Nevada Bureau of Mines and Geology

Metals

Industrial Minerals

Oil and Gas

Geothermal

Special Publication MI-2013

The Nevada Mineral Industry 2013

Exploration

Development

Mining

Processing

University of Nevada, Reno

This report describes mineral, oil and gas, and geothermal activities and accomplishments in Nevada in 2013: production statistics, exploration and development including drilling for petroleum and geothermal resources, discoveries of orebodies, new mines opened, and expansion and other activities of existing mines. Statistics of known gold and silver deposits, and directories of mines and mills are included.

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Cover Photo:
Newmont Corporation's Gold Quarry Mine
Eureka County
Photographer: Mike Visher

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The Nevada Mineral Industry 2013

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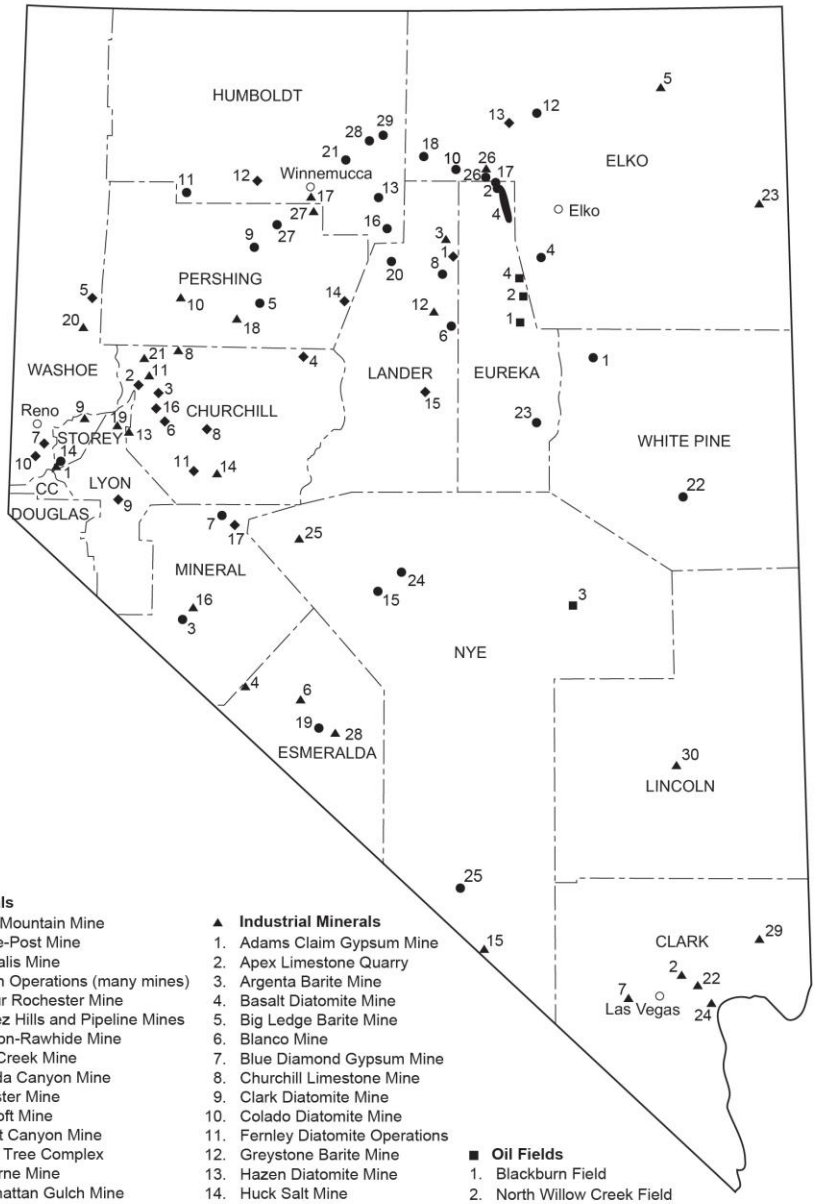

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30. Tenacity Perlite Mine

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2. North Willow Creek Field
3. Railroad Valley (Eagle Springs, Trap Spring, Currant, Sand Dune, Grant Canyon, Bacon Flat, Kate Spring, Duckwater Creek, Sans Spring, and Ghost Ranch Fields)
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2. Bradys Hot Springs
3. Desert Peak 2
4. Dixie Valley
5. San Emidio
6. Soda Lake 1 and 2
7. Steamboat I, IA, II, and III, Galena
8. Stillwater 1 and 2
9. Wabuska
10. Steamboat Hills
11. Salt Wells
12. Blue Mountain
13. Tuscarora
14. Jersey Valley
15. McGinness Hills
16. Patua
17. Wild Rose

Major mines, oil fields, and geothermal plants, 2013.

OVERVIEW

by John L. Muntean

This report highlights activities through 2013 in metals, industrial minerals, geothermal energy, and petroleum. The value of overall mineral and energy production in Nevada in 2013 decreased 16.4% from its all-time high of $10.76 billion in 2012 to just shy of $9 billion (Table 1, Fig. 1). The main cause was a 15.4% decrease in the price of gold from an average cost of $1,669/ounce in 2012 to $1,411/ounce in 2013. Gold production decreased slightly, for the first time in four years, to 5.4 million ounces in 2013 (Fig. 2). Nevertheless, 2013 was the 25th consecutive year with production in excess of 5.0 million ounces. Gold comprised 85% of the value of Nevada's mineral and energy production. 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 2013, more or less in order of value, included copper, silver, geothermal energy, construction aggregate (sand, gravel, and crushed stone, including limestone and dolomite), diatomite, lime (produced from limestone and dolomite), petroleum, gypsum, silica, and molybdenum. Additional mined materials with production values less than $10,000,000 in 2013 were clays, perlite, iron ore, dimension stone, salt, and semiprecious gemstones (opal). Locations of many of the sites mentioned in the text of this report are shown on NBMG Open-File Report 2014-01, *Nevada Active Mines and Energy Producers,* which is available at http://www.nbmg.unr.edu/freedownloads/of/of2014-01.zip .

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 2013 (according to the U.S. Geological Survey, Mineral Commodity Summaries 2014, http://minerals.usgs.gov/minerals/pubs/mcs/2014/mcs2014.pdf). Arizona, the country's major copper producer, retained second place. Minnesota, the leading iron ore producer in the U.S., was third. Florida, mainly because of its phosphate production, rose to fourth. Texas rose to fifth, mainly due to its booming construction industry and demand for aggregate and cement. Alaska, a significant producer of gold, zinc, and silver, was sixth. Utah was seventh, mainly because of its Bingham Canyon copper mine near Salt Lake City. California dropped three places to eight. 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 $7.67 billion, accounted for 74% of the U.S. total and helped the U.S. become the third leading gold producer in the world in 2013. Nevada alone accounted for 6.1% of world production of gold, which was approximately 89 million ounces in 2013. As in 2012, only China, Australia, and Russia produced more gold than the state of Nevada. Second to gold in terms of Nevada's mineral value in 2013 was copper ($468 million), followed by silver ($206 million), which was chiefly as a byproduct or co-product of gold production. Electrical power from geothermal energy production in Nevada was valued at $185 million. Construction aggregate ranked fifth, with a value of $150 million.

The section on **Metals** and the tables of **Major Precious-Metal Deposits** and **Other Metallic Deposits** provide details on exploration, new deposit discoveries, new mine openings, mine closures, additions to reserves, and mine expansions. As has been the case for many years, gold continues to be the leading commodity produced in Nevada. Production of gold in 2013 came mainly from 14 major mining operations that each produced greater than 50,000 ounces. The Carlin trend in northeastern Nevada accounted for 35% of the total production, a slightly lower percentage than in 2012. There were nine 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 the world's gold. The U.S. Geological Survey estimates that total world gold production, since the beginning of civilization, has been approximately 5.54 billion ounces. Although this seems like a large quantity, all the gold ever mined would fit into a cube only 68 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 2013 is 208.48 million ounces. Remarkably, 88% has been produced since the Carlin mine began production in 1965; 86% has been produced during the current boom from 1981 to the present; and 28% has been produced in the last ten years. Cumulative U.S. production, primarily since 1835, is approximately 574 million ounces or about 10.4% of total world gold production, and total Nevada production is 3.8% 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 2013, cumulative production from the Carlin trend was 82.4 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 (Fig. 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 254 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 last decade from 2004 through 2013 alone was 76 million ounces. The current boom is bigger than previous booms not only in terms of cumulative production but also in terms of peak annual production (11.6 million ounces in

TABLE 1. MINERAL, GEOTHERMAL POWER, AND PETROLEUM PRODUCTION IN NEVADA[1]

	2011 (revised)		2012		% Change from 2011 to 2012	
Commodity	**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 minerals[2]	-----	115.5	-----	140.7	-----	21.8
Total	-----	$10,022.1	-----	$10,758.2	-----	7.3

[1]Production 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.

[2]Building 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.

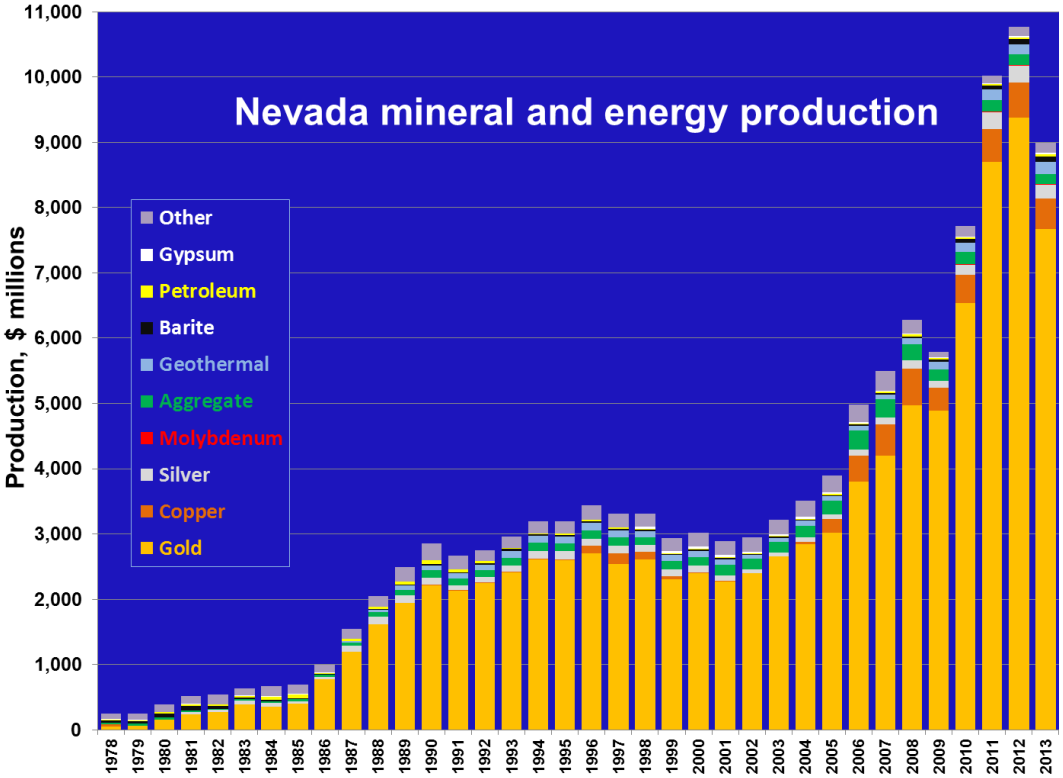

Figure 1. Chart showing relative values of Nevada production of gold, copper, silver, molybdenum, aggregate, geothermal energy, barite, petroleum, gypsum and other minerals from 1978 to 2013. Molybdenum production is only shown for 2011 to 2013.

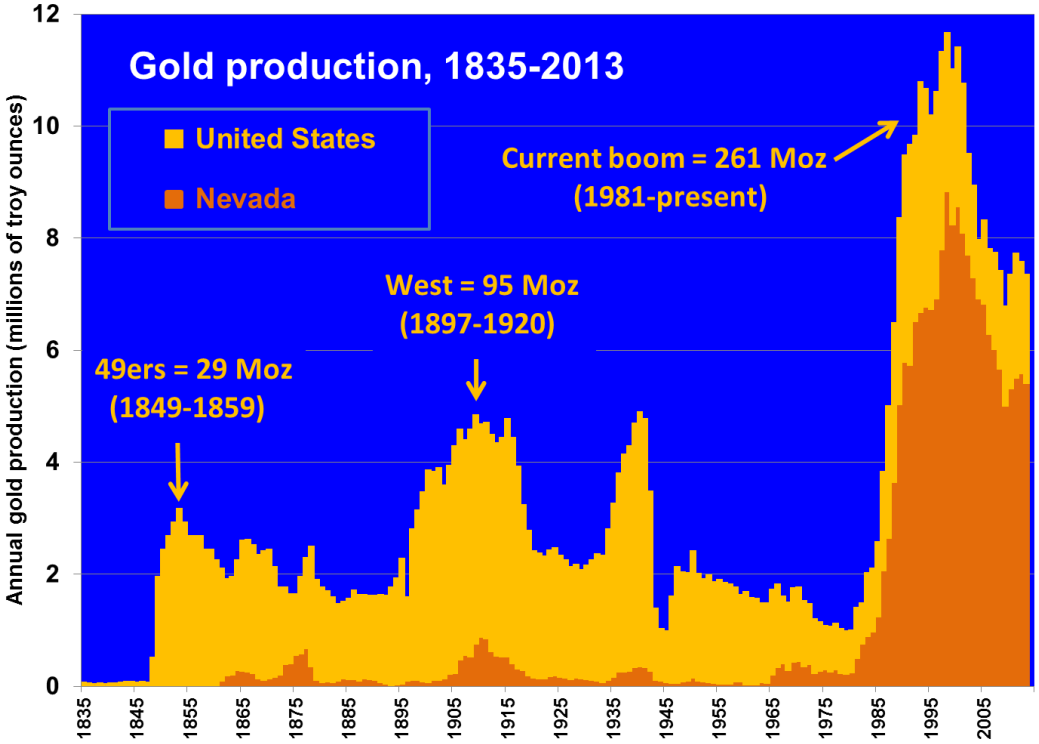

Figure 2. Chart comparing U.S. and Nevada gold production from 1835 to 2013.

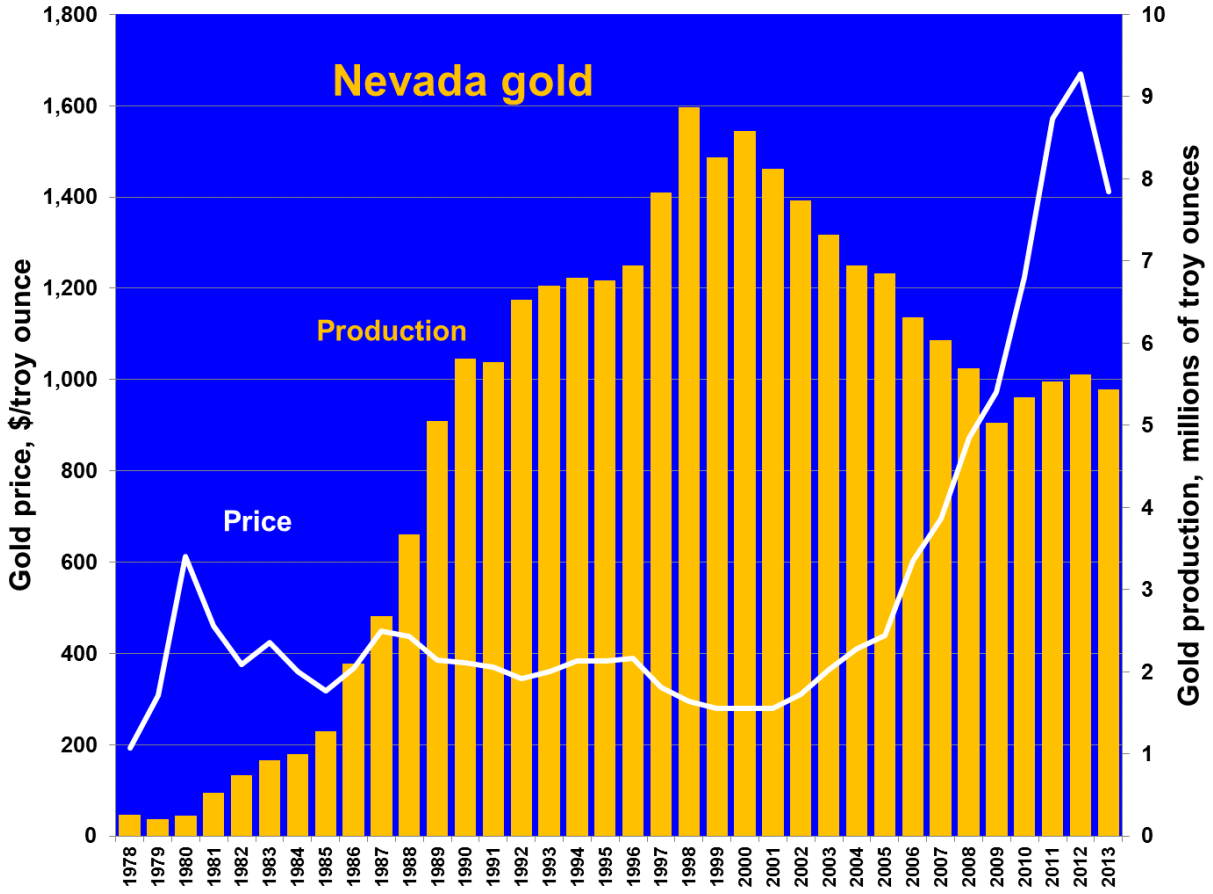

Figure 3. Chart showing Nevada gold production compared to the price of gold from 1978 to 2013.

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

In 2013, gold production from Barrick Gold Corporation's Cortez operations (1,371,048 ounces) surpassed production from its Carlin trend mines (891,570 ounces) for the third year in a row. Other large gold operations were Newmont Mining Corporation's mines on the Carlin trend (1,020,791 ounces) in Eureka and Elko Counties, Newmont's Twin Creeks mine (406,847 ounces) in Humboldt County, and the Kinross-Barrick Smoky Valley joint venture Round Mountain mine (314,886 ounces) in Nye County. Combined, Barrick and Newmont accounted for 83% of Nevada gold production in 2013.

Much of Nevada's silver production in 2013, which totaled 8.67 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 59:1 in 2013, only those deposits with more than 59 times as much silver as gold can be considered primary silver deposits. Only one such mine operated in Nevada in 2013—the Coeur Rochester Mine in Pershing County, which had a silver-to-gold production ratio of 91:1 and total silver production of 2.80 million ounces. It produced 32% of Nevada's silver in 2013. As in 2012, Nevada's silver production in 2013 accounted for 25% of the U.S. total, which was second in the U.S. behind Alaska.

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, which produced nearly 108 million pounds of copper (Fig 5). Copper was also produced at Newmont's Phoenix mine near Battle Mountain in Lander County, where value of copper of the nearly 30 million pounds of copper was close to the value of its gold production. Newmont's commissioned the first solvent extraction-electrowinning (SX-EW) plant in Nevada, which produces copper on site, rather than having to ship concentrates to smelters outside Nevada, which the Robinson mine does. KGHM produced 1,384,649 pounds of by-product molybdenum from Robinson.

Exploration activity in 2013 is summarized in the section on **Metals**. Most exploration focused on gold; however, some companies explored for copper, silver, zinc, iron, vanadium, antimony, barite, fluorspar, limestone for cement, lithium, and rare earth elements.

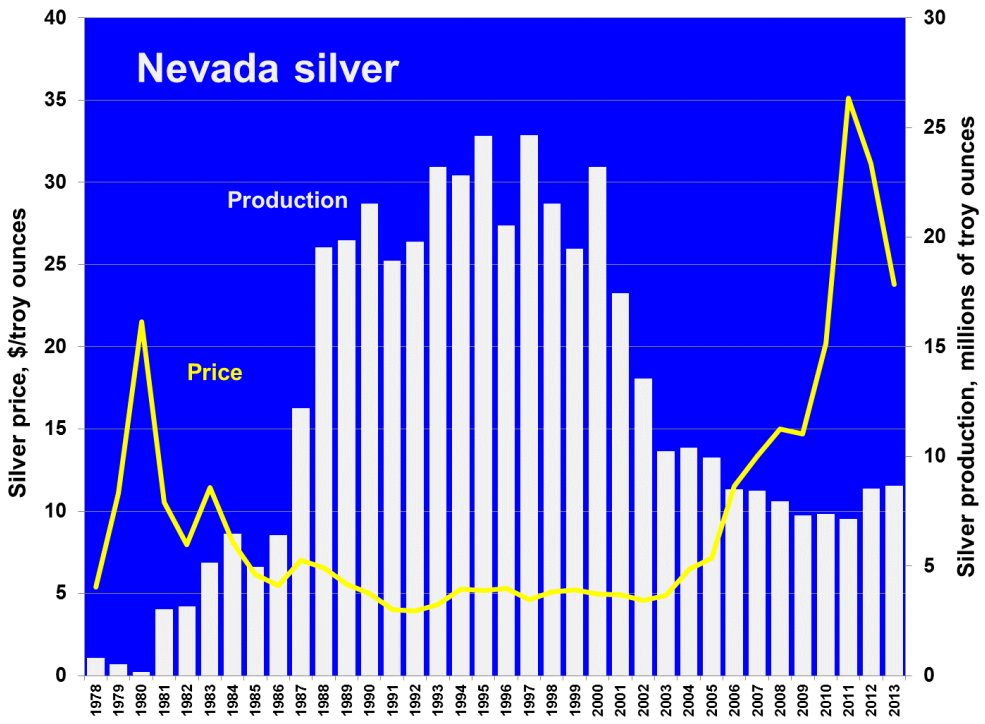

Figure 4. Chart showing Nevada silver production compared to the price of silver from 1978 to 2012.

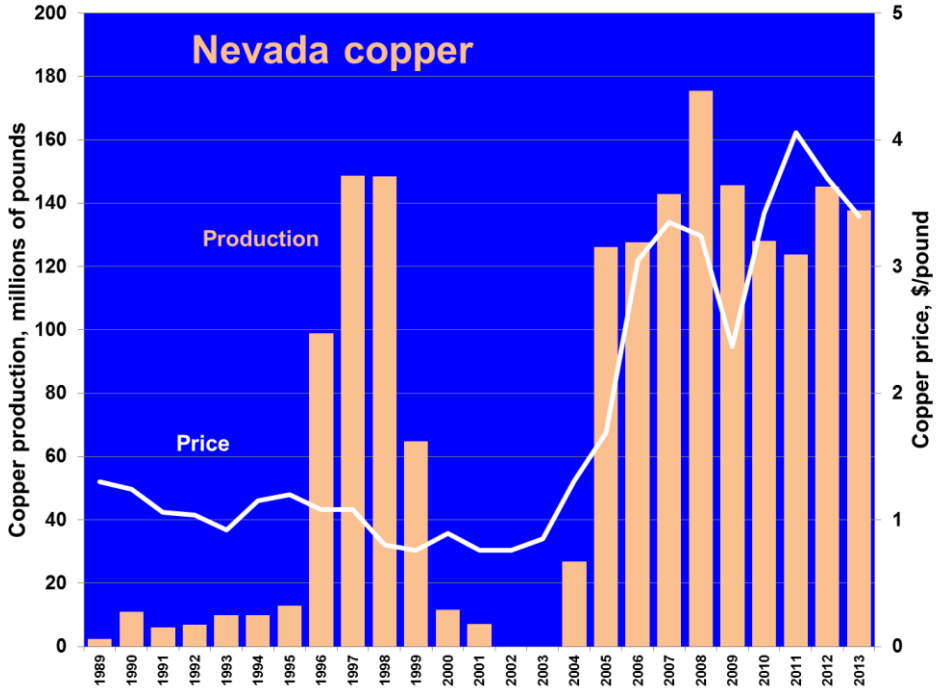

Figure 5. Chart showing Nevada copper production compared to the price of copper from 1978 to 2012.

Exploration activity for metals dropped significantly in 2013. 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, Elko, and Lander Counties, such as Barrick's large Goldrush deposit near their Cortez mine. Off the main trend, Newmont continues to develop its 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 191,394 active mining claims at the end of 2013, a decrease of 1.8% from the end of 2012 and are now at the lowest level since 2006 (Fig. 6). The decrease in exploration activity for metals is also reflected by a significant decrease in projects that were drilled, dropping from 126 projects in 2012 to 81 in 2013 (Fig. 7).

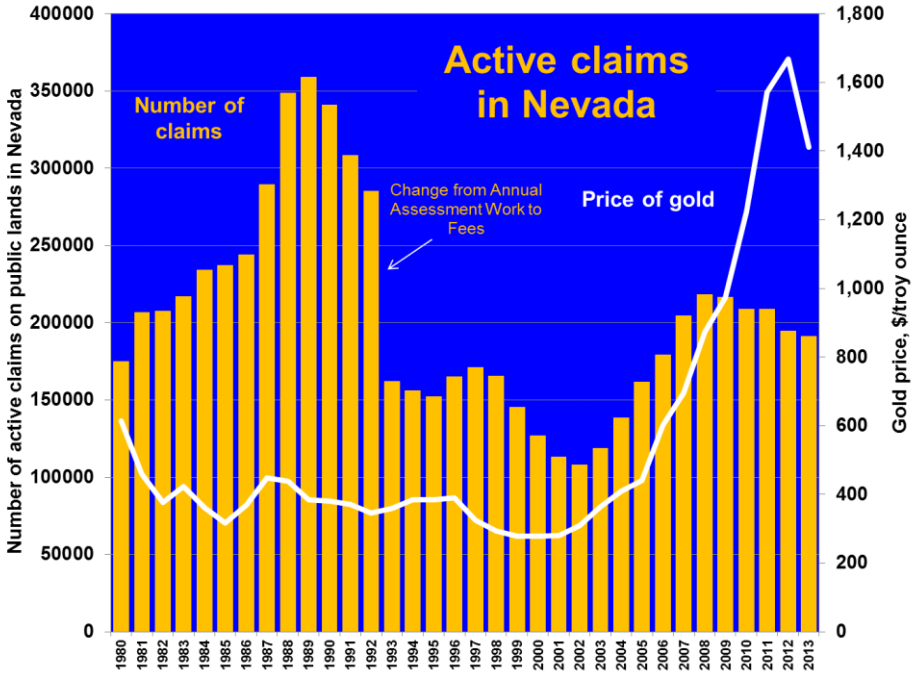

Figure 6. Chart showing number of active mining claims at the end of the year from 1980 to 2013. For comparison, chart also shows the price of gold during that period.

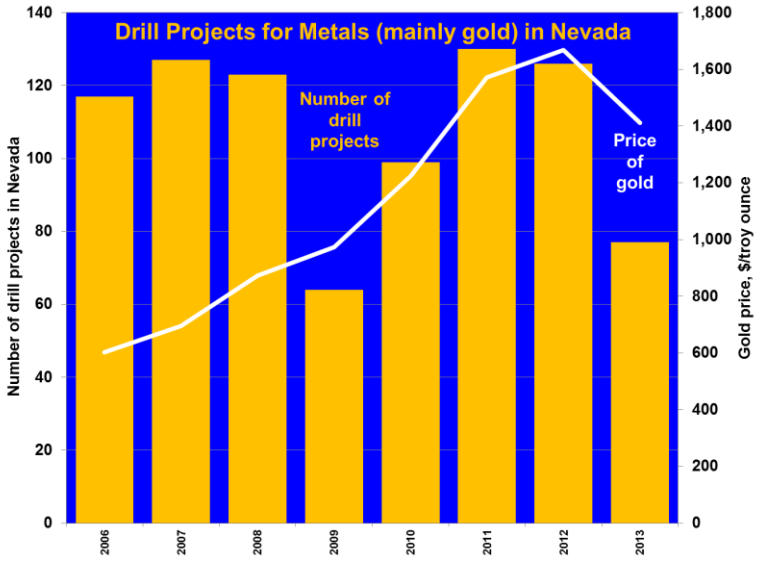

Figure 7. Chart showing number of drill projects targeting metals, mainly gold, from 2006 to 2013 1980 to 2013. For comparison, chart also shows the price of gold during that period.

The section on **Industrial Minerals** covers developments during 2013 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. Demand for construction raw materials is likely to remain strong in the future because of Nevada's population and need for highways. However, Nevada's population in 2013 was 2.791 million up only slightly from 2.701 million in 2010 (www.census.gov). The recent slow growth in population is reflected in a fairly steady decrease in aggregate production since 2006 (Fig. 8). That being said, Nevada's gypsum production increased by 41%, indicating building construction is on the rebound.

Nevada was once again the leading domestic producer of barite, of which 95% is used drilling muds. Production in Nevada increased 24% in 2013 (Fig. 9), mainly due to a large increase in domestic drilling for oil and gas. Nevada's production of diatomite, which is mainly used in filtration, was second only California in the U.S.

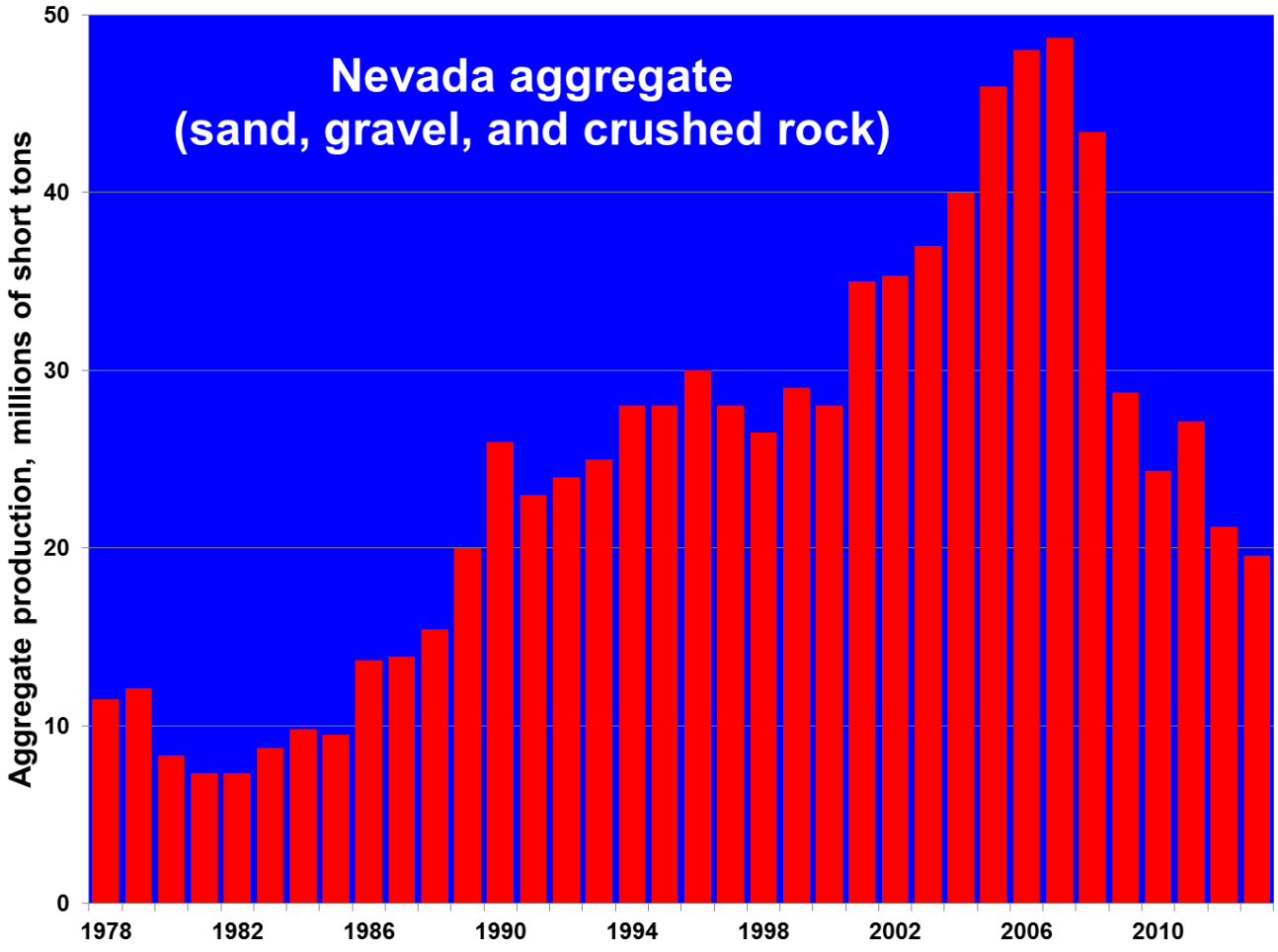

Figure 8. Chart showing Nevada aggregate production from 1980 to 2013.

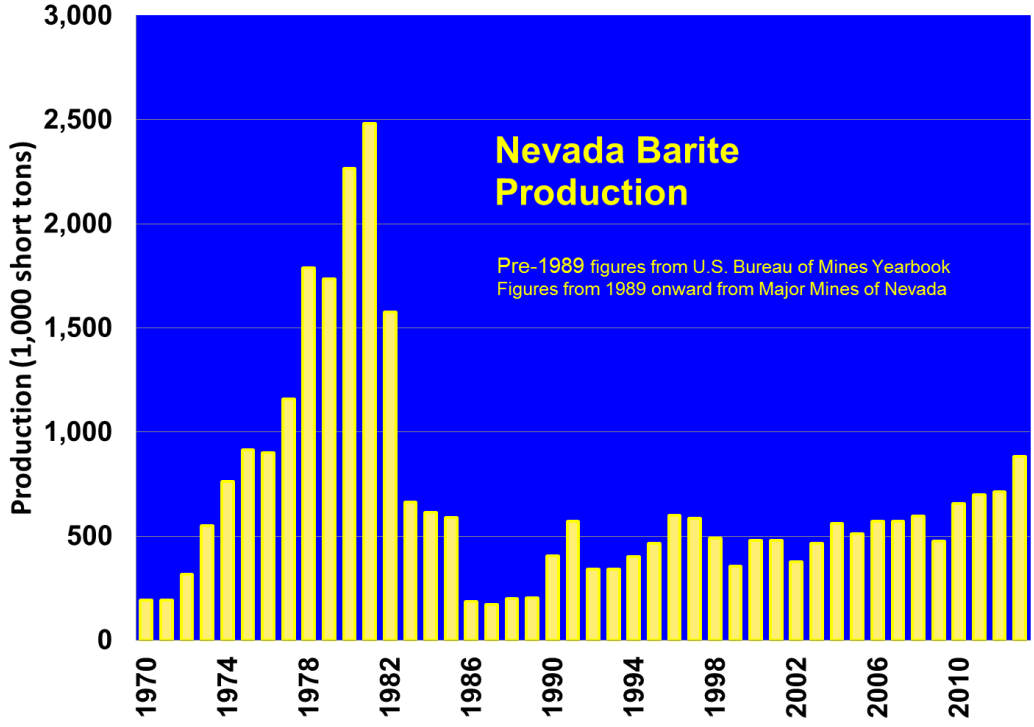

Figure 9. Chart showing Nevada barite production from 1970 to 2013.

Chemetall Foote Corporation's Silver Peak lithium operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, is the only domestic lithium producer. Premier Chemicals' (now Premier Magnesia) Gabbs Mine in Nye County is currently the nation's only hard-rock producer of magnesite.

Molycorp's Mountain Pass mine in southern California is the only domestic producer of rare earths elements (REE) in the U.S. Elissa Resource Ltd., a small exploration company, is evaluating its Thor REE project located very near Mountain Pass, just over the state line in Clark County, Nevada. Unlike Mountain Pass, which produces light REEs, the mineralization at Thor is enriched in the more valuable heavy REEs, including the element neodymium which is a critical component of high-strength magnets used in electronics.

Developments in the geothermal industry are covered in the section on **Geothermal Energy**. Approximately 24 power plants operating at 16 sites that sold a record amount of electricity in 2013. Nevada geothermal electrical production in 2013 from federal and private lands combined was 2,527,603 megawatt-hours (MWh) net, a 5% increase (Fig. 10). 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 2013, there were 45 projects (compared to 75 projects at the end of 2012) in various stages of development in Nevada, which could result in the construction of approximately 718 MW of additional power generation capacity over the next 5 to 10 years (GEA, 2014). Like minerals, exploration activity for new geothermal fields waned, mainly due to the low price of natural gas.

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 9% from 2012 (Fig. 11). Small amounts of co-produced natural gas are used to fuel equipment used for oil production.

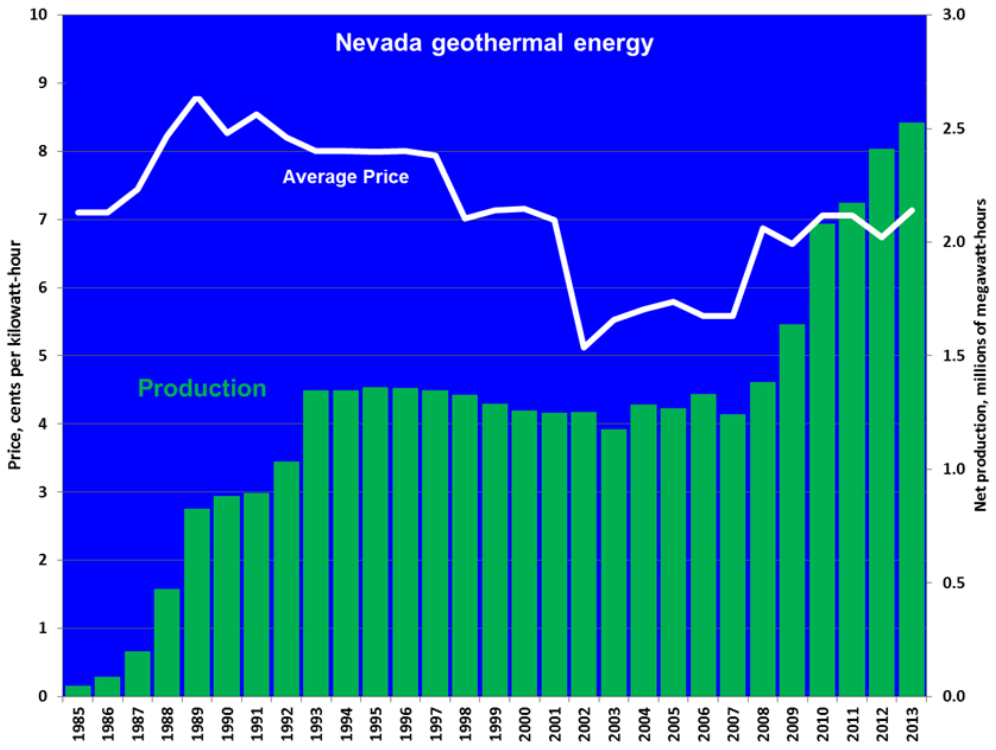

Figure 10. Chart showing net geothermal production in megawatt-hours in comparison to the average price of geothermal power in cents per kilowatt-hour for the period from 1985 to 2013.

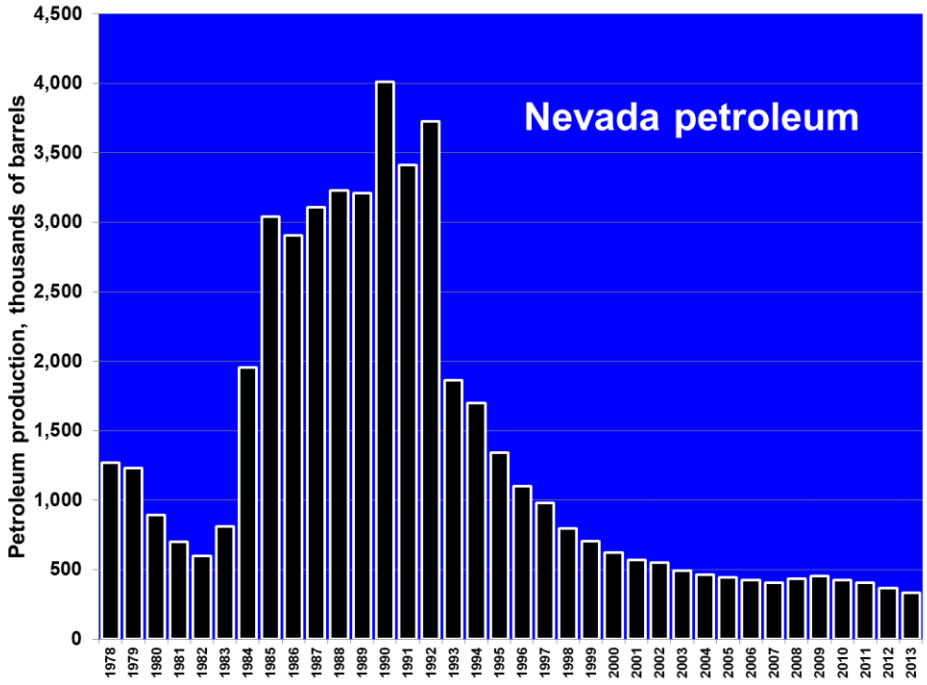

Figure 11. Chart showing Nevada petroleum production from 1978 to 2013.

In 2013, Noble Energy Inc., a medium-sized oil company from Houston, Texas, continued its evaluation of oil and gas in Tertiary shales near Elko and Wells. It plans to employ hydraulic fracturing technology, which is revolutionizing the oil and gas industry throughout the United States. Noble spent $23,000,000 in 2013 on its leases in Nevada, which covers 350,000 acres between Elko and Wells. One of the holes it drilled in 2013 reportedly recovered oil from multiple intervals and was set to be hydraulically fractured in 2014. Noble 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 year.

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 17,554 employees in 2013. The average pay for mineral industry employees during this time was $80,725 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. Visher, 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.nbmg.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.nbmg.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.nbmg.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 5,436,430 ounces of gold, 8,668,596 ounces of silver, 137,714,765 pounds of copper, 1,384,649 pounds of molybdenite, and 500 tons of stibnite ore from 31 active mines based on records from the Nevada Division of Minerals. Gold and copper production were slightly lower than 2012, whereas silver was slightly greater.

Gold production decreased for the first time after three years of annual increases, which followed a nine-year decline in production. The Carlin trend helped Barrick Gold Corp. and Newmont Mining Corp. continue their dominance of Nevada's gold production. Barrick and Newmont accounted for 83% of Nevada's gold production, down from 86% in 2012. The Carlin trend produced 1,912,361 ounces of gold, a decrease of 11% from 2012. The decrease was mainly due to lower production from Barrick's Betze-Post open pit mine, which was only partly offset by minor increases from its underground Meikle mine and from Newmont's overall Carlin operations. The Carlin trend's share of Nevada's gold production decreased to 35%, a significant decline from 54% in 2008.

Barrick, the world's leading gold producer remained Nevada's leading producer as well in 2013, producing 50% of Nevada's gold. The company produced 2,736,637 ounces, a decrease of 11% from 2012. Production came from its Bald Mountain, Cortez, Goldstrike, Ruby Hill, Storm, and Turquoise Ridge mines (75% share), plus its 50% share of the Round Mountain mine's production and its 33% share of the production from the Marigold mine. The open pit and underground mines at the Cortez Hills deposit produced 1,371,048 ounces of gold which was half of Barrick's Nevada production and 25% of statewide production. Barrick's gold reserves in Nevada at the end of 2013 totaled nearly 31,000,000 million ounces.

Newmont produced 1,760,616 ounces of gold, a slight increase from 2012. Newmont's production came from nine open pit and seven underground mines, including its Carlin trend mines and its Emigrant, Midas, Phoenix, and Twin Creeks mines, plus its 25% share of the Turquoise Ridge mine. Production was 82% from refractory ores, the same as in 2012. Newmont's reserves in Nevada at the end of 2013 amounted to nearly the same as Barrick's – 31,000,000 ounces of gold, 75% of which is in open pit mines and 25% in underground mines. Newmont's reserves are 83% in refractory ore, and 17% in oxide ore, and 75% in open pit mines and 25% in underground mines.

