8N, R43E	gold silver	PL	mining gravity	10	1325 Airmotive Way Reno, NV 89502 Phone: 775-657-8751 FAX: 775-657-8752 Web: http://www.imvnevada.com
New Discovery Mine	Vanderbilt Minerals Corp.	S13, 24, T12S, R46E S18, 19, T12S, R47E	clay	OP	bagging grinding screening	3 (Combined Vanderbilt Mines)	3561 East Burgundy Dr. P.O. Box 6660 Pahrump, NV 89048 Phone: 775-537-6976 FAX: 775-537-6879 Web: http://www.rtvanderbilt.com
Pahrump Community Pit	Various (U.S. Bureau of Land Management manages pit)	S28, 29, T20S, R54E	sand gravel	OP	mining		Bureau of Land Management 4701 North Torrey Pines Dr. Las Vegas, NV 89130-2301 Phone: 702-515-5000 Web: http://www.blm.gov
Premier Chemicals Mine	Premier Chemicals, LLC	S22, 23, 25-27, 34-36, T12N, R36E	magnesite	OP, ML	mining calcining sizing	98	P.O. Box 177 Gabbbs, NV 89409 Phone: 775-285-260 FAX: 775-285-4021 Web: http://www.premierchemicals.com
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	844/178	P.O. Box 480 Smoky Valley Mine Rd. Round Mountain, NV 89405 Phone: 775-377-2366 FAX: 775-377-3224 Web: http://www.kinross.com
Sterling Mine	Sterling Gold Mining Co.	S14, T13S, R47E;	gold	UG	mining	40	P.O. Box 549 Beatty, NV 89003 Phone: 866-608-4381 FAX: 775-981-9044 Web: http://www.imperialmetals.com
White Caps Mill	Vanderbilt Minerals Corp.	S19, T12S, R47E	clay	ML	bagging grinding screening	4	3561 East Burgundy Dr. P.O. Box 6660 Pahrump, NV 89048 Phone: 775-537-6976 FAX: 775-537-6879 Web: http://www.rtvanderbilt.com
PERSHING COUNTY							
Buff-Satin Mine	Vanderbilt Minerals Corp.	S2, T27N, R32E	clay	OP	bagging grinding screening	3 (Combined Vanderbilt Mines)	3561 East Burgundy Dr. P.O. Box 6660 Pahrump, NV 89048 Phone: 775-537-6976 FAX: 775-537-6879 Web: http://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	250/28	P.O. Box 1057 Lovelock, NV 89419 Phone: 775-273-7995 FAX: 775-273-7423 Web: http://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 Rd. Lovelock, NV 89419 Phone: 775-824-7591 FAX: 775-824-7595 Web: http://www.epminerals.com
Colado Plant	EP Minerals, LLC	S33, T28N, R32E	diatomite perlite	ML	drying classification grinding calcining	95	P.O. Box 959 150 Coal Canyon Rd. Lovelock, NV 89419 Phone: 775-824-7540 FAX: 775-824-7582 Web: http://www.epminerals.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
PERSHING COUNTY (continued)							
Florida Canyon Mine	Florida Canyon Mining, Inc.	S1-4, 9-15, T31N, R33E; S37-39, T31.5N, R33E; S33-35, T32N, R33E	gold silver	OP, HL, ML	mining heap leach milling	170/52 (Combined Florida Can. & Standard Mines)	P.O. Box 330 Imlay, NV 89418 Phone: 775-538-7300 FAX: 775-538-7324 Web: http://www.jipangu.co.jp
Nassau (Section 8) Mine	American Colloid Co.	S8, T27N, R33E	clay	OP	mining shipping	0/1	P.O. Box 2010 Belle Fourche, SD 57717 Phone: 605-892-6371 FAX: 605-892-3178 Web: http://www.colloid.com
Standard Mine	Florida Canyon Mining, Inc.	S1, 12, T30N, R33E; S35, T31N, R33E	gold silver	OP, HL, ML	heap leach	170/52 (Combined Florida Can. & Standard Mines)	P.O. Box 330 Imlay, NV 89418 Phone: 775-538-7300 FAX: 775-538-7324 Web: http://www.jipangu.co.jp
Sunrise Gold Placer Mine	Sunrise Minerals, LLC	S17, T33N, R36E	gold	PL	mining gravity	6	7343 South Alton Way, Suite 100 Centennial, CO 80112 Phone: 303-779-1800 FAX: 303-770-1995