Other gold mines reporting production in 2013 included: Round Mountain (314,886 oz; 50% Kinross Gold Corp., 50% Barrick), Hycroft (181,941 oz; Allied Nevada Gold Corp.), Marigold (161,062 oz; Goldcorp, Inc., 66.67%, Barrick 33.33%), Jerritt Canyon (139,556 oz; Veris Gold Corp.); Standard/Florida Canyon (46,152 oz; Jipangu International), Mineral Ridge (36,160 oz; Scorpio Gold), Hollister (26,821 oz; Great Basin Gold and then Waterton Global Mining), Denton-Rawhide (23,900 oz; Rawhide Mining LLC), Borealis (10,556 oz; Borealis Mining), and Sterling (7,431 oz; Imperial Metals Corp.). New mines that opened in 2013 included the underground Starvation Canyon mine that is part of Veris Gold's Jerritt Canyon mining operation and underground test mining by Klondex Gold Mines Ltd. at its Fire Creek mine. Approximately 30% of Nevada's gold production in 2013 was from underground mines. Goldcorp and Barrick announced at the end of 2013, that they were in the process of selling the Marigold mine to Silver Standard Resources Inc.

Newmont was the leading silver producer at 3,233,652 ounces, a 13% increase, 90% of which was from the Midas and Phoenix mines. Production at Coeur d'Alene Mines Corp.'s Rochester mine, the only mine where silver is the primary product, declined slightly to 2,798,937 ounces in 2013. KGHM International's Robinson mine produced 78% of Nevada's copper, which amounted to 107,898,857 pounds, an 8% decrease from 2012. Newmont's Phoenix mine made up the balance of the copper production, producing 29,815,908 pounds, a 7% increase from 2012. The increase was partly the due to Newmont's commissioning of its solvent extraction-electrowinning (SX-EW) plant in October 2013 at a cost of $91 million. It is the first SW-EW operation in Nevada. KGHM International produced 1,384,649 pounds of by-product molybdenum from Robinson, a 208% increase from 2012, mainly because stockpiles of molybedenite ore were sufficiently large to run through the mill.

EXPLORATION and DEVELOPMENT

Exploration activity decreased significantly in 2013, mainly due to a decreasing gold price. Gold averaged $1411.23 per ounce, a decrease of 15% from $1668.98 per ounce in 2012. It started the year at $1693.75 per ounce and ended the year at $1205.50. Silver averaged $23.79 per ounce, a decrease of 24% from $31.15 per ounce in 2012. It started the year at $30.87 per ounce and ended the year at $19.50.

Nevada county recorders registered 218,407 claims in fiscal year 2013 (which ended June 30, 2013), a 2.8% decrease from fiscal year 2012. These included new claims and annual maintenance of existing claims. The number of claims at the end of 2013, as derived from U.S. Bureau of Land Management's (BLM) LR2000 database, was 191,394, a decrease of 1.8% from the end of 2012. The distribution of active claims at the end of 2012 is shown in Figure 1. The decrease in exploration trend is clearly reflected by the decrease in new claim staking. The BLM listed 11,151 new claims that were located in calendar year 2013 (Figure 2), a 47% decrease from 2012, and a decrease of 60% from 2011. Table 1 shows the companies that staked over 300 new claims in calendar year 2012. Newmont and Barrick led the way in new claim staking, marking a trend that started three years ago after years in which small junior companies had been staking the most claims. In order to

survive financially, junior companies are beginning to trim their claim blocks down to the minimum necessary amount to cover the core areas of their properties. The claim staking by Newmont and Barrick was very focused, with almost all of Newmont's new claims being staked in the Snake Mountains north of Wells and the vast majority of Barrick's staking occurring at the north of Monitor Range, the east side of the Northern Nevada Rift in the Buckhorn District of the Cortez Range, and the south end of the Schell Creek Range.

At least 81 projects were drilled in 2013, down significantly from 126 projects in 2012. Table 2 shows the breakdown of the drill projects by size of company and drill program. Eight projects were drilled primarily for copper, one for silver, with the remaining projects targeting gold. Five "major" companies (Barrick, Newmont, Goldcorp, Kinross, and KGHM) and 4 "mid-tier" companies (Agnico Eagle Mines Ltd, Coeur Mining Inc., Allied Nevada Gold Corp., Imperial Metals Corp.) drilled at least 31 projects in 2013, down from 41 in 2012. The remaining 51 projects were drilled by 42 junior "junior" companies. Figure 3 shows the distribution of projects across the state that were drilled in 2013.

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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 target in Nevada continued to be gold. Of the 81 projects that were known to have been drilled in 2013, 72 of them targeted gold. One was targeted primarily for silver the remaining 8 were drilled primarily for copper, which were also commonly tested for gold, silver, and molybdenum. Coeur Mining Inc. carried out an aggressive drill program on the claim block that covers its Rochester silver mine, which produces significant by-product gold. The average silver to gold ratio for production from Rochester from the period from 1986 2013 is 83:1. The copper projects focused on the Yerington district, including Pumpkin Hollow (Nevada Copper Corp.), Yerington open pit (Quaterra Resources Inc.), and Ann Mason and Blue Hill (Entrée Gold Inc.). Others projects primarily drilled for copper were Copper Basin (Newmont) in the Battle Mountain district, the Robinson mine near Ely (KGHM International Ltd.), Clay Peters in the Santa Fe district (Silver Reserve Corp.) and M2 Smith in the Marietta district (Great Western Mining Corp.), both of which are in Mineral County. Nevada Copper Corp. continued to make great strides in driving its Pumpkin Hollow project toward production. Its 2,200-foot shaft to access the underground East deposit became operational with production planned for late 2015. It completed a feasibility study on its planned open pit mines for the South and North deposits. Federal legislation that would transfer 10,400 acres of public lands to the City of Yerington, which would then re-convey much of the land to Nevada Copper, was being deliberated by Congress. The legislation had a wilderness provision added to it which included 26,000 acres in the Pine Forest Range in Humboldt County and 48,000 acres in the Pine Grove Hills in Lyon County.

Most of the money spent on exploration spent by the major companies was spent on drilling near their active mines. Barrick spent about $55 million on exploration and evaluation in Nevada out of the $208 million in spent worldwide in 2013, according to its 2013 annual report. Barrick's Goldrush discovery, one of the largest discoveries worldwide in the last ten years, continues to grow. The total resource at the end of 2013 amounted to 15.6 million ounces of gold at an average grade of 0.135 opt. The mineralization shows remarkable continuity over a strike length of almost 4.5 miles, and the deposit remains open in multiple directions. The underground portion of Cortez Hills deposit continues to grow, with mineralization still open at depth and to the south and west. Barrick continued to drill its Spring Valley project (joint venture with Midway Gold Corp.), located just north of Coeur Mining's Rochester mine; however, a new resource estimate on Spring Valley has not been released since 2011. Newmont spent $94 million on exploration and advanced projects in Nevada in 2013, according to its 2013 annual report. It spent $469 million worldwide on exploration and advanced projects. It focused its exploration program on the Long Canyon project, drilling 235,000 feet. Based on drilling through the end of 2013, Newmont released its first reserve estimate for Long Canyon, a probable reserve totaling 1,010,000 ounces of gold. Though its worldwide exploration expenditures amounted to $177 million, Kinross was not very active in exploring Nevada in 2013. Goldcorp's exploration in Nevada was almost entirely at its Marigold mine, where it spent an unreported amount on drilling. Allied Nevada spent $3.6 million on exploration, scaling back its efforts in 2013 to its Hycroft mine. It divested 75% of its interest in its Hasbrouck Mountain and Three Hills projects near Tonapah to West Kirkland Mining Inc. Agnico Eagle Mines Ltd spent $3.5 million, mainly on drilling its properties (joint venture with Newmont) adjacent to Newmont's Long Canyon project in the Pequop Mountains.

Though Barrick and Newmont companies still focused their drilling programs their active mine properties, they appeared to become more active in greenfields exploration, as junior company exploration waned in 2013. In 2012 and 2013 both companies focused their staking to a few large claim blocks. Newmont seemingly focusing on carbonate-hosted gold targets in northeastern Nevada, and Barrick on pediment plays along Highway 50 near the Battle Mountain-Eureka trend, namely Antelope Valley on the

west side of the Mahogany Hills, which it drilled in 2013, and the pediment north of the Monitor Range. Newmont carried out drill programs at several of its greenfields projects in 2013, including Keystone in the Tybo district, North Eugene at the north end of the Eugene Mountains, South Pilot near Wendover, and Twelvemile near Tecoma.

As previously mentioned, junior companies carried out at least 51 drill projects in 2013. Major drill programs in 2013 that drew attention were Pilot Gold Inc.'s Kinsley project, Premier Gold Mines Inc.'s Cove project, Gold Standard Ventures Corp.'s Railroad project, Klondex Mines Ltd.'s Fire Creek project, Corvus Gold Inc.'s North Bullfrog project, and Veris Gold Corp.'s drill projects on its Jerritt Canyon mine property. Pilot Gold continued to drill high grade gold intercepts on the west flank of Kinsley Mountain, outlining a zone of significant oxide and sulfide gold mineralization within several stratigraphic horizons along a 1,600-foot, north-south-trending zone. Premier Gold discovered several zones of polymetallic high-grade gold-silver mineralization below and around the old Cove pit. It also discovered new zones of Carlin-style mineralization below the pit. Drilling by Gold Standard extended the North Bullion Zone at its Railroad project to a strike length of 3,200 feet long and a width of 1,000 feet with mineralization remaining open to the north and west. Klondex continued to develop its underground Fire Creek mine, and, in so doing, produced 6.208 ounces of gold. Drilling continued to delineate high-grade mineralization in Joyce and Vonnie veins, and as in veins in the West Zone. At North Bullfrog, Corvus Gold drilled both high-grade vein-style mineralization at its Yellowjack deposit, as well as disseminated low-grade mineralization in altered volcanic rocks in several large zones. At its Jerritt Canyon mine, Veris Gold opened the new underground Starvation Canyon mine, which produced 15,750 ounces of gold. It continued its aggressive underground drill program delineating resources at is active Smith and SSX mines.

Despite the decrease in gold production, several mine development projects for gold are in the pipeline that could very well increase annual gold production in the short term. These include Pan (2015, ~81,000 oz/yr) and Gold Rock (2017, formerly Easy Junior), Relief Canyon (2016), South Arturo (2016), and Long Canyon (2017). At Pan, the BLM issued a final environmental impact statement and a record of decision approving the project, which will involve an open-pit gold mine consisting of two larger pits and three smaller pits. In addition, not counting resources around operating mines, 27 new reserve and/or resource estimates were released in 2013 or early 2014. Most were for gold, but three were for copper, two were for silver and one each was for iron, molybdenum, and tungsten. Eleven were upgrades from the previous year and include Buffalo Valley, Contact (copper), Goldrush, Gold Spring, Long Canyon, Mount Hamilton, North Bullfrog, Pumpkin Hollow (copper), Reward, Sandman, and South Arturo. Fourteen were new resource estimates that superseded previous ones and include Big Springs, Goldfield (includes Gemfield), Gold Rock (formerly known as Easy Junior), Hasbrouck, Longstreet, Lookout Mountain, Mount Hope (molybdenum), Nevada Packard (silver), Pinion, Relief Canyon, Springer (tungsten) Talapoosa, Taylor (Silver), Three Hills, and Yerington (copper). The first new iron resource was released for the Buena Vista deposit since 1945. No resources were released for newly discovered deposits.

Exploration activity is summarized below by county and district. Projects that were drilled in 2013 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 2013.

Claimant	Number of Claims	Main Areas of Staking
NEWMONT MINING CORP.	2175	1) .Paleozoic carbonate rocks in the Snake Mountains, north of Wells in Elko County.
BARRICK GOLD CORP.	1501	1) Paleozoic carbonate rocks at north end of the Monitor Range and the pediment north of the Monitor Range. 2) Along the east side of the Northern Nevada Rift northeast of Goldrush deposit and northwest of Agate Pass in the Cortez Mountains in area of Tertiary sedimentary and basalt cover. 3) Paleozoic carbonate rocks near Silver King Pass at the south end of the Schell Creek Range in Lincoln County.
COEUR ROCHESTER	526	1) Areas west and south of the Rochester mine.
COLUMBUS GOLD (and CORDEX)	461	1) Northeast end of the Monte Cristo Range. 2) Area of its Bolo Projects in Hot Creek Range. 3) Paleozoic rocks at the southeast end of Red Hills at the northeast end of Spring Valley in White Pine County.
PROXIMATE HOLDINGS INC.	349	1) Goodsprings District, Clark County.
TERRA ROSA GOLD INC.	326	1) Cambrian carbonate rocks in Highland District west of Pioche in Lincoln County.
ULTRA LITHIUM USA INC	301	1) Southwest end of Big Smoky Valley about 24 km northeast of the lithium brine operation in Clayton Valley.

Table 2. Breakdown of 2013 drill programs for metals in Nevada.

	Major/Mid-Tier Companies	Junior Companies	Total
Major Drill Program	**18** (32)	**12** (13)	**30** (45)
Minor Drill Program	**12** (9)	**39** (72)	**51** (81)
Total	**30** (41)	**51** (85)	**81** (126)

For comparison, the number of drill programs in 2012 is shown in parentheses

Major programs are arbitrarily defined as >25 drill holes.

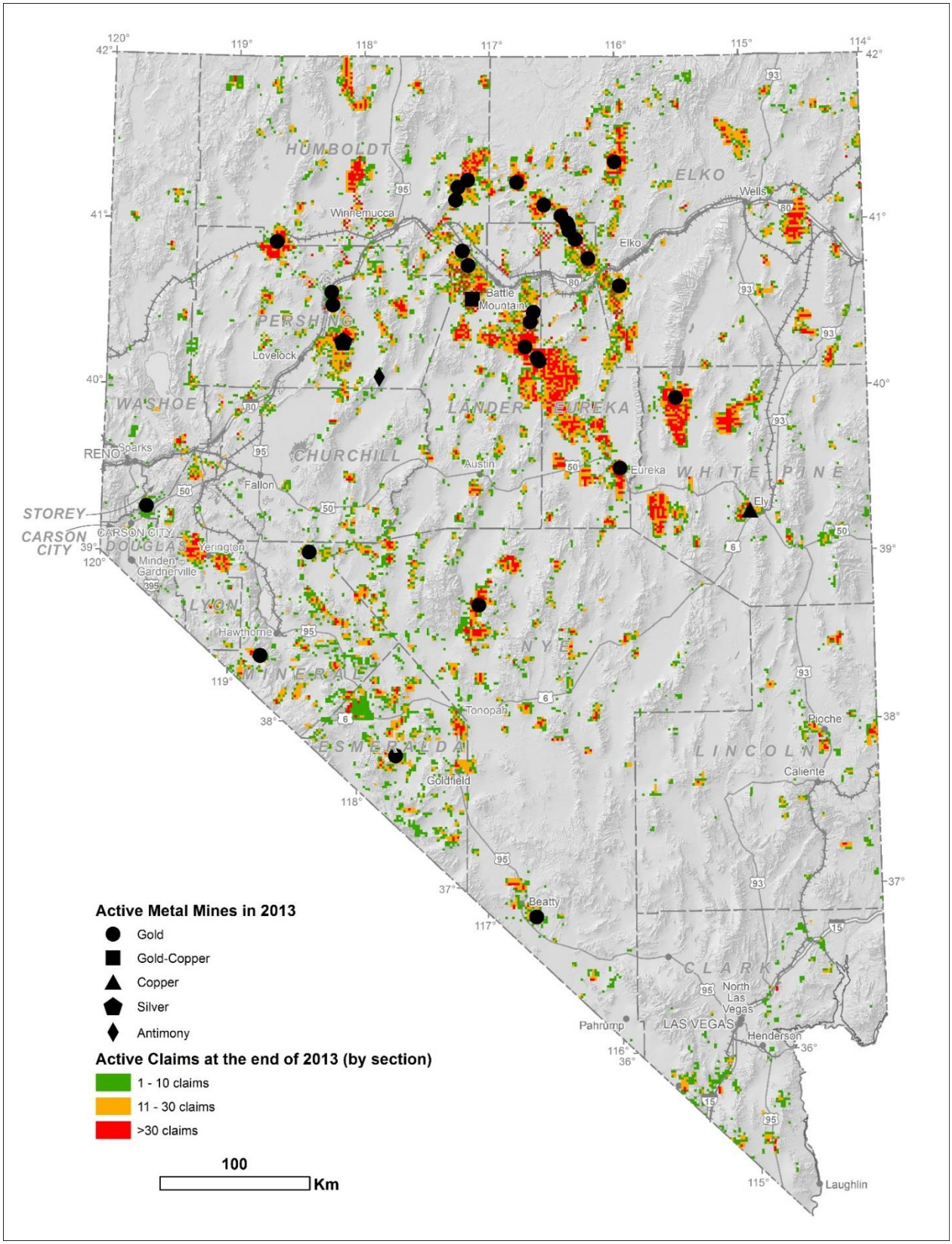

Figure 1. Map showing distribution of active mining claims by section at the end of 2013. Source of data is the U.S. Bureau of Land Management's LR2000 database.

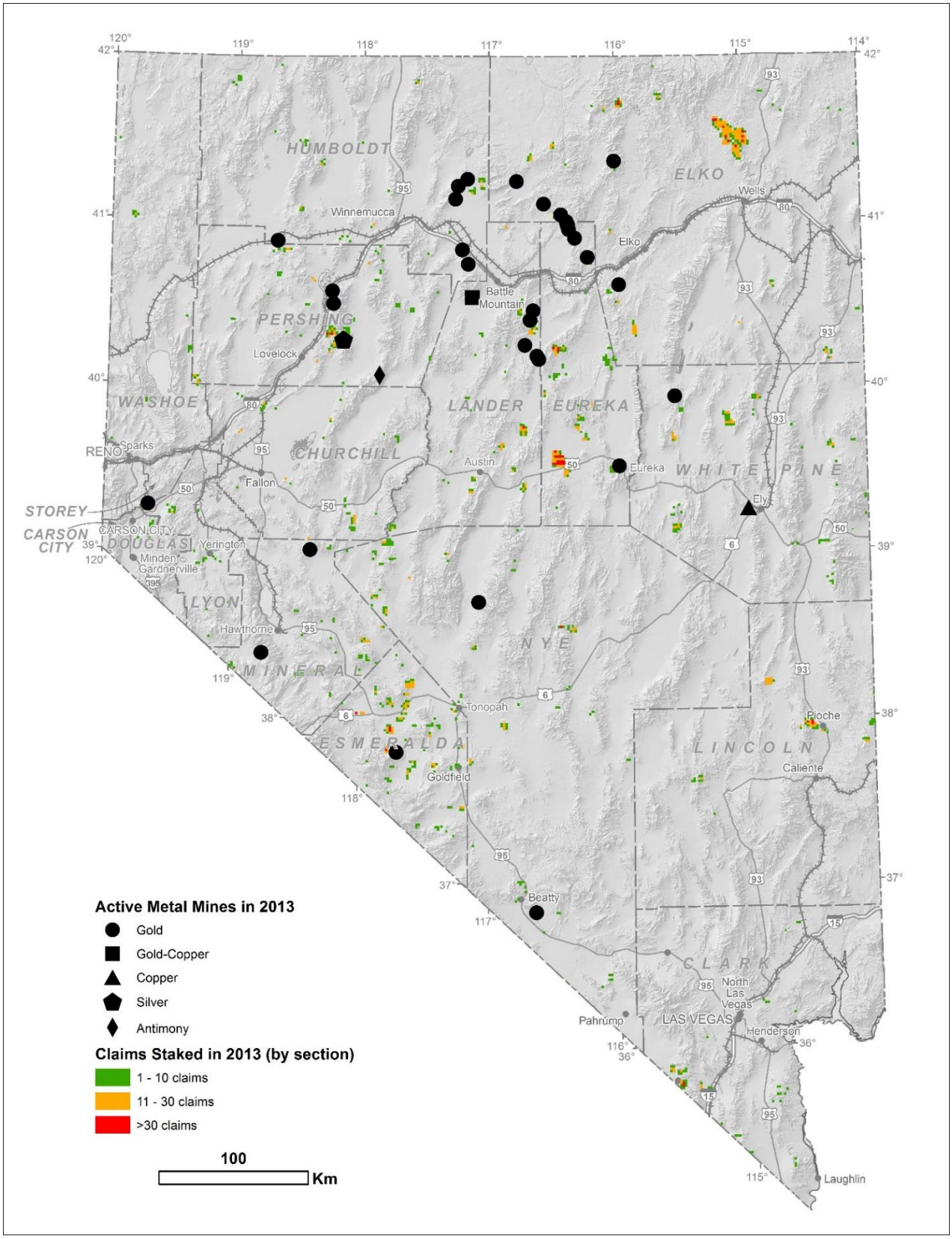

Figure 2. Map showing distribution of active mining claims by section that were staked in 2013. Source of data is the U.S. Bureau of Land Management's LR2000 database.

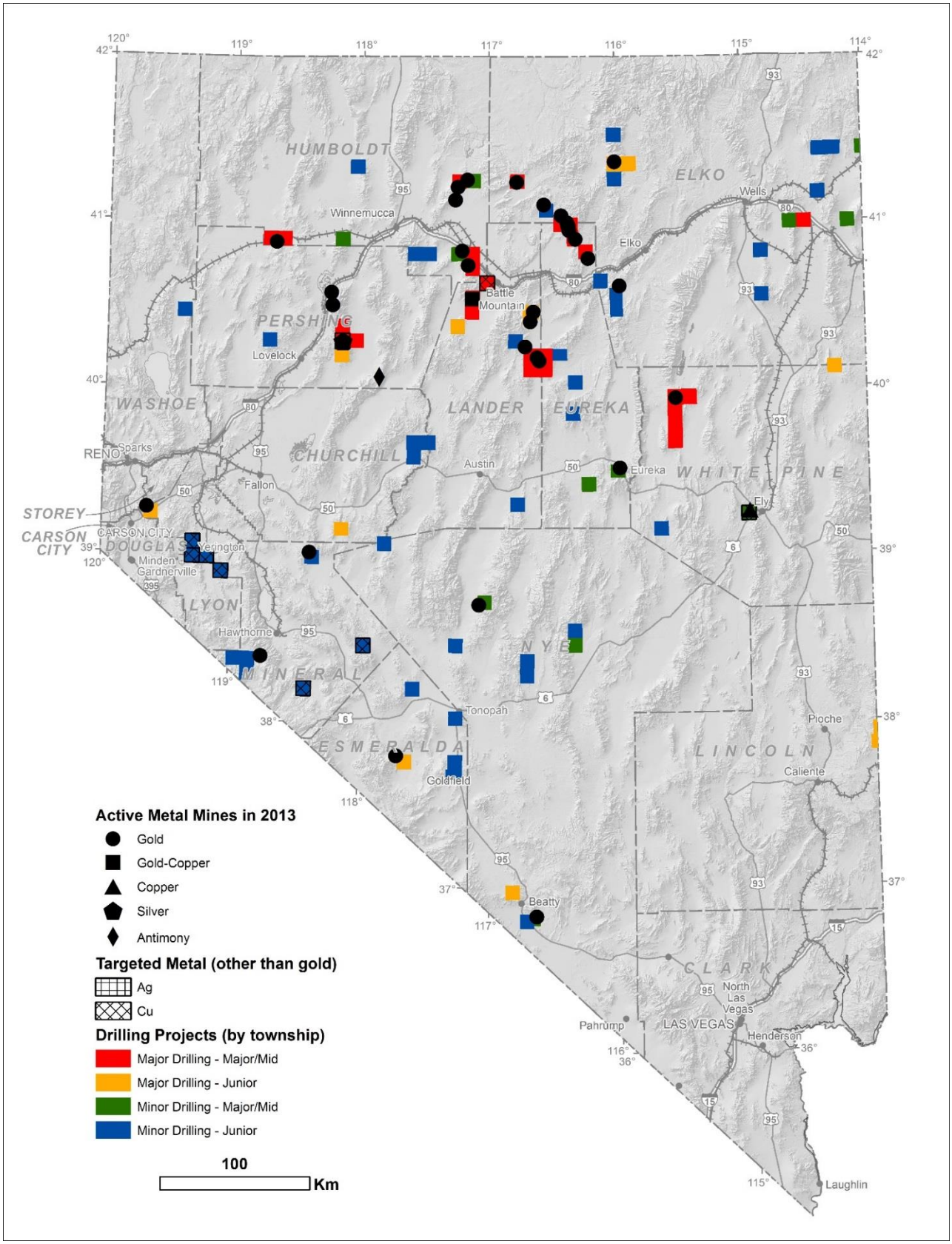

Figure 3. Map summarizing 2013 drill projects by township.

CHURCHILL COUNTY

Bell Mountain District

Bell Mountain. Lincoln Mining Corp. completed 34 holes totaling 8,295 feet on the Spurr, Varga, and Sphinx deposits at its Bell Mountain project. The drilling program included 21 in-fill reverse circulation holes totaling 5,505 feet, eight PQ metallurgical core holes totaling 1,617 feet, and five geotechnical core holes totaling 1,173 feet. No results were reported. Gold and silver mineralization consists of structurally controlled epithermal calcite and quartz veins hosted in a sequence of stratified rhyolitic ash flow tuffs within the Tertiary Bell Mountain caldera. (Lincoln Mining Corp. Management and Discussion Analysis, 4/30/2014; Lincoln Mining Corp. news release, 6/18/2013; 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, T24N, R28E, west of the old Jessup town site in 2012. It is unknown whether Newmont drilled in 2013. (BLM LR2000 database; Newmont Mining Corp. website, www.newmont.com)

Mineral Basin District

Buena Vista. Nevada Iron Ltd., an Australian company, drilled its Buena Vista project in 2012 but not in 2013. However, the company did issue a probable reserve estimate of 111,200,000 metric tonnes of 18.6% Fe. The property includes fee land, 45 patented lode claims, and 184 unpatented lode claims covering 6,052 acres in parts of T24-25N, R34E. Buena Vista is a magnetite iron deposit discovered in 1898, intermittently mined between 1951 and 1959, and most recently explored by US Steel between 1961 and 1979. Nevada Iron is developing the West, East, and Section 5 deposits for production. The iron mineralization is an iron-oxide-copper-gold style deposit minus 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., 43-101 Technical Report, 10/22/2013; Nevada Iron Ltd., website, www.nv-iron.com; Johnson and Barton, 2000, SEG Guidebook Series)

New Pass District

New Pass. Iconic Minerals Ltd., completed 11 angled reverse circulation holes totaling 5,690 feet at its New Pass project (50/50 joint venture with McEwen Mining Inc.). The drilling extended the mineralization to the north and northwest of the resource area. Holes drilled to test the eastern limits of the mineralization failed to return significant values, but the returns from other holes indicated the mineralization thickens from east to west and is open to the west. The best intercept was 99 feet grading 0.034 opt gold and 0.121 opt silver including 22.5 feet grading 0.055 opt gold and 0.222 silver and 4.5 feet grading 0.066 opt gold and 0.219 opt silver. (Iconic Minerals, Ltd., news release, 6/11/2013; Iconic Minerals, Ltd., website, www.iconicmineralsltd.com)

ELKO COUNTY

Bootstrap District

South Arturo. Barrick Gold Corp. completed 34 holes totaling 28,238 feet to test possible extensions of its South Arturo deposit. Exploration focused on target delineation activities in the West Dee and Rossi areas and identified a north-south trending conductor and several faults potentially controlling mineralization. The BLM was preparing a final environmental impact statement and record of decision on the Arturo Mine Project of the Barrick-Dee Mining Venture Inc. (Barrick Gold Corp. 60%; Goldcorp, Inc., 40%). The company proposed expanding the Dee open pit mine by constructing two new waste rock disposal facilities, a new heap leach pad, and processing facilities. The project includes the South Arturo deposit just southeast of the Dee pit, which ceased production in 2000 and was in reclamation and closure. (Elko Daily Free Press Mining Quarterly, Spring 2013; BLM News Release ELDO 2014-023, 3/13/2014; BLM Final Environmental Impact Statement, 1/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick website, www.barrick.com; Goldcorp, Inc. Annual Information Form, 3/31/2014; Goldcorp website, www.goldcorp.com)

Storm. Barrick Gold Corp. operated the Storm (Barrick Gold Corp. 60%, Goldcorp, Inc. 40%) underground mine, which is accessible through the old Dee open pit. Production was 9,503 ounces of gold and 15,575 ounces of silver. The mine was permanently shut down in February of 2013. (Barrick Gold Corp. website, www.barrick.com)

Carlin District

Carlin. In January 2013, Evolving Gold Corp. announced the continuation of its diamond drilling program started in 2009 at its Carlin/Humboldt project about two miles south of the town of Carlin. Some of the claims were leased from Newmont Mining Corp. The amount of drilling was not disclosed, and only one hole drilled in the high grade mineralization of the Arch Zone was noted. The hole intercepted multiple intervals of high gold grades over a length of about 456 feet. Intercepts included 23 feet averaging 0.23 opt that included 5 feet grading 33 opt; 5 feet grading 60 opt; and 9 feet grading 0.43 opt. The gold mineralization is characterized by decalcification of limestone host rocks, remobilized carbon, fine-grained pyrite and realgar. Earlier drilling defined the Arch Zone as 3,300 feet by 1,970 feet with high-grade intercepts at depths mainly between 2,500 and 3,000 feet. This hole expanded

one of two high grade zones in the Arch Zone to about 330 feet north-south and east-west. The zone's strike is interpreted to be northwest-southeast, and mineralization remains open in all directions. The Humboldt portion of the property was not drilled in 2013. (Evolving Gold Corp., Management and Discussion Analysis, 8/14/2013, 6/30/2014; Evolving Gold Corp., Annual Information Form, 6/30/2014; Evolving Gold Corp., news releases 1/17/2013, 2/14/2013; Evolving Gold website, www.evolvinggold.com)

Contact District

Contact. International Enexco Ltd. did not drill its Contact copper project, but it did complete a pre-feasibility study with a proven and probable reserve estimate of 141,094,000 tons with 0.22% copper. International Enexco, Ltd., was acquired by Denison Mines Corp. The project was transferred to Choice Gold Corp. which subsequently changed its name to CopperBank Resources Corp. (Choice Gold Corp. news release, 6/3/2014; International Enexco Ltd. News Release, 6/9/2014; International Enexco Ltd. Management and Discussion Analysis, 4/9/2014; International Enexco Ltd. 43-101 Technical Report, 10/9/2013)

Eastern Elko County

Angel Wing. Ramelius Resources, Ltd., and Marmota Energy completed five reverse circulation holes totaling 4,049 feet around the Grass Hollow magnetic anomaly at its Angel Wing project (Ramelius Resources, Ltd., 42%, Marmota Energy 28%, Miranda Gold Corp. 30% joint venture). The anomaly is apparently spatially related to a 2,000-foot long, north-northwest striking resistive trend correlative with intense silicification in conglomerate and underlying limestone units. However, the drilling failed to intercept any discrete epithermal veins or breccias. Significant intercepts included 55 feet averaging 0.062 opt gold, including 20 feet grading 0.09 opt gold and 10 feet grading 0.13 opt gold; and 30 feet averaging 0.05 opt gold, including 10 feet grading 0.14 opt gold. Because of the depth of overburden, the results were not considered sufficiently encouraging to continue exploration, and Ramelius Resources, Ltd., and Marmota Energy withdrew from the joint venture. (Marmota Energy Quarterly Report, 9/30/2013; Ramelius Resources website, www.rameliusresources.com.au; Marmota Energy website, www.marmotaenergy.com.au; Miranda Gold website, www.mirandagold.com)

Gold Circle District

Midas. Newmont Mining Corp. produced 52,195 ounces of gold and 1,368,896 ounces of silver, decreases of 37% and 10% respectively from 2012. The decreases were due to lower throughput and grade. The BLM was issued an environmental assessment involving the proposed construction and operation of up to seven ventilation raises, access roads, and power lines, and approval for 25 acres for future surface exploration projects. A drilling program was carried out in 2013, but no results were reported. On December 4, 2013, Newmont entered into a stock purchase agreement whereby Klondex Holdings (USA) Inc. would acquire the Midas Mine, mill, and support facilities. (BLM News Release No. ELDO 2013-034 3/21/2013; BLM Environmental Assessment, 3/2013; Newmont Mining Corp. news release, 7/26/2013; Newmont Mining Corp. Form 10-K, 2/24/2014; Newmont website, www.newmont.com; Klondex Mines Ltd. news release, 12/4/2013)

Independence Mountains District

Big Springs. Anova Metals, Ltd., of West Perth, Australia, acquired the Big Springs property from MRG Copper, and through its subsidiary Anova Metals USA LLC, drilled eight hydrogeological wells at the 601 pit area in the South Sammy deposit. Details of the drilling program were not released. The company estimated a JORC-compliant inferred mineral resource for each deposit – Beadle Creek, Briens Fault, Dorsey Creek, Mac Ridge, North Sammy, North Sammy Contact, and South Sammy. The estimate of the total inferred resource was 16,300,000 tons grading 0.06 opt gold. The company prepared a plan of operations for the U.S. Forest Service, proposing exploration activities and supporting infrastructure on the previously disturbed areas of the property. The company also was in the process of preparing a plan of operations to mine with an open pit the 601 orebody and mine the 701 orebody underground. (Anova Metals, Ltd., quarterly reports, 4/23/2013, 8/9/2013, 10/31/2013, 1/31/2014; Anova Metals, website, anovametals.com.au; U.S. Forest Service, Scoping and Notice of Proposed Action and Opportunity to Comment, Big Springs Gold Exploration Project, 12/2013)

Jerritt Canyon. Veris Gold Corp. produced 165,000 ounces of gold from 1,024,030 tons with an average ore grade of 0.16 opt gold and 86% recovery rate at its Jerritt Canyon property, an increase of 55% from 2012. The Jerritt Canyon property contains over 22 Carlin-type gold deposits on 119 square miles with production in 2013 mostly coming from the underground Smith, SSX/Steer, and Starvation Canyon Mines. The operation of the Smith Mine was contracted out to Small Mine Development, LLC, which mined 526,180 tons of ore that produced 82,309 ounces of gold. Veris operated the SSX/Steer, which mined 315,707 tons of ore that produced 48,930 ounces of gold. Veris opened Starvation Canyon in the second quarter and mined 76,780 tons of ore averaging 0.21 opt gold that produced 15,750 ounces of gold. The roaster capacity was permitted at 6,000 tons per day. Some of the excess capacity was taken up with toll milling contracts. The company processed 119,030 tons of ore from third parties, mostly from Newmont. The company also entered into a toll milling agreement with Klondex Mines Ltd. for its non-refractory ore from Fire Creek.

The company completed a major underground drilling program, drilling 1,733 cubex reverse circulation production holes totaling 216,292 feet at the Smith, SSX, and Starvation Canyon underground mines. In addition, 57 underground core holes totaling 43,670 feet were drilled in the SSX Mine. Most of the drilling was for resource definition. Significant intercepts reported included 50 feet grading 0.23 opt gold, 50 feet grading 0.12 opt gold, and 170 feet grading 0.24 opt gold. (Elko Daily Free Press Mining Quarterly, Spring 2013, Fall 2013; Veris Gold Corp. Annual Information Form, 4/14/2014; Veris Gold Corp. Management Discussion and Analysis, 5/15/2014; Veris Gold Corp. news releases, 7/24/2013, 12/4/2013, 2/27/2014; Klondex Mines, Ltd., news releases, 4/2/2013; Veris Gold Corp. website, www.verisgold.com)

Ivanhoe District

Hollister. The underground Hollister Mine was originally operated by Rodeo Creek Gold, Inc., a subsidiary of Great Basin Gold, Ltd. Due to financial problems, Great Basin Gold, Ltd. voluntarily delisted from the New York Stock Exchange at the beginning of the year. 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. Trial mining ceased in November and the mill near Hawthorne operated until the stockpiles there were depleted. During 2013, 12,359 ounces of gold and 55,648 ounces of silver were produced, decreases of 80% and 82% respectively from 2012. The company laid off 157 workers at the mine and 25 at the mill, but said it was only "pausing production" with resumption expected in early 2016. During the interim, the company was going to conduct resource definition drilling to increase the asset value and extend the mine life. Two underground drill rigs were active earlier in the year, but results were not released. The BLM issued a final environmental impact statement on the company's proposal to transition the underground exploration project into a full underground mining operation. This would also include 222 acres of surface disturbance involving the Hatter production shaft and other supporting infrastructure. A record of decision was in preparation. (Elko Daily Free Press, 11/26/2013; The Wall Street Journal, 5/22/2013; Elko Daily Free Press Mining Quarterly, Spring 2013; BLM, Final Environmental Impact Statement, 7/2013; BLM, Record of Decision, 5/2014; Waterton Global Resource Management website, www.watertonglobal.com)

Kinsley District

Kinsley Mountain. Pilot Gold, Inc., drilled 43 reverse circulation holes totaling 34,286 feet and 14 core holes totaling 12,290 feet, mainly on its Western Flank target of its Kinsley Mountain project (Pilot Gold, Inc., 78%, Nevada Sunrise Gold Corp. 22%). Significant intercepts included 120 feet averaging 0.25 opt gold, including 25 feet grading 0.86 opt gold; 10 feet averaging 0.46 opt gold; and 19 feet averaging 0.18 opt gold. Drilling at the Western Flank target identified significant oxide and sulfide gold mineralization along a 1,600-foot, north-south-trending zone. The mineralization is hosted within the Cambrian Dunderberg Shale and Secret Canyon Formation. Mineralization is open and becomes shallower to the south of the Western Flank target over a distance of 500 meters to the Right Spot target, a 1,150-foot long, north-northeast trend of jasperoid outcrops. The BLM released an environmental assessment and record of decision approving the company's plan of operation to expand the area for exploration and development drilling to up to 70 acres. The area would cover the company's core group of claims, including the Western Flank, Candland Canyon and extensions trending north-northeast and southwest of the historic pits. (BLM Environmental Assessment, 8/2013; BLM Record of Decision, 9/3/2013; Pilot Gold, Inc., Annual Information Form, 3/17/2014; Pilot Gold, Inc., news release 9/3/2013; Pilot Gold, Inc., website, www.pilotgold.com; Nevada Sunrise Gold Corp. news release, 11/18/2013; Nevada Sunrise Gold Corp. Management Discussion and Analysis, 1/27/2014; Nevada Sunrise Gold Corp. website, www.nevadasunrise.ca)

Montello District

Lewis Spring. West Kirkland Mining Inc. drilled seven reverse circulation holes on its Lewis Spring property in T38-39N, R67E. Gold anomalies had been discovered previously in stream sediments, but the drill results did not warrant further exploration. (West Kirkland Mining Inc. news release, 4/25/2013; West Kirkland Mining Inc. website, www.wkmining.com)

Pequop District

Long Canyon. Newmont Mining Corp. continued exploration and development of the company's Long Canyon Project, completing approximately 235,000 feet of drilling. Newmont released its first reserve estimate on Long Canyon based on drilling through the end of 2013. The probable reserve is 15,700,000 million tons grading 0.065 opt of gold, for a total of 1,010,000 ounces. There is another 358,900 ounces of gold categorized as mineralized material. In the proposed mine plan, the Long Canyon deposit is three miles long and up to 2,500 feet wide. A draft environmental impact statement was in preparation for release in early 2014. Construction of the open pit mine and support facilities would take 18 months, mining 8 to 13 years, and reclamation several years after that. Production is expected to start up in 2016 with full production in 2017. The ore is oxide with the lower grade ores to be processed by heap-leaching and the higher grade ores with an oxide mill. (BLM Draft Environmental Impact Statement, 3/21/2014; Elko Daily Free Press Mining Quarterly, Summer 2013, Summer 2014; Newmont Mining Corp. Form 10-K, 2/21/2014; Newmont website, www.newmont.com)

Pequop West. Agnico Eagle Mines Ltd. (joint venture with Newmont continued to explore and drilled its West Pequop project. No results were released. (Agnico Eagle website, www.agnicoeagle.com)

Summit. Agnico Eagle Mines Ltd. (joint venture with Newmont) carried out a small drilling project at its Summit project, adjacent and north of Newmont's Long Canyon project. No results were released. (Agnico Eagle website, www.agnicoeagle.com)

Wood Hills South. NuLegacy Gold Corp. completed 5 reverse circulation holes totaling 4,020 feet on its Wood Hills South property (NuLegacy Gold Corp. 70%, Renaissance Gold, Inc. 30%), located eight miles southwest of the Long Canyon and West Pequop properties. This drilling was a follow-up to holes drilled in 2011 and 2012, which tested geophysical and soil geochemical anomalies, many of which intersected anomalous gold. Two holes encountered zones of anomalous gold concentrations. NuLegacy terminated the joint venture and returned the property to Renaissance Gold. (NuLegacy Gold Corp. news release 4/9/2013; NuLegacy Gold Corp. website, nulegacygold.com; Renaissance Gold, Inc. website, www.rengold.com)

Pilot Peak District

South Pilot. Newmont Mining Corp. drilled 10 to 12 holes on its Pilot Peak Project on the southwest side of the Pilot Range. The company acquired the property through its acquisition of Fronteer Gold in 2011. No details were released and the claims were not renewed by year's end. (BLM LR2000 database; Newmont website, www.newmont.com)

Railroad District

Railroad-Pinion. Gold Standard Ventures Corp. completed 13 core holes totaling 21,738 feet on its Railroad and Pinion Project at a cost of $6,134,695. Eleven of the holes totaling 18,581 feet were drilled into North Bullion zone. Significant intercepts included 241 feet averaging 0.11 opt gold, including 25 feet grading 0.35 opt gold; and 322 feet averaging 0.095 opt gold, including 56 feet grading 0.29 opt gold. The drilling extended the North Bullion zone to a strike length of 3,200 feet long and a width of 1,000 feet. Mineralization at the North Bullion deposit remained open to the north and west, suggesting a west-northwest structural control. Two of the holes totaling 3,157 feet were drilled into the Central Bullion skarn. Significant intercepts included 22 feet grading 1.73 opt silver, 0.75% copper, 0.13% molybdenum, 0.24% lead, and 0.23% zinc; 14.5 feet grading 6.71 opt silver, 0.29% copper, 0.22% lead, and 0.64% zinc; and 26 feet grading 0.008 opt gold, 0.29 opt silver, 0.19% copper, 0.21% zinc. (Gold Standard Ventures Corp. news releases, 5/13/2013, 9/19/2013, 11/5/2013, 1/22/2014, 9/10/2014; Gold Standard Ventures Corp. Audited Financial Statements, 3/31/2014; Gold Standard Ventures Corp. Annual Information Form, 3/31/2014; Gold Standard Ventures Corp. NI43-101 Technical Report, 3/31/2014; Gold Standard Ventures website, goldstandardv.com)

Snake Mountains

Claim Staking. Newmont staked 2,093 claims in the Snake Mountains, north of Wells. The claim block covers parts of nine townships in, mainly in areas Paleozoic carbonate rocks. Barite has been the only significant commodity mined in the Snake Mountains. (BLM LR2000 database)

Spruce Mountain District

Spruce Mountain. Renaissance Gold Inc., completed nine reverse circulation holes totaling 8,160 feet at its Spruce Mountain project. Summit Mining Exploration, Inc., (a subsidiary of Sumitomo Corporation) funded the drilling. The program followed up on drilling conducted in 2011 and 2012 and tested three areas. The program drilled two holes along the periphery of the Sprucemont porphyry molybdenum system, five holes in the Santa Fe target about 0.6 miles northwest of Sprucemont, and two holes on a geophysical anomaly in the shallow pediment two to three miles north along the range front. Based on poor drilling results, Summit Mining Exploration decided to discontinue funding and withdrew from the joint venture. Mineralization at Spruce Mountain 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. (Renaissance Gold, Inc., news releases, 11/13/2013, 6/17/2014; Renaissance Gold, website, www.rengold.com)

Tecoma District

Twelvemile. Newmont Mining Corp. drilled no more than 12 holes on its Twelvemile Project. The company acquired the property through its acquisition of Fronteer Gold in 2011. No details were released. (BLM LR2000 database; Newmont website, www.newmont.com)

West of the Tecoma District

12 Mile. West Kirkland Mining Inc. drilled seven reverse circulation holes were drilled on its 12 Mile property and intercepted a new shallow zone of mineralization. Significant intercepts reported were 60 feet grading 0.007 opt gold and 90 feet averaging 0.006 opt gold and 0.23 opt silver. (West Kirkland Mining Inc. news release 4/25/2013; West Kirkland Mining Inc. Management Discussion and Analysis, 4/30/2014; West Kirkland Mining Inc. website, www.wkmining.com)

Bandito. West Kirkland Mining Inc. completed four reverse circulation holes on its Bandito property adjacent to the 12 Mile property (joint venture with Rubicon Minerals Corp.). One hole intercepted 40 feet grading 0.028 opt gold and 0.15 opt silver. The remaining three holes returned no significant assays. (West Kirkland Mining Inc. news release 4/25/2013; West Kirkland Mining Inc. Management Discussion and Analysis, 4/30/2014; West Kirkland Mining website, www.wkmining.com)

ESMERALDA COUNTY

Divide District

Hasbrouck Mountain. No drilling was conducted in 2013, however, West Kirkland Mining Inc. conducted negotiations with Allied Nevada Gold Corp. to acquire a 75% interest in the Hasbrouck Mountain and Three Hills properties. (West Kirkland Mining Inc. news release 2/24/2014; West Kirkland Mining website, www.wkmining.com)

Gilbert District

Castle Black Rock. Wolfpack Gold Corp., a subsidiary of Tigris Uranium Corp., released a 43-101 technical report detailing the Castle Black Rock property. The Castle Black Rock property includes the Boss and Castle deposits. No drilling had been done since 1995, but the old data were used to estimate an inferred resource of 16,185,000 tons grading 0.013 opt gold. (Tigris Uranium Corp., 43-101 Technical Report, 4/3/2013; Wolfpack Gold Corp. Audited Financial Statement, 4/29/2014; Wolfpack Gold website, www.wolfpackgold.com)

Eastside. Columbus Gold Corp. completed 24 angled reverse circulation holes totaling 17,605 feet in two phases of drilling on its Eastside Project 20 miles west of Tonopah. Overall, the mineralization is associated with the margins of a highly altered Tertiary rhyolite dome. Mineralization in the West zone is associated with silicification and quartz stockworks along a steep, northerly-trending fault. The West zone is at least 1,969 feet long and remains completely open to the south. Mineralization in the East zone is higher grade and is associated with brecciation, silicification, and quartz stock works along or near one or more, northerly-striking, west-dipping fault structures. The East zone is also open to the south and southwest, and is open to the north at depth. Significant intercepts included five feet grading 0.377 opt gold, five feet grading 0.27 opt gold and 40 feet grading 1.59 opt silver. (Columbus Gold Corp. news releases, 10/17/2013, 2/19/2014; Columbus Gold Corp. Management Discussion and Analysis, 1/10/2014, 2/21/2014; Columbus Gold website, www.columbusgoldcorp.com)

Goldfield District

Goldfield. International Minerals Corp. drilled its Goldfield property in 2013, but no details were released. The company issued an updated feasibility study as a 43-101 technical report proposing an open pit mine for the Gemfield deposit. In December, International Minerals Corp. was bought out by Hochschild Mining, PLC, and its Nevada properties were acquired by Chaparral Gold. (Chaparral Gold news release, 12/20/2013; International Minerals Corp. Annual Information Form, 9/30/2013; International Minerals Corp. NI43-101 Technical report, 7/25/2013; Chaparral Gold website, www.chaparralgold.com).

Silver Peak District

Mineral Ridge. Mineral Ridge Gold LLC, a subsidiary of Scorpio Gold Corp., produced 39,160 ounces of gold and 14,975 ounces of silver from the Mary and Drinkwater pits at the Mineral Ridge Mine (Scorpio Gold Corp. 70%, Waterton Global Value L.P., 30%). 995,748 tons of ore were processed with a head grade of 0.068 opt gold. The cash cost was $734 per ounce of gold.

The company drilled 255 holes, mostly reverse circulation, totaling 78,300 feet. Of that, 6,550 feet of the drilling contained average grades greater than the mine's internal cut-off grade of 0.010 opt gold. The areas targeted included the Mary Last Chance (LC) area, the Mary Pit infill, the Northwest Highwall in the Drinkwater Pit, and the Northwest Brodie, Bluelite, Solberry, and Oromonte deposits. Significant intercepts reported at Mary/LC included 10 feet grading 0.153 opt gold, 15 feet grading 0.087 opt gold, and 20 feet grading 0.084 opt gold from three holes. Ten holes were completed in the Northwest Highwall of the Drinkwater Pit to test the possible continuation of the ore trend to the northwest of and down dip from the Drinkwater pit. The program had "moderate success", and the area will be evaluated for a future drilling campaign. Nine holes were drilled at Northwest Brodie, and 22 were drilled at Bluelite. Both programs intercepted new mineralized intervals. The mineralization at Northwest Brodie is open ended in all directions, and the mineralization in the Bluelite area is open ended to the west and northwest. Significant intercepts reported at Brodie included five feet grading 0.139 opt gold, 5 feet grading 0.119 opt gold, and 10 feet grading 0.09 opt gold from three holes. Significant intercepts reported at Bluelite included five feet grading 0.104 opt gold, 10 feet grading 0.061 opt gold, and 10 feet grading 0.045 opt gold from three holes. Twelve holes were completed at Solberry, which significantly expanded the known mineralized area and showed it to be open to the north, west and south. Four holes were drilled in the Oromonte area, which confirmed a deep mineralized zone open in three directions. In-fill drilling was also conducted around the Mary Pit, which converted waste tons to mineable tons.

The company released a 43-101 technical report on the geology and mineral resources of the satellite deposits:

Bluelite, Brody, Solberry, and Wedge. Mineralization at Mineral Ridge, including the Bluelite, Brodie, Oromonte, Solberry and Wedge Satellite areas, is mainly associated with milky quartz veins and lenses accompanied by local argillization and some sericitization. Individual zones typically comprise several higher grade quartz veins from five to 30 feet thick with some up to 50 feet thick. These zones are surrounded by a lower grade envelope of mineralization. Mineralization is hosted in the lower unit of the Wyman Formation near its contact with the crystalline basement rocks and is structurally controlled. The gold mainly consists of native gold and electrum in quartz. The gold to silver ratio is typically near 2:1.

The BLM was preparing an environmental assessment on the company's plan of operation. The proposal includes expansion of plan of operation boundary and the size of two existing pits, addition of or changes to eight waste rock disposal areas, and an increase in stacking height of ore on the existing leach pads. (BLM news release BMDO 2014-16, 12/20/2013; Scorpio Gold Corp. news releases, 12/16/2013, 2/11/2014, 2/25/2014; Scorpio Gold Corp. Management Discussion and Analysis, 4/17/2014, 5/20/2014; Scorpio Gold Corp. 43-101 Technical Report, 9/26/2013; Scorpio Gold website, www.scorpiogold.com)

Tokop District

Tokop. Global Geoscience, Ltd., completed seven widely spaced reverse circulation holes totaling 4,654 feet on its Tokop property in T7N, R42E. The holes were aligned along a portion of 1.2 mile-long, northeast-trending prospective zone. Significant intercepts of oxidized mineralization included 40 feet grading 0.07 opt gold 62 feet grading 0.04 opt gold and 90 feet grading 0.02 opt gold. The gold mineralization occurs adjacent to and within a multi-phase Jurassic granite stock that has intruded probable Proterozoic and Cambrian limestone and mudstone. Skarn generally crops out within 1,000 feet of the stock. The mineralization is associated with sheeted and stockwork quartz veins, quartz-sericite alteration, and high levels of silver, arsenic, bismuth, molybdenum, tellurium and tungsten. (Global Geoscience, Ltd., Quarterly Activities Report, 10/30/2013; Global Geoscience, Ltd., news release, 9/16/2013; Global Geoscience, website, www.globalgeo.com.au)

Tonopah District

Three Hills. Allied Nevada Gold Corp. completed eight metallurgical core holes totaling 3,509 feet within the main deposit footprint at the Three Hills property. West Kirkland Mining Inc. conducted negotiations with Allied Nevada Gold Corp. to acquire a 75% interest in the Three Hills and the Hasbrouck Mountain (Hasbrouck Mountain is in the Divide District about five miles to the south) properties. (West Kirkland Mining Inc. 43-101 technical report, 2/21/2014; West Kirkland Mining Inc. news release 2/24/2014; Allied Nevada Gold Corp. Form 10-K, 2/27/2014; Allied Nevada Gold Corp. website, www.alliednevada.com; West Kirkland Mining website, www.wkmining.com)

EUREKA COUNTY

Antelope District

Red Canyon. CMQ Resources, Inc., completed three reverse circulation holes totaling 2,170 feet on its Red Canyon property (joint venture with Miranda Gold Corp.). The best intercepts were 10 feet grading 0.0013 opt gold and 15 feet averaging 0.001 opt gold in two holes. (CMQ Resources Inc. Management and Discussion Analysis, 11/29/2013, 4/29/2014; CMQ Resources website, www.cmqresources.com).

Antelope Valley

Antelope Valley. Barrick Gold Corp. drilled an unknown amount of holes on its large claim block in Antelope Valley west of the Mahogany Hills. No results were released. (Barrick website, www.barrick.com)

Buckhorn District

Claim Staking. Barrick Gold Corp. staked 201 claims along the east side of the Northern Nevada Rift northeast of Goldrush deposit and northwest of Agate Pass in the Cortez Mountains. The claim block occurs mainly in T27N, R49E in an area mainly covered by Tertiary sedimentary rocks and basalt. (BLM LR2000 database)

Cortez Summit. Carlin Gold Corp. re-entered one of the reverse circulation holes (1,760 feet deep) drilled in 2012 and deepened it with core drilling to 4,032 feet on its 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 depths of the 2012 holes ranged between 1,500 feet and 1,800 feet. The target of the deepening was lower plate carbonate rocks. The bottom 900 feet consisted of variably calcareous mudstone and sandstone, and silty to sandy, laminated, variably carbonaceous limestone locally containing decalcification, clay alteration, and calcite veining. Short intervals of up to 0.0195 opt gold were encountered. The bottom 650 feet was determined to be Devonian in age and are likely the informally named "Horse Canyon formation", which hosts the upper part of the Cortez Hills ore body. (Carlin Gold Corp. news release, 9/15/2013, 1/15/2014, 9/8/2014; Carlin Gold Corp. Management Discussion and Analysis, 2/28/2014; Carlin Gold website, carlingold.com)

Cortez District

Goldrush. Barrick Gold Corp. continued exploration at its Goldrush deposit about 4 miles southeast of its Cortez Hills mine. The company completed 86 exploration holes totaling

231,670 feet at its Cortez land holdings on the southeast side of Crescent Valley, including Goldrush and Cortez Hills. The drilling at Goldrush upgraded the resource base and was focused on establishing confidence in the continuity of the higher grade portions of the deposits. The strike length of the deposit has been expanded to almost 4.5 miles in a northwest directions. The deposit remains open in multiple directions. Drilling in 2013 encountered deep, very high grade mineralization which expanded the size and grade potential to the north. A significant intercept reported across this mineralization was 103 feet grading 0.725 opt gold. Mineralization occurs in the same Devonian carbonate stratigraphy as the Cortez Hills deposit. Measured and indicated resources at Goldrush increased by 1.6 million ounces to 10 million ounces at an average grade of 0.132 opt gold, while inferred resources stood at 5.6 million ounces. Goldrush is one of the highest grade giant gold discoveries made worldwide since 2001 and was the recipient of the Prospectors and Developers Association of Canada's prestigious Thayer Lindsley award for an international mineral discovery. (Barrick Gold Corp. Management Discussion and Analysis, 8/1/2013; Barrick Gold Corp., Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick Gold website, www.barrick.com)

Eureka District

Ruby Hill. Barrick more than doubled its production of gold and silver at Ruby Hill, producing 91,074 ounces of gold and 76,283 ounces of silver in 2013. The production increase was due to increased ore grade. The metallurgical recovery was 70.1% at a cut-off grade between 0.004 and 0.009 opt gold. Mining was halted due to a high wall failure at the bedrock-alluvium contact in the East Archimedes Pit on November 2, which sent 4,000,000 to 5,000,000 tons of alluvial material down to the pit floor. Engineers had been monitoring it for weeks and halted mining the night before. No one was injured, and no equipment was damaged. Barrick drilled an unknown amount of exploration holes in their land holdings surrounding the mine. No results were released. (Elko Daily Free Press, 6/2/2014; Elko Daily Free Press Mining Quarterly, Spring 2013, Winter 2013; Homestake Mining Co. of California Environmental Assessment, 8/2012; Barrick Gold Corp., Management Discussion and Analysis, 4/30/2014; Barrick Gold Corp., Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick Gold website, www.barrick.com)

Gibellini District

Gibellini. American Vanadium Corp. spent almost $4,261,045 on its Gibellini vanadium project in the southern Fish Creek Range, most of it towards environmental permitting, metallurgical testing, engineering, procurement, and construction management. In December 2012, the company submitted its plan of operation to the BLM and Nevada Division of Environmental Protection to construct a mine at Gibellini. The plan of operation includes the design for an open pit mine, processing facilities, and a reclamation plan. It incorporates a number of outputs for high purity vanadium products including electrolyte for the vanadium flow battery market. Once approved, the operation would begin producing 11,000,000 pounds vanadium pentoxide (V_20_5) per year and have a mine life of eight years. The BLM began preparations for an Environmental Impact Statement. American Vanadium also owns four other nearby vanadium properties. These include the Del Rio Project made up of 120 claims about eight miles south of Gibellini and the Hot Creek Project made up of 18 claims on vanadium-bearing shale south of Del Rio. (Elko Daily Free Press Mining Quarterly, Spring 2013; BLM Battle Mountain District Office news release 2013-10, 4/22/2013; American Vanadium Corp. Management Discussion and Analysis, 4/29/2014; American Vanadium Corp. Audited Financial Statements, 4/29/2014; American Vanadium website, www.americanvanadium.com)

Lynn District

Northern Carlin Trend. Newmont Mining Corp. continued open-pit mining at the Lantern, East Carlin, and Payraise open pits. Payraise is about 2,000 long by 800 feet wide, and consists of two parts, the North Phase (originally part of West Genesis) and the South Phase. Mining at Payraise was expected to end in 2014. Most of the ore was oxide grading 0.07 opt gold. Most of the ore went to leach pads, with ore greater than 0.05 opt gold going to Mill 5. Mining at East Carlin went deep to mine out material left in from underground mining. The company used remote drills and cameras to find and map these voids.

Underground mining continued at the Pete Bajo deposit, which began production in 2011. The portal is at the bottom of the 500-foot deep Pete pit, and the deposit is 350 feet below the portal. An extension called Fence was discovered in 2012, which will extend the life of the mine to 2018. The Fence deposit is 500 feet below and 1,000 feet north of the Pete Bajo deposit. It is at least 3,000 feet long by 1,000 feet wide and 1,350 feet below the surface with the ore grading 0.2 opt gold. The ore is hosted in the Roberts Mountain Formation. Production at Fence began in May of 2013.

The company spent $83,000,000 on the Turf Vent Project. This involved sinking a 26-foot diameter third shaft down 2,050 feet and will take three years to complete. It will double the ventilation and provide another escapeway as the Leeville underground workings are expanded northward. North Exodus was another advanced project that Newmont was spending money on development and feasibility studies. Other new projects that Newmont was evaluating included Green Lantern, North Lantern, and Lantern 3. The life of the mines in the Genesis area was projected out to 2032. Newmont's Carlin land holdings contain 23 present and future pits. (Elko Daily Free Press Mining Quarterly,

Fall 2013, Winter 2013; Newmont Mining Corp. Form 10-K, 2/21/2013; Newmont website, www.newmont.com)

Goldstrike. The total production at Barrick Gold Corp.'s Goldstrike operation (Betze-Post, Meikle, and Storm) was 891,570 ounces of gold, a drop of 24% from 2012. About 96,286,000 tons of ore was mined at an average gold grade of 0.146 opt gold. The total operating cost for gold was $606 per ounce and the all-in sustaining cost was $901 per ounce, increases of 17% and 12% respectively from 2012. The reported production from Goldstrike includes open pit production from the Betze-Post open pit and underground production from the underground Meikle mine, from which ore from several underground ore bodies are mined. Production from the Betze-Post open pit decreased 36% in 2013 to 521,489 ounce of gold. Metallurgical recovery was 78.6% with a cut-off grade of 0.045 to 0.06 opt gold. Underground production from Meikle was 360,578 ounces of gold in 2013, and increase of 10%. Metallurgical recovery for the underground ore was 87.5% with a cut-off grade of 0.1 to 0.22 opt gold. Of the estimated 13,412,000 contained ounces of gold in the reserves and resources, 64% are open pit and 36% are underground. The remaining life for the open pit was estimated to be 13 years, and 11 years for the underground mine. With regard to new resources, the company rarely releases details of its drilling and exploration programs.

The Goldstrike property 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 and underground mine, and have a combined capacity of about 33,000 to 35,000 tons per day. The gold is recovered and processed into doré on-site and shipped to outside refineries for processing into gold bullion. Because of increasing carbonate in the ore being mined, the pressure oxidation process in the autoclaves was converted from an acid to an alkaline circuit. Barrick was also converting to a process that uses thiosulfate to leach gold after pressure oxidation as opposed to cyanide, which would allow by-passing of the roaster and continued use of the autoclaves through to the end of the life of the mine. This will allow for earlier processing of stockpiled carbonaceous material and increase the capacity to process ore from other properties. (Barrick Gold Corp., Management Discussion and Analysis, 3/6/2014; Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick Gold website, www.barrick.com)

Maggie Creek District

Gold Quarry. Newmont Mining Corp. nearly finished mining the Phase 4 layback in the Gold Quarry pit, where ore with grades of 0.25 opt gold will be mined from the bottom of the pit. Mining began at the Phase 7 layback, which contains between 350,000,000 and 400,000,000 tons of material. It will take five years to mine Phase 7. The life of the mine was estimated to be out to 2028. In 2013 the Gold Quarry pit reached 1.5 miles wide and 1,700 feet deep. After being put on hold for about ten years, Newmont began to evaluate remaining potential at the Tusc and Mac deposits, which were mined between 1995 and 1999. Drilling was conducted at Tusc in search of a potential layback. Four holes returned good results, though the details were not released. (Elko Daily Free Press Mining Quarterly Spring 2013, Winter 2013; Newmont Mining Corp. Form 10-K, 2/21/2014; Newmont website, www.newmont.com)

Monitor Range

North Monitor Pediment. Barrick Gold Corp. staked 1,087 claims at the north end of the Monitor Range and the pediment to the north of the range. The claims occur near Highway 50 and cover parts of five townships, T18N,R49E; T18N,R50E;, T19N, R49E; T19N, R50E, T20N, R49E. (BLM LR2000 database)

Mount Hope District

Mount Hope. General Moly Inc. (joint venture with POS-Minerals) began construction of its Mount Hope open pit mine in 2013. Construction activities included cultural clearance, clearing and grubbing, wood harvesting, and the development of early construction water. Ames Construction had cleared and grubbed approximately 1,800 acres in preparation for starting major earthworks. However, construction activities came to a halt soon after they started. In March of 2013, General Moly suspended work on a $665 million loan from its Chinese partner, Sichuan Hanlong Group, after a report that Hanlong's chairman, Liu Han, was detained by Chinese officials. In August General Moly terminated its agreement with Hanlong. General Moly is actively looking for another source of financing. If constructed, the life of the Mount Hope mine is estimated to be 41 years and would produce an estimated 1,200,000,000 pounds of molybdenum. (Bloomberg news, 3/21/2013; Elko Daily Free Press Mining Quarterly Spring 2013, Summer 2013; General Moly Inc. NI43-101 Technical Report, 1/15/2014; General Moly Inc. Form 10-K, 3/13/2014; General Moly website, www.generalmoly.com)

Northern Simpson Park Mountains

Red Hill. NuLegacy Gold Corp. (various agreements with Barrick Gold Corp., and Idaho Resources Corp.) completed five reverse circulation holes defining its Iceberg deposit in the "central mineralized zone" on what is Barrick's portion of the Red Hill property. Significant intercepts included 135 feet averaging 0.03 opt gold, including 20 feet grading 0.16 opt gold; 55 feet averaging 0.015 opt gold, including 15 feet grading 0.032 opt gold; and 75 feet averaging 0.021 opt gold, including 30 feet grading 0.032 opt gold in three holes. The drilling discovered a new zone of oxide gold mineralization zone at least 1,140 feet of strike length, which extended the "central mineralized zone" northward

for a total strike length of 2,500 meters in a north-northwest direction. The high grade zone of oxide gold mineralization within the Iceberg deposit is hosted by decalcified and silicified Devonian carbonate rocks. The property covers about 40 square miles within the JD lower plate window. The company terminated an agreement that covers the portion of the property that is controlled by Miranda Gold Corp., which includes the separate Coal Canyon property located about four miles to the west. (NuLegacy Gold Corp. news release, 6/26/2013; NuLegacy Gold Corp. Management Discussion and Analysis 11/27/2013, 7/28/2014; NuLegacy Gold website, www.nulegacygold.com; Miranda Gold Corp. news release, 1/28/2013; Miranda Gold website, www.mirandagold.com)

HUMBOLDT COUNTY

Awakening District

Sleeper. Paramount Gold and Silver Corp. completed 11 holes totaling 25,831 feet on its Sleeper property. Significant intercepts reported were 80 feet grading 0.042 opt gold and 0.055 opt silver and 46 feet grading 0.013 opt gold and 0.067 opt silver from one hole west of the Pad zone below the old Sleeper pit. The hole was for metallurgical purposes. Other significant intercepts included 150 feet averaging 0.017 opt gold and 0.127 opt silver, including 75 feet grading 0.026 opt gold and 0.182 opt silver from one hole in the Facility/Sleeper area; and 1,000 feet averaging 0.032 opt gold and 0.306 opt silver, which included 223 feet grading 0.035 opt gold and 0.96 opt silver from a hole in the West Wood area. (Paramount Gold and Silver Corp. press release, 8/1/2013; Paramount Gold and Silver Corp. 10-Q Forms, 2/6/2013, 5/5/2013, 2/5/2014; Paramount Gold and Silver Corp. 10-K Form, 9/9/2013; Paramount Gold and Silver website, www.paramountgold.com).

Battle Mountain District

Marigold. Goldcorp Inc. produced 161,062 ounces of gold from its Marigold Mine (Goldcorp 66.67%, Barrick 33.33%), an increase of 12%. The company mined 11,280,000 tons of ore with a waste to ore ratio of 2.5, mainly from the Target II pit and from Phase 1 of the Mackay pit. The average grade was 0.01 opt gold, down from 0.016 opt gold in 2012, and the average recovery rate was 73%. Total operating cash cost was $914 per ounce, up from $776 in 2012. The all-in sustaining cost was $1503 per ounce. No details were published, but development drilling was conducted on the Herco-North, Hercules, Mackay Phase I, and Red Dot deposits. Stripping of the Phase I of the Mackay pit was also conducted. Proposed expansion of the Mackay pit would result in a long, thin pit extending for three miles and would take in the Target III and Get 'Er Done pits, the Red Dot Resource, and part of the Section 19 resource, which is owned by the University of Nevada, Reno. The Basalt Phase 7 and Phase 8 pits were in the process of being backfilled early in 2013. The life of the mine was estimated to be last until 2030. At year's end, Goldcorp and Barrick were in the process of selling Marigold to Silver Standard Resources, Inc. (Barrick Gold Corp. Annual Information Form, 3/31/2014; Goldcorp Inc. Annual Information Form, 3/31/2014; Goldcorp Inc. news release, 4/4/2013; Goldcorp Inc. Management Discussion and Analysis, 5/2/2013, 7/25/2013, 10/4/2013, 2/14/2014; Elko Daily Free Press Mining Quarterly Fall 2013; Goldcorp website, www.goldcorp.com; Silver Standard website, www.silverstandard.com)

Buffalo Mountain District

Brooks. Newmont Mining Corp. drilled about a dozen holes on its Brooks Project about three miles southwest of the Lone Tree Mine. No results were released. (M. Ressel, oral communication, 10/30/2014; BLM LR2000 database; Newmont website, www.newmont.com)

Converse. International Minerals Corp. reported no drilling on its Converse property in 2013. In December, International Minerals Corp. was bought out by Hochschild Mining PLC, and its Nevada properties were acquired by Chaparral Gold. (Chaparral Gold news release, 12/20/2013; International Minerals Corp. Annual Information Form, 9/30/2013; Chaparral Gold website, www.chaparralgold.com).

Lone Tree Complex. Newmont Mining Corp. produced 22,931 ounces of gold and 4,970 ounces of silver from its Lone Tree Complex, decreases of 23% and 14% respectively from 2012. The mine is in closure and production is coming from the leach pads. (Newmont Mining Corp. Form 10-K, 2/21/2014; Newmont website, www.newmont.com)

Gold Run District

Adelaide. Wolfpack Gold Corp., a subsidiary of Tigris Uranium Corp., released a 43-101 technical report, and late in 2013, completed a Phase I drilling program consisting of seven reverse circulation holes totaling 4,051 feet on its Adelaide project. The gold-silver mineralization occurs in epithermal banded quartz-adularia-sulfide veins with electrum, which are hosted by the Cambrian Preble and Ordovician Valmy Formations. The mineralization occurs along the north-trending Adelaide fault zone. The main veins trend north-northwest, dip 70 to 85°W, and converge and diverge along strike and include splays and stockwork zones. The more prominent veins are generally four to six feet wide, with the Crown, Recovery and Margarite veins having been previously mined. Significant intercepts included 5 feet grading 1.17 opt Au and 3.06 opt Ag, 15 feet grading 0.06 opt Au and 8.3 opt Ag, and 5 feet grading 0.11 opt Au and 21 opt Ag. (Tigris Uranium Corp., 43-101 Technical Report, 4/8/2013; Wolfpack Gold Corp. news release, 2/26/2014; Wolfpack Gold Corp. Management

Discussion and Analysis, 4/29/2014; Wolfpack Gold website, www.wolfpackgold.com).

Mill City District

North Eugene. Newmont Mining Corp. drilled 3 holes on its North Eugene Project on the north end of the Eugene Mountains. No results were released. (M. Ressel, oral communication, 10/30/2014; BLM LR2000 database; Newmont website, www.newmont.com)

National District

Buckskin-National. Volcanic Gold and Silver LLC, submitted to the U.S. Forest Service a plan of operation to conduct exploration drilling at its Buckskin-National project. The plan was approved, but it is unknown whether any holes were drilled in 2013. (U.S. Forest Service Decision Memo, 9/12/2013)

Potosi District

Pinson. Atna Resources, Ltd., produced 5,183 ounces of gold from its Pinson underground mine. Mixed sulfide/oxide ores were processed with the roaster at Veris Gold's Jerritt Canyon mine. Oxide ore was processed at the mill at Newmont's Twin Creek mine. The main ore zones are the Ogee, Range Front, Adams Peak, and CX. The deposits are structurally-controlled Carlin type deposits. Only ore in the Ogee Zone has been developed and mined. The Company spent $22,200,000 on underground development, equipment, buildings, and other infrastructure, but no drilling was reported. During 2012 and 2013, 4,100 feet of development was completed with a primary spiral driven from the 4650 adit level to the 4530 level 120 feet below the mine portal. Both top cut and underhand ore mining occurred in three Ogee Zone stope blocks. Contract miners using their own underground mining equipment were hired to do the mining. On June 15, the mine was placed on care and maintenance, and all development activities ceased until market conditions improved, additional financing was available, and additional mine design and engineering studies had been conducted. Lower than expected ore-mining productivity during development was also a factor. Despite the shutdown, the company was proceeding with a feasibility study for development of the Mag open pit mine. (Atna Resources Ltd., Form 20-F Annual report, 3/18/2014; Atna Resources Ltd., Management Discussion and Analysis, 5/13/2013, 7/31/2013; Atna Resources Ltd., news release, 6/23/2013; Atna Resources website, www.atna.com)

Turquoise Ridge. The Turquoise Ridge Mine, which is operated by Barrick, (75% Barrick, 25% Newmont), produced 223,189 ounces of gold, an increase of 16% from 2012. The increase was due to 15% more tons mined. The average grade of the mined ore was 0.49 opt gold. The metallurgical recovery was 92%, and the all-in sustaining cost was $927 per ounce. Almost all of the mining was done underground with some minor surface mining. The ore is processed at the Sage Mill at Twin Creeks Mine. A significant amount of drilling was carried out in 2013, mainly underground drilling in North Zone, but no results were released. (Elko Daily Free Press Mining Quarterly, Spring 2013, Spring 2014; Barrick Gold Corp., Form 40-F, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick Gold Corp. website, www.barrick.com; Newmont Mining Corp. Form 10-K, 2/21/2014; Newmont website, www.newmont.com)

Twin Creeks. Newmont Mining Corp. produced 406,847 ounces of gold. Mining commenced at Cut 23 layback at the north end of the Mega Pit late in the year. The first ore will be reached in 2015, and the layback is expected be mined through 2017 with 527,000 ounces of gold expected to be recovered. The mine life was projected to last through 2022, but the company was conducting an extensive exploration drilling program with many potential targets to expand the Mega and Vista pits. The all-in sustaining cost reported for the first quarter of 2013 was $792 per ounce. (Elko Daily Free Press, 3/20/2014; Newmont Mining Corp. Management Discussion and Analysis, 4/25/2014; Newmont Mining Corp. Form 10-K, 2/24/2014; Newmont website, www.newmont.com)

Sulphur District

Hycroft. Allied Nevada Gold Corp. produced 181,941 ounces of gold and 858,073 ounces of silver from the company's Hycroft Mine in 2013, a significant increase over 2012. The adjusted operating cash cost was $855 per ounce, an increase of 34% from 2012. The mine moved 82,041,000 tons of material, including 45,557,000 tons of ore that was placed on the leach pad and another 3,515,000 tons of ore that was stockpiled. The average grade was 0.011 opt gold and 0.219 opt silver. Allied drilled 232 holes, totaling 119,185 feet, with a focus on metallurgical drilling in the Lewis Pad, Central, and Brimstone areas, geotechnical and hydrology drilling in support of construction activities, step out drilling from the Bay, Central and Brimstone areas, and targeting oxide ore proximal to current reserves. The 2013 drill program was directed towards the following items: 15% hydrology; 5% facility design and geotechnical, 21% production support, 5% oxide targets, and 54% infill, step-out, and metallurgy.

The BLM had issued a final environmental impact statement and a record of decision approving the company's proposed expansion of mining at the Brimstone, Cut-5, Bay, and Central, zones the operation of the north and south leach pads, and infrastructure upgrades. This prompted the company to implement a two-stage expansion project. Loading of the new North leach pad began in May, but the completion of a crushing facility that was under construction and that of other expansion projects were put on hold due to declining metal prices and lower than expected cash flow. (BLM Final Environmental Impact Statement, 7/2012; BLM Record of Decision, 8/2012; Elko

Daily Free Press Mining Quarterly, Winter 2013; Allied Nevada Gold Corp. Management Discussion and Analysis, 8/7/2013, 11/6/2013; Allied Nevada Gold Corp. Form 10-K, 2/27/2014; Allied Nevada Gold Corp. 43-101 technical report, 5/21/2014; Allied Nevada Gold website, www.alliednevada.com)

LANDER COUNTY

Battle Mountain District

Copper Basin. Newmont Mining Corp. conducted a drilling program at its Copper Basin Project, as a follow up to its 2011 major drilling program. No results were released. (M. Ressel, oral communication, 10/30/2014; BLM Battle Mountain District annual report, 1/2013; BLM Environmental Assessment, DOI-BLM-NV-B010-2013-0062-EA, 9/2013; BLM Finding of No Significant Impact, 2/14/2014; BLM Record of Decision, 2/20/2014)

Phoenix. Newmont Mining Corp. produced 29,825,908 pounds of copper from its Phoenix Mine, a minor increase from 2012. The metallurgical recovery was 59%. Gold production was 202,055 ounces, an increase of 27%, with a metallurgical recovery of 73%. Silver production was 1,550,346 1,152,312 ounces, an increase of 35%, with a metallurgical recovery of 36%. In 2012, the BLM issued a final environmental impact statement and record of decision approving Newmont's copper leach project. The leach pad was finished and initially loaded with 6,000,000 tons of ore. The SX-EW plant, the first in Nevada, was completed in September 2013 at a cost of $91,000,000 pure copper cathode in the form of sheets was produced in October. Annual copper production is expected to be about 20,000,000 pounds for the first five years of production with costs of $1.75 to $2.00 per pound. The company carried out a major drill program, but no results or other details were released. Holes may have also have been drilled on the pediment south of Copper Canyon, where Newmont had Notices of Intent approved by the BLM to drill in sections 15, 16, 20, and 22 in township 30 N, range 43E, in an area where young basalts crop out. (M. Ressel, oral communication, 10/30/2014; BLM Final Environmental Impact Statement, 4/2012; BLM Record of Decision, 6/2012; Elko Daily Free Press Mining Quarterly, Spring 2013; Newmont Mining Corp. Form 10-K, 2/21/2014; Newmont website, www.newmont.com)

Buffalo Valley District

Buffalo Valley. Newmont Mining Corp. continued to explore its Buffalo Valley project (Newmont. 70%, Fairmile Goldtech Inc. 30%) and updated the resource, but no drilling was carried out. The BLM began preparing an environmental impact statement, for the company's proposed mine, which 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. (M. Ressel, oral communication, 10/30/2014; BLM News Release BMDO 2013-08, 2/6/2013; Newmont Mining Corp. Form 10-K, 3/21/2014; Newmont website, www.newmont.com).

Bullion District

Fire Creek. Though still in the development stage, Klondex Mines Ltd. produced 6,208 ounces of gold from its Fire Creek mine. The company signed an agreement with Newmont to process ore at the Midas custom mill and shipped 8,007 tons of ore. The company also entered into a toll milling agreement with Veris Gold Corp. to process ore at Jerritt Canyon. The company completed 35 underground drill holes and one surface core hole totaling 15,721 feet, mainly as part of an infill drilling program. Drilling sites included the Joyce and Vonnie veins in the Main Zone and the newly discovered West Zone. Significant intercepts reported in the West Zone included 1.8 feet grading 2.803 opt gold, 3 feet grading 0.828 opt gold, 7.2 feet grading 0.43 opt gold in one hole and 1 foot grading 1.01 opt gold and 6.7 feet grading 0.32 opt gold in two other holes. The property covers 11,307 acres, consisting of about 9,680 acres of lode claims, 1,118 acres of private land, 239 acres of mineral leases and 270 acres optioned to purchase. The company issued two NI43-101 technical reports and was preparing a preliminary economic assessment of the property. The reports included updated total resources for Fire Creek and individual resources for the Main, West, North South, and Far North deposits. (Klondex Mines Ltd. Management Discussion and Analysis, 8/13/2013, 11/14/2013, 3/31/2014; Klondex Mines Ltd. news release, 1/20/2014; Klondex Mines Ltd. Annual Information Form, 3/31/2014; Klondex Mines Ltd. 43-101 Technical Reports; 10/31/2013, 11/14/2013, 6/13/2014; Klondex Mines website, www.klondexmines.com)

Pipeline Complex. Barrick Gold Corp. resumed mining at the Pipeline Complex in January, which is expected to last through 2026. Production figures are combined with those for the Cortez Hills open pit. It carried out an unknown amount of drilling on the Pipeline side of Crescent Valley. No results were released. (Barrick Gold Corp., Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick website, www.barrick.com)

Utah Clipper. In January, Navaho Gold Ltd. (joint venture with Columbus Gold Corp.) completed one diamond core hole to a depth 3,509 feet on it Utah Clipper property just west of Barrick's inactive Gold Acres open pit. The hole intersected carbonates of Horse Canyon and Wenban formations, but no significant assays were reported. (Navaho Gold, Ltd., 2013 Annual Report, 12/31/2012; Navaho Gold, Ltd., website, www.navahogold.com; Columbus Gold Corp. Management Discussion and Analysis, 1/10/2014; Columbus Gold website, www.columbusgoldcorp.com)

Cortez District

Cortez Hills. Barrick Gold Corp. produced 825,196 ounces of gold from its Pipeline (Bullion District) and Cortez Hills open pits, a decrease of 12% from 2012. The company also produced 545,852 ounces of gold from its Cortez Hills underground mine, an increase of 27% from 2012. A total of 147,718,000 tons of material mined were mined of which 22,045,000 tons were processed with an average grade of 0.076 opt gold and an average total operating cost was $222 per ounce and an all-in sustaining cost was $433 per ounce. The metallurgical recovery was 82.5% with a cut-off grade ranging between 0.004 opt and 0.258 opt gold. The company completed 86 exploration holes totaling 231,670 feet were drilled at Cortez, including Cortez Hills and Goldrush. Drilling in the Cortez Hills area was conducted mainly from underground. Mineralization remains open at depth and to the south and west. (Elko Daily Free Press 5/31/2013; Elko Daily Free Press Mining Quarterly, Fall 2013; Barrick Gold Corp., Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick website, www.barrick.com)

McCoy District

Cove. Premier Gold Mines, Ltd. completed 36 core and reverse circulation exploration holes totaling 85,280 feet on its Cove property and discovered high-grade gold-silver mineralization in the new Cove North Deep area about 1,300 feet north of the old Cove pit. Drilling near the Cove pit also resulted in the discovery of the 2201 polymetallic gold-silver zone beneath the pit. Step-out drilling confirmed the extension of the 2201 Zone with multiple intervals of massive, semi-massive, and stringer sulfide mineralization. Mineralization within the 2201 Zone consists of pyrite, sphalerite, galena, arsenopyrite, chalcopyrite, pyrrhotite, electrum and rare visible gold occurring mainly as veins in conglomerate of the Triassic Dixie Valley Formation, mainly at depths of greater than 2,000 feet. Drilling near the pit ramp encountered Carlin-style mineralization in an area referred to as CSD (South Cove Deep). The top of the CSD mineralization occurs about 160 feet below the pit and is similar to that of the Helen Zone, which located 1,600 feet northwest of the Cove pit at depths of 1,500 to 2,000 below the surface. The Helen Zone had been the main exploration target since exploration resumed at the Cove property in 2006.

Significant intercepts included 161 feet averaging 0.09 opt gold, including 14 feet grading 0.17 opt gold; and 26 feet averaging 0.21 opt gold (Cove South Deep); 30 feet averaging 0.2 opt gold, 0.38 opt silver, 0.02% copper, 0.32% zinc, 0.06% lead; and 49 feet averaging 0.05 opt gold, 1.21 opt silver, 0.07% copper, 1.24% zinc, 0.19% lead (Dixie Valley Formation, 2201 Zone); 5 feet averaging 0.32 opt gold and 0.27 opt silver (Pennsylvanian-Permian Havallah sequence, 2201 Zone); and 9 feet averaging 0.77 opt gold and 1.16 opt silver (Helen Zone). The company issued a 43-101 Technical Report updating the previous mineral resource estimate of the Helen Zone. (Premier Gold Mines, Ltd., news releases, 9/18/2013, 11/13/2013, 1/6/2014; Premier Gold Mines, Ltd., Annual Information Form, 3/31/2014; Premier Gold Mines, Ltd., Annual Report, 5/26/2014; Premier Gold Mines, Ltd., 43-101 Technical Report, 1/2/2014; Premier Gold Mines, website, www.premiergoldmines.com)

Northern Toquima Range

Pete's Summit. Columbus Gold Corp. completed a 10 to 12 hole drilling program on its Pete's Summit Project 20 miles north of the Northumberland Mine. No results were released, suggesting the results were negative. (Columbus Gold Corp. Management Discussion and Analysis, 2/21/2013, 3/232014; Columbus Gold website, www.columbusgoldcorp.com)

LINCOLN COUNTY

Eagle Valley District

Gold Springs. High Desert Gold Corp. completed 43 reverse circulation holes totaling 22,145 feet along the Grey Eagle Zone on its Gold Springs project, located along the border with Utah about 22 miles east of Pioche. Better intercepts included 195 feet averaging 0.032 opt gold and 0.23 opt Ag, including 25 feet grading 0.18 opt gold and 0.80 opt silver; and 200 feet averaging 0.026 opt gold and 0.25 opt silver, including 40 feet grading 0.11 opt gold and 0.51 opt silver.

Results of the drilling showed Gray Eagle consists of North, Main, and South zones along a strike of 2,200 feet. At year's end, South American Silver acquired High Desert Gold Corp. and changed its name to TriMetals Mining Corp. (High Desert Gold Corp. news releases, 9/10/2013, 11/11/2013; High Desert Gold Corp. NI43-101 Technical Reports 5/9/2013, 9/26/2013; TriMetals Mining Corp. NI43-101 Technical Report 3/19/2014; TriMetals Mining Corp. Annual Information Form, 3/20/2014; TriMetals Mining Corp. website, www.trimetalsmining.com)

Silver King Pass

Claim Staking. Barrick Gold Corp. staked 170 claims near Silver King Pass at the south end of the Schell Creek Range in Lincoln County. The claims are mainly in T4N, R63E in an area of exposed Paleozoic carbonate rocks. (BLM LR2000 database).

LYON COUNTY

Yerington District

Ann Mason. Entrée Gold, Inc., drilled five holes consisting of 3,257 feet of pre-collar reverse circulation drilling and 7,081 feet of core drilling on its Ann Mason property. The company also completed two reverse circulation holes

totaling 590 feet to test a new exploration target west of the Ann Mason deposit. The core drilling tested for extensions of mineralization within the current pit design, and three of the five core holes extended the copper mineralization 620 feet to 820 feet to the northwest and northeast of the deposit. The mineralization remains open is several directions. Significant intercepts reported included 721 feet grading 0.3% copper, 0.003% molybdenum, 0.002 opt gold, and 0.05 opt silver and 1,017 feet grading 0.21% copper, 0.014% molybdenum, 0.0006 opt gold, and 0.017 opt silver. Weak, primarily pyritic copper mineralization was intercepted up to 620 feet north of the resource boundary, but higher grade mineralization may exist at depth, given the deposit is tilted nearly 90°. About 790 feet farther east-southeast, a drill encountered strong faulting with no significant mineralization. The two shallow holes drilled 1,640 feet and 2,950 feet west of the Ann Mason intersected intervals up to 20 feet thick containing between 0.16% 0.2% copper. (Entrée Gold Inc. news releases, 9/25/2013; Entrée Gold Inc. Annual Information Form, 3/27/2014; Entrée Gold Management Discussion and Analysis, 3/27/2014; Entrée Gold, Inc., website, www.entreegold.com)

Blue Hill. Entrée Gold, Inc., drilled reverse circulation five holes totaling 2,194 feet and deepened two existing reverse circulation holes with core drilling totaling 1,092 feet on its Blue Hill property about one mile northwest of its Ann Mason property. The company also completed four more reverse circulation holes totaling 1,374 feet to test near-surface copper oxide mineralization to the east of Blue Hill. The deposit consists of two main styles of porphyry mineralization: 1) near surface, mixed oxide-sulfide copper mineralization, and 2) underlying sulfide copper-molybdenum mineralization. The drilling tested for additional areas of copper oxide mineralization and the potential for underlying sulfide mineralization. Westward extensions of the Blue Hill deposit were encountered, and the copper oxide and mixed oxide/sulfide mineralization remains open is several directions. The low-angle post-mineralization Blue Hill Fault truncates the oxide and mixed mineralization to the east, but does not affect the eastward continuation of the underlying sulfide mineralization. Significant intercepts included 55 feet of oxide mineralization grading 0.21% copper, 95 feet of oxide mineralization grading 0.14% copper, and 141 feet of sulfide mineralization grading 0.19% copper. (Entrée Gold Inc. news release, 9/25/2013; Entrée Gold Inc. Annual Information Form, 3/27/2014; Entrée Gold Management Discussion and Analysis, 3/27/2014; Entrée Gold website, www.entreegold.com)

Pumpkin Hollow. Nevada Copper Corp. drilled 11 holes, two of which were pre-collar holes, totaling about 20,990 feet on its Pumpkin Hollow property southeast of Yerington. The drilling followed up new mineralization discovered at the end of the 2012 drilling program along the southern and western edge of the North deposit. Significant intercepts included 38 feet grading 1.45% copper; 13 feet grading 1.55% copper; and 8 feet grading 2.15% copper in two holes. Most of the mineralization in the North deposit is disseminated within hornfels, silicate skarn, and skarn breccia. However, mineralization along the southern edge is mainly hosted by endoskarn, which opens up a very large prospective area between the North and South deposits for further exploration.