W. Glen Sexton Family Trust	Nutritional Additives Corp.	S5, T34N, R38E	dolomite	OP, ML	mining milling	1	415 Wellington Street Winnemucca, NV 89445 Phone: 775-623-1151 FAX: 775-623-1153
STOREY COUNTY							
Basalite Dayton Pit	Basalite Concrete Products	S8, 9, 16, 17, T17N, R22E	sand gravel	OP	mining crushing milling	4	2500 Boeing Way Carson City, NV 89701 Phone: 775-882-9336 FAX: 775-887-1025 Web: http://www.basalite.pacocoast.com
Clark Mill	EP Minerals, LLC	S35, T20N, R22E	diatomite	ML	calcining classification drying grinding	53	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7633 Web: http://www.epminerals.com
Clark Mine	EP Minerals, LLC	S27, 33, 34, T20N, R23E	diatomite	OP	mining	12/9	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7633 Web: http://www.epminerals.com
Lucerne Pit	Comstock Mining, Inc.	S8, T16N, R21E	gold silver	OP, HL, ML	mining heap leach milling	73/15	P.O. Box 1118 1200 American Flat Rd. Virginia City, NV 89440 Phone: 775-847-5272 FAX: 800-750-5740 Web: http://www.comstockmining.com
WASHOE COUNTY							
Lockwood Quarry	Granite Construction Co.	S17, T19N, R21E	aggregate	OP, ML	mining crushing screening washing	18	P.O. Box 2087 1900 Glendale Ave. Sparks, NV 89432 Phone: 775-355-3434 FAX: 775-329-2803 Web: http://www.graniteconstruction.com
Mustang Pit	Sierra Nevada Construction, Inc.	S4, T19N, R21E	aggregate	OP, ML	mining crushing screening	16	P.O. Box 50760 2055 East Gregg St. Sparks, NV 89435-0760 Phone: 775-355-0420 FAX: 775-355-0535 Web: http://www.snc.biz
Paiute Pit and Plant	CEMEX	S2, 27, 34, T21N, R24E	sand gravel	OP	mining crushing screening	10	10 Hill Ranch Rd. Wadsworth, NV 89442 Phone: 775-575-1162 Web: http://www.cemex.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
WASHOE COUNTY (continued)							
Rilite Aggregate	Rilite Aggregate Co.	S23, T18N, R20E	sand rock	OP, ML	mining crushing	8	3025 Mill St. Reno, NV 89502 Phone: 775-329-8842 FAX: 775-329-3593
Spanish Springs Quarry	Martin Marietta Materials, Inc.	S15, 22, T21N, R20E	aggregate	OP, ML	mining crushing screening	15	11059 Pyramid Lake Rd. Sparks, NV 89436 Phone: 775-425-4455 FAX: 775-425-5131 Web: http://www.martinmarietta.com
Terraced Hill Clay Mine	Nevada Cement Co.	S13, 14, T27N, R19E	clay	OP, ML	mining milling	3	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web: http://www.eaglematerials.com
WHITE PINE COUNTY							
Bald Mountain Mine	Barrick Gold U.S., Inc.	S14, 15, 19, 20, T24N, R57E	gold silver mercury	OP, HL, ML	mining heap leach mining	407/7	P.O. Box 2706 Elko, NV 89803 Phone: 775-237-7100 FAX: 775-237-7101 Web: http://www.barrick.com
Mount Moriah Quarry	Mount Moriah Stone Quarries, LLC	S22, 23, 26, 27, 33-36, T16N, R70E	building stone landscape rock	OP	mining	18	P.O. Box 70 No. 10 Hatch Rock Rd. Baker, NV 89311 Phone: 435-855-2232 FAX: 435-855-2332 Web: http://mtmoriahstone.com
Robinson Mine	KGHM International, Ltd.	S6, 8, 17, 18, T16N, R62E	copper gold silver molybdenum	OP, ML	mining milling	574/96	P.O. Box 382 Ruth, NV 89319 Phone: 775-289-7000 FAX: 775-289-7349 Web: http://www.quadrafmx.com

Acknowledgments

We thank Larry J. Garside for a review of draft of various parts of this report.

Publication Design and Updates

This publication was designed for reading on the web. Updates and corrections may be made before publication of the volume for next year. This version was updated on February 11, 2014.