The company issued an open pit operations feasibility study containing some upgrades in the resources and reserves. In brief, the open pit mining operations is estimated to have a 22-year mine. Mining will begin on the North deposit first and later on the South deposit with the two pits eventually merging. Ore will be processed on-site at a rate of 70,000 tons per day in a flotation processing facility, and the concentrates will be trucked off-site. In May, the production-sized head frame and hoist over a 2,200-foot, 24-foot diameter shaft to access the East underground deposit became operational with production planned for late 2015. (Nevada Copper Corp. news release, 6/17/2013; Nevada Copper Corp. Annual Information Form, 3/26/2014; Nevada Copper Corp. Management Discussion and Analysis, 3/26/2014; Nevada Copper Corp. 43-101 Technical Report, 11/14/2013; Nevada Copper website, www.nevadacopper.com)

Yerington Mine. Singatse Peak Services LLC a subsidiary of Quaterra Resources Inc. completed 31 drill holes totaling 3,802 feet on vat leach tailings at its Yerington property, but the results were not released. The company released an NI43-101 technical report with updated resource information. (Quaterra Resources, Inc., news release, 11/20/2013; Quaterra Resources, Inc., 43-101 Technical Report, 1/6/2014; Quaterra website, www.quaterra.com)

MINERAL COUNTY

Aurora District

Fletcher Junction. Spruce Ridge Resources Ltd. (joint venture with Nevada Exploration Inc.) completed two core holes totaling 4,000 feet on the Fletcher Junction property. Prior to drilling the company had also completed a high-resolution airborne VTEM (versatile time-domain electromagnetic geophysical system) and magnetic survey over both Fletcher Junction and part of the nearby historic Aurora mining district. The holes penetrated the Aurora basalt and gravel overlying a sedimentary unit consisting of reworked pyroclastic and epiclastic volcanic rocks. The bedrock was hydrothermally altered and contained some silica-sulfide mineralization with only minimal gold values, but did contain anomalous silver (up to 1 opt), antimony (up to 450 ppm), arsenic (up to 800 ppm), mercury (up to 3 ppm), and molybdenum (up to 300 ppm). The combination of alteration and trace-element chemistry suggest that the peripheral and/or upper parts of an Aurora-style gold-bearing quartz-adularia vein system may have been penetrated. Spruce Ridge Resources, Ltd., decided it was not worth pursuing and terminated its joint venture

agreement. (Nevada Exploration, Inc. news releases, 1/16/2013, 9/30/2013; Nevada Exploration website, www.nevadaexploration.com)

Borealis District

Borealis. Through its subsidiary Borealis Mining Co., Gryphon Gold Corp. produced 10,556 ounces of gold and 21,187 ounces of silver from the its heap leach operation at its Borealis mine (Gryphon Gold Corp. 40%, Waterton Global Value, L.P., 60%). The operation re-crushed material from existing heap leach pads and put them back on the pads. The life of the operation was estimated to be about six years. No drilling was reported for 2013. Because of liquidity issues and a lawsuit by some of the shareholders, the company entered Chapter 11 bankruptcy. The company retained its assets and continued running its business as a debtor-in-possession under supervision of the bankruptcy court. (Gryphon Gold Corp. news release, 7/30/2013; Gryphon Gold Corp. Form 8-K, 7/31/2013; Gryphon Gold website, www.gryphongold.com)

Rawhide District

Denton-Rawhide. Rawhide Mining, LLC, produced 23,900 ounces of gold and 305,000 ounces of silver from the company's Denton-Rawhide Mine. Rawhide Mining, LLC, agreed to lease the Rawhide East property from Emgold Mining Corp. The property consists of 52 unpatented claims and sits between the Denton-Rawhide property to the south and east and the Regent property to the north and west. Emgold Mining Corp. reported Rawhide Mining, LLC, commenced drilling, but no results were released. (Emgold Mining Corp. Management Discussion and Analysis, 3/26/2014; Emgold Mining website, www.emgold.com)

Santa Fe District

Clay Peters (Kope Scheelite). Silver Reserve Corp. (a subsidiary of Infrastructure Materials Corp.) completed 4 reverse circulation holes on its Clay Peters (formerly Kope Scheelite) project about 11 miles northeast of Mina. An induced polarization geophysical survey was completed, which was followed by a 7,000-foot drilling program. Drilling was suspended after the four holes were drilled. No significant gold, silver, or copper values were encountered. (Infrastructure Materials Corp. news release, 10/25/2013; Infrastructure Materials Corp. Form 10-K, 9/20/2013; Infrastructure Materials website, www.infrastructurematerialscorp.com)

Isabella Pearl. Isabella/Pearl, LLC, received a water pollution control permit from the Nevada Division of Environmental Protection for its proposed Isabella Pearl project (joint venture with Taux Investments, Ltd.) located near the old Santa Fe open pit, which was mined in the 1980s. The company plans to mine oxide from the Isabella, Pearl, and Civit Cat pits, which will eventually merge into one pit. Mining of the oxide ore deposits will require removal and stockpiling of approximately 65,000 tons of sulfide ore with the intent to process at an off-site facility. The mine life is estimated to be five years. The compilation of an environmental assessment is still pending with the BLM. (Nevada Division of Environmental Protection, Pearl Joint Venture Project NEV2009102 Record of Decision, 6/3/2013; Nevada Division of Environmental Protection, Pearl Joint Venture Project NEV2009102 Fact Sheet, 2013; BLM Scoping Document, 7/21/2011; Diggings website, www.thediggings.com/mine-owners/2256141).

NYE COUNTY

Bare Mountain District

Reward. Atna Resources Ltd. completed 14 reverse circulation totaling 9,013 feet on its Reward property. The drilling program was intended to expand the existing resource and reserves and to ensure that planned plant facility locations will not be built over mineralized zones. The drilling confirmed the presence of a new zone of bedded gold mineralization along the eastern and southeastern flanks of the main Reward gold deposit. Significant intercepts reported include 320 feet grading 0.022 opt gold including 18.5 feet grading 0.059 opt gold, 75 feet grading 0.041 opt gold, and 118 feet grading 0.057 opt gold including 44 feet grading 0.109 opt gold.

The gold mineralization is mainly controlled by the Good Hope fault zone, which hosts a north-south-trending zone of steeply dipping sheeted quartz veins. Adjacent to the fault zone, moderately east-dipping phyllitic quartzite, siltstone, and shales host disseminated gold mineralization associated with narrow iron oxide veinlets (after pyrite) and minor quartz veins. Gold mineralization has a strike length of more than 2,400 feet and extends to a depth of 750 feet along the Good Hope fault zone. The width of mineralization within the structural zone varies between a few feet to up to 200 feet, and bedded zones along the southeastern flank of the main deposit attain thicknesses of over 300 feet.

Prior to 2013, the company released a 43-101 technical report with resource estimate and a proposed open pit mine and heap leach operation. The operation would consist of several small pits starting in the Good Hope area and moving into the Gold Ace and Bull Moose areas. Metallurgical recovery is estimated to be about 80% with 265,810 ounces of gold produced over the life of the operation. The mine life is estimated to be 6.5 years. (Atna Resources Ltd. news releases, 2/25/2013, 3/25/2013; Atna Resources Ltd. Form 20-F, 3/18/2014; Atna Resources Ltd. NI43-101 Technical Report, 7/9/2012; Atna Resources website, www.atna.com)

Sterling. Sterling Gold Mining Corp., a subsidiary of Imperial Metals Corp., produced 7,142 ounces of gold from the company's Sterling Mine, which reached commercial production in March. Mining was conducted underground in the 144 Zone, from which 160,789 tons of ore with an

average grade of 0.083 opt gold was mined. The company completed 52 core holes totaling 5,800 feet to further delineate of the 144 zone. The drilling targeted the northern limb of the 144 Zone at the 3,180-foot level and an unexplored part of the 3,320-foot level. Significant intercepts from three of the holes were 40 feet averaging 0.163 opt gold, including 5 feet grading 0.494 opt gold; 49 feet averaging 0.173 opt gold, including 10 feet grading 0.363 opt gold; and 70 feet averaging 0.166 opt gold, which included 16 feet grading 0.476 opt gold in three holes. (Imperial Metals Corp. Management and Discussion Analysis, 3/31/2014; Imperial Metals Corp. Annual Information Form, 3/31/2014; Imperial Metals website, www.imperialmetals.com)

Bruner District

Bruner. Canamex Resources Corp. completed 39 reverse circulation holes totaling 23,135 feet and three core holes totaling 2,382 feet at the Bruner property (joint venture with Patriot Gold Corp.). Eighteen of the reverse circulation holes and the core holes were drilled on the Penelas East target area to help define the geology and the distribution of gold in the mineralized area. The results confirmed the continuation of the mineralized system beneath an altered and weakly mineralized cap of flow banded rhyolite and indicated the mineralization continued northward. Significant intercepts reported from Penelas East included 95 feet averaging 0.027 opt gold, including five feet grading 0.275 opt gold: and 262 feet averaging 0.044 opt gold, including five feet grading 0.462 opt gold; and five feet grading 0.61 opt gold. Seven of the reverse circulation holes were drilled at the Bruner vein to test for high-grade vein mineralization below historic prospect pits containing chalcedony and bladed calcite-bearing veins up to three feet thick. Significant intercepts reported for the Bruner vein included 30 feet averaging 0.21 opt gold, including five feet grading 0.9 opt gold; 10 feet averaging 0.06 opt gold, and 15 feet averaging 0.051 opt gold. Seven of the reverse circulation holes were drilled along the northern extension to the historic resource area. They intersected many intervals tens of feet to greater than 100 feet thick grading around 0.01 opt gold. However, no higher grade material was found to justify additional drilling. Six of the reverse circulation holes were drilled at a large silica-adularia alteration spire located about 650 feet west of the heart of the historic resource area. The drilling followed up on zones of significant gold grades discovered by earlier drilling near the spire and confirmed the continuation of these gold zones below the silica alteration spire. One hole drilled to test the heart of historic resource area penetrated completely oxidized material and intersected 190 feet grading 0.155 opt gold including a five-foot clay-rich and silicified interval grading 3.53 opt gold. The intercept was between 260 and 450 feet at depth, and was lost in gold mineralization at 460 feet in a badly fractured zone. (Canamex Resources Corp. news releases, 8/21/2013, 12/4/2013; Canamex Resources Management Discussion and Analysis, 4/7/2014; Canamex Resources website, www.canamex.us; MinQuest website, www.minquestinc.com)

Bullfrog District

North Bullfrog. Corvus Gold Inc. completed 58 reverse circulation and core holes totaling over 65,000 feet on its North Bullfrog property. The property contains five main deposits: Connection, Jolly Jane, Mayflower, Sierra Blanca, and Yellowjacket. The drilling expanded the known mineralization about 400 feet to the north. The company completed in-fill drilling on the ZuZu claim which covers part of the Jolly Jane deposit. Thirteen holes were drilled at the Jolly Jane deposit, where significant intercepts included 125 feet averaging 0.009 opt gold, including 75 feet grading 0.012 opt gold; and 95 feet grading 0.009 opt gold in two holes. Twenty-five holes were completed on the Yellowjacket, which may be in an area of a higher grade upwelling zone. Several high-grade intercepts were encountered. The best ones were 16 feet averaging 0.49 opt gold and 2.17 opt silver, 105 feet grading 0.11 opt gold and 0.442 opt silver, 18 feet averaging 0.4 opt gold and 2.22 opt silver, 91.5 feet grading 0.1 opt gold and 0.629 opt silver, 41 feet grading 0.25 opt gold and 2.37 opt silver, and 213.5 feet averaging 0.088 opt gold and 0.6 opt silver. The remaining holes were drilled in the North and West Sierra Blanca zones, where 35 feet grading 0.028 opt gold, 35 feet grading 0.023 opt gold, and 135 feet grading 0.02 opt gold were encountered. Two types of precious metal epithermal mineralization occur at North Bullfrog. The first type is potentially high-grade mineralization in structurally controlled fissure veins and associated stockwork zones. The Yellowjacket characterizes this type of mineralization. The second type is low-grade disseminated mineralization within altered volcanic rocks. (Corvus Gold Inc. Management Discussion and Analysis, 8/29/2013, 10/15/2013, 8/7/2014; Corvus Gold Inc. Annual Information Form, 8/29/2013; Corvus Gold Inc. 43-101 technical report, 4/2/2014; Corvus Gold Inc. website, www.corvusgold.com)

Longstreet District

Fourmile. Wolfpack Gold Corp., a subsidiary of Tigris Uranium Corp., completed five reverse circulation holes totaling 4,920 feet on the western margin of Sinter Ridge in the Fourmile project zone. The holes were drilled at an angle to the east and were intended to cut across a primary, north-south trending, nearly vertical quartz vein zone that runs along Sinter Ridge in the subsurface. The results suggested that high level bodies of silicification at the surface become increasingly vein-like in geometry at depth. The depths of targeted zones were between 750 and 1,000 feet, but difficult drilling conditions and an unexpected easterly dip of the vein zone prevented testing below about 600 feet. The best intercept was 20 feet grading 0.005 opt Au and 0.72 opt Ag. (Wolfpack Gold Corp. news release 2/26/2014; Wolfpack Gold Corp. Management Discussion and

Analysis, 4/29/2014; Wolfpack Gold website, www.wolfpackgold.com).

Longstreet. Star Gold Corp. completed 20 reverse circulation holes totaling 6,930 feet on the Longstreet property (joint venture with MinQuest Inc.). Significant intercepts included 30 feet averaging 0.032 opt gold and 10.34 opt silver, including 5 feet grading 0.166 opt gold and 54.312 opt silver; 25 feet averaging 0.065 opt gold and 0.467 opt silver; and 40 feet grading 0.038 opt gold and 0.81 opt silver in three holes. The property is mainly underlain by poorly to moderately welded tuffs of Oligocene age, which are nearly horizontal and up to 3,000 feet thick. The mineralization is mainly hosted by these tuffs, which are pervasively hydrothermally altered to limonite-stained argillic, potassic, or silicic assemblages. The mineralization has been divided into a number of zones. The main zone contains the estimated mineral resource and has been the main focus of exploration over the years. The gold mineralization is hosted in fractured and stockwork zones. Mineralization in the other zones is mostly in quartz±adularia veins. Several other zones occur around the main zone. The company issued a 43-101 technical report at year's end with upgraded resource estimates. (Star Gold Corp. news release, 8/29/2013; Star Gold Corp., 10-K report, 7/29/2014; Star Gold Corp., 43-101 Technical Report, 12/15/2013; Star Gold website, www.stargoldcorp.com; MinQuest website, www.minquestinc.com)

Manhattan District

Timber Hill. The U.S. Forest Service issued a Finding of No Significant Impact 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. An environmental assessment was issued in 2012. No drilling was reported for Timber Hill in 2013, but the company rarely reports on the activities concerning its smaller projects. (U.S. Forest Service Environmental Assessment, 9/2012; U.S. Forest Service Finding of No Significant Impact, 4/11/2013; Kinross Gold Corp. Annual Information Form, 4/7/2014)

Round Mountain District

Round Mountain. The Round Mountain Gold Corp. produced 314,886 ounces of gold and 636,564 ounces of silver from its Round Mountain Mine (Kinross Gold Corp. 50%, Barrick Gold Corp. 50%). Overall, 21,658,000 tons were mined with an average grade of 0.02 opt gold. Metallurgical recovery was 65.7%. A minor amount of drilling was conducted, but no results were reported. Only about $600,000 was spent on exploration in 2013. (Kinross Gold Corp. Annual Information Form, 4/7/2014; Kinross Gold Corp. Management Discussion and Analysis, 2/12/2014; Kinross website, www.kinross.com; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick Gold website, www.barrick.com)

Tybo District

Bolo. Columbus Gold Corp. completed 19 reverse circulation holes totaling 11,400 feet in the South Zone of its Bolo Project. The mineralization is contained in jasperoids and limonite-stained structures cutting Cambrian and Ordovician sedimentary rocks, along two parallel north-south trending faults, the Mine fault and the East fault, traceable for over three miles. Significant intercepts included five feet grading 0.194 opt gold and five feet grading 1.994 opt silver, 20 feet grading 0.084 opt gold and five feet grading 1.206 opt silver, 15 feet grading 0.074 opt gold and 10 feet grading 0.952 opt silver, and five feet grading 0.073 opt gold, and five feet grading 10.514 opt silver in four holes. The company released a NI43-101 technical report describing the property. (Columbus Gold Corp. news releases, 9/25/2013; Columbus Gold Corp. Management Discussion and Analysis, 1/10/2014; Columbus Gold Corp. NI43-101 technical report, 10/9/2013; Columbus Gold Corp., website, www.columbusgoldcorp.com)

Keystone. Newmont Mining Corp. drilled about a dozen holes on its Keystone project south of Flagstaff Mountain. No results were released. (M. Ressel, oral communication, 10/30/2014; BLM LR2000 database; Newmont website, www.newmont.com)

Union District

Summit. IDH Gold LLC acquired the Summit gold property from Taminco, Inc., in 2012, and was preparing to drill in early 2013. No details have been announced. In 1990, a joint venture between Amax Gold and Zephyr Resources produced 8,800 ounces of gold from 37,000 tons of ore averaging 0.24 opt gold. (Arrowhead Business Investment and Decisions, Due Diligence and Evaluation Report, 2/13/2013; IDH Gold website, idhgold.com)

PERSHING COUNTY

Antelope Springs District

Relief Canyon. Pershing Gold Corp. spent $3,100,000 on exploration activities on its Relief Canyon Gold Project including drilling 58 holes, both reverse circulation and core holes totaling 35,000 feet. Thirty-two of the holes totaling 22,000 feet were drilled to extend and upgrade the current deposit, and 10 holes totaling 6,500 feet were drilled for metallurgical characterization and groundwater studies. The remaining 16 holes were core holes that tested the North Target aimed at expanding the resource north of the boundary of the North pit. Thirteen of the 16 holes

intercepted zones of greater than 0.19 opt gold. Significant intercepts included 43 feet averaging 0.224 opt gold, including 15 feet grading 0.313 opt gold and five feet grading 0.917 opt gold; 21 feet averaging 0.188 opt gold, including 5 feet grading 0.574 opt gold; and 55 feet averaging 0.073 opt gold, including 19 feet grading 0.19 opt gold, in three holes. The 2013 drilling showed the deposit consisted of three stacked mineralized zones controlled by low-angle structures – Main, Lower, and Jasperoid Zones. Both the Lower and Jasperoid Zones had been previously unknown, and the drill results showed higher grades than the previously mined Main Zone. The Lower Zone is about 1,500 feet by 1,000 feet, and the Lower Zone is about 1,200 feet by 800 feet. (Elko Daily Free Press Mining Quarterly, Spring 2013; Pershing Gold Corp. 10-K Form, 3/26/2014; Pershing Gold Corp. news releases, 7/24/2013, 11/25/2013, 1/27/2014, 3/31/2014; Pershing Gold website, www.pershinggold.com).

Imlay District

Florida Canyon/Standard. Jipangu, Inc., produced 46,152 ounces of gold and 58,333 ounces of silver from its Standard Mine about five miles south of the Florida Canyon Mine. The company temporarily shut-down the Florida Canyon Mine in March 2011 and shifted mining to the Standard Mine. The shut-down was due to the company's proposed expansion of Florida Canyon, for which BLM was preparing a preliminary environmental assessment. The plans include the expansion of the pit, modification and expansion of the existing South Waste Rock Storage Facility, installation of a crusher and other ancillary features, and construction of a new leach pad to accommodate more ore. The expansion would also extend the mine life by eight years. Since operations began in 1986, 228,800,000 tons of waste rock have been removed and 201,200,000 tons of leach grade ore have been mine. It is unknown whether Jipangu carried out a drill program at Florida Canyon or Standard. (Elko Daily Free Press Mining Quarterly, Spring 2014; BLM Preliminary Environmental Assessment, DOI-BLM-NV-W010-2013-0061-EA, 8/2014; Jipangu website www.jipangu.co.jp)

Mill City District

Springer Mine/Mill. After refurbishing the mill and releasing a resource estimate in 2009, EMC Metals Corp. suspended work on the property and placed it on care and maintenance until the global financial markets and tungsten prices improved. Due to increases in tungsten prices after 2009, EMC Metals planned to resume work for restarting the mine and mill and issued a new preliminary economic assessment in 2012. However, in December 2013, the company sold the property to Americas Bullion Royalty Corp., which in turn sold the property to the Silver Predator Corp. Silver Predator released a preliminary economic assessment of the property with updated resource estimates. (Americas Bullion Royalty Corp., Management Discussion and Analysis, 1/10/2014; EMC Metals Corp., Forms 10-K, 3/27/2013, 3/25/2014; Preliminary Economic Assessment, 9/14/2012; EMC Metals website, www.emcmetals.com; Silver Predator Corp. news release, 12/17/2013; Silver Predator Corp. NI43-101 Technical Report, 4/22/2014; Silver Predator website, www.silverpredator.com).

Mineral Basin District

Buena Vista. After drilling 98 holes totaling 160,645 feet at its Buena Vista project in 2012, Nevada Iron Ltd., an Australian company, did not drill in 2013. However, the company did issue a probable reserve estimate of 111,200,000 metric tonnes of 18.6% Fe. The property includes fee land, 45 patented lode claims, and 184 unpatented lode claims covering 6,052 acres in parts of T24-25N, R34E. Buena Vista is a magnetite iron deposit discovered in 1898, intermittently mined between 1951 and 1959, and most recently explored by US Steel between 1961 and 1979. Nevada Iron is developing the West, East, and Section 5 deposits for production. The iron mineralization is an iron-oxide-copper-gold style deposit minus 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 large volume of scapolite-bearing alteration. (Nevada Iron Ltd., 43-101 Technical Report, 10/22/2013; Nevada Iron website, www.nv-iron.com; Johnson and Barton, 2000, SEG Guidebook Series)

Rochester District

Rochester. Coeur d'Alene Mines Corp. produced 2,798,937 ounces of silver and 30,860 ounces of gold from the company's Rochester Mine. 10,693,654 tons averaging 0.55 opt silver and 0.0027 opt gold were milled. Recovery from crushed ore was estimated to be 61% for silver and 92% for gold. The total operating cash cost per ounce was $23.27 per ounce for silver, an increase of 14% from 2012. The company spent $4,100,000 on exploration which included completing over 735 reverse circulation, sonic (rotary vibratory drilling), and core holes totaling 175,315 feet. Of this, 45 holes totaling 4,050 feet were completed at Nevada Packard. Other areas that were drilled included the Rochester North and West stockpiles and the Northwest Rochester and South Mystic areas. Drilling on two of six historic stockpiles was successful in defining new mineral resources and mineral reserves. The company also expanded the Rochester leach pad and upgraded the metal removal system and crusher capacity.

Coeur Rochester and Rye Patch Gold Corp. reached a settlement on their mining claims dispute. In 2011, Coeur Rochester failed to pay the claim maintenance fees for unpatented claims that were part of the Rochester Mine, and Rye Patch staked over that ground informing Coeur after the fact. Coeur began restaking its claims over the Rye Patch's claims, which resulted in lawsuits and counter-suits involving claim jumping, trespassing, and slander of title.

Coeur obtained an order restraining Rye Patch from working the disputed claims, which covered part of the Rochester Mine's reserves and resources. The Court appointed a Special Master to assist in addressing certain pre-trial matters. The Court adopted a number of the recommendations from the Special Master's subsequent report, and the mine continued normal operations while the legal actions progressed. To avoid costly litigation that could potentially cut into business operations, the two companies negotiated an out-of-court settlement, which included a cash payment, a net smelter return royalty, and transfer of the Blue Bird patented claim next to Lincoln Hill to Rye Patch from Coeur. (Elko Daily Free Press Mining Quarterly, Winter 2013; Coeur d'Alene Mines Corp. 10-K Report, 2/26/2014; Coeur d'Alene Mines Corp. Management Discussion and Analysis, 8/8/2013, 11/6/2013; Coeur d'Alene Mines Corp. NI43-101 Technical report, 2/21/2014; Coeur website www.coeur.com; Rye Patch Gold Corp. news releases, 6/25/2013; Rye Patch website, www.ryepatchgold.com)

Spring Valley District

Spring Valley. Barrick Gold Corp. (joint venture with Midway Gold Corp.) completed 24 reverse circulation holes totaling 39,357 feet and 26 core holes totaling 29,003 feet to expand the resources and to continue to evaluate the Spring Valley property. Two reverse circulation rigs and two core rigs were employed most of the year. Significant intercepts include 1,185 feet averaging 0.043 opt gold, including 69 feet grading 0.22 opt gold; 75 feet averaging 0.088 opt gold; and 69 feet averaging 0.035 opt gold, including five feet grading 0.163 opt gold, in two holes. The company continued work on hydrology, biological baseline studies, initial site engineering, pit slope and geotechnical studies, and initiated additional metallurgical testing. An internal scoping study was also underway. The deposit is hosted in Permo-Triassic Koipato Group rocks consisting of rhyolite flows, breccias, and volcaniclastic sediments intruded by a fine-grained feldspar porphyry. Hydrothermal alteration includes quartz-sericite-pyrite alteration associated with gold, argillic alteration in hydrothermal breccias, and lesser secondary potassium feldspar, iron carbonate, and hematite-quartz alteration. Mineralization occurs in sheeted quartz veins, hydrothermal breccias, and open fractures. Gold in the form of free grains up to 3 mm across is distributed along the top of the feldspar porphyry intrusion, commonly at stratigraphic contacts and fracture zones in overlying volcanic rocks, and in the remains of a diatreme breccia. (Midway Gold Corp. 10-K Form, 3/13/2014; Midway Gold Corp. news releases, 5/29/2013, 9/4/2013; Midway Gold website, www.midwaygold.com)

Table Mountain District

Fencemaker. First Liberty Power Corp. detonated the first mine blast on October 14 at its Fencemaker underground mine, and afterwards extracted 500 tons of stibnite ore. The ore was staged outside the mine adit and then trucked 40 miles to the mill in Lovelock for processing to 55% to 60% purity. An initial shipment was contracted for sale to the Shenyang Huachang Antimony Chemical Company. Small Mine Development LLC, was contracted to rehabilitate the existing portal and then to extract the ore. No drilling was reported for 2013. The ore is stibnite in a replacement deposit hosted in calcareous siltstone dolostone of the Triassic Dun Glen Formation. (First Liberty Power Corp. 10-K Report, 11/13/2013; First Liberty Power Corp. 10-Q Report, 6/23/2014; First Liberty Power website, www.firstlibertypower.com; Small Mine Development website: www.undergroundmining.com)

Velvet District

Sinter. Renaissance Gold Inc., completed ten reverse circulation holes totaling 1,720 feet on its Sinter Property about 15 miles west of Lovelock. The program consisted of short angle holes ranging between 80 to 350 feet deep drilled to test a gold-bearing quartz-adularia vein system exposed in trenches dug in 2012. Significant intercepts included 20 feet averaging 0.037 opt gold and 0.123 opt silver, including five feet grading 0.11 opt gold; and ten feet grading 0.031 opt gold and 0.293 opt silver; and ten feet grading 0.055 opt gold and 0.209 opt silver in three holes. The property covers several prominent sinter outcrops in a weathered badlands of strongly to intensely argillized volcanic rocks. These rocks are part of a 14.2 Ma suite of rift-related, bimodal rhyolite and andesite/basalt overlain by unmineralized lacustrine sediments, diatomite, and basalt. N10ºE-striking mafic dikes cut both the alteration and mineralization. Most of the sinters are exposed in down-dropped fault blocks in the western and northern areas of the property. Low-sulfidation epithermal alteration and mineralization are associated with a horst near the center of the property. This mineralization is exposed at the surface in the north-northeast-striking Highlander vein set. Other targets at Sinter include the Molly zone consisting of an east-striking set of silicified fractures. (Renaissance Gold, Inc., news release, 8/14/2013; Renaissance Gold, Inc., Management Discussion and Analysis, 5/13/2013; Renaissance Gold, Inc., website, www.rengold.com)

STOREY/LYON COUNTIES

Comstock/Silver City Districts

Comstock. Comstock Mining Inc. produced 17,739 ounces of gold and 186,482 ounces of silver from its Lucerne open pit mine. Recovery from the leach pads was estimated to be 70% for gold and 45% for silver. The ore was hauled to the processing plant at American Flat, 2.6 miles south of the Lucerne Pit. After a high initial operating cash cost of $2,190 per ounce of gold due to ramp-up of production the cash cost dropped to $989 per ounce in the fourth quarter.

The company completed 142 drill holes totaling 7,464 feet. In the Lucerne Resource area, these included six holes

totaling 2,040 feet in the Billie the Kid zone, thirteen holes totaling 1,560 feet in the Lucerne zone, six holes totaling 960 feet in the Justice zone, and one hole to 120 feet in the Keystone zone. Comstock also completed 116 holes totaling 2,784 feet arranged in a grid pattern on the Kentuck mine dump to evaluate dump material on Sutro Mining Co. lands. The company released an NI43-101 technical report with upgraded estimated resources. The project area consists of 1,350 acres of patented claims and 4,550 acres of unpatented claims. (Elko Daily Free Press Mining Quarterly, Winter 2013; LODE Company Overview, July 2014; Comstock Mining Inc. NI43-101 Technical Report, 1/31/2013; Comstock Mining Inc. press release, 2/7/2013; Comstock Mining, Inc. Form 10-K, 3/17/2014; Comstock Mining website, www.comstockmining.com)

WASHOE COUNTY

San Emidio District

Wind Mountain. Bravada Gold Corp. completed 7 reverse circulation holes totaling 3,864 feet on three targets at its Wind Mountain property on the east side of the San Emidio desert. The drilling focused on the Connector (three holes), SouthMin (one hole), and Zephyr (three holes) exploration targets. Significant intercepts from Connector included 50 feet grading 0.01 opt gold and 0.187 opt silver, 20 feet grading 0.008 opt gold and 0.303 opt silver, and 60 feet grading 0.009 opt gold and 0.35 opt silver. Only one hole at Zephyr and hole drilled at SouthMin encountered anomalous gold values. (Bravada Gold Corp. News Releases, 3/21/2013, 5/13/2013; Bravada Gold Corp. Management Discussion and Analysis, 11/27/2013, 12/20/2013; Bravada Gold Corp. 43-101 Technical Report, 1/15/2014; Bravada Gold website, www.bravadagold.com)

WHITE PINE COUNTY

Bald Mountain District

Bald Mountain. Barrick Gold Corp. produced 95,497 ounces of gold from its Bald Mountain mine in 2013. The ore was run-of-mine oxide material that went directly to the leach pads. Production was from ore that averaged 0.02 opt gold. The metallurgical recovery for gold was 72%. A core drilling program was undertaken but no results were released. The BLM was finalizing alternatives in the draft environmental impact statement about proposed continued expansion of the Bald Mountain Mine. The proposal calls for the expansion of existing mine facilities in the North Operations Area Project (NOAP), the expansion of the existing Casino/Winrock Plan of Operations and incorporating it into NOAP, the establishment of a South Operations Area Project (SOAP) that would encompass and expand the existing but now inactive Yankee and Alligator Ridge mine sites, and the construction of an electrical transmission line and an access road between NOAP and SOAP. (Directory of Nevada Mine Operations 2013, 8/23/2014; Elko Daily Free Press Mining Quarterly, Winter 2013; Barrick Gold Corp., Annual Report, 3/31/2014; Barrick Gold Corp. Annual Information Form, 3/31/2014; Barrick website, www.barrick.com)

Pancake District

Pan. Midway Gold Corp. did not drill its Pan Project in 2013, but it did conduct metallurgical testing and prepared for mine construction. The BLM issued a final environmental impact statement and a record of decision approving the project which will involve an open-pit gold mine consisting of two larger pits and three smaller pits, crushing facilities and stockpiles, three waste rock disposal areas, a heap leach pad, processing facilities, and other support facilities and infrastructure. The project would disturb an estimated 3,301 acres. The property covered 10,373 acres consisting of unpatented lode and placer claims and private land. Construction began in January, 2014, and mining was planned to commence in September, 2014. (BLM Environmental Impact Statement, 11/20/2013; BLM Record of Decision, 12/20/2013; Midway Gold Corp. 10-K Form, 3/13/2014; Midway Gold Corp. news releases, 9/17/2013, 11/13/2013, 11/20/2013, 1/15/2014, 9/25/2014; Midway Gold Corp. Audited Annual Financial Statements, 3/13/2014; Midway Gold website, www.midwaygold.com)

Robinson District

Robinson. KGHM International, Ltd., produced 107,898,857 pounds of copper and 1,384,649 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 47,452 ounces of gold and 161,638 ounces of silver. The average grade of ore processed was 0.43% copper and 0.005 opt gold. Metallurgical recovery was 81% for copper. The operating cash cost for copper was $1.83 per pound, down from $2.39 per pound in 2012. Production was mainly from the Kimberly, Ruth West, and Ruth East pits earlier in the year and shifted mainly to the Liberty pit and the coarse ore stockpile as the year progressed. The Liberty pit was contract mined through the end of the year. Concentrates from the mill are trucked to Robinson's Wendover Bulk Transit Co. rail yard at Wendover, Utah, and loaded into Union Pacific train cars headed for the Port of Vancouver. They are shipped mainly to China, India, and Japan. Capital expenditures in 2013 were $113,000,000, of which $89,300,000 went towards stripping. A minor exploration drill program was carried out, but no results were released. All mining at Robinson is on 21,000 acres of private land. (Directory of Nevada Mine Operations 2013, 8/23/2014; KGHM International, Ltd. Management Discussion and Analysis, 1st Quarter 2013, 2nd Quarter 2013, 3rd Quarter 2013, 4th Quarter 2013; KGHM International, website www.quadrafnx.com)

White Pine District

Gold Rock. Midway Gold Corp. completed 15 reverse circulation holes totaling 11,485 feet on its Gold Rock property (formerly known as Easy Junior). The holes targeted North and South Easy Junior and Meridian Flats. Significant intercepts from three holes included 25 feet averaging 0.055 opt gold ,including 10 feet of 0.123 opt gold; 150 feet averaging 0.033 opt gold, including 15 feet grading 0.168 opt gold; 350 feet averaging 0.04 opt gold, including 5 feet each grading 0.158 opt gold, and 145 feet averaging 0.019. The mineralization is mainly hosted by the Joana Limestone with significant amounts also hosted in the overlying Chainman Shale, and scattered, minor amounts in the underlying Pilot Shale. The mineralization is localized in the apex and limbs of the slightly overturned, fault-bounded, Easy Junior anticline. The resource extends 11,000 feet along a N12-15ºE trend from 1,000 feet north of the Easy Junior pit to the lower reaches of Meridian Ridge to the south. Alteration in the form of silicification and argillization with associated surface gold anomalies extend north and south well beyond the presently drill-defined resource area and extend nearly the entire 8-mile length of the property. In the Easy Junior pit area, jasperoid of the Joana Limestone carries significant amounts of gold. Oxidation is prevalent throughout the deposit, resulting in the formation mainly of red to maroon limonite. The Joana Limestone tends to be oxidized, whereas the Chainman Shale is commonly carbonaceous and pyritic. (Midway Gold Corp. 10-K Form, 3/13/2014; Midway Gold Corp. 43-101 Technical Report, 5/29/2014; Midway Gold website, www.midwaygold.com)

Mount Hamilton. Mount Hamilton, LLC, (joint venture involving Solitario Exploration and Royalty Corp. and Ely Gold and Minerals, Inc.) did not drill its Mount Hamilton property in 2013. However, the company released a new resource estimate. The measured and indicated resource is 31,880,000 tons grading 0.022 opt Au for a total of 687,700 ounces of gold. The company also determined that the Centennial deposit and the Seligman deposit 1,500 feet to the north, which formerly were treated as separate deposits, were actually one deposit that could be mined by a single pit. (Solitario Exploration and Royalty Corp. Form 10-K, 3/13/2014; Solitario Exploration and Royalty Corp. website, http://www.solitarioresources.com; Ely Gold and Minerals, Inc. news release, 9/13/2013; Ely Gold and Minerals 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); 15,515,488 tons, 0.022 opt gold, 341,340 oz Au, 0.202 opt Ag, 3,134,129 opt Ag (inferred 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: *estimated geologic resource-* 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 COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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 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 2013: North Sammy: 1,430,000, 0.12 opt Au, 167,000 oz Au; North Sammy Contact: 1,430,000 tons, 0.05 Au, 70,000 oz Au; South Sammy: 8,000,000 tons, 0.06 opt Au, 438,000 oz Au; Beadle Creek: 2,310,000 tons, 0.07 opt Au, 70,000 oz Au; Mac Ridge: 1,870,000 tons, 0.04 opt Au, 74,000 oz Au; Dorsey Creek: 330,000 tons, 0.04 opt Au, 12,000 oz Au; Briens Fault: 880,000 tons, 0.05 opt Au, 43,000 oz Au; Big Springs Total: 16,300,000 tons, 0.06 opt Au, 968,000 oz Au (inferred resources)	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: *geologic resource*-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	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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	
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: *geologic resource*-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	
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)	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 2013: 12,359 oz Au 55,648 oz Ag	rhyolitic tuff, flows	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Hollister (cont.)	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)			
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 2013: 165,000 oz Au	Hanson Creek and Roberts Mountains Formations	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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?
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 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) 2013: 15,700,000 tons, 0.065 opt Au, 1,010,000 oz Au (probable reserves, 78% metallurgical recovery); 3,700,000 tons, 0.097 opt Au (mineralized material) [NI43-101 compliant]		limestone and dolomite	
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 Reserves0; 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)	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	Popovich and Roberts Mountains Formations	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Meikle (cont.)	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 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 oz Au (proven and probable reserves); 6,077,000 tons, 0.325 opt Au, 1,828,000 oz Au (measured and indicated resource); 2,698,000 tons, 0.298 opt Au, 805,000 oz Au (inferred resource) 2012 (includes all underground resources at Goldstrike): 14,632,000 tons, 0.233 opt Au, 3,405,000 oz Au (proven and probable reserves); 6,144,000 tons, 0.303 opt Au, 1,864,000 oz Au (measured and indicated resource); 2,387,000 tons, 0.265 opt Au, 633,000 oz Au (inferred resource) 2013 (includes all underground resources at Goldstrike): 10,474,000 tons, 0.247 opt Au, 2,585,000 oz Au (proven and probable reserves); 5,985,000 tons, 0.302 opt Au, 1,810,000 oz Au (measured and indicated resource); 1,302,000 tons, 0.311 opt Au, 405,000 oz Au (inferred resource)	2011 (includes all underground production at Goldstrike): 279,348 oz Au, 16,345 oz Ag 2012: 327,203 oz Au, 41,775 oz Ag 2013: 360,578 oz Au, 58,352 oz Ag		
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	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	Tertiary volcanic rocks	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Midas (cont.)	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) 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) 2013: 250,000 tons, 0.093 opt Au, 30,000 oz Au, 11.48 opt Ag, 2,820,000 oz Ag (proven and probable reserve, 85% Au, 93% Ag recovery); 100,000 tons, 0.04 opt Au, 7.25 opt Ag (mineralized material) [NI43-101 compliant]	2011: 111,476 oz Au; 1,512,287 oz Ag 2012: 82,922 oz Au; 1,247,994 oz Ag 2013: 52,195 oz Au, 1,368,896 oz Ag		
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)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Murray (cont.)	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)			
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 2014: 22,970,000 tons, 0.018 opt Au, 423,000 oz Au (indicated resource); 61,650,000 tons, 0.017 opt Au, 1,022,000 oz Au (inferred resource)		Webb Formation siltstone Devils Gate Limestone	
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 2013: included in Newmont Gold production at the end of his section	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		
Saddle	2000: 2,000,000 tons, 0.5 opt Au			

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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	
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		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Saval (cont.)	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)			
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) 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)		Hanson Creek and Roberts Mountains Formations	
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)		Popovich Formation Bootstrap Limestone Rodeo Creek Formation	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
South Arturo (cont.)	2011: 47,062,000 tons, 0.05 opt Au 2,330,000 oz Au (probable reserve); 35,803,000 tons, 0.039 opt Au,1,380,000 oz Au (indicated resource) 17,430,000 tons, 0.023 opt Au, 472,000 oz Au (inferred resource) 2012: 56,280,000 tons, 0.042 opt Au, 0.227 opt Ag, 2,368,000 oz Au 11,600,000 oz Ag (probable reserve); 27,295,000 tons, 0.045 opt Au, 0.339 opt Ag, 731,000 oz Au, 5,900,000 oz Ag (indicated resource); 28,123,000 tons, 0.015 opt Au, 0.077 opt Ag, 422,000 oz Au, 3,250,000 oz Ag (inferred resource) 2013: 34,208,000 tons, 0.049 opt Au, 1,678,000 oz Au (proven and probable reserve); 54,378,000 tons, 0.044 opt Au, 2,400,000 oz Au (measured and indicated resource); 25,802,000 tons, 0.014 opt Au, 367,000 oz Au, (inferred resource)			
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) 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)		Hanson Creek and Roberts Mountains Formations	
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)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Starvation Canyon (cont.)	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)			
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 2013: 9,503 oz Au, 15,575 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	
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, 0.0.0475 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)		lower Paleozoic carbonate rocks	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Winters Creek (cont.)	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)			
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	
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: 19,702,600 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: 1,750,000 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	1903-45: 4.19 million oz Au, 1.45 million oz Ag 1989-97: 28,373 oz Au	andesite, rhyodacite, rhyolite	21 Ma

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Goldfield Project (cont.)	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)			
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: 26,036,000 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) 2014: 14,686,000 tons, 0.014 opt Au, 0.307 opt Ag, 206,000 oz, 4,509,000 oz Ag Au (measured resource, 0.005 opt AuEq cut-off grade); 55,002,000 tons, 0.011 opt Au, 0.248 opt Ag, 605,000 oz Au, 13,640,000 oz Ag (indicated resource, 0.005 opt AuEq cut-off grade)		Siebert Formation tuff and volcaniclastic rocks	16 Ma
Hill of Gold (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
Imperial (Railroad Springs district)	1985: 769,000 tons, 0.029 opt Au (probable geologic inventory); 2,091,000 tons 0.029 opt Au (possible geologic inventory)	1930s: 2,000-3,000 oz Au, 1934-39: 3,241 tons ore valued at $15,926	Cambrian Campito Formation	
Mary-Drinkwater (Silver Peak district)	1991: 531,300 tons, 0.124 opt Au 2010 (May): 4,697,000 tons, 0.047 opt Au (measured and indicated resource, Drinkwater and Mary deposits); 3,793,000 tons, 0.036 opt Au (inferred resource, Drinkwater and Mary deposits) [See Mineral Ridge] 2014: Mary/LC: 1,502,560 tons, 0.061 opt Au, 91,510 oz Au (probable reserves, 0.02 opt Au cut-off grade); 1,534,500 tons, 0.063 opt Au, 96,670 oz Au (indicated resources, 0.02 opt Au cut-off grade); 50,900 tons, 0.061 opt Au, 3,100 oz Au (inferred resources, 0.02 opt Au cut-off grade); Drinkwater: 170,680 tons, 0.056 opt Au, 9,630 Au (probable reserves, 0.02 opt Au cut-off grade); 537,900 tons, 0.047 opt Au, 25,280 Au (indicated	1991: 25,000 oz Au, 8,000 oz Ag See Mineral Ridge	Wyman Formation	Mesozoic?

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Mary-Drinkwater (cont.)	resources, 0.02 opt Au cut-off grade); 11,100 tons, 0.035 opt Au, 390 oz Au (inferred resources, 0.02 opt Au cut-off grade) [See Mineral Ridge]			
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); 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) 2014 (incudes Mary/LC and Drinkwater): 2,137,120 tons, 0.061 opt Au, 131,190 oz Au (probable reserves, 0.02 opt Au cut-off grade); 2,697,500 tons, 0.050 opt Au,160,300 oz Au (indicated resources, 0.02 opt Au cut-off grade); 72,730 tons, 0.055 opt Au, 3,970 oz Au (inferred resources, 0.02 opt Au cut-off grade)	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 2013: 39,160 oz Au, 14,975 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) 2014: 1,091,000 tons, 0.023 opt Au, 25,000 oz Au (measured resource, 0.005 opt AuEq cut-off grade); 7,413,000 tons, 0.017 opt Au, 126,000 oz Au (indicated resource, 0.005 opt AuEq cut-off grade)		Miocene Siebert Formation and Oddie Rhyolite	

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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	
Tonopah Divide (Divide district)	1988: 500,000 tons, 0.04 opt Au, 0.4 opt Ag 1997: 1,800,000 tons, 0.55 opt Au 2005: 400,000 tons, 0.348 opt Au (open pit reserve)	1912-40: 113,794 tons ore 1982-86: 429,876 oz Au 1983-84: 3,759 oz Ag	Siebert Formation	16 ma
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 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);	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	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.)	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) 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 oz Au (proven and probable reserves); 4,612,000 tons, 0.032 opt Au, 147,000 oz Au (measured and indicated resource); 564,000 tons, 0.055 opt Au, 31,000 oz Au (inferred resource) 2012 (includes all open pit resources at Goldstrike): 94,541,000 tons, 0.094 opt Au, 8,933,000 oz Au (proven and probable reserves); 3,621,000 tons, 0.033 opt Au, 103,000 oz Au (measured and indicated resource); 3,049,000 tons, 0.066 opt Au, 201,000 oz Au (inferred resource) 2013 (includes all open pit resources at Goldstrike): 84,255,000 tons, 0.096 opt Au, 8,122,000 oz Au (proven and probable reserves); 5,909,000 tons, 0.07 opt Au, 413,000 oz Au (measured and indicated resource); 1,081,000 tons, 0.071 opt Au, 77,000 oz Au (inferred resource)	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 2013: 521,489 oz Au 86,124 oz Ag		
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; *geologic resource*-200,350 oz Au 1993: *geologic resource*-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: *geologic resource*-22,200,000 tons, 0.030 opt Au	1974-84: intermittent 1988-2010: included in Newmont Gold production at the end of this section	lower Paleozoic sandy siltstone and carbonate rocks, granodiorite	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Bobcat (Bobstar)	1988: *geologic resource*-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 1997-2011: included in Newmont Gold production at the end of this section	Popovich Formation	Eocene
Genesis (Silverstar)	1989: *geologic resource*-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 1988-2010: 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)			
Leeville	2004: 2,612,000 oz Au (proven and probable reserves) 2005: 2,433,000 oz Au (proven and probable reserves)	2005-2010: 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: *geologic resource*-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	1999-2010: 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 1997-2010: 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 1997-2010: 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			

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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 1990: 212,600,000 tons, 0.042 opt Au, *geologic resource*-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)	1981: 6,000 oz Au 1982: 19,000 oz Au 1983: 74,000 oz Au 1984: 68,200 oz Au 1985: 136,200 oz Au 1986: 309,800 oz Au 1987: 446,600 oz Au 1988-93: included in Newmont Gold production 1994-96: 2,978,000 oz Au 1997-2010: included in Newmont Gold production at the end of this section	See below Ordovician to Devonian chert, shale, siltstone, and impure carbonate rocks; in part, *Vinini Formation*	Eocene 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: *geologic resource*-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	2004-2011: 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 open pit (cont.)	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) 2013: 271,600,000 tons, 0.036 opt Au, 9,730,000 oz Au (proven and probable reserve, 76% recovery); 83,800,000 tons, 0.019 opt Au (mineralized material) [NI43-101 compliant]			
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)	2004-2011: included in Newmont Gold 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 (cont.)	2013: 23,900,000 tons, 0.252 opt Au, 6,010,000 oz Au (proven and probable reserve, 85% recovery); 1,900,000 tons, 0.195 opt Au (mineralized material) [NI43-101 compliant]			
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 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?
Gold Canyon (Antelope district)	1992: reserves-86,500 oz Au, *geologic resource*-131,000 oz Au 1993: 770,000 tons, 0.080 opt Au 2001: *see* Gold Bar 2002: 2,500,000 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: *see* 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: *see* 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 oz Au (indicated resource); 41,290,000 tons 0.139 opt Au, 5,748,000 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)			

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Goldrush (cont.)	2013: 75,540,000 tons, 0.132 opt Au, 9,960,000 oz Au (measured and indicated resource); 39,472,000 tons, 0.141 opt Au, 5,555,000 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: *see* 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 oxidized cut-off grade, 0.03 opt unoxidized cut-off grade)	1987: 180,000 tons, 0.12 opt Au, 81% recovery	Hamburg Dolomite	
North Post (Lynn district)	2011 underground: 3,348,000 tons, 0.244 opt Au, 816,000 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, Hamburg Dolomite	Eocene
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) 2005-2010: reserves are combined with Meikle reserves	included with Meikle production, Elko County		Eocene
Ruby Hill (Eureka district)	1994: *geologic resource*-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)	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	Goodwin Limestone	

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Ruby Hill (cont.)	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 oz Au (proven and probable reserves); 107,626,000 tons, 0.021 opt Au, 2,245,000 oz Au (measured and indicated resource); 5,779,000 tons, 0.034 opt Au 196,000 oz Au (inferred resource) 2012: 7,823,000 tons, 0.042 opt Au, 326,000 oz Au (proven and probable reserves); 172,646,000 tons, 0.02 opt Au, 3,463,000 oz Au (measured and indicated resource); 5,152,000 tons, 0.043 opt Au, 220,000 oz Au (inferred resource) 2013: 4,963,000 tons, 0.028 opt Au, 140,000 oz Au (proven and probable reserves); 178,428,000 tons, 0.02 opt Au 3,612,000 oz Au (measured and indicated resource); 18,343,000 tons, 0.04 opt Au 220,000 oz Au (inferred resource)	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 2013: 91,074 oz Au, 76,283 oz Ag		
Tonkin Springs (Antelope district)	1983: 1,840,000 tons, 0.089 opt Au, 0.204 opt Ag 1987: *oxide*-1,500,000 tons, 0.05 opt Au; *sulfide*-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

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 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)	1938-50, 1962-67: 788,875 oz Au 1987-88: ~35,000 oz Au 1989: 120,730 oz Au, 9,407 oz Ag 1990-91: 372,987 oz Au 1992-95: 790,600 oz Au, 258,700 oz Ag 1996-97: 348,517 oz Au 1998: 175,302 oz Au, 52,490 oz Ag 1999: 111,000 oz Au 2002: 54,600 oz Au, 5,400 oz Ag 2003: 93,337 oz Au 2004: 162,637 oz AU 2005: 208,492 oz Au, 54,419 oz Ag 2006: 233,127 oz Au, 30,473 oz Ag 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 2013: 223,189 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.)	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) 2013 Turquoise Ridge Mine: 13,337,000 tons, 0.51 opt Au, 6,760,000 oz Au, (proven and probable reserve, 92% recovery); 120,695,000 tons, 0.127 opt Au, 15,317,000 oz Au (measured and indicated resource); 49,508,000 tons, 0.15 opt Au, 7,421,000 oz Au (inferred resource)			
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) 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	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, 233,974 oz Ag 2011: 104,002 oz Au, 479,440 oz Ag 2012: 114,705 oz Au, 696,114 oz Ag 2013: 181,941 oz Au 858,073 oz Ag	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.)	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) 2013: 951,001,000 tons, 0.011 opt Au, 10,556,000 oz Au, 0.49 opt Ag, 467,146,000 oz Ag (proven and probable reserves); 1,587,969,000 tons, 0.008 opt Au, 12,375,000 oz Au, 0.23 opt Ag, 369,911,000 oz Ag (measured and indicated resource); 627,093,000 tons, 0.01 opt Au, 0.26 opt Ag (inferred resource)			
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
Lone Tree	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) 2013: 2,500,000 tons, 0.023 opt Au (mineralized material)	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 2013: 22,931 oz Au 4,970 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	1989-93: 322,219 oz Au, 9,784 oz Ag 1994-98: 363,771 oz Au 1999: 74,000 oz Au	Paleozoic chert, argillite, and carbonate rocks	

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Marigold (cont.)	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 oz Au (proven and probable reserves); 50,130,000 tons, 0.012 opt Au, 621,000 oz Au (measured and indicated resource); 89,559,000 tons, 0.012 opt Au, 1,113,000 oz Au (inferred resource) 2013: 264,585,000 tons, 0.016 opt Au 4,167,000 oz Au (proven and probable reserves); 37,000,000 tons, 0.013 opt Au, 474,000 oz Au (measured and indicated resource); 25,014,000 tons, 0.013 opt Au, 324,000 oz Au (inferred resource)	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 2013: 161,062 oz Au 3,394 oz Ag		
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)	1980: 56,000 oz Au 1986-88: 189,864 oz Au 1989: 72,489 oz Au (includes Preble) 1990-91: 112,022 oz Au	Comus Formation	Eocene?

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Pinson (cont.)	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 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)	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 2013: 5,183 oz Au		
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) 2013: 1,300,000 tons, 0.036 opt Au, 0.2 opt Ag (mineralized material) [NI43-101 compliant]			
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) 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)	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.)	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) 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	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 2013: 406,847 oz Au, 88,184 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.)	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) 2013: 39,400,000 tons, 0.06 opt Au, 2,360,000 oz Au (proven and probable reserve, 73% recovery); 32,000,000 tons, 0.069 opt Au (mineralized material) [NI43-101 compliant]			
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) 2013: 22,100,000 tons, 0.019 opt Au (mineralized material)	1988-90: 39,668 oz Au		Eocene?
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)	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)	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.)	2001: 191,100,000 tons, 0.044 opt Au (proven and probable); 76,600,000 tons, 0.040 opt Au (resource) 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 opt Au indicated resource; 18,023,000 tons, 0.047 opt Au (inferred resource) 2004: 193,560,000 tons, 0.046 opt Au (proven and probable reserves); 188,860,000 tons, 0.028 opt Au (measured and indicated); 20,500,000 tons, 0.024 opt Au inferred resource 2005 (Sept 1): 275,800,000 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 oz Au (proven and probable reserves); 54,391,000,000 tons, 0.069 opt Au, 3,757,000 oz Au (measured and indicated resource); 21,881,00000,000 tons, 0.074 opt Au, 1,615,000 oz Au (inferred resource) 2012: 306,190,000 tons, 0.049 opt Au 15,058,000 oz Au (proven and probable reserves); 50,943,000 tons, 0.053 opt Au, 2,701,000 oz Au (measured and indicated resource); 25,174,000 tons, 0.065 opt Au, 1,633,000 oz Au (inferred resource) 2013: 207,710,000 tons, 0.053 opt Au 11,024,000 oz Au (proven and probable reserves); 100,465,000 tons, 0.049 opt Au, 4,914,000 oz Au (measured and indicated resource); 17,344,000 tons, 0.054 opt Au, 939,000 oz Au (inferred resource)	1990-91: 107,445 oz Au, 16,750 oz Ag 1992-93: 141,850 oz Au 1995-98: 1,817,273 oz Au 31,332 oz Ag 1999: 1,328,525 oz Au 2000: 1,009,992 oz Au 2001: 1,184,732 oz Au 2002: 1,081,677 oz Au 2003: 1,065,402 oz Au 2004: 1,051,197 oz Au 2005: 915,889 oz Au, 52,160 oz Ag 2006: 408,255 oz Au, 25,065 oz Ag 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 pit): 791,978 oz Au, 45,477 oz Ag 2010 (underground): 47,988 oz Au 2011 (open pit): 1,119,910 oz Au, 19,721 oz Ag 2011 (underground): 301,129 oz Au, 4,775 oz Ag 2012 (open pit): 939,004 oz Au, 25,155 oz Ag 2012 (underground): 430,962 oz Au, 9,986 oz Ag 2013 (open pit, includes Pipeline): 825,196 oz Au, 22,187 oz Ag 2013 (underground): 545,852 oz Au, 13,666 oz Ag		

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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)	2010-2013: Production combined with Cortez Joint Venture	Roberts Mountains Formation, Wenban Limestone	
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 Deeps (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)	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
Fire Creek (cont.	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)			
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 Pumpernickel Formation	37 Ma
Fortitude Extension (Battle Mountain district)	1992: 500,000 oz Au 1993: *geologic resource*-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 *geologic resource*-3,500,000 oz Au, 1,500,000 oz Ag	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	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.)	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) 2011 (Helen Zone): 391,600 tons, 0.59 opt Au (inferred resource) 2013 (Helen Zone): 468,600 tons, 0.31 opt Au, 143,100 oz Au (indicated resource, 0.17 opt Au cut-off grade); 973,600 tons, 0.29 opt Au, 278,700 oz Au (inferred resource, 0.17 opt Au cut-off grade)	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		
Mud Springs (Bald Mtn. Zone) (Bullion district)	1993: *geologic resource*-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	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 ibs Cu.		Eocene

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Phoenix (cont.)	(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 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) 2013: 335,800,000 tons, 0.017 opt Au, 5,660,000 oz Au, 339,100,000 tons, 0.24 opt Ag, 80,280,000 oz Ag (proven and probable reserve, recovery: Au 73%, Ag 36%); 174,800,000 tons, 0.011 opt Au, 0.21 opt Ag (mineralized material) [NI43-101 compliant]	2012: 158,843 oz Au 1,325,200 oz Ag 27,809,189 lbs Cu 2013: 202,055 oz Au 1,550,346 oz Ag 29,815,908 oz Cu		
Pipeline (Bullion district)	1991: *geologic resource*-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, 2013: 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)	1989: 3,700 oz Au	Valmy Formation	early Oligocene

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Robertson (cont.)	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)			
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: *geologic resource*-76.500,000 tons, 0.048 opt Au 1996: *see* Pipeline 1997: included in Cortez Joint Venture 2011: see Pipeline		Roberts Mountains Formation	Eocene?
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 *additional geologic resource*-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, 0.035 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: *geologic reserves*-50,000 tons, 0.03 opt Au, 0.80 opt Ag; *geologic*		Tertiary diorite Tertiary andesite	
Easter and Delamar Project (Delamar district)	1994: *geologic resource*-3,360,000 tons, 0.069 opt Au 1995: 1,500,000 tons, 0.069 opt Au		Cambrian quartzite	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, LINCOLN COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Easter and Delamar (cont.)	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)			
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) 2014: (Grey Eagle Zone): 8,450,000 tons, 0.018 opt Au, 150,000 oz Au, 0.2 opt Ag, 1,695,000 oz Ag (measured and indicated resource, 0.006 opt Au cut-off grade); 3,557,000 tons, 0.017 opt Au 65,000 Au, 0.198 opt Ag, 78,000 oz Ag (inferred resource, 0.006 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, cut-off grade); 8,590,000 tons, 0.024 opt Au, 0.131 opt Ag (inferred resource, 0.007 opt Au, cut-off grade)		Santiago Canyon tuff; Alta Formation	
Fire Angel (Como district)	1989: 5,600 oz Au, *geologic resource*– 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)			
Rockland Mine (Wilson district)	1965: 100,000 tons, $40 per ton (proven and indicated reserves)	1870-1934 intermittently: 45,787 tons at $380,611	Rhyolite and diorite	
South Comstock Joint Venture (Silver City district)	1994: 3,000,000 tons, 0.05 opt Au 1995: 100,000 oz Au			

MAJOR PRECIOUS-METAL DEPOSITS, LYON COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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: *geologic resource*-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

MINERAL COUNTY

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	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 2013: 10,556 oz Au 21,187 oz Ag	rhyolite flow dome, andesite flows, breccias, volcaniclastic rocks	5 Ma

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Borealis (cont.)	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)			
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; *geologic resource*-59,300,000 tons, 0.0274 opt Au, 0.298 opt Ag 1997: 447,000 oz Au, 3,900,000 oz Ag	1990-98: 916,800 oz Au, 7,438,000 oz Ag 1999: 115,900 oz Au, 665,000 oz Ag 2000: 104,349 oz Au, 817,787 oz Ag 2001: 100,747 oz Au, 727,095 oz Ag 2002: 82,584 oz Au, 695,248 oz Ag 2003: 63,283 oz Au, 525,809 oz Ag 2004: 43,390 oz Au, 446,000 oz Ag 2005: 33,820 oz Au, 311,760 oz Ag 2006: 26,334 oz Au, 235,870 oz Ag 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 2013: 23,900 oz Au, 305,000 zo Ag	rhyolite plugs, flows, tuffs, breccias	16 Ma
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
Golden Mile (Bell district)	2007: 2,409,805 tons, 0.064 opt Au, 154,227 oz Au (resource, 0.02 opt Au cutoff grade)		Luning Formation	
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 *geologic resource*	1997: exploration	Tertiary feldspar porphyry	
Mindora (Garfield district)	1988: 1,000,000 tons, 0.037 opt Au and 1.78 opt Ag	1988: exploration		

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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
Silver Gulch (Marietta district)	2006: 853,000 tons, 0.036 opt Au, 1.09 opt Ag (calculated resource)		Dunlap Formation	Tertiary
Sultan Group (Marietta district)	1990: 176,000 tons, 0.02 opt Au, 3 opt Ag (resource)			

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: *geologic resource*-5,000,000 tons 0.050 opt Au			
Bruner property, Duluth zone (Bruner district)	1992: *geologic resource*-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 *geologic resource*-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(?)
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		

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Longstreet property (Longstreet district)	1989: 400,000 tons, 0.024 opt Au, *geologic resource*-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) 2013: 4,844,000 tons, 0.019 opt Au, 90,900 oz Au, 0.456 opt Ag, 2,210,000 oz Ag (in-pit indicated resource, 0.004 opt cut-off grade); 336,000 tons 0.014 opt Au, 4,750 oz Au, 0.425 opt Ag, 142,700 oz Ag (in-pit inferred resource, 0.004 opt cut-off grade)		rhyolitic volcanic rocks	Oligocene
Manhattan property (Manhattan district)	1989: *geologic resource*-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: *geologic resource*-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 oz Ag (Connection Jolly Jane, Mayflower, and Sierra Blanca oxide inferred resource, 0.003 opt Au cut-off grade) 2014: Total: 28,352,000 tons, 0.008 opt Au, 240,000 oz Au, 0.013 opt Ag, 372,000 oz Ag (indicated resource); 205,011,000 tons, 0.006 opt Au,1,120,000 oz Au, 0.019 opt Ag, 4,092,000 oz Ag (inferred resource); Yellowjacket: 4,070,000 tons, 0.03 opt Au, 123,000 oz Au, 0.16 opt Ag, 655,000 oz Ag (indicated resource, 0.008 opt Au cut-off grade, 84% Au recovery); 20,287,000 tons, 0.027 opt Au, 555,000 oz Au, 0.18 opt 3,648,000 oz Ag (inferred resource, 0.008 opt Au cut-off grade, 84% Au recovery); Sierra Blanca: 1,019,000 tons, 0.006 opt Au, 6,000 oz Au, 0.038 opt Ag, 39,000 oz Ag, (indicated resource, 0.004 opt Au cut-off grade, 80% Au recovery); 195,904,000 tons, 0.006 opt Au,1,066,000 oz Au, 0.02 opt Ag, 3,943,000 oz Ag (inferred resource, 0.004 opt Au cut-off grade, 80% Au recovery); Mayflower: 6,024,000 tons, 0.013 opt Au, 81,000 oz Au, 0.012 opt Ag, 71,000 oz Ag (indicated resource, 0.006 opt Au cut-off grade, 85.1% Au recovery); 34,000 tons, 0.006 opt Au, 0.007 opt Ag (inferred resource, 0.006 opt Au cut-off grade,		Miocene Crater Flat Tuff	

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
North Bullfrog (cont.)	85.1% Au recovery); Jolly Jane: 21,310,000 tons, 0.007 Opt Au, 150,000 oz Au, 0.012 opt Ag, 262,000 oz Ag (indicated resource, 0.004 opt Au cut-off grade, 72% Au recovery); 9,073,000 tons, 0.006 opt Au, 54,000 oz Au, 0.016 opt Ag, 149,000 oz Ag (inferred resource, 0.004 opt Au cut-off grade, 72% Au recovery)			
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) 2013: 10,731,000 tons, 0.023 opt Au, 249,516 oz Au (proven and probable reserves) 20,294,000 tons, 0.019 opt Au, 387,900 oz Au (measured and indicated resource) 7,071,000 tons, 0.015 opt Au, 106,400 oz Au (inferred resource)		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: *geologic resource*-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,	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,	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.)	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) 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 oz Au (proven and probable reserves); 166,840,000 tons, 0.016 opt Au 2,672,000 oz Au (measured and indicated resource); 77,694,000 tons, 0.012 opt Au 928,000 oz Au (inferred resource) 2012: 141,356,000 tons, 0.018 opt Au, 2,485,000 oz Au (proven and probable reserves); 88,586,000 tons, 0.021 opt Au, 1,850,000 oz Au (measured and indicated resource); 56,246,000 tons, 0.015 opt Au 310,000 oz Au (inferred resource) 2013: 92,917,000 tons, 0.02 opt Au, 1,838,000 oz Au; 13,481,000 tons, 0.25 opt Ag, 3,412,000 oz Ag (proven and probable reserves); 84,028,000 tons, 0.022 opt Au, 1,806,000 oz Au; 6,433,000 tons, 0.2 opt Ag, 1,258,000 oz Ag (measured and indicated resource); 54,048,000 tons, 0.016 opt Au, 866,000 oz Au; 278,000 tons, 0.09 opt Ag, 24,000 oz Ag (inferred resource)	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 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 2013: 314,886 oz Au, 636,564 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 2013: 7,500 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

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Summit (Union district)	1996: 100,000 tons, 0.07 opt Au, 2012: 200,000 tons, 0.035 opt Au (open pit resource)	1990: 8,800 oz Au	Triassic dolomite and limestone	
PERSHING COUNTY				
Bunce (Velvet district)	1989: *geologic reserves*-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	
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)			

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Nevada Packard (Rochester district)	2000: 9,500,000 equivalent oz Ag (reserve) 2013: 35,372,000 tons, 0.56 opt Ag, 19,633,000 oz Ag, 0.002 opt Au, 88,000 oz Au (measured and indicated resource); 6,806,000 tons, 0.47 opt Ag, 3,228,000 oz Ag, 0.003 opt Au, 20,000 oz Au (inferred resource)	1913-23: 241,266 tons ore valued at $1,559,319 1981-83: 100,000 oz Ag	Weaver Rhyolite	
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: 32,541,000 tons, 0.017 opt Au (mineralized material) 2014 oxide: 26,698,000 tons, 0.022 opt Au, 534,000 oz Au (measured and indicated resources); 10,124,000 tons, 0.015 opt Au, 157,000 oz Au (inferred resource); Sulfide: 250,000 tons, 0.071 opt Au, 18,000 oz Au (indicated resource); 163,000 tons, 0.048 opt Au, 8,000 oz Au (inferred resource)	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: *geologic resource*-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) 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)	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, 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 2013: 30,860 oz Au 2,798,937 oz Ag	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.)	2013: 187,234,000 tons, 0.54 opt Ag, 101,368,000 oz Ag, 0.004 opt Au, 681,000 oz Au (proven and probable reserve); 141,722,000 tons, 0.44 opt Ag, 61,753, 000 oz Ag, 0.003 opt Au 454,000 oz Au (measured and indicated resource, includes Nevada Packard); 37,365,300 tons, 0.62 opt Ag, 23,295,000 oz Ag,0.003 opt Au, 101,000 oz Au (inferred resource, includes Nevada Packard)			
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 2013: 46,152 oz Au, 58,333 oz Ag	Natchez Pass Limestone, Grass Valley Formation argillite	
Tag-Wildcat (Farrel district)	1989: *geologic resource*-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	

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 2013: 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 oz Au, 0.166 opt Ag, 5,790,000 oz Ag (inferred resource, 0.007 opt Au, cut-off grade)	2004-2013: Production under Lucerne Resource Area	Santiago Canyon tuff; Alta Formation	
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, *geologic resource*-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 2013: 17,739 oz Au, 186,482 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, *geologic resource*-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: *geologic resource*-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 (geologic resource) 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

WHITE PINE COUNTY

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; *geologic resource*-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); 2.0300,000 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)	1986: 50,000 oz Au 1988-89: 103,731 oz Au 1990-93: 287,110 oz Au, 76,745 oz Ag 1994: 80,000 oz Au 1995-96: 221,908 oz Au, 62,460 oz Ag 1997-98: 243,500 oz Au, 63,416 oz Ag 1999: 105,475 oz Au, 18,058 oz Ag 2000: 134,469 oz Au, 14,400 oz Ag 2001: 108,392 oz Au, 18,321 oz Ag 2002: 172,328 oz Au, 21,547 oz Ag 2003: 90,602 oz Au, 26,810 oz Ag 2004: 46,685 oz Au, 27,635 oz Ag 2005: 77,767 oz Au, 32,652 oz Ag 2006: 277,615 oz Au, 32,121 oz Ag	quartz porphyry, Cambrian shale and limestone	Jurassic?

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Bald Mountain (cont.)	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 oz Au (proven and probable reserves); 123,191,000 tons, 0.013 opt Au 1,623,000 oz Au (measured and indicated resource); 72,491,000 tons, 0.011 opt Au, 787,000 oz Au (inferred resource) 2012: 295,559,000 tons, 0.017 opt Au, 5,815,000 oz Au (proven and probable reserves); 125,190,000 tons, 0.012 opt Au, 1,472,000 oz Au (measured and indicated resource); 88,864,000 tons, 0.009 opt Au, 762,000 oz Au (inferred resource) 2013: 135,051,000 tons, 0.018 opt Au, 2,460,000 oz Au (proven and probable reserves); 206,436,000 tons, 0.018 opt Au, 3,579,000 oz Au (measured and indicated resource); 57,515,000 tons, 0.013 opt Au, 758,000 oz Au (inferred resource)	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 2013: 95,497 oz Au, 29,479 oz Ag		
Bellview (White Pine district)	1988: 277,000 tons, 0.04 opt Au, *geologic resource*-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: *see* 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: 14,294,000 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) 2014: 24,126,000 tons, 0.021 opt Au, 495,000 oz Au (measured and indicated resource); 35,416,000 tons, 0.017 opt Au, 596,000 oz Au (inferred resource)	1990: 11,500 oz Au, 900 oz Ag	Devonian and Mississippian rocks	Eocene
Green Springs (White Pine district)	1988: 1,250,000 tons, 0.06 opt Au (resource); 500,000 tons, 0.039 opt Au, (additional resource)	1988-91: 63,000 oz Au, 1989-90: 9,000 oz Ag	upper Joana Limestone	

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Griffon Gold property (White Pine district)	1993: *geologic resource*-60,000 oz Au 1994: *geologic resource*-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	Mississippian Chainman Shale	
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; *geologic resource*-260,000 tons, 0.127 opt Au 1993: 140,000 tons, 0.13 opt Au, *geologic resource*-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, 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) 2013: 31,880,000 tons, 0.022 opt Au, 687,700 oz Au, 0.19 opt Ag, 6,187,900 oz Ag (measured and indicated resource, 0.006 opt Au cut-off grade); 10,330,000 tons, 0.017 opt Au, 178,800 oz Au, 0.16 opt Ag, 1,685,900 oz Ag (inferred resource, 0.006 opt Au cut-off grade)	1995-97: 99,500 oz Au, 207,500 oz Ag	Dunderberg Shale	Cretaceous
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)		Mississippian rocks	

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Pan (cont.)	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)			
Robinson (Robinson district)	1989: 46,000,000 tons, 0.019 opt Au; *geologic resource*-100,000 oz Au 1991: *geologic resource*-20,000,000 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, 6,200,000 lbs Cu 2004: 12,228 oz Au, 27,000,000 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 2013: 47,452 oz Au, 161,638 oz Ag, 107,898,857 lbs Cu, 1,384,649 lbs Mo	Rib Hill Sandstone, Riepe Spring Limestone, intrusions	Cretaceous
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	1981-1984: 3,800,000 oz Ag, 3,000 oz Au	Guilmette and Joana Limestones, rhyolite dikes	Eocene or Oligocene

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
	3,941,000 oz Ag (inferred resource,1 opt Ag cut-off grade)			
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:

Year	Gold (oz)	Silver (oz)
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
2013	1,020,791	221,256

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	1945: 350,000 tons ore, 54% Fe 2013: 111,200,000 tons, 18.6% Fe 20,700,000 tons Fe (probable reserve); 148,700,000 tons, 18.8% Fe (indicated resource, 3.1 tons/meter^3); 61,000,000 tons, 19.9% Fe (inferred resource, Davis Tube Recovery Analysis, 3.06 tons/meter^3)	1943-1952: 563,000 tons ore >57% Fe 1958: 150,000 tons >56% 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_2O_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); 70,921,000,000 tons, 0.24% Cu, 340,421,000,000 lbs. Cu (inferred resource, 0.1% Cu cut-off grade) 2013: 141,094,000 tons, 0.22% Cu 611,748,000 lbs. Cu (proven and probable reserve, 0.07% Cu cut-off grade); 3,340,000 tons, 0.18%, 11,905,000 lbs. Cu (inferred resource, 0.07% Cu cut-off grade)	
Hot Spot No. 1 (Mountain City district)	U	1956: 13,200 tons, 0.137% U_3O_8 in eight small deposits (indicated ore)	

OTHER METALLIC DEPOSITS, ELKO COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
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)	
Montrose (Alder district)	W	1952: 1,050 tons, 0.25% WO_3 (inferred resource)	
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% MoS2 (0.075% to 0.15% Mo, possible resource)	

EUREKA COUNTY

Gibellini (Gibellini district)	V	2011: 19,970,000 tons 0.30% V_2O_5 (proven and probable reserves, Gibellini Hill, part of the measured and indicated resource); 23,050,000 tons, 0.29% V_2O_5 (measured and indicated resource, Gibellini Hill); 14,230,000 tons, 0.17% V_2O_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) 2014: 984,602,000 tons 0.07% Sulfide Mo (proven and probable reserves, 0.034% Mo cutoff grade); 65,243,000 tons, 0.033% Sulfide Mo (measured and indicated resource, 0.025% to 0.034% Mo cutoff grade); 111,261,000 tons, 0.056% Sulfide Mo (inferred resource, 0.025% Mo cutoff grade)	

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_3O_8 (inferred resource)	
McDermitt **(Opalite district)**	Hg	1982: 1,325,000 tons, 10 lbs per ton Hg (measured reserve)	1974-1990: N/A
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_3O_8 (inferred resource)	1954-1960, 1963-1966: 106,000 lbs. U_3O_8
Black Eagle **(Jersey district)**	Mn	1942: 49,000 tons, 12.27% Mn (assured); 70,000 tons, 11.96% Mn (assured and probable); 83,500 tons, 11.68% Mn (assured, probable, and possible)	
Black Rock **(Buffalo Valley district)**	Mn	1942: 16,650 tons, 15.1% Mn (assured); 30,000 tons, 14.1% Mn (assured and probable); 42,600 tons, 12.7% Mn (assured, probable, and possible)	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);	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 2013: 29,815,908 oz Cu (See Major Precious Metal Deposits also.)

OTHER METALLIC DEPOSITS, LANDER COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Phoenix (cont.)		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); (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) 2013 (mill): 339,100,000 tons, 0.14% Cu, 940,000,000 lbs Cu, (proven and probable reserve, 62% recovery); (leach): 160,800,000 tons, 0.22% Cu, 710,000,000 lbs Cu, (probable reserve, 57% recovery); (total): 220,500,000 tons, 0.14% Cu (mineralized material) [NI43-101 compliant]	

LINCOLN COUNTY

Andies Mine (Tem Piute district)	Hg	1964: 64,000 tons, 2.13 lbs. per ton (indicated)	
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	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)	
	Cu, Mo	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)	

OTHER METALLIC DEPOSITS, LYON COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
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,	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)	
	Cu	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)	
	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 pittable deposits, 0.3% Cu cut-off grade)	
	Fe	2010: 340,898,000 tons, 32.59% Fe (measured and indicated resource, western open pittable deposits, 20% Fe cut-off grade); 29,769,000 tons, 25.6% Fe (inferred resource, western open pittable 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)	

OTHER METALLIC DEPOSITS, LYON COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Pumpkin Hollow (cont.)	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) East underground deposits: 27,645,000 tons, 1.49% Cu, 820,000,000 lbs. Cu, 0.008 opt Au, 220,765 oz Au, 0.17 opt Ag, 4,710,391 oz Ag (proven and probable reserve, 0.8% Cu cut-off grade) E2 underground deposits: 8,132,000 tons, 1.65% Cu, 269,000,000 lbs. Cu, 0.006 opt Au, 50,920 oz Au, 0.186 opt Ag, 1,512,862 oz Ag proven and probable reserve, 0.8% 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)	
	Cu, Au, Ag	2013: Open-Pit Reserve: 528,186,000 tons, 0.377% Cu, 4,132,720,000 lbs. Cu, 0.001 opt Au, 718,000 oz Au, 0.048 opt Ag, 26,694,000 oz Ag (proven and probable reserves) Western open pit deposits: 732,056,000 tons, 0.37% Cu, 5,448,225,000 lbs. Cu, 0.001 opt Au, 937,000 oz Au, 0.047 opt Ag, 34,666,000 oz Ag (measured and indicated resource, 0.15% Cu cut-off grade); 225,073,000 tons, 0.31% Cu, 1,392,266,000 lbs. Cu, 0.001 opt Au, 198,000 oz Au 0.039 opt Ag, 8,755,000 oz Ag (inferred resource, 0.15% Cu cut-off grade)	
	Fe	2013: Western open pit deposits: 242,957,000 tons, 32.8% Fe, 79,738,000 tons Fe (measured resource, 20% Fe cut-off grade); 152,265,000 tons, 31% Fe, 47,2126,000 tons Fe (indicated resource, 20% Fe cut-off grade); 118,334,000 tons, 29% Fe, 34,270,000 tons Fe (inferred 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
	Cu	2013: Oxide and Chalcocite Material Zone 30: 23,500,000 tons, 0.25% Cu, 118,000,000 lbs. Cu (measured and indicated resource, 0.12% Cu cut-off grade); 25,900,000 tons, 0.23% Cu, 118,000,000 lbs. Cu (inferred resource, 0.12% Cu cut-off grade); Sulfide or Primary Material Zone 40: 105,000,000 tons, 0.3%Cu, 633,000,000 lbs. Cu (measured and indicated resource, 0.15% Cu cut-off grade); 128,000,000 tons, 0.23% Cu 600,000,000 lbs.Cu (inferred resource, 0.12% Cu cut-off grade)	

MINERAL COUNTY

Desert Scheelite (Pilot Mtns. District)	W, Cu, Ag	2012: 6,710,000 tons, 0.31% WO_3, 0.71 opt Ag, 0.16% Cu (indicated resource, 0.2% WO_3 cut-off); 770,000 tons, 0.3% WO_3, 0.28 opt Ag, 0.24% Cu (inferred resource, 0.2% WO_3 cut-off) [JORC compliant]	

OTHER METALLIC DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Dunlap (Pilot Mtns. District)	Cu	1941: 175,000 tons, low grade ore	
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)	
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_2O_5 (indicated resource, 0.3% V_2O_5 cut-off grade); Area A North: 4,744,214 tons, 0.48% V_2O_5 (inferred resource, 0.3% V_2O_5 cut-off grade); Area A South: 5,490,356 tons, 0.48% V_2O_5 (inferred resource, 0.3% V_2O_5 cut-off grade)	
Liberty (formerly known as Hall-Tonopah) (San Antone district)	Mo	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)	1982-1991: 50,000,000 tons, 0.11% Mo
	Mo, Cu	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)	
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			
Black Diablo (Black Diablo district)	Mn	1942: 75,000 tons, 30% Mn; 75,000 tons, 5-8% Mn	1929-1954: 5,497 long tons, 36.3% Mn; 54,485 long tons, 28.5% Mn
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 2013-2014: 500 tons ore
Gold Banks (Goldbanks district)	Hg	1965: 71,000 tons, 5.87 lbs. per ton (probable); 24,000 tons, 8.07 lbs. per ton (possible)	

OTHER METALLIC DEPOSITS, PERSHING COUNTY

Deposit name	Metals	Reserves/resources	Production
Majuba Hill (Antelope district)	Cu, Ag, Sn	1965: 30,000 tons, 3% Cu, 2 opt Ag, 0.18% Sn (resource)	1915-1919: 5,000 tons, 12% Cu, 5 opt Ag 1942-1945: 12,000 tons 3.9% Cu, 1.4 opt Ag; 350 tons, 3.4% Sn
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) 2013 (Sutton I and II): 355,000 tons, 0.537% WO_3 190,635 STU (indicated resource, 0.2% WO_3 cut-off grade), 1,616,000 tons, 0.459% WO_3, 741,744 STU (inferred resource, 0.2% WO_3 cut-off grade); (Springer West): 318,600 tons, 0.663% WO_3, 211,232 STU (inferred resource, 0.2% WO_3 cut-off grade); (George): 143,950 tons, 0.423% WO_3, 60,863 STU (inferred resource, 0.2% WO_3 cut-off grade); (O'Byrne): 173,670 tons, 0.862% WO_3, 149,719 STU (inferred resource, 0.2% WO_3 cut-off grade) STU: standard ton unit = 20 lbs.]	
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	

WASHOE COUNTY

Red Bluff (Pyramid district)	U	1991: 200,000 tons, 0.13% U_3O_8 (resource, 0.05% U_3O_8 cut-off grade); 100,000 tons, 0.24% U_3O_8 (resource, 0.1% U_3O_8 cut-off grade)	

WHITE PINE COUNTY

Bald Mountain (Bald Mountain District)	W	1942: 6,500 tons, 0.95% WO_3, 4,600 tons, 0.45% WO_3 (reserves)	1942: N/A 1954-1955: 1,000 tons ore 1979: 5,000 tons ore
Delsa (Bald Mountain District)	Hg	1967: 21,000 tons, 4.38 lbs. per ton	
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 2013: 107,898,858 lbs Cu, 1,384,649 lbs Mo (See Major Precious Metal Deposits also.)

Industrial Minerals

by David A. Davis

The total value of industrial minerals produced in Nevada in 2013 was estimated to be $420,000,000, an increase of 7% from 2012. Minus the value of aggregate, the total value was $270,000,000, an increase of 18%. In decreasing order of estimated value, Nevada industrial minerals with production values of more than $10,000,000 were aggregate, barite, diatomite, lime and limestone, gypsum, dimension stone/landscape rock, lithium, and silica, and dimension stone. Industrial mineral commodities with production values of less than $10,000,000 were clay, magnesia, perlite, dolomite, cement, iron oxide, salt, and opal. 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 www.minerals.usgs.gov/minerals/pubs/commodity.

Aggregate (Sand and Gravel, Crushed Stone)

According to the USGS, domestic production of construction sand and gravel increased 4% in to an estimated 934,000,000 tons valued at $6,700,000,000, and crushed stone was about the same as 2012, an estimated 1,300,000,000 tons valued at $11,800,000,000. The average domestic price of construction sand and gravel increased less than 1% to $7.08 per ton in 2013. The average price of crushed stone increased slightly to $8.85 per ton in 2013.

According to the USGS, Nevada produced an estimated 10,814,000 tons of construction sand and gravel valued at $69,400,000, and an estimated 8,752,000 tons of crushed stone valued at $80,700,000. This represents decreases of 20% in the production and 18% in value of construction sand and gravel compared to 2012, while the production and value of crushed stone increased 15% and 14%, respectively. The total production value of $150,100,000 makes construction aggregate the fifth most valuable commodity produced in the state.

An estimated 10,000,000 tons of construction aggregate was produced in the Las Vegas area with sand and gravel operations accounting for about 64% of the aggregate production. The Lone Mountain area in northwest Las Vegas remained the most important source, producing about a third of the sand and gravel in the Las Vegas area. Significant production also came from sand and gravel pits and stone quarries south and northeast of Las Vegas and in Ivanpah Valley 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, 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. Community pits and other aggregate mining facilities administered by the BLM and operated by a number of companies, annually account for between 10% and 20% of the total production of the Las Vegas and adjacent southern Nevada area.

Annual production at the Lone Mountain area peaked at more than 10,000,000 tons in 2005 and 2006, but have since significantly declined since the downturn in construction. Lately, however, increased sales and interest is resulting in the BLM considering issuing new contracts through competitive bidding. Six contracts with the BLM for material from the Lone Mountain area are due to expire in August 2014, and companies have been requesting information.

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 Corporation of California submitted an application to the BLM to build and operate an aggregate pit called the Sloan Aggregate mine in N/2, section 32, T23S, R61E. In 2007, CEMEX submitted an application to build and operate an aggregate pit called the Mohave Minerals project in S/2, section 29, T23S, R61E. The mining from the two pits, expected to eventually grow into one large 2,500-foot deep pit covering about 640 acres, is expected to produce 100,000,000 tons of mostly limestone and dolomite over a 20- to 30-year period. The size of the operations required competitive bidding for the sites. The project was strongly opposed by local residents, most of who lived in several housing developments within five miles of the proposed project. In its final Environmental Impact Statement and Record of Decision Record of Decision, 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 5,000,000 tons of construction aggregate are estimated to have been produced in the Reno-Sparks-Carson City area in 2013 with crushed rock accounting for about 82% of the aggregate production. Granite Construction and Martin Marietta Materials Inc. were the two largest producers. Granite Construction operates several pits in the area, but most of the company's production was crushed andesite and crushed granitic rock from the Lockwood pit. Martin Marietta Materials Inc. operated the Spanish Springs (Rocky Ridge) Quarry north of Sparks, which produces crushed granitic rock and some decomposed granite. 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. A small amount of decorative rock and sand and cinder for deicing from the Black and Red Cinder pits northeast of Carson City, and a small amount of decomposed granite was produced in Washoe County and Carson City.

About 3,300,000 tons of aggregate, mostly sand and gravel, were produced outside the major metropolitan areas, mostly from BLM administered pits on public lands. At over 500,000 tons, Lander County had the largest rural aggregate production. Nye and Pershing Counties produced between 400,000 and 500,000 tons; Elko, Humboldt, and Lyon Counties produced between 300,000 and 400,000 tons; and the remaining counties each produced less than 250,000 tons. A quarry operation on the Barrick Gold Corporation's Turquoise Ridge mine in Humboldt County produced 40,000 tons per month of aggregate for use as backfill at Barrick's underground gold mining operation.

Grant Smith Associates, which operated a plant in Yerington in Lyon County, went out of business. The operation was acquired by Cinderlite Trucking, Inc. in March 2013. Cinderlite also acquired one of the two pits operated by Granite Construction near Dayton.

Ames Construction Inc. proposed mining gravel at the Saddler Brown Gravel Pit project along State Route 278 in Section 1, T22N, R52E, in 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 an additional 49 acres as economic conditions permit. An environmental assessment was released in 2013 (Environmental Assessment No. DOI-BLM-NV-B010-2013-0026-EA, 4/2013).

Neva-rite LLC proposed mining material at its Nevada Royal Jasper Quarry project about 15 miles east of Fallon in Section 24, T18N, R30E, in Churchill County. The proposal is to mine up to 200,000 cubic yards of material over a 5-year period with plans for possibly an additional 1,000,000 cubic yards from a 19.7-acre area. The material would be used for landscaping and decorative rock. An environmental assessment, finding of no significant impact, and record of decision approving the project were released in 2013 (Final Environmental Assessment No. DOI-BLM-NV-C010-2013-0038-EA, 9/2013; BLM Finding of No Significant Impact, 9/2013; BLM Record of Decision, 9/2013).

Four new community pits and the expansion of a fifth one in Humboldt County were authorized in 2013. The new ones were: the Donna Schee Community Pit covering 13.75 acres in Sections 17 and 20, T37N, R32E; the Rebel Creek Community Pit covering 12 acres in Section 15, T43N, R37E; the Section 4 Community Pit for decomposed granite Covering 40 acres in Section 4, T42N, R37E; and the Valmy Community Pit covering 70 acres in Section 32, T34N, R43E. The Orovada Barber Community pit in Section 32, T42N, R37E, will be enlarged to 40 acres (BLM Full Force and Effect, Decision Record, Determination of NEPA Adequacy, No. DOI-BLM-NV-W010-2012-0033-DNA, 9/30/2013).

The Federal Highway Administration and the Nevada Department of Transportation (NDOT) proposed to expand the 40-acre NDOT material site WP 05-01 in Steptoe Valley in Section 27, T19N, R64E, in White Pine County by 100 acres. The site would be used to provide material for multiple highway construction and maintenance projects in the vicinity over the next 20 years. The site contains material that meets highway construction and maintenance requirements. An environmental assessment was for the project in 2013 (Federal Highway Administration and the Nevada Department of Transportation Environmental Assessment, 7/2013).

Barite

According to the USGS, domestic production of barite decreased 1% to an estimated 728,000 tons of barite, valued at about $78,000,000. Most of this production came from Nevada, and the remainder came from a mine in Georgia. Estimated apparent consumption decreased 18% to 2,980,000 tons. Imported barite, mostly from China and some from India and Morocco, decreased 17% to about 2,350,000 tons. From 2010 to 2013, China provided 86% of the barite consumed in the United States, and in 2013, China and India combined accounted for 62% of the world's production. China, India, and Kazakhstan combined account for 63% of the world's reserves. The estimated average price of barite remained high, increasing 3% to $104 per ton free on board (f.o.b.) from the mine according to the USGS. Free on board refers to the price of that the mine sells the barite and does not include costs of additional processing once it is shipped. Since 2001 the price has increased every year except 2010, mainly due a worldwide increases in oil and gas drilling.

About 95% of the barite sold in the United States is used as a weighting agent for drilling muds. 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 Alberta, for the western Canada drilling mud market.

According to data from NDOM, Nevada's barite production comes from four operations, which shipped 882,826 tons, an increase 24% from 2012 and the highest since 1982. Any differences in reported production is because the USGS 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 $85,144,649, an increase of 18% from 2012.

M-I SWACO, a subsidiary of Schlumberger, Ltd. was the largest Nevada barite producer. The company shipped 317,241 tons of crude and ground barite shipped from the Greystone Mine and Battle Mountain plant, in Lander County, an increase of 5% from 2012 and the highest since 2004. A small amount of barite was also taken from stockpiles in the nearby Mountain Springs Mine for blending at the plant. Barite in the Greystone Mine occurs as bedded barite with chert and lesser argillite and shale that comprise the Devonian Slaven Chert. An environmental assessment was being prepared for the company's proposal to mine barite at the Dana 15 site on patented mining claims in Sections 25 and 36, T28N, R45E. The deposit has a projected six month reserve. (Environmental Assessment No. DOI-BLM-NV-B010-2013-0073-EA, 4/2014).

Baroid Drilling Fluids, a subsidiary of Halliburton Co., was the second largest producer in Nevada. The company shipped 251,329 tons, a slight decrease from 2012. This was the first decrease after four consecutive years of increasing production. The company mined barite from the Rossi Mine in Elko County and processed it at its Dunphy Mill in Eureka County. The barite occurs with chert of the Ordovician Vinini Formation.

The Rossi deposit is the largest source of barite in the country, and the mine consists of the King Lode Pit, which produces high grade barite and the Queen Lode Pit, which produces low-grade barite. At the present production rate, the Rossi Mine has a projected life of 23 years. The company mixes ore that is mined from both pits at a strip ratio is 12:1. The jig plant can process up to 1,000 tons of ore per day. Halliburton contracted the Mouat Co., Inc., to build a new processing plant adjacent to the existing one at Dunphy. The new plant is scheduled to start up in 2014 (Elko Daily Free Press Summer, 2013; Miners News, June/July 2013; Mouat Co., Inc., http://www.mouat. com/ mineral-processing/mineral-processing-recent-projects/halliburton-barite-grinding-plant).

Baker Hughes Oilfield Operations Inc., formerly Baker Hughes Drilling Fluids, shipped 150,802 tons of barite from its Argenta operation near Battle Mountain in Lander County, an increase of 9% from 2012. This was the fifth year in a row that production increased. The barite deposits are in chert and minor argillite and shale of the Devonian Slaven Chert in the upper plate of the Roberts Mountain thrust.

National Oilwell Varco shipped 51,052 tons of barite previously concentrated at its Big Ledge mine and the adjacent Dry Creek Jig Plant, an increase of 11% from 2012. The mine operated between May and December 5, 2013, and then was temporarily shut down. The barite at Big Ledge occurs in argillite and chert of the Ordovician Valmy Formation Barite is mined and then hauled to the jig plant for crushing, washing, and sorting. It is then stockpiled for later hauling to Osino or the company plant in Evanston, Wyoming. The company built and opened a new grinding plant at the Northeastern Nevada Regional Railport at Osino. In addition to processed ore from the Big Ledge mine, it shipped 40,910 tons of ground barite from the new Osino plant. The barite is shipped to warehouses across the country with the product from Osino expected to supply drill programs in Ohio and Pennsylvania (Elko Daily Free Press Spring 2012 Mining Quarterly; Elko Daily Free Press, 9/14/2012).

Baker Hughes leased the rights to barite on the Shoshone Pediment property from the Bravada Gold Corp. The property consists of 70 claims, and the area of interest is largely within section 24, T31N, R47E in the Argenta mining district. In 2013, Baker Hughes completed 43 holes totaling 9,940 feet, though the results were not released. The barite is bedded and occurs with chert and argillite in the Devonian Slaven Chert (NBMG Bulletin 98; http://www.bravadagold.com/en/projects/shoshone-pediment-property/index.php).

Halliburton Energy Services, Inc., received a reclamation permit from the Nevada Bureau of Mining Regulation and Reclamation for the Pleasant View project covering 698 acres in Section 2, T30N, R46E and Section 34, T31N, R46E in the Bateman Canyon Mining District, 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 (Halliburton Energy Services, Inc., Environmental Assessment, 11/2012; Bureau of Mining Regulation and Reclamation Permit 0341, 3/20/2013).

Baker Hughes Drilling Fluids increased the size of its CLE claim block by staking 46 claims covering over 900 acres in portions of T30N, R46E just south of the company's Argenta Mine in the Bateman Canyon Mining District. These claims are adjacent to the Dutch Boy, Pleasant View, and Slaven Canyon deposits described in NBMG Bulletin 98, *Barite in Nevada*. All three deposits had some production from open pits prior to 1980 (NBMG Bulletin 98; BLM LR2000 Database).

The Marquis Alliance Energy Group USA Inc. staked lode claims (BMB claims) covering over 450 acres in portions of Sections 25, 35 and 36, T31N, R46E and Section 1, T30N, R36E in the Argenta and Bateman Canyon Mining Districts. The claims are just south of the Miller deposit, which produced over 250,000 tons of barite prior to 1980 from the Devonian 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 in 2013 increased 4% to an estimated 85,100,000 tons that had a value of $7,600,000,000. Consumption increased 5% to an estimated 90,500,000 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 $82.56 per ton, a slight increase from 2012.

The only cement producer in Nevada is Nevada Cement Co. (a subsidiary of Eagle Materials Inc.), which has a plant in Fernley in Lyon County. Production is confidential, but the company's website reported annual capacity of 500,000 tons of cement and 560,000 tons of clinker. Also, according the Nevada Department of Taxation, the gross proceeds reported were $2,639,235.61 for the limestone mine and cement plant, an increase of 31% from 2012. 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 that is mined from two areas, and from other raw materials that come from northern Nevada and elsewhere. Most of the limestone occurs in a Tertiary lacustrine sedimentary rocks, which 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. Overall, Eagle Materials reported their total 2013 cement sales volume and overall cement sales revenue were up 39% and 31% from 2012. Their average price was $95.41 per ton (Eagle Materials Inc., 10-K Report, 5/23/2014; Eagle Materials Inc., website, http://www.eaglematerials.com).

Infrastructure Materials Corp. of Reno, Nevada, staked a large number of claims in 2009, but of the 12 projects for cement-grade limestone summarized in NBMG MI2009, the company, as of 2013, had only retained the Blue Nose project in Lincoln County and the Morgan Hill project in Elko County. The Blue Nose Claim block is located about 25 miles southeast of Caliente, Nevada, and covers limestone of the Mississippian Monte Cristo Formation. The Morgan Hill Claim block is located about 20 miles west of Wells, Nevada, and covers large amounts of micritic limestone within the Devonian Devils Gate and Nevada Formations. The Blue Nose project appeared to have the higher potential of these two prospects (NBMG Bulletins 73 and 101; Infrastructure Materials Corp. 10-K Report, 9/20/2013; Infrastructure Materials Corp. website, www.infrastructurematerialscorp.com).

Clay

According to the USGS, domestic clay production increased very slightly to an estimated 28,600,000 tons, which had a value of $1,580,000,000. The USGS divides output into: ball clay, bentonite, common clay, fire clay, fuller's earth, and kaolin. Estimated apparent consumption decreased slightly to 24,400,000 tons. The difference between production and consumption was mainly exported. Nevada has never been a large clay producer, and the state's 2013 clay production accounts for 0.06% of domestic production. According to data from NDOM, Nevada clay production decreased 20% to 20,000 tons. According to the Nevada Department of Taxation, the gross proceeds reported for clay were $7,712,071, an increase of 15% from 2012.

IMV Nevada, a subsidiary of Lhoist North America, produced 20,000 tons of sepiolite, saponite, and bentonite from deposits in the Ash Meadows-Amargosa Flat area of Nye County, a slight decrease from 2012. 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 website, http://www.imvnevada.com).

Two companies periodically mine and ship relatively minor amounts of clay from several sites in Nevada 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 2013, the company did not actively mine but did process smectite from the New Discovery Mine just south of Beatty, 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 Company, 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.

In 2013, Nevada Mining, Milling, and Manufacturing Inc. acquired Specialty Clays Corp. of Reno and continued efforts to restart the Fallon Bentonite Project to mine a deposit of sodium bentonite in the Lahontan Mountains in the Sand Springs Marsh Mining District in Churchill County. The deposit reportedly contains proven reserves of 34,000,000 tons, and 7,000 tons of API/ISO grade material have been stockpiled for shipment. The clay occurs in Quaternary lacustrine deposits and Tertiary tuffaceous sediments (NBMG Map 168; Nevada Mining, Milling, and Manufacturing, Inc. website, http://nv3M.com).

The U.S. Forest Service issued a scoping document for the East Walker Clay Mine Expansion Project proposed by Precious Minerals Mining and Refining Corp. (PMMR) in Sections 20, 21, 28 through 30, T7N, R27E in the Washington Mining District in Lyon County. The company proposes to expand operations to include two mine sites including the expansion of the existing approved site and the additions of new mine and a staging area. It plans to mine about a million tons of volcanically-derived "clay-based mineral." The company sells the material under the trade name Orykta™ as a soil and animal feed additive. The two main components reported in Orykta™ are natrojarosite and gypsum. The company's 1998 approved plan of operation allowed for annual production of up to 36,500 tons and, as of 2013, 5,000 tons had been mined (U.S. Forest Service scoping document 4/2012; PMMR, website, http://www.pmmrcorp.com).

Western Lithium USA Corp. owns the Kings River Valley Lithium Project, which is described below 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 volcaniclastic 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. It put together a clay laboratory facility in Nevada, 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, which typically sells for between $2,000 and $4,500 per ton. In 2012, the company submitted its Kings Valley Plan of Operations for its drilling additives hectorite organoclay business to the BLM. In 2013, the BLM concluded the plan of operations was complete and initiated preparation of an Environmental Assessment. The company contracted Precision Systems Engineering of Salt Lake City, Utah, to design an organoclay plant facility with an initial annual capacity of 10,000 tons and purchased an industrial complex with adjacent rail and freeway access in Fernley to be the site of the plant. The organoclay would go under the trade name Hectatone. The plant was expected to be completed in the summer of 2014, and the company excavated 3,000 tons of hectorite clay for testing at the plant. The company was also considering purchasing other clays such as bentonite to produce other clay products (Western Lithium USA Corp., Annual Information Form, 12/18/2013; Western Lithium USA Corp. news release, 1/21/2014; 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 in the world. According to the USGS, domestic production increased 5% to an estimated 849,000 tons valued at $220,000,000. Estimated apparent consumption increased 4% to 737,000 tons, and exports increased 6% to 112,000 tons in 2013. Production was from six companies with ten mining areas and nine processing facilities in California, Nevada, Oregon, and Washington.

The estimated average price was $259 per ton, the same as in 2012. The world's two largest producers, both of which have operations in Nevada, increased prices in 2013. Imerys, a large French industrial minerals company, increased prices between 2% to 8% effective July 1 on products shipped within North America. EP Minerals LLC a subsidiary of EaglePicher Corp. and the world's second largest diatomite producer, increased prices between 5% to 7% effective November 1 to offset higher costs in labor and benefits, mining and hauling, packaging, regulatory compliance, and transportation and logistics (Imrys Filtration Minerals, press release, 6/6/2013; Business Wire, 10/8/2013).

Nevada's production is confidential, but according to the Nevada Department of Taxation, the gross proceeds reported for 2013 were $41,871,521.97, an increase of 6% from 2012. About two-thirds of the diatomite produced in Nevada is used in filtration and the remainder is largely used in absorbents, fillers, and cement. Emerging small-scale uses include pharmaceutical processing and nontoxic insecticides.

EP Minerals LLC produced most of Nevada's diatomite. EP Minerals' Colado operatons in Pershing County is the company's most productive Nevada operation and averages 140,000 tons of diatomite annually. 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. The diatomite mined from a pit near Hazen in Lyon County is used in insulation. The Clark operation averages about

80,000 tons of diatomite annually. 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* (NBMG Bulletin 89; Mining-Winnemucca Publishing, 7/2013).

In 2013, EP Minerals LLC acquired the Moltan Company and began referring to Moltan's mine and plant complex in Churchill County about 20 miles northeast of Fernley in the Desert Mining District as the Fernley Operation. The Fernley Operation remained in production and processed diatomite into absorbent products, cat litter, and soil conditioner (NBMG Bulletin 83; Mining-Winnemucca Publishing, 7/2013).

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, has been on standby since 2009. The diatomite deposits mined at both Nightingale and the Fernley Operation 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 operations 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 granulate*, *Stephanodiscus aslraea*, and *Eunotia robusta*.

Global Silica LLC of Las Vegas received a finding of no significant impact and a reclamation permit for its Monte Cristo project in the Monte Cristo Range in northern Esmeralda County. The company plans to mine and process diatomite and sell it as amorphous silica. Depending on the production rate, 150,000 to 300,000 tons of material would be mined annually over a mine life of 25 years. Diatomite occurs in Miocene 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; Nevada Department of Environmental Protection Reclamation Permit 0349, 12/19/2013; BLM Nevada Field Office Update for Nevada Legislative Committee for Public Land, 4/2014).

EP Minerals staked eight 20-acre placer claims (Butte group) in south half of section 30, T27N, R30E, in the Gold Butte Mining District, Pershing County. The area is largely underlain by Tertiary Truckee Formation consisting of lacustrine, volcanic, and volcaniclastic rocks containing diatomite and capped by basalt (Southern Pacific Areal Economic Map, T27N, R29 and 30E, 1957; NBMG Bulletins 89; BLM LR2000 Database).

Dimension Stone and Landscape Rock

According to the USGS, the estimated domestic production of dimension stone increased very slightly to 2,390,000 tons, which was valued at $460,000,000. Estimated apparent consumption increased 6% to $2,250,000,000 in 2013. The difference between production and consumption was due to imports, largely from China, Brazil, and Italy. Annual production in Nevada was estimated to be about 150,000 tons with an estimated value of about $25,000,000.

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.

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 (Las Vegas Rock website http://vegasrock.com).

Kalamazoo Materials Inc. of Tucson, Arizona, mined crushed stone for landscaping from a quarry located about 5 miles north of Beatty, which it leases from D and H Mining. 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 148,000 tons of fluorspar equivalent, an increase of 3% from 2012. Apparent consumption was 645,000 tons, an increase of 11% from 2012. Imports, mostly from Mexico and China and some from South Africa, made up the difference between production and consumption. The average price of metallurgical grade fluorspar from $263 to $399 per ton in the first half of 2013 (*Industrial Minerals*).

China accounted for 64% of the world's fluorspar production making that country by far the world's largest producer. Over time, China has increased its hydrofluoric acid production capacity and has curtailed fluorspar exports in favor of internal consumption. China's curtailment of exports and the increase in demand outside of China starting in 2010 led to increased exploration and development of new deposits and the reopening of old mines. Since then,

however, world demand has dropped, largely due to a slowdown in the fluorochemicals market resulting in a drop in price.

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, production from mines in Nevada continued through 1991 and then from stockpiles for several years afterwards.

In 2013, Tertiary Minerals PLC completed 26 drill holes in two phases on the Nevada Fluorspar's BM Project of Nevada Fluorspar Inc. in the Fish Creek Mining District in Eureka County. The property is also known in the literature as the Bisoni deposit or the McCullough's Butte deposit. In 2012, the Tertiary Minerals took out a 50-year renewable lease on the property with the option buy from Nevada Fluorspar Inc. Early in 2013, a resource under the JORC "exploration target" category was estimated between 93,000,000 and 116,000,000 tons grading 9-11% CaF_2 with an 8% CaF_2 cut-off as part of a larger mineralized system estimated at between 435,000,000 and 678,000,000 tons grading 5-7% CaF_2 with a 2% CaF_2 cut-off.

Phase one drilling program consisted of four core and reverse circulation totaling 1,804 feet. Significant intercepts included 140 feet averaging 12.4% CaF_2, including 15 feet grading 26.1% CaF_2; and 40 feet averaging 16.5% CaF_2. Phase two consisted of 22 reverse circulation holes totaling 8,758 feet designed to estimate the resource. In the Southern Area, 14 holes were drilled to depths up to 410 feet. They were spaced between 260 feet and 330 feet apart in a 980-foot by 1,300-foot area. All the holes intersected thick intervals of fluorspar mineralization. Some of the better intercepts were 225 feet averaging 9.9% CaF_2, including 35 feet grading 14.3% CaF_2; and 75 feet averaging 10.1% CaF_2, including 10 feet grading 14.2% CaF_2. In the Central Area five holes were drilled in a 1,300-foot by 1,970-foot area. Fluorspar mineralization appeared to be continuous, but analytical results were not yet available by year's end. Three holes were drilled in the Northern Area, an exploration area where drilling in the 1960s by Union Carbide indicated potential fluorspar mineralization. No significant mineralization was encountered, but it may have been down-faulted to depths greater than the drilling.

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 Ordovician 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, 2/12/2013, 5/9/2013, 12/18/2013, 4/16/2014; Tertiary Minerals, PLC, annual report, 9/30/2013; 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, which 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 Miocene lacustrine sedimentary rock, volcanic ash and tuff, and bentonite. According to the Nevada Department of Taxation, the gross proceeds reported were $174,528.25, an increase of 19% from 2012. Turquoise was produced from the Damele Mine in Lander County and the Royston claims, Nye County, in 2011, but no turquoise production has been reported since.

Gypsum

According to the USGS, domestic crude gypsum production increased 3% to an estimated 18,000,000 tons valued at $130,000,000, the third consecutive annual increase after four consecutive annual decreases. Estimated apparent consumption increased 4% to 34,700,000 tons, the fourth consecutive annual increase. Production of crude gypsum continues to be offset by the production of synthetic gypsum. Synthetic gypsum is largely produced from scrubbed emissions from coal-fired power plants. Production of synthetic gypsum has increased in most years since 2003 and surpassed the production of crude gypsum. The production of synthetic gypsum increased 4% to 14,600,000 tons in 2013. The difference between production and consumption was mostly made up with imports from Canada and some from Mexico and Spain, which decreased 2% to 3,500,000 tons. The increase in consumption was due to increased activity in construction of residential and nonresidential buildings. The estimated price of crude gypsum increased 4% to $7.25 per ton. For the previous 22 years, the price has ranged between $6.08 and $8.01 per ton, averaging $6.67 per ton over that period.

Nevada ranked third in the list of five states which account 62% of domestic production. According to data from NDOM, Nevada's gypsum production increased 41% to 2,088,438 tons, which is the second increase after eight consecutive annual decreases from a peak of 2,310,000 tons in 2004. According to the Nevada Department of Taxation, the gross proceeds reported was $25,632,185, an increase of 50% from 2012.

PABCO Gypsum in Clark County northeast of Las Vegas was the largest Nevada producer with production of 1,177,633 tons, an increase of 14% from 2012. 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 441,129 tons of gypsum and anhydrite from the Adams Mine in Lyon County, an increase of 29% from 2012. The Adams deposit is a folded body associated with limestone in Triassic metavolcanic rocks. The Pioneer Gypsum Mining Company produced 155,535 tons of gypsum from the Pioneer Mine about 10 miles east of Las Vegas, a decrease of 154% from 2012. The Pioneer Mine exploits the same late Miocene gypsite deposit as the PABCO operation.

Gypsum Resources, LLC, mined and processed gypsum 314,141 tons of gypsum from the Blue Diamond pit mainly for agricultural purposes. The company started operating in 2012 when they produced 43,120 tons. The company received a reclamation permit from the Nevada Department of Environmental Protection that allows for the disturbance of up to 1,007 acres on private property and 130 acres of disturbance on public lands (Bureau of Mining Regulation and Reclamation Permit 0328, 1/15/2013; Gypsum Resources, LLC, website, http://www.bdhgypsum.com).

USG Corporation produced a small amount of gypsum from its pit near Empire according to the Nevada Department of Taxation. The operation was shut down in January 2011 due to the severe construction slump, though operations could be restarted if the construction industry picked up again.

Georgia-Pacific Gypsum LLC operated a plant at Apex using synthetic gypsum and crude gypsum imported from Saint George, Utah, for the production of drywall and related products. It also owns the Weiser Ridge quarry about 10 miles west of Overton, which has not been actively mined since 1995. The quarry is in gypsum interbedded with limestone of the Permian Toroweap and Kaibab Formations.

CertainTeed Gypsum Manufacturing Inc. produced sheet rock from its plant at Blue Diamond, Clark County, in 2013. The Black Rock Mine in Mohave County, Arizona, is the source of its gypsum (BLM LR-2000 Database; CertainTeed website, http://www.certainteed.com).

Transnational Group Inc. of Las Vegas was preparing to negotiate for the acquisition of an undisclosed 204-acre gypsum mining property in Clark County, Nevada. A 1964 study estimated the resource to be 11,600,000 tons grading 90% gypsum 10,000,000 tons of dolomitic limestone, and a 2013 study limited to 10 acres noted 1,193,486 tons of in-situ gypsum. In December 2013, a mine plan was completed allowing for an annual production of 290,000 tons of gypsum, which would give the mine a production life of 40 years (Transnational Group, Inc. news release, 4/9/2014; Transnational Group, Inc. website, http://www.transnationalgroup.net).

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 annual production of finished natural and synthetic IOP has remained around 53,000 tons from 2011 through 2013. Estimated apparent consumption of combined naturally and synthetically produced IOP was 226,000 tons, an increase of 8% from 2012. Thus, about 80% of IOP consumed was imported. The estimated average price was $1,397 per ton, a decrease of 4% from 2012. Nevada's production of IOP was small and not reported, but two companies sold iron oxide from stockpiles in 2013. According to the Nevada Department of Taxation, the reported gross proceeds for IOP, which was reported as iron ore, were $1,564,409.86, an increase of 82% from 2012.

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 1% to an estimated 20,900,000 tons valued at $2,300,000,000. Apparent consumption remained flat at 21,100,000 tons. Peak production and consumption occurred in 2006, and both decreased 25% to the lows in 2009. Both have increased about 20% since then. In 2013, the average price at the plant increased slightly $105 per ton for quicklime and $125 per ton for hydrate.

In 2013, 7,024,187 tons of limestone were mined in Nevada, a 6% increase from 2012. This includes all limestone mined for crushed rock, cement, lime and agricultural products, and cement but does not include dolomite. 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 $35,430,727.34, an increase of 9% from 2012.

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 were $20,418,961, an increase of 18% from 2012. Production is mainly from the Devonian Devils Gate Limestone (Graymont Western US, Inc. website, http://www.graymont.com).

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 were $11,822,179, an increase of 5% from 2012. Production is from the Devonian Sultan Limestone.

Nutritional Additives Corp., one of Nevada's specialty dolomite and limestone producers, turns out 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. Its dolomite is mostly sold to midwestern states and as far as New York and Alberta for use in beef and dairy feed. The 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. Production is confidential, but the Nevada Department of Taxation reported the gross proceeds to be $4,246,353.98, a slight decrease from 2012.

Lithium

According to the USGS, the estimated domestic consumption of lithium averaged 3,100 tons in the late 1990s to 2000 and then fluctuated between 1,200 tons and 2,750 tons through 2010. Consumption was stable afterwards at 2,200 tons through 2013. In 2013, the United States was estimated to have lithium reserves of 42,000 tons and identified resources of 6,000,000 tons. Nevada is the only state with domestic production of lithium raw materials. The Nevada Department of Taxation reported the gross proceeds to be $21,937,051, an increase of 19% from 2012.

Subsurface brines, mainly from Chile, were the main source of lithium worldwide because of low production costs as compared with the mining and processing costs associated with hard-rock ores. Nevada's lithium operation, initiated at Silver Peak in Esmeralda County in 1966 by Cyprus Mines, was the first to extract lithium as the sole commercial product from brine. This operation was the world's dominant lithium producer until the late 1980s, when a Chilean lithium brine operation started. Along with Chile and Nevada, Argentina and China also produce lithium from brines. U.S. lithium imports amounted to 2,200 tons in 2013, while its exports were 1,200 tons. Global production was about 39,000 tons in 2013. Lithium-based rechargeable battery sales accounted for 29% of the global lithium market. Ceramics and glass account for 35% and lubrication grease for 9% of the market. The remainder includes air treatment, metallurgy, polymers, pharmaceuticals, aluminum production, and other uses. Prices were between $2.50-3.00 per pound through May 2013 when they jumped to $3.00-3.50 per pound and remained there for the rest of the year (*Industrial Minerals*).

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 preconcentration and subsequent refining techniques from brine that is pumped from beneath the Clayton Valley playa. The brine varies between 100 and 300 ppm lithium. In 2013, the Rockwood reported its average annual production capacity to be 6,600 tons with an estimated mine life of 21 years at that rate. It reported the remaining economic reserves to be about 38,000 tons (Rockwood Lithium, Inc. 10-K Report, 3/4/2014; BLM LR2000 Database; *Industrial Minerals*).

AmeriLithium of Henderson, Nevada, dropped many of the claims comprising its Clayton Deep, Full Monty, and Jackson Wash land positions. Clayton Deep covers part of a large gravity low anomaly, less than 10 miles southwest of Silver Peak. It is underlain by the upper Miocene to Pliocene Esmeralda formation, which consists of approximately 15,000 feet of lucustrine tuffaceous sediments including poorly sorted conglomerates and sandstones, limestone, and mudstones. The company released a 43-101 technical report on the property in 2013. The Full Monty is located in Smoky Valley about 25 miles north of Clayton Valley, where it occurs in a large gravity low associated with a thick sequence of Quaternary alluvium. Part of the property also is covered by a playa containing evaporites. The property is just west of the inactive Hall molybdenum mine. The Hall porphyry contains anomalous lithium, which may be a source of the lithium on the Full Monty property. The Jackson Wash property is located west of the Goldfield Hills. The property covers part of a gravity low in an area of Quaternary alluvium. The company was developing a

drilling program for all three properties in 2013 (AmeriLithium Corp. 10-K Report, 4/25/2014; AmeriLithium Corp. website, http://.amerilithium.com; AmeriLithium Corp. 43-101 Technical Report, 2/27/2013).

BG Capital Group South Florida, Inc., acquired most of the mining claims making up the Borate Hills project from American Lithium Minerals Inc., when that company went out of business in 2012. The Borate Hills project covers over 3,400 acres between 15 and 20 miles west-northwest of Silver Peak. It consisted of three separate claim blocks: North Borate Hills and South Borate Hills in the northern Silver Peak Range and Fish Lake Deep on the east edge of Fish Lake Valley. 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 contained in a stratabound formation consisting of a claystone unit and a unit of volcanic tuff lacking clay. (BLM LR2000 Database; American Lithium Minerals, Inc., Form 8-K, 11/25/2011; Nevada Business Search, website, http://nvsos.gov/sosentitysearch/CorpSearch.aspx).

Lithium Corp. completed 11 drill holes totaling 1,025 feet on its Fish Lake Valley property, located about 22 miles northwest of Rockwood's Silver Peak Operation. Storms and wet conditions made the playa impassable, and the company was forced to drill around the playa margins. All the fluids encountered returned values of less than 5 mg/L lithium indicating anomalously high boron, potassium, and lithium values encountered during the 2012 drilling project barely extend past the margins of the playa (Lithium Corp. 10-K Report, 4/1/2014; Lithium Corp. news releases 1/24/2013, 9/3/2013; Lithium Corp. website: www.lithiumcorporation.com).

Lithium Corp. compiled all its data including that from its 2012 drilling program of its San Emidio Property, located in the San Emidio Desert about 65 miles north-northeast of Reno. The company amended its permit with the BLM to allow for drilling up to three deeper lithium brine tests in 2014 in an area on the playa where lithium enriched brines were encountered at shallower depths. The 2012 drilling program helped define a 0.6-mile by 3-mile lithium-in-brine anomaly containing a peak value of 23.7 mg/L lithium and also indicated the anomaly occurs at or near the intersection of several faults which may have provided the structural setting necessary for a covered lithium-rich brine deposit to form (Lithium Corp. 10-K Report, 4/1/2014; Lithium Corp. news release, 3/4/2014; Lithium Corp. website: www.lithiumcorporation.com).

Pure Energy Minerals, Ltd., released the results of gravity and controlled source audio-magneto-telluric (CSAMT) surveys conducted in 2012 on its Alkali Flats Lithium project in the Montezuma Mining District, in Esmeralda County. The survey indicated that a highly conductive layer occurs at depths greater than 650 feet. The layer is about 1.25 miles wide and ranges between 590 to 650 feet in thickness. The gravity survey confirmed the existence of a 6-sqaure-mile closed basin partly covered by the claim block. The company received a permit from the BLM to conduct a program to drill up to eight wells (Pure Energy Minerals, Ltd., Management and Discussion Analysis, 10/17/2012; Pure Energy Minerals, Ltd., 43-101 technical report, 8/8/2012; Pure Energy Minerals, Ltd., news releases, 2/25/2013, 4/24/2013, 9/3/2013; Pure Energy Minerals, Ltd., website, http://www.pureenergyminerals.com).

In 2013, Rodinia Lithium wrote off and dropped its Clayton Valley Lithium project, which consisted of 1,012 claims covering 72,340 acres in Clayton Valley immediately surrounding most of Chemetall Foote's Silver Peak operation. However, no exploration was carried out (Rodinia Lithium Management Discussion and Analysis, 4/30/2014; Rodinia Lithium news release, 8/29/2013; Rodinia Lithium website; http://www.rodinialithium.com).

Sovereign Lithium Inc., entered into a mineral property 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, just northwest of the Silver Peak lithium operation. In 2013, the company conducted a gravity survey and a CSAMT survey. Results of the gravity survey indicated the presence of a basin that extends over most of the claim block with depths exceeding 1,600 feet 3/24/2014; Sovereign Lithium, Inc., news releases, 1/8/2013, 7/1/2013, 7/12/2013, 11/4/2013; Sovereign Lithium, Inc., website, www.sovereign lithium.com)

Western Lithium USA Corp. continued with exploration, testing, and evaluation of its lithium-bearing clay resource at its Kings River Valley project, in northern Humboldt County. The results of testing by the Department of Energy's Argonne National Laboratory of lithium carbonate from Kings Valley for lithium ion batteries demonstrated that Western Lithium can produce high purity lithium product for use in multiple types of lithium ion battery chemistries. In 2013, the company was also awarded a patent (US 8,431,005), filed in 2011, for developing a process in separating lithium and potassium from hectorite and other lithium-rich clays. Western Lithium evaluated two scenarios using the new technique. The first is based on mining and processing ore with a throughput of 2,300 tons per day (14,300 tons of lithium carbonate annually). The second is to double production to full production (14,600 tons of lithium carbonate annually) four years after start-up. At full production, the estimated cost of production is $878 per ton of lithium carbonate. Start-up capital is estimated to be $248 million, with the additional capital needed to bring to full production estimated to be $161 million. Sustaining capital is estimated to be $40 million. Western Lithium contracted a firm to design and build a lithium demonstration plant that would process 13.2 tons of lithium clay per day resulting the extraction of 132 pounds of battery grade lithium carbonate. As part of the

demonstration plant, a 1.6-ton bulk sample was processed at a calcination facility in Germany, which resulted in an 85%-92% recovery rate for lithium. The plant was expected to be operational in the fall of 2014. In the meantime, Western Litihum moved ahead with plans for the production of hectorite clay for a specialty drilling mud additive, which is discussed in the section on clay (Western Lithium USA Corp. Annual Information Form, 12/18/2013; Western Lithium USA Corp. 43-101 technical report, 5/9/2014; Western Lithium USA Corp. news releases 2/13/2014, 4/28/2014; Mining-Winnemucca Publishing, 7/2013; Western Lithium USA Corp. website, http://www.westernlithium.com).

The property is within the McDermitt caldera, where the lithium occurs in high-lithium clays, including hectorite. Significant amounts of clay formed by hydrothermal alteration of the volcaniclastic 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 has been defined in five areas referred to by Western Lithium as Stages I through V. In each area, the high-lithium clay occurs in thick, apparently continuous accumulations that vary between about 3 and 300 feet in thickness (Western Lithium USA Corp. website, http://www.westernlithium.com).

Magnesia

According to the USGS, domestic production of magnesium compounds increased 2% to an estimated 276,000 tons. About 69% of domestic magnesia production came from seawater and natural brines, and the rest was produced from mining magnesite and minor brucite from Nevada and olivine from Washington. Estimated apparent consumption was 520,000 tons, a decrease of 3% from 2012, with the difference between consumption and production being made up mainly by imports from China. About 53% of the magnesium compounds are 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., varied between $275 and $310 per ton in 2013. (*Industrial Minerals*).

Premier Chemicals, LLC, 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. During the 1990s, the availability of cheap foreign refractory magnesia caused production at Gabbs to be switched to light-burned (caustic calcined) magnesia that is mainly marketed for wastewater treatment and agricultural uses. Production is confidential, but the plant capacity is rated at 150,000 tons per year. The Nevada Department of Taxation reported gross proceeds at $6,142,219, an increase of 6% from 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 Gabbs. The resource was estimated to be about 64,000,000 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 in the western foothills of the Schell Creek Range between Tamberlain and Mosier Canyons about 6.5 miles southeast of Ely in White Pine County. In 2013, the company formed a joint venture with ScanMag AS of Norway. The company also is planning construction of a pilot furnace to test the dolomite at Tami-Mosi (Nevada Clean Magnesium, Inc., Management and Discussion Analysis, 3/17/2014; Nevada Clean Magnesium, Inc., news release, 10/5/2013; Nevada Clean Magnesium, Inc., website, http://www.nevadacmi.com).

Perlite

According to the USGS, the estimated domestic production of perlite decreased 5% to 414,000 tons valued at $21,100,000. Estimated apparent consumption was 520,000 tons, and imports were 148,000 tons, decreases of 7% and 12% respectively from 2012. About 53% of perlite production is used in building construction products. Most of the rest is used in fillers, filters, and horticulture. The estimated average price was $51 per ton, an increase of 7% from 2012.

Although Nevada has large resources, current perlite production in Nevada is restricted to small-scale mining of two deposits for niche markets, which produced less than 3% of the domestic total in 2013. Nevada's actual production is confidential, but the Nevada Department of Taxation reported gross proceeds of $5,264,459.11 in 2013, an increase of 196% from 2012.

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 exclusively expanded perlite used for horticultural purposes. 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.

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, Churchill County, which is usually mined a week or two per year. The perlite occurs as glassy flows associated with rhyolitic flows (NBMG Bulletin 83).

Potassium Sulfate, Sodium Sulfate, and Alum

During the planned lithium extraction process for the previously described Kings Valley project of Western Lithium Corp., potassium sulfate and sodium sulfate would be recovered as a by-product and processed and sold for fertilizer. A 2012 feasibility study indicated an 82.7% recovery rate for potassium sulfate and a 77.7% recovery rate for sodium sulfate (Western Lithium USA Corp. Annual Information Form, 12/18/2013; Western Lithium USA Corp. news releases 2/13/2014; Western Lithium Corp. 43-101 Technical Report, 1/27/2012; Western Lithium Corp. website, http://www.westernlithium.com).

Heart of Nature LLC campaign mined and processed material from its Alum/Sulfur pit in the Alum Mining District in Esmeralda County. The minerals that are mined include alunite, potassium alum (kalinite), jarosite, gypsum, native sulfur, and potassium feldspar. The alunite occurs with kalinite and sulfur as veins, stringers, and fracture fillings in either a dike or neck of rhyolite intruded into folded rhyolitic tuffs of the Tertiary Esperanza Formation. Reddish, iron-stained jarosite occurs locally in the pit. The material is mined, crushed, and stockpiled. The stockpiled material is processed as necessary. Alunite and sulfur are the main essential minerals with thiobacillis bacteria added. The final product is sold as an agricultural soil amendment, as an odor control for manure, and as an odor and algae control for ponds (Heart of Nature, LLC, website, http://www.heartofnature.biz).

Rare Earths

According to the USGS, Molycorp's Mountain Pass Mine in California, which restarted production in 2012, is the only domestic producer of rare earths elements (REE). The company processes REE from the fluorocarbonate mineral bastnasite, and in 2013, produced 4,400 tons of bastnasite concentrates (60-70% rare earth oxides). Domestic consumption figures are withheld, but the estimated consumption of imports increased 81% in 2013 after decreasing 26% in 2012. Despite this increase, the estimated value of imported refined rare earths was $260,000,000, a decrease of 50% from 2012. China contains 39% of the world reserves and accounted for 91% of world production, which totaled 121,000 tons in 2013, and 79% of U. S. imports between 2008 and 2012.

Largely because of its own increasing consumption, China cut its exports in 2010 by 70%, resulting in drops of 40% drop in 2010 and 65% for the first nine months of 2011, while tripling its domestic consumption in 2011. China continued export restrictions and consolidation of its domestic REE industry through 2013. The export restrictions resulted in price increases ranging from 15% to 1,265% on various rare earth elements in 2010 and 2011. However, sluggish economic conditions and improved efficiency in material processing resulted in price decreases ranging between 5% and 95% depending upon the element in 2012 and 2013. The world has little near term production capacity outside of China. The only significant producers of REE outside China are: 1) the recent startup of the Mount Weld operation in Australia, 2) the restart of Mountain Pass, ine California, 3) the 2014 projected start-up of a monazite sand processing plant in Odisha, India, and 4) the 2015 projected start-up of the Nolans bore project in Australia. This has led to an increase in exploration (*Industrial Minerals*).

Elissa Resource Ltd. conducted a high resolution combined radiometric-aeromagnetic survey over the area that included its Thor project. It's located in Clark County, Nevada in T28-29S, R61E, very near the Mountain Pass deposit. The project area is in Precambrian rocks but, unlike Mountain Pass with its bastnasite-bearing ore enriched in light REE, the mineralization at Thor is in structurally-controlled zones containing monazite, apatite, and xenotime enriched in heavy REE. Significant REE and some thorium mineralization has been identified in areas referred to as the Lopez and Santos trends and Black Butte and NED areas. Based on previous exploration work, including drilling in 2012 and the 2013 geophysical survey, a new geologic model was being prepared. The Lopez trend may represent part of the eastern limb of a large, possibly overturned, fold with the nose and western limb, represented by the Santos Trend. Shallow alluvium covers most of interpreted fold. If the interpretation is correct, the REE-bearing host units in the Lopez Trend may have a strike length of 3.8 miles (Elissa Resource, Ltd., management discussion and analysis, 3/24/2014; Elissa Resource, Ltd., website, http://www.elissaresources.com).

Salt

According to the USGS, the estimated domestic production of salt increased 8% in 2013 to 44,200,000 tons valued at $1,600,000,000. According to data from NDOM, Nevada's only producer, the Huck Salt Co., produced 23,000 tons of salt, a decrease of 20% from 2012. The Nevada Department of Taxation reported gross proceeds at $626,048, an increase of 48% from 2012. The salt is mainly used for de-icing roads, and production levels are dependent on weather. The salt 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 the mills that processed Comstock silver and gold ore.

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 3% in 2013 to 57,900,000 tons, an all-time high. The value of 2013's production was $2,600,000,000. Estimated domestic consumption increased 3% in 2013 to 53,100,000 tons. The U.S. is a major exporter of silica, and exports were

estimated at 4,850,000 tons, an increase of 1% from 2012. The estimated average price was $45.00 per ton, a decrease of 6% from 2012.

The uses of silica are: 1) hydraulic fracturing sand and well-packing and cement sand, 62%; 2) manufacturing glass, 16%; 3) foundry sand, 9%, and 4) fillers and building products, golf course sand, and other uses, 13%. Most silica production in Nevada goes to manufacturing glass and foundry castings and construction materials and a small amount to golf sand.

The Nevada Department of Taxation reported gross proceeds to be $15,847,249, an increase of 34% from 2012. According to data from NDOM, Nevada's major silica producer, Simplot Silica Products at Overton, Clark County, shipped 600,936 tons of silica sand, an increase of 44% from 2012. 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.

James Hardie Building Products, Inc., produced high purity silica from the Lucky Boy Quarry about 10 miles southwest of Hawthorne, Mineral County. The material is transported to the company's crushing plant near Reno. Production is confidential, but the Nevada Department of Taxation reported gross proceeds at $467,892, a decrease of 56% from 2012. 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 1300-foot by 350-foot body of milky quartz hosted in granodiorite.

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.

Zeolites

Nevada contains large resources of zeolite; however, zeolite production has been small, and no zeolite is currently mined in Nevada. Saint Cloud Mining Company 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 with a reported reserve of 53,700,000 tons of largely clinoptilolite, located eight miles west of Death Valley Junction in California about 85 miles northwest of the plant. 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			
Carson Sink Salt Project (Carson Sink district)	NaCl	1978: 3,600,000 tons (recoverable NaCl)	
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)	
Chapparal (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 2013: 1,177,633 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)	

INDUSTRIAL MINERAL DEPOSITS (continued)

Deposit name	Minerals	Reserves/resources	Production
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
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 1999-2013: N/A
EUREKA COUNTY			
Bisoni (Fish Creek) (Fish Creek district)	Fluorspar	1970s: "many 100,000s" tons, 10% CaF_2 1987: >120,000,000 tons, 10% CaF_2 2014: 9,800,000 tons, 10.3% CaF_2 (JORC compliant indicated mineral resource, 8% CaF_2 cut-off); 32,500,000 tons, 10.4% CaF_2 (JORC compliant inferred mineral resource, 8% CaF_2 cut-off)	
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
Nevada Fluorspar (Iowa Canyon district)	Fluorspar	1974: 924,000 tons, 26% CaF_2	1945-1975: N/A
LINCOLN COUNTY			
Acoma (Acoma district)	Perlite	1951: 38,700,000 tons (indicated reserves) 21,850,000 tons (inferred reserves)	

INDUSTRIAL MINERAL DEPOSITS, LINCOLN COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
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)	
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)	
Tenacity (South Pahroc Range district)	Perlite	1950s: 15,000,000 tons (reserves)	1950-2013: N/A
LYON COUNTY			
North of Rosetta Mine (Red Mountain district)	Limestone	1959: 1,000,000 tons (estimated)	
South of Rosetta Mine (Red Mountain district)	Limestone	1959: 400,000 tons (estimated)	
MINERAL COUNTY			
Fluftrok (Aurora district)	Perlite	1950s: 300,000 tons (resource)	

INDUSTRIAL MINERAL DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
Fluorspar King and Blue Bell (Buena Vista district)	Fluorspar	1945: 25,000-37,500 tons, 65% CaF_2	1929: 200 tons
NYE COUNTY			
Carrara (Bare Mountain district)	Marble	2003: 60,000,000 tons	1914-1934: ~10,000 tons
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)	1935-2013: 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)	1981-2013: <2,000 tons annually
Valery (Imlay district)	Fluorspar	1965: 800,000 tons, 25% CaF_2	1953-1955: 1,932 tons
WASHOE COUNTY			
Spanish Springs Quarry (Nevada district)	Aggregate	2012: 139,849,000 tons, hard rock (reserve) 2013: 139,342,000 tons, hard rock (reserve)	1984-2013: N/A
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 Alexandra Reid

Geothermal activity in 2013 culminated in two success stories at Wild Rose and a blind geothermal system at McGinness Hills. McGinness Hills initially went into operation in 2012, but experienced such success in the early development of the field that an additional 22 MW was added to the project in 2013. This brought the project capacity to 52 MW, one of the largest fields developed in Nevada. The Wild Rose project came online in late 2013 both under budget and ahead of schedule delivering power from its new 16 MW facility. Both these projects helped to increase total geothermal production capacity for the state to 593 MW, second only to California in installed capacity in the U.S.

Additional indications of continued geothermal development are reported by Nevada Division of Minerals who issued 2 project area permits and 21 geothermal well permits in 2013 that included the following: 10 industrial production well permits, 2 industrial injection well permits, 1 domestic well permit, 1 gradient well permit, and 7 observation well permits,. A total of 23 geothermal wells of all types (see table of Nondomestic Geothermal Wells below for complete listing) were reported as drilled during 2013, 8 of which were production wells: 10 of the wells drilled were permitted in 2012.

Nevada geothermal electrical production in 2013 from federal and private lands combined was 3,456,380 megawatt-hours (MWh) gross and 2,577,515 MWh net. This was an increase in gross production of 318,726 MWh, compared to the 2012 production, and an increase in net production of 167,179 MWh from 2012. According to the Nevada Department of Taxation (2014), the total 2013 gross proceeds from geothermal power generation in Nevada were $184,672,029 ($22 million greater than in 2012), with the largest gross proceeds generated by the Steamboat complex at $39.7 million ($2 million less than in 2012; $4 million less than in 2011), followed by Dixie Valley at $30 million. The total proceeds were not entirely from power generation but also included Elko Heat Company's $219,378 gross proceeds from commercial heating and Nevada Geothermal Utility Company's $102,117 (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 capacity (nameplate/ gross) at 16 existing geothermal power production sites (24 power plant units) in Nevada is 593.3 megawatts (MW), an 81.3 MW increase from 2012. Table 1 lists operators, plant locations, and energy production for individual Nevada geothermal power producers at the end of 2013 (based on data supplied to the Nevada Division of Minerals by individual companies). Figure 1 shows the location of these power plants.

In Nevada during 2013, there were 11 authorized federal leases covering approximately 7,056 acres, offered for bid (Table 2) on January 29 and November 29. This shows a decline from previous years from 2007 to 2012 in both the number of leases sold and the percent of available leases that were 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. However, 69% of the leases offered were sold in 2013, although far fewer acres were sold than in previous years. Figure 2 shows the location of active geothermal leases in Nevada as of December 2013; data were obtained from the BLM LR2000 database and prepared by the Nevada Bureau of Mines and Geology.

Total lease sale income in 2013 in Nevada was $42,870 in comparison to the peak year of 2008 in which $28,207,806 were generated. (Tables 2 and 3). Only 0.15% of the dollars generated from BLM lease sales in the peak year of 2008 were collected from lease sales in 2013, which is an indication of the decline in geothermal exploration activity in Nevada since the somewhat artificial peak in 2008 (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 (BLM web site, 2013).

Table 1. Nevada geothermal power plants, 2013.

Plant name	Nameplate Capacity (MW)[1]	Flash or Binary	Commission Year	2013 Production (MWhr) Gross	Net	Location	Operator
Beowawe [2]	18.0	F/B	1985	131,732	110,307	S13,T31N,R47E	Terra-Gen Power
Blue Mountain/Faulkner I	49.5	B	2009	311,033	232,256	S14,T34N, R34E	NGP Blue Mountain 1 LLC
Brady	26.1	F/B	1992	100,785	56,443	S12,T22N,R26E	Brady Power Partners (subsidy of Ormat)
Desert Peak			1985	0	0	Decommissioned	Ormat Nevada
Desert Peak II [3]	23.0	B	2006	112,386	83,553	S21,T22N,R27E	Brady Power Partners (subsidy of Ormat)
Dixie Valley	64.7	F	1988	555,148	495,129	S7,T24N,R37E	TerraGen Power, LLC
Dixie Valley Binary Unit	6.2	B	2012			S33,T25N,R37E	
Don A. Campbell (Wild Rose)	22.5	B	2013	24,929	20,047	S12, T11N, R32E	Ormat Nevada
Jersey Valley	23.5	B	2011	107,857	76,248	S28,T27N,R40E	Ormat Nevada
McGinness Hills	52.0	B	2012	391,928	328,814	S15, T20N, R45E	Ormat Nevada
Patua	30.0	B	2012	2,880	1,709	S21, T20N, R26E	Gradient Resources
Salt Wells	23.6	B	2009	148,765	110,098	S36,T17N,R30E	Enel Salt Wells
San Emidio	11.75	B	2012	102,783	76,626	S21,T29N,R23E	U.S. Geothermal Inc
(1987, formerly Empire, expanded and repowered 2012)							
Soda Lake No. 1	5.1	B	1987	21,798	19,642	S33,T20N,R28E	Alterra Power Corp.
Soda Lake No. 2	18.0	B	1991	87,189	47,510	S33,T20N,R28E	
Steamboat I*	8.4	B	1986	0	0	S29,T18N,R20E	Ormat Nevada
Steamboat I-A	2.4	B	1986	0	0	S29,T18N,R20E	
Steamboat II	23.9	B	1992	121,449	79,337		
Steamboat III	23.9	B	1992	121,761	84,922		
Galena 1	30.0	B	2005	183,056	152,500		
Galena 2	13.5	B	2007	78,278	55,800		
Burdette (Galena 3)	30.0	B	2008	197,084	151,389		
Steamboat Hills	13.2	F	1988	194,962	81,306	S5,6,T17N,R20E	
(1988, 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	236,881	153,978	S6,T19N,R31E	
Tuscarora	32.0	B	2012	205,360	149,313	S2, T41N, R52E	Ormat Nevada
Wabuska	5.6	B	1984	18,336	10,589	S15,16,T15N,R25E	Homestretch Energy
Total:	**593.3**			**3,456,380**	**2,577,515**		

Footnotes to Table 1.

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

1: Nameplate 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).

2: Original installed capacity of 16.6, increased to 17.7MW in 2006 after improvements were made to reinjection strategies. Additional 1.5MW in 2011 from a new binary bottoming-cycle plant added.

3: Desert 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.

Table 2. Geothermal power plant operator contact information.
Addresses, telephone numbers, and websites for companies listed in Table 1 follow (as of fall 2013):

Operator	Local (Nevada) Office	Project	MW
Enel North America One Tech Drive Suite 220 Andover, MA 01810 Phone: 978-681-1900	Enel North America 1755 East Plumb Lane, Suite 155 Reno, NV 89502 (775)557-2940 http://www.enel.it/northamerica/	Salt Wells Stillwater	23.6 47.2
Homestretch Energy Business Office 1147 N. Daybreak Dr. Washington, UT 84780 (435) 668-6003	Homestretch Energy Generating Facility 10 Julian Lane Yerington, NV 89447 (775) 741-7921 http://www.homestretchenergy.com/	Wabuska	5.6
Alternative Earth Resources Suite 900 - 409 Granville Street Vancouver, BC Canada, V6C 1T2 (866) 688-0808	NGP Blue Mountain 1 LLC 657 Anderson St Winnemucca, NV 89445 (775) 625-4515 http://www.alternative-earth.com/s/Home.asp	Blue Mountain (Faullkner 1)	49.5
*Brady Power Partners (subsidiary of Ormat Nevada Inc.) 6225 Neil Rd Reno, NV 89511 (775) 356-9029 http://www.ormat.com/	Ormat Technologies, Inc. 6225 Neil Rd Reno, NV 89511 (775) 356-9029 http://www.ormat.com/	*Bradys Desert Peak II Jersey Valley McGinness Hills Steamboat 2-3 & Hills Tuscarora Don A Campbell Burdette (Galena 1) Galena 2 & 3	26.1 23 23.5 52 61 32 22.5 30 43.5
Alterra Power Corp 600 - 888 Dunsmuir Street Vancouver, BC Canada V6C 2K4 (604) 669-4999; (877) 669-4999	Alterra Power Corp, (Magma Energy) 5500 Soda Lake Road Fallon, NV, 89406, USA (775) 867-5093 www.magmaenergycorp.com	Soda Lake No. 1 Soda Lake No. 2	5.1 18
Terra-Gen Power, LLC 1095 Avenue of the Americas 25th Floor, Suite A New York, NY 10036 (646) 829-3900	Terra-Gen Power, LLC 9590 Prototype Ct., #220 Reno, NV 89521 (775) 851-1125 http://www.terra-genpower.com/	Beowawe Dixie Valley Dixie Valley Binary	16.6 64.7 6.2
U.S. Geothermal Inc 390 E. Parkcenter Blvd, Ste 250 Boise, Idaho 83706 (208) 424-1027	U.S. Geothermal Inc P.O. Box 10 Empire, NV 89405 (775) 557-2015 http://www.usgeothermal.com/index.aspx	Empire (San Emidio)	11.8
	Gradient Resources 2440 Vassar Street Reno, Nevada 89521 (775) 284-8842 www.gradient.com/	Patua	30
	Total Installed MW (nameplate capacity)		**593.3**

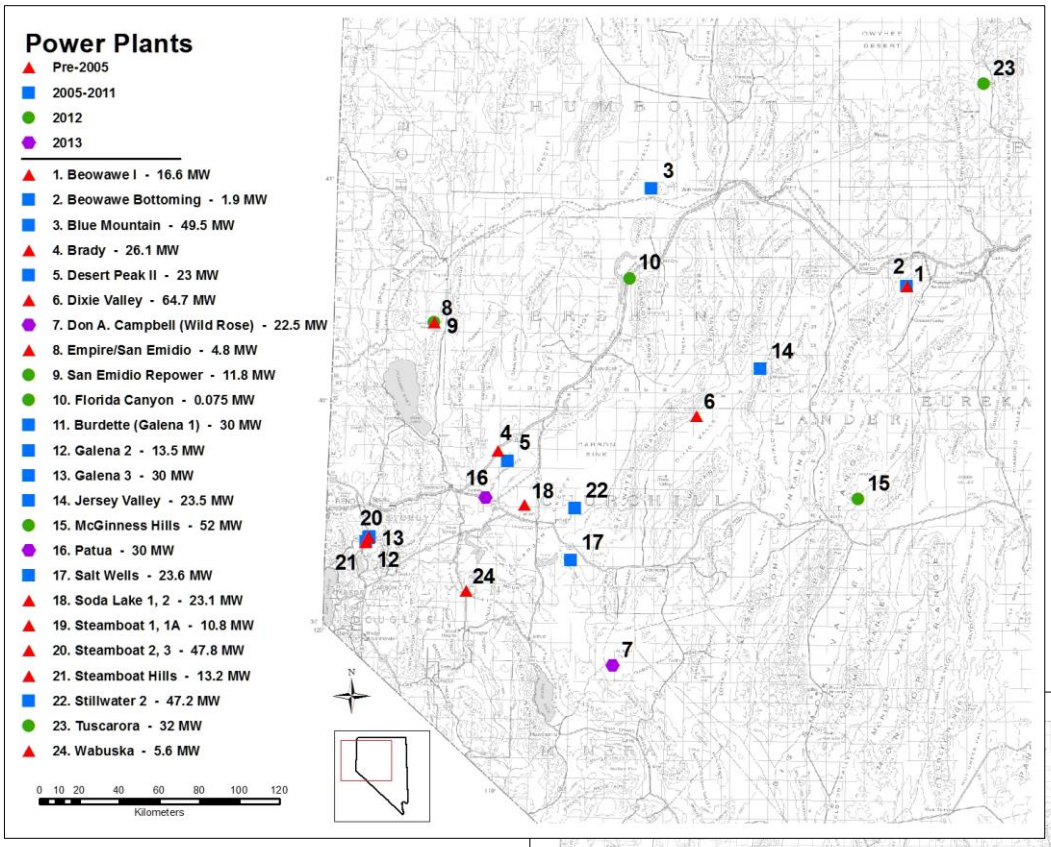

Figure 1. Locations of existing power plants noted in Table 1 (as of December 2014; modified from Shevenell and Zehner, 2011).

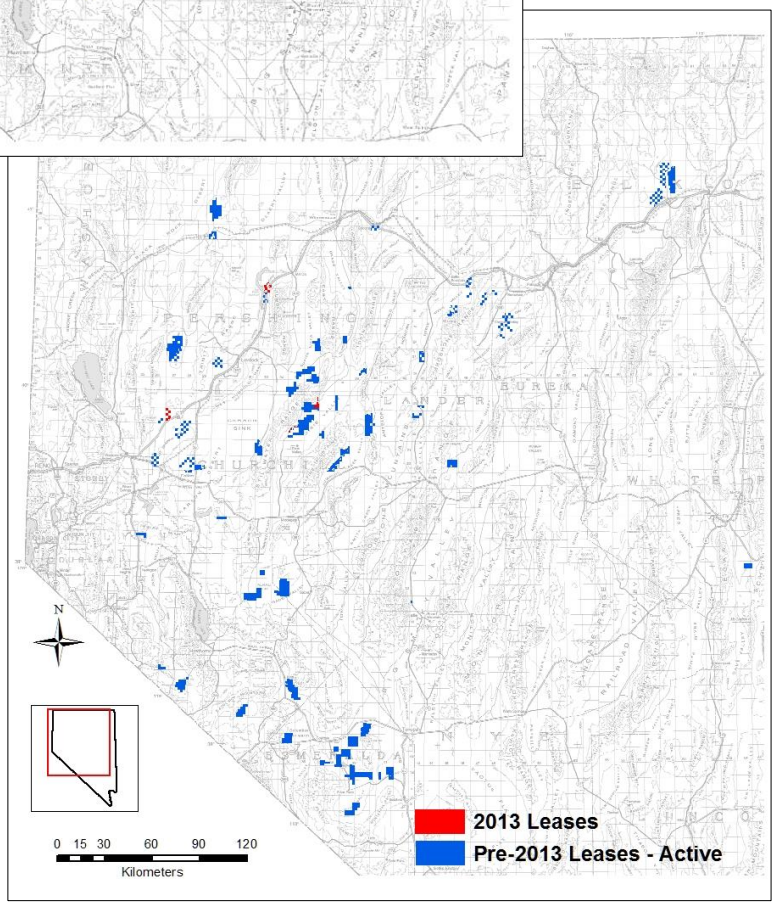

Figure 2. Locations of active geothermal leases in Nevada as of December 2013, highlighting those offered in 2013 in red. Does not include leases that were authorized in LR2000 through the end of the year, but had been submitted for relinquishment prior to 12/2013.

Table 3. 2013 BLM lease sales results from the January 29 and November 19, 2013 lease sales. Note that the last two entries were sold non-competitively based on a search of BLM's LR2000.

Location	Company	T (N)	R (E)	Sec	BID/ACRE	ACRES	TOTAL Bonus Bid
Hot Springs Flat	Ormat Nevada Inc	23N	27E	6	$2.00	1836	$3,674.00
Bog Hot Valley	Ormat Nevada Inc	46N	28E	22	$2.00	3053	$6,108.00
Denio/Bog Hot Valley	Ormat Nevada Inc	47N	30E	18	$2.00	640	$1,280.00
Rye Patch/Florida Canyon	Presco Energy LLC	31N	33E	4	$2.00	1366	$2,734.00
Dixie Valley	ORNI 32 LLC	22N	35E	3	$2.00	160	$320.00
Hot Springs Flat	Ormat Nevada Inc	23N	27E	20	$2.00	1402	$2,804.00
Rye Patch/Florida Canyon	Presco Energy LLC	32N	33E	28	$2.00	1320	$2,640.00
Dixie Hot Springs	Ormat Nevada Inc	22N	35E	7	$2.00	520	$1,040.00
Tungsten Mountain	Ormat Nevada Inc	21N	38E	13	$2.00	75	$150.00
Dixie Valley	Blue Mtn Research & Devel.	24N	36E	12	$1.00	640	$640.00
Dixie Valley	Blue Mtn Research & Devel.	24N	36E	24	$1.00	1600	$1,600.00

Table 4. Geothermal competitive leasing activity in Nevada, 2007–2013.

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%
2013	13	16,284	9	10,373	$42,870	$4.13	64%	69%
Totals:	397	1,141,535	269	764,992	$52,161,127	$60		

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

As can be seen from Tables 3 and 4, geothermal leasing activity had declined dramatically by 2011 through 2013, with only minimum-bid offers on all the properties. Of the total number (348) of leases sold from 2007-2013 (including non-competitive), 186 (53%) of the leases were relinquished, allowed to expire, or terminated by BLM during this time period.

According to the Geothermal Energy Association, at the end of 2013, 45 projects (compared to 75 projects at the end of 2012) were in various stages of development in Nevada, which could result in the construction of approximately 718 MW of additional power generation capacity over the next 5 to 10 years (GEA, 2014).

Plant nameplate capacity by year is shown in Table 1 and Figures 1 and 3, price and production data appear in Figure 4, and production wells drilled by year are graphed in Figure 5, with detail on those wells listed in Table 5.

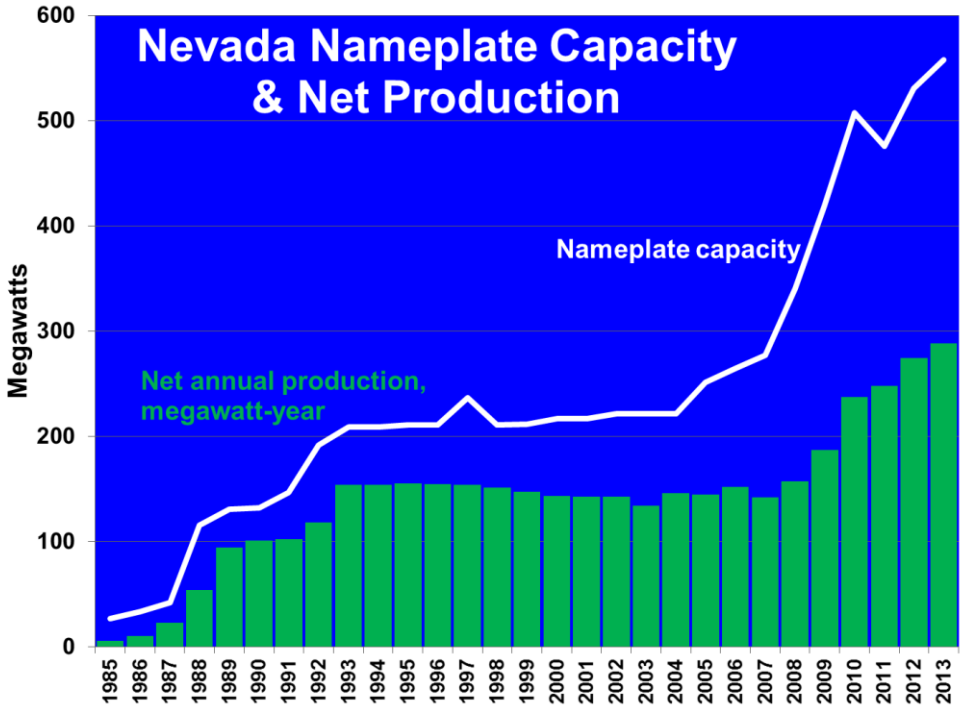

Figure 3. Graph of annual geothermal electric power based on reported nameplate capacity to the Division of Minerals by year from 1985-2013. Average net output is annual sales in megawatt-hours divided by the number of hours in a year (8,760). No commercial geothermal power was produced in Nevada before 1985.

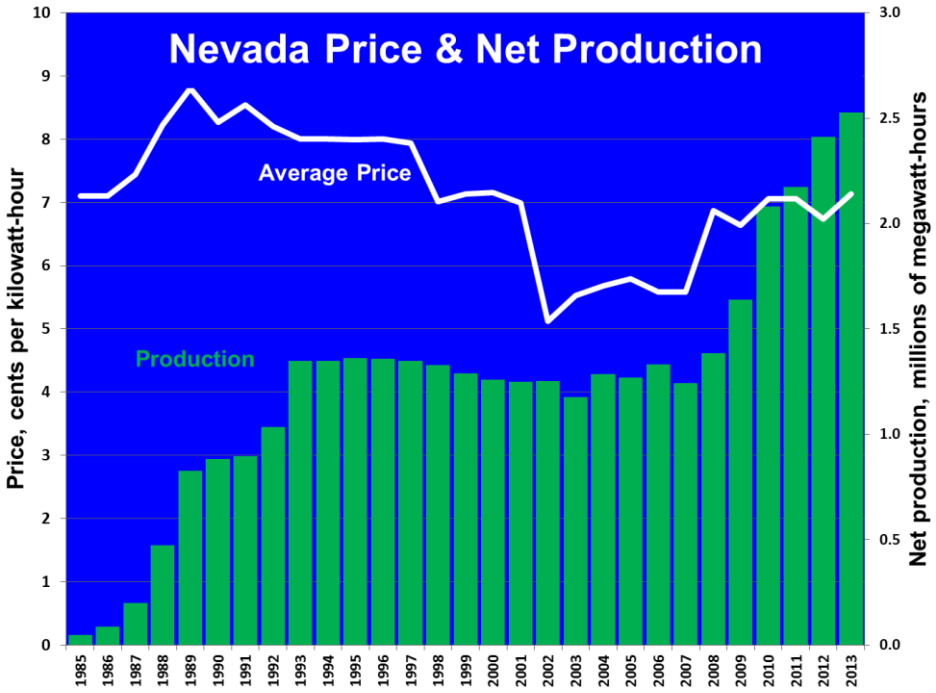

Figure 4. Graph of annual, net geothermal electric power production and average priced-based on gross receipts and reported gross production through 2013. Note that average price is based on the total MWh produced and total receipts. Actual price for any individual power plant may vary and is held confidential by the state Energy Office.

Table 5. Geothermal wells reported as drilled, re-drilled or completed in 2013.

Area	Company Name	Well Type[1]	Well Number	PRMT #	Location	Permitted Depth (ft)	SPUD Date
Lyon County							
Patua I	PATUA PROJECT	P	23-17 (ST-1)	826	SW/4 NW/4 S 17, T20N, R26E	10,000	1/29/2013
	PATUA PROJECT	P	23-17 (ST-2)	826	SW/4 NW/4 S 17, T20N, R26E	10,000	3/15/2013
	PATUA PROJECT	P	36-17	1321	NE/4 SW/4 S17, T20N, R26E	9,500	3/4/2013
	PATUA PROJECT	P	36-17 (ST)	1321	NE/4 SW/4 S17, T20N, R26E	9,500	6/8/2013
Churchill County							
Stillwater	ENEL STILLWATER	I	68-31 Δ FRM 67-31	1284	SW/4 SE/4 S 31, T20N, R31E	±2,000	11/13/2013
Patua I	PATUA PROJECT	I	38(51-28)21	1316	SE/4 SW/4 S 21, T20N, R26E	10,800	1/16/2013
	PATUA PROJECT	I	38(43-28)21 (ST 1)	1316	SE/4 SW/4 S 21, T20N, R26E	10,800	4/25/2013
	PATUA PROJECT	I	38(22-28)21 (ST 2)	1316	SE/4 SW/4 S 21, T20N, R26E	10,800	6/9/2013
	PATUA PROJECT	I	38(25)21 (ST 3)	1316	SE/4 SW/4 S 21, T20N, R26E	10,800	7/9/2013
	PATUA PROJECT	I	78-20	1323	SE/4 SE/4 S 20, T 20N, R 26E	10,500	2/13/2013
	PATUA PROJECT	P	14(12)28	1327	SW/4 NW/4 S 28, T20N, R26E	10,500	5/20/2013
	PATUA PROJECT	P	14(11)28 (ST 1)	1327	SW/4 NW/4 S 28, T20N, R26E	10,500	8/6/2013
Tungsten Mountain	ORNI 43	O	84-22	1324	SE/4 NE/4 S 22, T21N, R38E	4,500	9/22/2013
Washoe County							
San Emidio	USG NEVADA NORTH	O	12 (58A-33)	1301	SW/4 SE/4 S 33, T30N, R23E	3,000	9/2/2013
Reno International Airport	UNR BOARD OF REGENTS	TG	RENO AIRPORT TG-1	1338	SW/4 SE/4 S 19, T19N, R20E	1,000	9/11/2013
Elko County							
Tuscarora	HSS II	O	35-8	1306	NE/4 SW/4 S 8, T41N, R52E	4,000	5/25/2013
	HSS II	O	33-17	1333	SE/4 NW/4 S 17, T41N, R52E	±4,000	6/8/2013
	HSS II	O	36-8	1334	NE/4 SE/4 S 8, T41N, R52E	±4,000	6/9/2013
Mineral County							
Wild Rose	ORNI 47	O	38-12	1320	SE/4 SW/4 S 12, T11N, R32E	3,000	11/16/2013
Lander County							
McGinness Hills	ORNI 39	O	22A-10	1326	NW/4 NW/4 S 10, T20N, R45E	4,000	2/6/2013
	ORNI 39	P	25-10	1341	NW/4 SW/4 S10, T20N, R45E	5,000	12/18/2013
	ORNI 39	P	27-10	1342	SW/4 SW/4 S 10, 20N, R45E	4,475	12/15/2013

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

A comparison shows the steady increase in geothermal activity between 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 3 shows the changes in BLM permitting results over seven years. The peak in revenue was in 2008, whereas the peak in acres and parcels sold and permits issued was in 2009, consistently decreasing thereafter. The total number of wells drilled and production wells drilled has continued to decline following 2010, although the numbers appear to be stabilizing by 2013 (Table 6).

Table 6. Geothermal drilling activity, 2007–2013.

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
2013	53	22	8

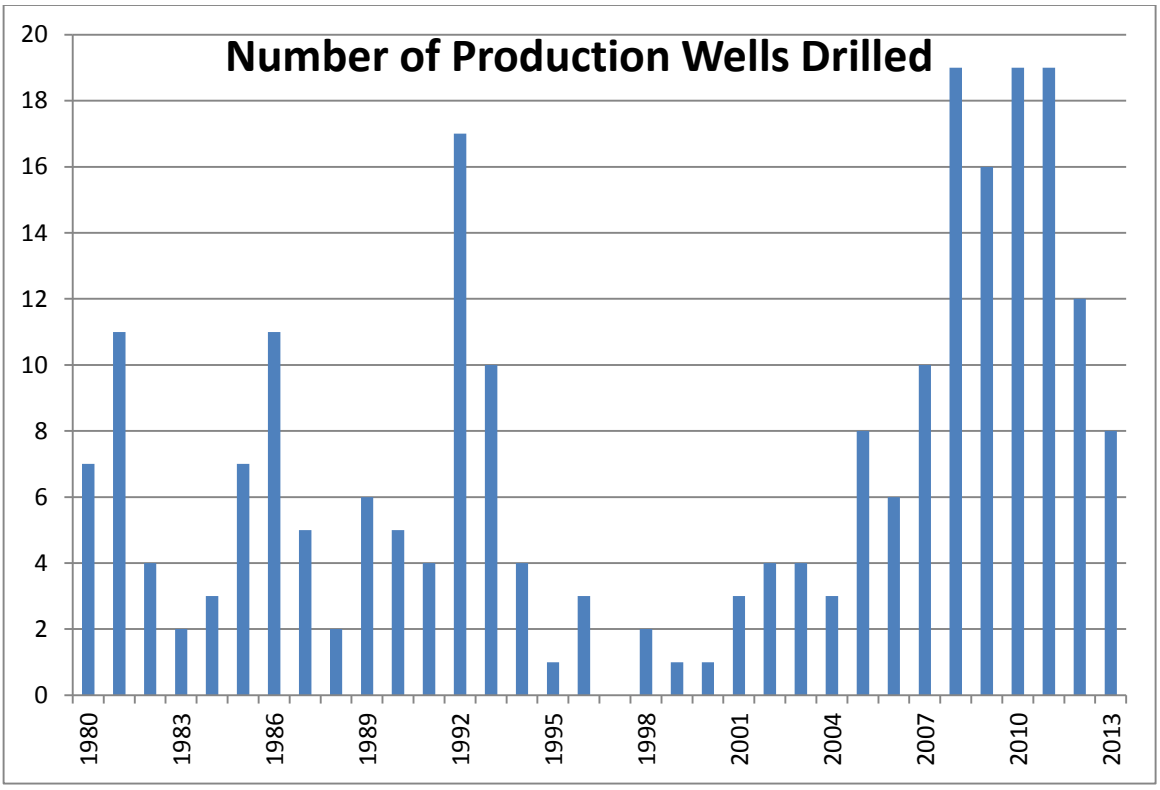

Figure 5. Industrial-class (power-generating) wells drilled in Nevada, 1980–2013 (excludes injection, observation and gradient wells).

ACTIVITY DURING 2013

The following sections summarize activities that occurred in 2013 at specific geothermal areas in Nevada. Text descriptions are included for sites for which information was either available publicly or through direct communications with operators.

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 km^2) 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 370.4°F (188°C) 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 (4.4°C/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. In January, 2013 NGP transferred its 100% interest in NGP Blue Mountain HoldCo LLC ("BM HoldCo") to Blue Mountain Power, LLC, a company owned by EIG Global Energy Partners. BM HoldCo holds a 100% interest in NGP Blue Mountain I LLC ("NGP 1") which in turn owns all of the project assets including leases, operating permits and licenses, the power plant, well field, and all other physical or contractual assets of the Blue Mountain Project.

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 farther 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.

Bradys, Churchill County – Ormat Technologies

In January 2013, the BLM approved a request to implement a well stimulation program at Bradys to initiate development and testing of a reservoir using enhanced geothermal system technology (EGS). This new technology will be implemented near the existing field that is currently producing 26.1 MW (gross) of power. The EGS project is partially supported by a grant from the US Department of Energy to support their long term goals of demonstrating EGS technologies.

Coyote Canyon, Churchill County – Terra-Gen Power

Terra-Gen Power (TGP) has proposed construction of 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 their Coyote Canyon South property, which is directly south of the Coyote Canyon geothermal project area previously analyzed. Up to 15 wells were proposed to be drilled to 6,000 to 10,000 ft (1,830-3,048 m). In 2013, the BLM issued a Decision Record for Terra-Gen to proceed with development of the property. However, no drilling activity was reported by the Nevada Division of Minerals at Coyote Canyon in 2013.

Dixie Hope, Churchill County – Ormat Technologies

The Dixie Hope geothermal area is located in Dixie Valley at 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 for 2013 activities.

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 ~347°F (175°C) reservoir. The Great Basin Center for Geothermal Energy identified a shallow (2 m) thermal anomaly that coincides 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 (305 m) 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 (3,082 ha) 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 interpreted 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. In September 2013, Ormat spudded observation well 84-22, permitted to a depth of 4500 ft (1,372 m).

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. The "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 hot wells at the mine. 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 research and development 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 was built and tested in 2011 at ElectraTherm in Reno. It was installed at the Florida Canyon Mine and successfully commissioned in April 2013. The 75 kWe plant is utilizing low-temperature (170-240°F; 77-116°C) geothermal brine to generate electricity from water flowing into the unit at approximately 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 performing assessments on the Patua geothermal property for the last several years. The Patua geothermal project is located about 38 miles (about 61 km) east of Reno and 10 miles (16.1 km) east of Fernley. Thirteen hot springs occur in the project area that range in temperature from 82 to 204ºF (28 to 96°C). In 1962, Magma Power drilled three wells from 300 to 750 ft (91 to 230 m), recording a maximum temperature of 270ºF (132°C). In 2008 and 2009, Vulcan conducted an extensive exploration program including well drilling (some with core); 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).

The power plant itself is located on private property, but wells are located on federal lands under BLM lease in Churchill and Lyon Counties. The Patua Project is proceeding in phases, the first being a 30 MW power plant, under a Power Purchase Agreement (PPA) with Sacramento Municipal Utility District (SMUD). The lending group, led by Union Bank, N.A., included Canadian Imperial Bank (CIBC), ING Capital LLC, and Siemens Financial Services. Initial construction work at the Patua site began in Q3 2011, with commercial operations slated for the end of 2012. The commissioning date was not met, but Patua began commercial operation in December 2013.

Work began in 2011 on Patua Phase 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. An additional six production wells and five injection wells were drilled in 2013 to depths between approximately 9000 and 10,500 ft (2,743 m and 3,200 m).

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. 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. As development continued one injection well was drilled 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. This air-cooled binary power plant, with a 36 MW (net) capacity, has been providing 30 MW to the NV Energy transmission system since July 2012. Five of the wells drilled have very high flow rates of 2350 gpm (8,900 l/min), which is only limited by pump capacity (Nordquist and Delwiche, 2013). As such, an additional Organic Rankine Cycle (ORC) unit was installed in 2013 after only one year of operation, bringing the total field production to 52 MW (nameplate capacity). New wells drilled in 2013 included two production wells drilled to depths of approximately 5000 ft (1,524 m) and one observation well of approximately 4000 ft (1,219 m).

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 continued 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. However, Enel added a new production well to the south end of their field in 2013, discontinuing use of the production well in the northernmost part of the field (Hinz et al., 2014)

San Emidio Geothermal Areas, Washoe County-Us Geothermal

In 2007, U.S. Geothermal, Inc. (USG) 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.

Regarding exploration at San Emidio, U.S. Geothermal encountered the highest temperatures found to date at the property (160°C, 320°F) after deepening well 45-21 beyond 800 feet (244 m). Also in Section 21, well OW-10 intersected 300°F (149°C) temperatures with accompanying permeability. Several kilometers east of the plant area, U.S. Geothermal drilled three <3,000-foot (<914 m) 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 315°F (157°C).

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, U.S. Geothermal 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, U.S. Geothermal started performance testing on the new 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 under a 25 year power purchase agreement with Sierra Pacific Power. 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 March, 2013, U.S. Geothermal Nevada LLC received the final $1.05 million balance of its $11.75 million grant from the U.S. Department of Treasury, which is a cash grant for Specified Energy Property in Lieu of Tax/Credits relating to the San Emidio geothermal power plant expansion project. Power availability for the fourth quarter of 2013 was reported at 98.3%, with generation in December averaging 9.96 net megawatts per hour for all hours the unit was in service. Under the terms of the PPA, generation during the quarter was paid at the price of $90.27 per megawatt-hour. For 2014, the contract price will increase from $90.27 to $91.17 per megawatt-hour.

Drilling for Phase II began in September 2013, with one observation well being completed in 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 118°F (47.8°C; Waring, 1965). Mariner et al. (1983, p. 105) estimated the reservoir temperature to be 284 ºF and 288ºF (140ºC and 142ºC) 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 76ºF (24.6ºC) 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 167ºF (74.8ºC; Ca-Na-K; Fournier and Potter, 1979) and 152ºF (66.8ºC; chalcedony; Fournier, 1977). A monitor well 1 km NE measured warm (no temperature specified) (Jennings, personal comm., 2008), as did a second pumping station well (26ºC; 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 (1,524 m) in December, 2012. No additional information is available for 2013.

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. One additional injection well was drilled in 2013.

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 zone approximately 3 km long within a small accommodation zone in a broad step over between two west-dipping range-front faults (Dering and Faulds, 2012). Waters from the hot springs were analyzed and subsurface temperatures of 442ºF and 333ºF (228ºC and 167ºC) 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 (1,662 m), 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 156º to 225ºF (69º to 108ºC). In 2003-2004 Earth Power Resources, which had the lease on the resource rights at that time, discovered a geothermal resource over 330ºF (166ºC) between the depths of 2,950 and 3,810 feet (900 and 1,161 m). 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 3 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. Production continued into 2013, and 3 additional observation wells were drilled to depths of approximately 4000 ft (1,219 m).

The success of the Tuscarora project is the result of years of work by several private companies. Earth Power Resources signed a PPA with NV Energy but did not demonstrate commercial viability, and sold the project to TG Power in 2006. TG Power drilled a 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 developed a commercially viable project in 2012 with a capacity of 32 MW. (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 (35 km) west of Gabbs, NV, in Mineral County. This resource is also known as Don Campbell for the power plant, and Deadhorse Wells by the BLM. This system is apparently associated with a series of synthetic and antithetic NE-striking, moderately to steeply dipping normal faults linked to dextral faults in the east-central part of the Walker Lane Belt (Orenstein and Delwiche, 2014).

Resource development includes a 15-35MW net (up to 40 MW gross) geothermal power plant and electrical substation, which includes construction and operation of a 22-mile (35 km), 120-kV generation-tie to Highway 261, along with a switching station. In 2010, anomalously high temperatures up to 267°F (130°C) were encountered at depths within 200 ft (61 m) of the surface. 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 (457 to 549 m) (permitted depths). By the end of 2012, all wells required to operate the power plant had been drilled. An additional 3000 ft (914 m) observation well was drilled in 2013.

In April 2013, Ormat entered into a 20-year Power Purchase Agreement (PPA) with Southern California Public Power Authority (SCPPA) to deliver electricity from their new 16 MW (net) Wild Rose power plant. Construction on the plant and surface piping began in the spring of 2013. The binary, air-cooled power plant came into firm operation in December 2013 ahead of schedule and below budget, producing a low temperature (260°F; 127°C) resource for power generation (Orenstein and Delwiche, 2014). Ormat is selling the power to SCPPA at $99 per megawatt hour (no annual escalation). SCPPA is reselling the power to the Los Angeles Department of Water and Power (LADWP) and Burbank Water and Power (BWP). The power is transmitted to LADWP and BWP through NV Energy's transmission system.

Acknowledgments

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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.nbmg.unr.edu/Geothermal/PublishedMaps.html# (includes zipped file of GIS layers)

Nevada Bureau of Mines and Geology Geothermal Resources of Nevada Website at http://www.nbmg.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.

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 2013 was 335,672 barrels, which accounted for 0.012% of total domestic production. Production was down 9% from 367,994 barrels in 2012. Production came from 63 actively producing wells in ten fields in Railroad Valley in Nye County, which accounted for 87% of the state's production, and seven wells in three fields in Pine Valley in Eureka County. One other minor field was shut in throughout 2013, and four other minor fields were plugged and abandoned. Nevada ranked 27th out of the 31 oil-producing states (http://www.eia.gov). According to the Nevada Division of Minerals (NDOM), the average per barrel net wellhead price for Nevada crude oil was $93.69 in 2013, which was an increase of 3% from $91.02 in 2012. The gross yield decreased 6% to $31,448,896.50 from $33,494,026 in 2012 (2013-2014 Net Proceeds of Minerals Bulletin). 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.

Production from Nevada's 70 actively producing wells ranged up to 102 barrels of oil per day and up to 3,292 barrels of water per day. The daily averages were 18 barrels of oil and 300 barrels of water per day. Thirty-seven wells were strippers (wells producing less than ten barrels of oil per day), and six produced more than 40 barrels of oil per day. Twenty-seven other wells listed as producers were shut in for the entire year. Of these, five had been shut in since 2012 and 18 had been shut in since before 2000.

For the third year in a row, Grant Canyon No. 10 in Railroad Valley was Nevada's most productive well in 2013. It averaged 102 barrels of oil and 859 barrels of water per day. It went into production in May 2010 after being plugged and abandoned for 17 years. Nevada's second highest producer in 2013 was Munson Ranch 12-43. It averaged 50 barrels of oil and 1.5 barrel of water per day. Trap Spring No. 19, which averaged 44 barrels of oil and 34 barrels of water per day, ranked third. Next, the 2013 activities of Nevada oil fields are summarized in alphabetical order.

The Bacon Flat Field in Railroad Valley averaged 18 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 field also had two inactive producers.

The Blackburn Field in Pine Valley (Fig. 1) produces from the Oligocene Indian Well Formation (tuff and tuffaceous sandstone), the Mississippian Chainman Shale (sandstone), and the Devonian Nevada Formation (dolomite) from depths between about 6,700 and 6,750 feet. The field had six active producers, four of which were active for more than 325 days and two for less than 45 days. Spread over the year, production for the field averaged 111 barrels of oil and 3,520 barrels of water per day, and accounted for 12% of Nevada's total oil production. Oil production from the field increased 6%, and water production decreased 9% from 2012. Daily per well oil production ranged between 13 and 45 barrels and averaged 28 barrels. Daily per well water production ranged between 53 and 2,410 barrels and averaged 895 barrels. Oil production increased in two wells and decreased three wells, and one well was brought back on line after being shut in since 2009. The field also had one inactive producer.

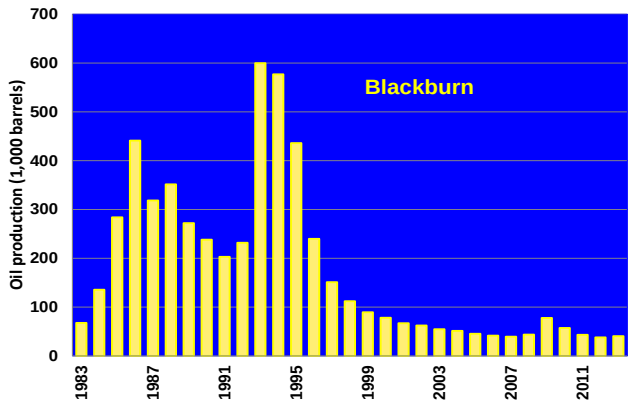

Figure 1. Chart showing oil production from the Blackburn Field in Pine Valley in Eureka County, from 1983 to 2013.

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 12 active producers. The average amount of days that these wells were producing was 226 days. Spread over the year, production for the field averaged 109 barrels of oil and 1,029 barrels of water per day and accounted for 12% of Nevada's total oil production (Fig. 2). Oil production decreased 10% and water production increased 4% from 2012. Daily per well oil production ranged between 1 and 18 barrels and averaged 13 barrels. Daily per well water production ranged between 2 and 565 barrels and averaged 167 barrels. Oil production increased in four wells and decreased in eight wells. The four wells that produced in 2012 were shut in throughout 2013. The field also had five other inactive producers, and a producer now used as a water disposal well.

The Ghost Ranch Field in Railroad Valley produces from dolomites of the Devonian Guilmette Formation between about 4,350 and 4,620 feet. In 2013, the field had four active producers, all of which produced the entire year. The field averaged 47 barrels of oil and 1,645 barrels of water per day and accounted for 5% of Nevada's total oil

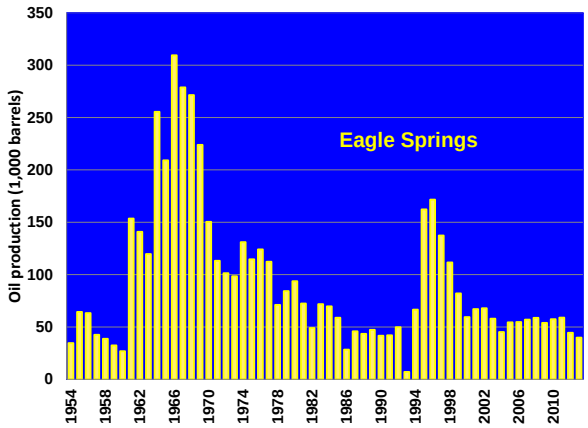

Figure 2. Chart showing oil production from the Eagle Springs Field in Railroad Valley in Nye County, from 1954 to 2013.

production in 2013. Oil and water production increased 1% and 25% respectively from 2012. Daily per well oil production ranged between 8 and 16 barrels and averaged 12 barrels. Daily per well water production ranged between 316 and 467 barrels and averaged 411 barrels. Oil production decreased in three wells and increased in one.

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 three producers that were active the entire year. Spread over the year, production for the field averaged 138 barrels of oil and 1,748 barrels of water per day and accounted for 15% of Nevada's total oil production (Fig 3). Oil and water production decreased 14% and <1%, respectively. Daily per well oil production ranged between 18 and 112 barrels and averaged 46 barrels. Daily per well water production ranged between 19 and 874 barrels and averaged 584 barrels. In the three producers, oil production decreased in two and increased in one. One well that produced in 2012 was shut in throughout 2013. The field also had one other inactive producer.

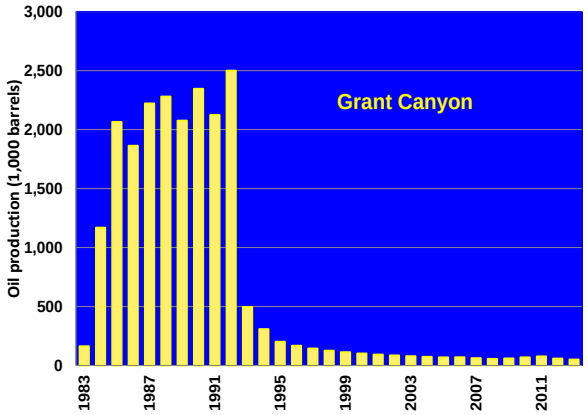

Figure 3. Chart showing oil production from the Grant Canyon Field in Railroad Valley in Nye County, from 1983 to 2013.

The Kate Spring Field in Railroad Valley produces from the Tertiary Horse Camp Formation (conglomerate and the Devonian Guilmette Formation between about 4,450 and 4,820 feet. It averaged 81 barrels of oil and 926 barrels of water per day, and accounted for 9% of Nevada's total oil production (Fig. 4). Oil and water production decreased 5% and 21%, respectively. Oil production increased in only one of the producing wells. All the active wells also produce natural gas. A total of 3,478 thousand cubic feet of gas was produced in 2013, a 3% decrease from 2012. The gas is used to operate production and related equipment at the lease sites of Makoil, Inc., and Western General, Inc. The field also contains two inactive producers.

The Sand Dune Field in Railroad Valley produces from

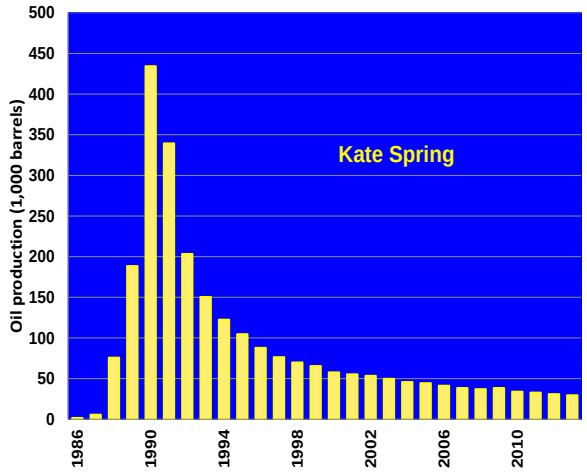

Figure 4. Chart showing oil production from the Kate Spring Field in Railroad Valley in Nye County, from 1986 to 2013.

Permian and Pennsylvanian limestones between about 5,970 and 6,200 feet. It's only well was active for 351 days and averaged 7 barrels of oil and 141 barrels of water per day and accounted for 0.8% of Nevada's total oil production. Oil and water production decreased 3% and 10% respectively.

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 43 days and averaged 31 barrels of oil per day with no water. It accounted for 0.4% of Nevada's total oil production. Production decreased 12% from 2012. The field also contains two inactive producers.

In the Tomera Ranch Field in Pine Valley, the latest production is from an unnamed conglomerate unit. Past production from three now plugged and abandoned wells was from the Oligocene Indian Well Formation (tuffaceous sandstone) between about 1,150 and 1,950 feet. The only producer was active for 363 days in 2013 and averaged a little over 10 barrels per day with no water. It accounted for 1% of Nevada's total oil production.

The Trap Spring Field in Railroad Valley produces from the Oligocene Tuff of Pritchards Station between

about 3,210 and 4,950 feet. The field had 35 active producers, which each averaged 288 days of production. Spread over the year, production for the field averaged 394 barrels of oil and 6,665 barrels of water per day and accounted for 43% of Nevada's total oil production (Fig. 5). Daily per well oil production ranged between 2 and 50 barrels and averaged 13 barrels. Daily per well water production ranged between 0 and 3,318 barrels and averaged 192 barrels. Oil and water production decreased 8%, and 1% respectively from 2012. Oil production increased in 13 wells and decreased in 21. One well that had been shut in since 2011 was brought back on line in 2013. The field also contains seven inactive producers.

Two minor fields in Railroad Valley produced 313 barrels of oil. The Currant Field's only production well averaged 27.7 barrels of oil per day and no water for 7 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 in Railroad Valley 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.

The following four minor fields produced in the past but are all now plugged and abandoned. Three Bar in Pine Valley contained three wells which produced from the Miocene Humboldt Formation, the Oligocene Indian Well Formation, and the Cretaceous Newark Canyon Formation between 5,720 and 7,070 feet. Deadman Creek in Elko County had only one well that produced briefly from the Humboldt Formation between 8,165 and 8,850 feet. Toano Draw in Elko County had only one well that produced from the Humboldt Formation between 8,250 and 8,950 feet.

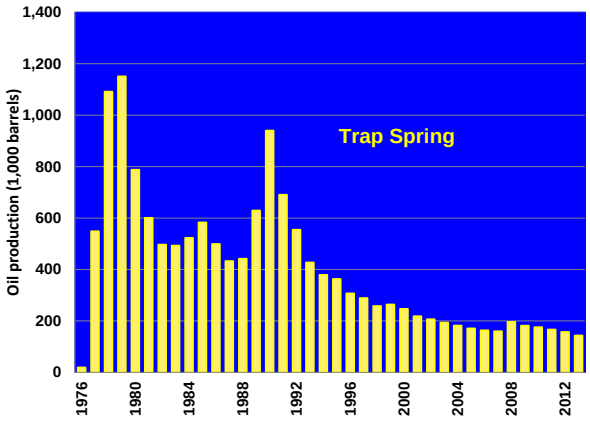

Figure 5. Chart showing oil production from the Trap Spring Field in Railroad Valley in Nye County, from 1976 to 2013.

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

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

Field (year discovered)	1954-2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Eagle Springs (1954) (Railroad Valley)	5,104,150	54,362	54,708	56,992	58,683	53,851	57,394	58,900	44,422	39,819	5,583,281
Trap Spring (1976) (Railroad Valley)	13,789,885	170,896	163,299	159,821	196,089	181,320	175,352	166,415	156,991	143,909	15,303,977
Currant (1979) (Railroad Valley)	1493	3	0	81	108	111	109	119	159	194	2,377
Bacon Flat (1981) (Railroad Valley)	983,964	7,556	8,112	8,301	7,968	7,764	7,427	6,358	5,690	6,447	1,049,587
Blackburn (1982) (Pine Valley)	5,091,660	45,369	41,491	39,477	43,600	77,730	57,260	43,198	38,004	40,392	5,518,181
Grant Canyon (1983) (Railroad Valley)	20,789,215	68,944	70,158	62,236	56,247	60,036	68,927	77,683	58,897	50,517	21,362,860
Kate Spring (1986) (Railroad Valley)	2,160,690	44,288	41,124	38,411	36,863	38,347	33,824	32,719	30,833	29,402	2,486,501
Spencer Lease (1986) (Railroad Valley)	86	0	0	0	0	0	0	0	0	0	86
Tomera Ranch (1987) (Pine Valley)	32,766	0	0	0	0	0	0	0	11,705	3,757	48,228
North Willow Creek (1988) (Pine Valley)	45214	2,064	2,552	1,256	56	0	0	0	0	0	51,142
Three Bar (1990) (Pine Valley)	23837	0	0	0	0	0	0	0	0	0	23,837
Duckwater Creek (1990) (Railroad Valley)	17991	185	122	150	120	120	118	115	117	119	19,157
Sans Spring (1993) (Railroad Valley)	258,501	3,324	3,265	2,971	2,407	1,419	1,494	1,404	1,498	1,318	277,601
Ghost Ranch (1996) (Railroad Valley)	431,036	37,874	30,255	26,070	23,615	24,011	21,630	18,605	17,022	17,231	647,349
Deadman Creek (1996) (Elko County)	367	0	0	0	0	0	0	0	0	0	367
Sand Dune (1998) (Railroad Valley)	93,672	11,878	10,618	10,562	10,467	9,883	3,687	2,483	2,656	2,567	158,473
Toano Draw (2007) (Elko County)				1,916	48	0	0	0	0	0	1,964
Total	48,824,527	446,743	425,704	408,244	436,271	454,592	427,222	407,999	367,994	335,672	52,534,968
Change from previous year		-4%	-5%	-4%	7%	4%	-6%	-4%	-10%	-9%	

NEW PRODUCERS

No new producers were completed in 2013.

EXPLORATION

Fifteen wells were permitted for oil and gas in 2013, up from thirteen permitted in 2012. Six wells were spudded, down from seven in 2012, and drilling was completed on three of these wells. Four were plugged and abandoned, one was still being drilled at year's end, and one was drilled but was still confidential (Fig. 6) . Another well that spudded late in 2012 was completed but was shut-in in 2013. Of the two wells completed in 2012, one was shut-in for several months into 2013 and the other was kept confidential well into 2013 before both were plugged and abandoned. One well spudded in 2012 was still being tested. Of 11 wells completed between 2003 and 2011, none were producing in 2013. Wells that were completed in 2013 totaled 9,514 feet, down 73% from 35,499 feet drilled in 2012. Based on reports filed with the state for 2013, no drill rigs operated in the state from January through June; one operated from July and October; and two operated in November and December.

In 2013, 1,792 oil leases covering 3,556,752 acres were in effect on public lands in Nevada. This represents a 3% decrease in the number of leases and a 5% increase in acreage.

In 2013, Noble Energy Inc. of Houston, Texas, spent $23,000,000 on oil and gas exploration in northeastern Nevada. The company owns leases covering 370,000 acres

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

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	2013	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	375,711	9,479,361
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	2,429,108	48,840,817
Currant (1979) (Railroad Valley)	0	0	0	0	0	0	2	0	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	1,685	433,083
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	1,284,774	34,581,481
Grant Canyon (1983) (Railroad Valley)	3,852,943	391,017	506,854	442,826	638,822	624,493	709,918	644,303	640,311	637,840	9,089,327
Kate Spring (1986) (Railroad Valley)	5,331,749	424,809	416,752	437,983	416,983	520,099	494,605	450,155	426,896	337,981	9,258,012
Spencer Lease (1986) (Railroad Valley)	0	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	0	505,881
North Willow Creek (1988) (Pine Valley)	3,632	268	83	0	0	0	0	0	773	360	5,116
Three Bar (1990) (Pine Valley)	5,958	0	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	1,080	75,321
Sans Spring (1993) (Railroad Valley)	3,243,125	238,854	261,500	244,756	217,288	0	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	600,429	6,575,618
Deadman Creek (1996) (Elko County)	0	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	49,525	576,434
Toano Draw (2007) (Elko County)				25,614	3,507	0	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	5,718,493	123,661,055
Change from previous year		-56%	-3%	7%	2%	-7%	1%	-4%	-4%	-2%	

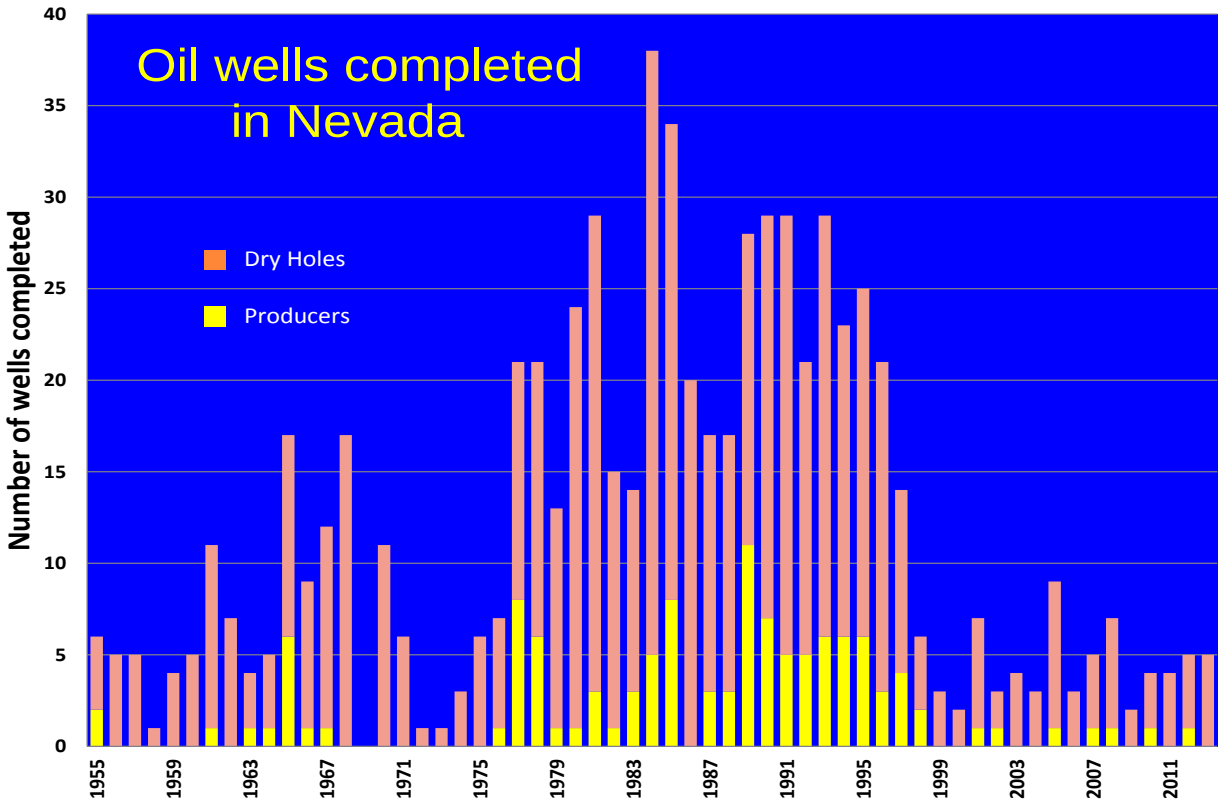

Figure 6. Chart showing number of wells completed and how many were producers in Nevada from 1955 to 2013.

Federal oil and gas leases in effect for 2012 and 2013

	NUMBER OF LEASES[1]						ACREAGE[1]					
	Competitive		Noncompetitive		Simultaneous[2]		Competitive		Noncompetitive		Simultaneous[2]	
County	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013
Carson City	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	2	2	0	1	0	0	5,100	5,100	0	640	0	0
Clark	0	0	1	1	0	0	0	0	480	480	0	0
Douglas	0	0	0	0	0	0	0	0	0	0	0	0
Elko	179	197	161	161	0	0	313,478	324,400	321,850	316,199	0	0
Esmeralda	18	16	5	5	0	0	35,705	30,571	9,276	9,276	0	0
Eureka	77	110	104	78	0	0	211,849	192,650	180,955	208,049	0	0
Humboldt	0	0	0	0	0	0	0	0	0	0	0	0
Lander	0	0	0	0	0	0	0	0	0	0	0	0
Lincoln	60	57	102	93	0	0	120,356	111,085	342,279	299,983	0	0
Lyon	0	0	0	0	0	0	0	0	0	0	0	0
Mineral	2	2	3	3	0	0	4,149	4,149	6,511	6,511	0	0
Nye	362	290	218	209	20	19	552,414	411,112	551,528	488,929	7,998	4,958
Pershing	0	0	1		0	0	0	0	2,680	960	0	0
Storey	0	0	0	0	0	0	0	0	0	0	0	0
Washoe	0	0	0	0	0	0	0	0	0	0	0	0
White Pine	167	177	372	371	0	0	286,617	302,548	824,175	839,152	0	0
Total	867	851	969	922	20	19	1,529,668	1,381,615	2,298,752	2,170,179	7,998	4,958

[1]Data from the U.S. Bureau of Land Management and LR2000 for the calendar year.

[2]These are the remaining leases that were issued under the simultaneous leasing program that was terminated by the December 22, 1987 amendment to the 1920 Mineral Leasing Act.

Oil well drilling activity in 2013

Company	Well	Permit No.	Location	Permit Date	Spud Date	Completion Date	Depth (Ft.)	Status
CHURCHILL COUNTY								
Gary Borgna	MB No. 1	937	SE/4, SE/4, S36, T18N, R30E	JAN 13			*5,000	Not Drilled/Extended
ELKO COUNTY								
Tetuan Resources Corp.	Marys River 34-26	922	SW/4, SE/4, S26, T38N, R61E	NOV 11	JAN 12	FEB 12	6,780	P&A
Andromeda Oil, LLC	Tomera Ranch No. 5	930	SE/4, SE/4, S33, T31N, R52E	JUL 12				Not Drilled
MTS Energy, Inc.	Ferguson Spring 7-33	932	SW/4, NE/4, S33, T30N, R69E	JUL 12	OCT 12	DEC 12	10,070	P&A
Noble Energy, Inc.	EOS -3N	939	NE/4, NE/4, S36, T34N, R55E	MAR 13	JUN 13	JUL 13	928	P&A
Noble Energy, Inc.	M2C-H (M2C-M2-11B)	941	NE/4, NW/4, S2, T34N, R58E	APR 13			*12,489	Not Drilled
Noble Energy, Inc.	M2C-M2C-21B	942	NE/4, NW/4, S2, T34N, R58E	APR 13	SEP 13	OCT 13	*12,422	Drilled
Noble Energy, Inc.	M10C-M10-22A	945	NW/4, NW/4, S10, T34N, R58E	JUN 13			*12,700	Not Drilled
Noble Energy, Inc.	M10C-M10-11B	946	NW/4, NW/4, S10, T34N, R58E	JUN 13	NOV 13		*12,700	Drilled
Noble Energy, Inc.	H33P-H33-33B	947	SE/4, SE/4, S33, T35N, R58E	JUL13			*12,621	Not Drilled
Noble Energy, Inc.	H33P-H33-44A	948	SE/4, SE/4, S33, T35N, R58E	JUL13			*12,542	Not Drilled
Noble Energy, Inc.	M2C-M2-S1	949	NE/4, NW/4, S2, T34N, R58E	AUG 13			*12,422	Not Drilled
Noble Energy, Inc.	M2C-M2-S2	950	SE/4, NW/4, S2, T34N, R58E	AUG 13			*12,422	Not Drilled
Noble Energy, Inc.	M2C-M2-S3	951	SW/4, NW/4, S2, T34N, R58E	AUG 13			*12,422	Not Drilled
EUREKA COUNTY								
Andromeda Oil, LLC	Tomera Ranch No. 6X	934	SE/4, SW/4, S33, T31N, R52E	SEP 12	NOV 12	NOV 13	1,550	Shut in
HUMBOLDT COUNTY								
KBE Energy	Well No. 1	900	NE/4, NW/4, S10, T34N, R43E	APR 08	MAY 08	DEC 08	6,802	P&A
NYE COUNTY								
Grant Canyon Oil and Gas, LLC	Federal No. 12-14	673	NW/4, SW/4, S14, T7N, R56E	APR 93	MAY 93	JUN 93	6,106	TA
Wester Oil Co.	Gigante No. 1-4	837	NW/4, NE/4, S4, T12N, R35E	MAY 01	AUG 01	DEC 03	7,707	TA
Tri Valley Oil and Gas	Midland Trail No. 1-32	861	SW/4, SW/4, S32, T6N, R56E	SEP 04	JUN 05	JAN 06	7,063	Testing
Makoil, Inc.	Radio No. 6-31	865	NE/4, NW/4, S6, T9N, R57E	SEP 04	MAY 05	MAY 05	3,433	Drilled
V. F. Neuhaus Properties, Inc.	Currant Creek Ranch 31-1	872	SE/4, SW/4, S31, T10N, R57E	JUL 05	JUL 05		*2,200	TA
Petro World Nevada Corp.	Cobble Questa No. 1-12	876	NW/4, SE/4, S12, T12N, R34E	DEC 05	SEP 06	APR 07	5,193	TA
Makoil Inc.	Dry Lake 21-21R	881	NE/4, NW/4, S21, T8N, R56E	APR 12	JUN 13	JUL 13	3,224	P&A
Makoil Inc.	Trap Spring No. 27-41	899	NE/4, NE/4, S27, T9N, R56E	APR 08	DEC 08	JAN 09	7,294	Shut in
Makoil Inc.	Munson Ranch No. 12-23X	911	NE/4, SW/4, S12, T9N, R56E	DEC 08			*5,000	Not Drilled/Extended
Desert Discoveries, LLC	Paradise Unit No. 2-12	916	SE/4, NE/4, S12, T12N, R34E	APR 10	JUL 10	NOV 10	4,250	Shut in
HBF Exploration, Inc.	Well No. 2	920	SW/4, NW/4, S33, T7N, R61E	APR 11	JUL 11	AUG 11	1,020	Shut in
V.F. Neuhaus Properties, Inc.	East Hogback 31-2	921	NE/4, SW/4, S31, T10N, R57E	MAY 11	JUN 11	SEP 11	1,800	Shut in
Major Oil International	Eblana No. 1	925	NE/4, NE/4, S25, T7N, R50E	MAY 12	MAY 12	JUN 12	8,550	Testing
Bight Sky Energy and Mineral, Inc.	White River Valley No. 1-35	926	SW/4, SW/4, S35, T8N, R61E	JUN 12			*12,500	Not Drilled
Makoil Inc.	Portuguese Mountain No. 14A-12	928	SE/4, SW/4, S12, T10N, R56E	JUN 12	JAN 13		*7,000	Drilling
Kelpetro Operating (Nevada), Inc.	Christina No. 30-1	935	SW/4, NW/4, S30, T7N, R55E	SEP 12			*1,800	Not Drilled
V. F. Neuhaus Properties, Inc.	Apex 26-1	938	SE/4, SE/4, S26, T10N, R56E	JAN 13			*2,050	Not Drilled
Bestoso Oil and Gas, Inc.	Well No. 1	940	NW/4, SE/4, S20, T5N, R61E	APR 13			*14,000	Not Drilled
Kelpetro Operating (Nevada), Inc.	Christina No. 36-1	943	NE/4, SE/4, S36, T7N, R54E	MAY 13			*4,000	Not Drilled
Makoil Inc.	Leoman Spring 1-32	944	SW/4, NE/4, S1, T10N, R56E	MAY 13	JUN 13	AUG 13	3,812	P&A
Western General, Inc.	Tom Spring 4-34	952	SW/4, SE/4, S4, T8N, R57E	SEP 13			*9870	Not Drilled
WHITE PINE COUNTY								
Geyser Petroleum	Pipeline Canyon No. 1	870	NE/4, SW/4, S28, T15N, R62E	JAN 05	MAR 05	AUG 05	5,280	Shut in
Grant Alliance, LLC	FLT-1	918	NE/4, NW/4, S11, T16N, R55E	OCT 10	JAN 11	MAY 11	4,875	Shut in
Sam Oil, LLC	Pluto No. 27-1R	936	NE/4, SE/4, S27, T18N, R61E	JAN 13			*9,350	Not Drilled
Tetuan Resources Corp.	Mariagnes 32-30	953	SW/4, NE/4, S30, T15N, R57E	SEP 13			*4,500	Not Drilled

P&A: Plugged and abandoned; TA: Temporarily abandoned; *: Permitted depth given when the actual depth is not available

between Elko and Wells, 66% of which are on private property. Acting as an agent for Noble Energy Inc. during the March 12 lease sale, Lonewolf Exploration and Production Co. of Billings, MT, strengthened Noble Energy's position by acquiring 16 leases covering 16,494 acres for $771,391. The project area contains three possible plays which include a rollover anticline play, a Tertiary resource play, and a Paleozoic trap play. In 2013, the company completed, plugged and abandoned one well (EOS-3N) and was still drilling two more at year's end. One of these wells (M2C-M2-21B) in the Wilson Play reportedly recovered "oil from multiple intervals" and is set to be hydraulically fractured in 2014. The siting of the wells was based on a 3-D seismic survey in parts of T38-39N, R60-61E, which Noble completed in 2012. The company has been doing work in northeastern Nevada since 2010 and believes they 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 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 www.nobleenergyinc.com; Noble Energy Inc. Form 10-K, 2/6/2014; Noble Energy Inc. Form 10-Q, 4/24/2014; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, March 12, 2013; *BLM oil auction hints at Nevada boom*, by Rob Sabo, *Northern Nevada Business Weekly*, 3/18/2013; *Noble Adds to Exploration Program in Nevada*, *IHS Drilling Wire, Rocky Mountain Region*, Four Corners Edition, vol. 86, no. 161, 8/21/2013; Frac Focus Chemical Disclosure Registry).

In November 2013, Noble Energy, Inc. submitted a Master Surface Use Plan of Operations to the BLM for its proposed Huntington Valley Oil and Gas Exploration Project. The project area consists of 15 leases covering 63,495 acres in portions of T28-31N, R55-56E about 21 miles south of Elko. The company has identified 39 potential well pad locations within the Project Area; however, the Proposed Action calls for a maximum of 20 wells on up to 20 well pads, including construction, drilling, completion, production, operation, and abandonment, to be constructed periodically over a period of up to five years. In the fall of 2013, the company conducted another 3D seismic survey, which in conjunction with data from older 2D seismic programs and well results, will be used to select the pad locations and increase the understanding of faults which

may have acted as fluid conduits in a potential reservoir. An environmental assessment was being prepared for release in 2014 (*Huntington Valley Oil and Gas Exploration Project Master Surface Use Plan, Elko County*, Nevada, Noble Energy Inc., November 2013; *Environmental Assessment Huntington Valley Oil and Gas Exploration Project*, DOI-BLM-E200-NV-2014-0003-EA BLM, May 2014)

Through its subsidiary Major Oil International LLC, U.S. Oil and Gas PLC continued testing its Eblana No. 1 well in section 25, T7N, R50E, in Hot Creek Valley and released a Competent Person's Report reviewing the project. The well drilled through Tertiary volcanic rocks, but did not penetrate the targeted Paleozoic dolomite. The report noted that hydrocarbons were found in a number of zones within the volcanic rocks but in low saturations and non-commercial quantities. The well may either be in an oil-water transition zone or the zones were swept. Two oil samples from the Eblana No. 1 well were tested to be 28.5° and 33° API gravity. The Mississippian Chainman shale is present in the valley and is the likely source rock. The report recommended running a vertical seismic profile of the Eblana No. 1 well and possibly additional seismic lines to better document the structure. Afterwards, a well would be drilled up-dip from the Eblana No. 1 well to try to find the oil column. Although still to be permitted by the Nevada Division of Minerals, the company announced the BLM permitted their proposed Eblana No. 2 well (U.S. Oil and Gas, PLC, Competent Person's Report, May 1, 2013; U.S. Oil and Gas, PLC, news release, 8/2/2013; U.S. Oil and Gas, PLC, website: http://www.usoil.us).

On March 12, 2013, the Nevada State Office (NSO) of the BLM held an oil and gas lease sale on 35 parcels covering 45,562 acres in Elko and Eureka Counties. The bids totaled $1,271,113 on 29 parcels covering 35,889 acres, which averaged $35.42 per acre. The highest bid was $152 per acre by Lonewolf Exploration and Production Co., for Parcel 65 (Serial No. NVN091689) consisting of 157 acres covering lots 4 through 7 in section 6, T37N, R61E. Lonewolf, again working as an agent for Noble Energy, also had the second and third highest bids: $128 per acre each for Parcel 63 (Serial No. NVN091687) consisting of 1,280 acres covering all of Sections 22 and 28, T37N, R59E; and Parcel 64 (Serial No. NVN091688) consisting of 480 acres covering portions of Sections 20 and 30, T37N, R60E. All three parcels are in Elko County. Lonewolf paid $249,296 for all three bids. Eight parcels went for bids over $50 per acre, 15 parcels went for bids between $12 and $41 per acre, and four parcels went for between $4 and $9 per acre. Only two parcels went for the $2-per-acre minimum bid (NSO-BLM Oil and Gas Lease List, December 7, 2012; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, March 12, 2013).

On June 11, 2013, the NSO-BLM held an oil and gas lease sale on 40 parcels covering 65,846 acres in Eureka and Nye Counties. The bids totaled $862,183 on 33 parcels covering 53,923.5 acres, which averaged $15.99 per acre. The highest bid was $125 per acre by the Blanco Company for parcel 36 (Serial No. NVN092113) consisting of 1,600 acres covering all of section 24 and portions of Sections 12 through 16, T9N, R57E. Blanco also had the second highest bid of $105 per acre for Parcel 33 (Serial No. NVN092110) consisting of 600.5 acres covering portions of Sections 5, 8, 17, and 19, T8N, R57E. The third highest bid was $60 per acre by Kirkwood Oil and Gas LLC for Parcel 37 (Serial No. NVN092114) consisting of 1,560 acres covering all of Sections 25 and 27 and portions of Sections 26 and 35, T9N, R57E. All three parcels are in Nye County. Besides the three highest bids, six parcels went for bids between $11 and $48 per acre, 19 parcels went for bids between $3 and $7 per acre, and six parcels went for the $2 peracre minimum bid (NSO-BLM Oil and Gas Lease List, March 7, 2013; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, June 11, 2013). The NSO-BLM oil and gas lease sale scheduled for September 10, 2013, was cancelled. (NSO-BLM Notice 3120 [NV923.q], 2013).

On December 10, 2013, the NSO-BLM held an oil and gas lease sale on 178 parcels covering 303,334 acres in Lincoln, Nye, and White Pine Counties. The bids totaled $1,979,581 on 54 parcels covering 93,816 acres, which averaged $21.10 per acre. The highest bid was $54 per acre by Contex Energy Company for parcel 154 (Serial No. NVN092598) consisting of 984 acres covering portions of Sections 30 through 32, T8N, R62E. The second highest bid was $53 per acre by Housing International LLC for Parcel 144 (Serial No. NVN092591) consisting of 2,548 acres covering all of Sections 27 through 29 and portions of section 30, T9N, R61E. The third highest bid was $52 per acre by Contex Energy Co. for Parcel 155 (Serial No. NVN092599) consisting of 1,276 acres covering portions of Sections 30 through 32, T9N, R62E. All three parcels are in Nye County. Besides the three highest bids, 26 parcels went for bids between $11 and $48 per acre, 19 parcels went for bids between $2.50 and $10 per acre, and six parcels went for the $2-per-acre minimum bid (NSO-BLM Oil and Gas Lease List, September 9, 2013; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, December 10, 2013).

Partial list of Nevada oil wells that were stimulated in the past

Modified and compiled from well records and data from consultant Jerry Walker

Permit	Company	Well Name	Perfs (gross)	Fluid	Proppant	Year Completed	Present Status	Formation
196	Northwest Exploration Co.	Trap Spring No. 8	4408'-4575'	72,300 gal. lease oil	100,000 lbs. 10/20 sand	1977	Producer	Tertiary volcanic rock
210	MAPCO Oil and Gas Co.	Trap Spring No. 17	3570'-3610'	10,000 gal. foam	12/20 sand	1985	P&A	Horse Camp Volcanics
203	Northwest Exploration Co.	Trap Spring No. 13	4976'-5078'	10,122 gal lease oil	55,000 lbs. 8/12 sand	1977	WD	Garrett Ranch Volcanics
189	Northwest Exploration Co.	Trap Spring No. 4	4018'-4389'	53,000 gal. oil	37,000 lbs. 8/12 sand	1977	P&A	Garrett Ranch Volcanics
233	Northwest Exploration Co.	Trap Spring No. 20	3932'-3987'	62,000 gal. lease oil	75,000 lbs. 10/20 sand	1978	WD	Pritchards Station Volcanics
196	Northwest Exploration Co.	Trap Spring No. 8	4408'-4575'	1,795 gal. lease oil	100,000 lbs. 10/20, 8/12, 4/8 sand	1979	Producer	Tertiary volcanic rock
324	Amoco Production Co.	Blackburn No. 3	6274'-6345'	Jellied lease crude	30,000 lbs. 20/40 sand	1982	Shut in	Indian Well Formation
342	Sun Exploration and Prod. Co.	Southern Pacific No. 3-13	8432'-8580'	Not reported	Not reported	1983	P&A	Humboldt Formation
350	Amoco Production Co.	Blackburn No. 10	5660'-5870'	87,500 gallons foamed oil	120,000 lbs. 20/40 sand	1983	Producer	Indian Well Formation
856	DY Exploration	Toano Draw 15-19	8800'-8950'	75,000 gal. gel; 6,400 gal. slickwater	115,000 lbs. 20/40 PR6000 sand	2005	P&A	Humboldt Formation

Abbreviations: Perf (gross) - larger interval containing one or more smaller perforated intervals; P&A - plugged and abandoned; gal. - gallons; WD - water disposal

TRANSFERS

Breck Energy LLC transferred its 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 2012, Secretary of the Interior Kenneth Salazar released a proposed set of rules covering hydraulic fracturing 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 hydraulic fracturing are not escaping; and would confirm that operators have a water management plan in place for handling fracturing fluids that flow back to the surface. The BLM received 177,000 public comments and revised the draft to include important safety standards, improved integration with existing state and tribal standards, and increased flexibility for oil and gas producers. The new draft was republished May 25, 2013, and the 30-day public comment period had to be extended another 60 days through August 2013 (BLM Press Releases, 5/4/2012, 5/16/2013, 6/7/2013).

In 2013, Nevada Legislature tasked the Nevada Division of Minerals and Nevada Division of Environmental Protection to jointly develop a hydraulic fracturing program and the Commission on Mineral Resources to adopt recommended regulations and implement them. The program is to assess the effects of hydraulic fracturing on waters in the state, require the disclosure of each chemical used in the process, and notify the general public concerning hydraulic fracturing activities in the state (NRS 465; NRS 522). While much debate is going on about the hydraulic fracturing, limited small scale (<100,000 gallons of fluids and <120,000 pounds of proppant) well stimulation has occurred in the past in Nevada. Largely due to the nature of the rock, these attempts have had limited success. Several examples are shown in the table above. As mentioned aboveNoble Energy was planning for a hydraulic fracturing program for some of its wells in 2014.

U.S. OIL PRODUCTION AND CONSUMPTION

According to the Energy Information Agency of the U.S. Department of Energy (http://www.eia.gov), the total petroleum products supplied to the U.S. averaged 18.9 million barrels per day, up 2% from 18.5 million barrels per day in 2012, and down 9% from its peak of 20.8 million barrels per day in 2005. Domestic crude oil production averaged 7.45 million barrels per day, up 15% from 6.48 million barrels per day in 2012. The annual production is the highest since 1989, and the first time since 1970 that production has increased five years in a row. Imported crude oil averaged 7.72 million barrels per day, down 9% from 8.53 million barrels per day in 2012, and down 24% from its peak of 10.13 million barrels per day in 2005. Imported crude oil accounted for 51% of the total, down from 57% in 2012. The average price of domestic oil increased 2% to $96.13 per barrel from an average of $94.52 per barrel in 2012.

Status of Nevada oil and gas production wells in 2013

This table gives the amount of oil and water produced and the number of production days in 2013. 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, 2012	SE/4, NW/4, S35, T9N, R57E	0	0		0
Eagle Springs Federal No. 54-35	726	10/94	Prod	SW/4, NE/4, S35, T9N, R57E	5,707	55,009		319
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	6,239	69,548		361
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	6,965	2,614		363
Eagle Springs Unit No. 15-35	21	07/55	Prod; SI 1995-2002	NW/4, SW/4, S35, T9N, R57E	157	2,077		25
Eagle Springs Unit No. 35-35	17	03/55	Prod	NE/4, SW/4, S35, T9N, R57E	1,242	8,452		250
Eagle Springs Unit No. 43-36	83	08/65	Prod	NE/4, SE/4, S36, T9N, R57E	186	317		157
Eagle Springs Unit No. 62-35	46	01/60	SI 2012	NW/4, NE/4, S35, T9N, R57E	0	0		0
Eagle Springs Unit No. 73-35	69	10/63	Prod	SE/4, NE/4, S35, T9N, R57E	5,865	69,787		364
Eagle Springs Unit No. 74-35	71	04/64	Prod; SI 1998-2001	SE/4, NE/4, S35, T9N, R57E	62	1,047		5
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	SI 2012	SW/4, NW/4, S36, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 23-36	733	10/95	Prod	SW/4, NW/4, S36, T9N, R57E	7,960	4,819		338
Eagle Springs/Plains Petroleum No. 24-36	737	11/94	Prod	SW/4, NW/4, S36, T9N, R57E	370	1,042		241
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	SI 2012	SW/4, NE/4, S35, T9N, R57E	0	0		0
Eagle Springs/Plains Petroleum No. 82-35	734	10/94	Prod	NE/4, NE/4, S35, T9N, R57E	4,660	142,958		253
Eagle Springs/Plains Petroleum No. 83-35	754	07/95	Prod	SE/4, NE/4, S35, T9N, R57E	406	18,041		34
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				
Trap Spring No. 4	189	03/77	PA 1995	SE/4, NE/4, S27, T9N, R56E				
Frontier Exploration Co.								
Munson Ranch No. 13-1	435	08/85	Prod	SE/4, NW/4, S13, T9N, R56E	2,765	2,294		365
Munson Ranch No. 13-45	547	08/89	Prod	NW/4, SW/4, S13, T9N, R56E	1,096	2,698		320
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	1,119	2,146		365
Munson Ranch No. 14-49	550	08/89	Prod; SI 2010-2013	NE/4, SE/4, S14, T9N, R56E	223	168		41
Munson Ranch No. 14-49X	562	02/90	Prod	NE/4, SE/4, S14, T9N, R56E	198	0		21
Trap Spring No. 14-42	523	10/88	Prod	SE/4, NE/4, S14, T9N, R56E	1,205	3,390		348
Makoil, 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	33	0		1
Munson Ranch No. 12-14	688	05/95	Prod	SW/4, SW/4, S12, T9N, R56E	456	569		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	4,876	9,842		364
Munson Ranch No. 12-32	559	12/89	Prod	SW/4, NE/4, S12, T9N, R56E	5,491	24,586		365
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	2,964	3,024		364
Munson Ranch No. 12-43	880	03/08	Prod	NE/4, SE/4, S12, T9N, R56E	17,982	530		363
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	3,475	28,071		364
Munson Ranch No. 13-14	623	09/91	Prod; SI 2001-2006	SW/4, SW/4, S13, T9N, R56E	5,810	104,467		362
Munson Ranch No. 13-21X	640	05/92	Prod	NE/4, NW/4, S13, T9N, R56E	4,086	24,351		364
Munson Ranch No. 13-24	218	08/79	Prod	SE/4, SW/4, S13, T9N, R56E	454	197		48
Munson Ranch No. 13-31	382	07/84	Prod	NW/4, NE/4, S13, T9N, R56E	2,994	19,538		362
Munson Ranch No. 13-32	373	08/84	Prod	SW/4, NE/4, S13, T9N, R56E	5,585	46,036		364
Munson Ranch No. 13-33	211	11/78	Prod	NW/4, SE/4, S13, T9N, R56E	2,037	6,649		364
Munson Ranch No. 13-41X	448	09/85	Prod	NE/4, NE/4, S13, T9N, R56E	8,050	67,293		364
Munson Ranch No. 13-42	222	11/78	Prod	SE/4, NE/4, S13, T9N, R56E	1,173	61,675		364
Munson Ranch No. 14-23	313	08/81	Prod	NE/4, SW/4, S14, T9N, R56E	1,537	14,490		364
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	4,602	77,205		365
Munson Ranch No. 14-34	287	11/80	Prod	SW/4, SE/4, S14, T9N, R56E	254	4,057		153
Munson Ranch No. 14-34X	522	08/88	Prod	SW/4, SE/4, S14, T9N, R56E	2,184	10,690		364
Munson Ranch No. 14-41	538	07/89	Prod	NE/4, NE/4, S14, T9N, R56E	7,788	79,266		364
Munson Ranch No. 14-44	528	08/89	Prod	SE/4, SE/4, S14, T9N, R56E	3,313	134,148		364
Trap Spring No. 2	185	02/77	Prod	SE/4, SW/4, S27, T9N, R56E	8,814	3,680		365
Trap Spring No. 3	188	04/77	Prod	NW/4, NE/4, S34, T9N, R56E	8,397	1,201,443		362
Trap Spring No. 8	196	09/77	Prod	SE/4, SW/4, S23, T9N, R56E	125	185		72
Trap Spring No. 9	197	09/78	Prod	NW/4, NW/4, S26, T9N, R56E	14,752	267,927		365
Trap Spring No. 16	232	09/78	Prod	NW/4, SE/4, S23, T9N, R56E	3,392	216,188		365
Trap Spring No. 19	219	12/77	Prod	SE/4, NW/4, S23, T9N, R56E	16,019	12,238		364
Trap Spring No. 23-41	574	06/90	Prod	NE/4, NE/4, S23, T9N, R56E	627	67		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	35	0		7
CURRANT (Nye Co., 1979)								
Makoil, Inc.								
Currant No. 1	241	10/78	Prod; SI 2005-2007	SE/4, SW/4, S26, T10N, R57E	194	0		7
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

Status of Nevada oil and gas production wells in 2013 - continued

FIELD/OPERATOR/WELL	NEVADA PERMIT	DATE COMPLETED	STATUS	LOCATION	PRODUCTION OIL (BBL)	PRODUCTION WATER (BBL)	PRODUCTION GAS (MCF)	PRODUCTION DAYS
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	6,552	11,637		326
Blackburn No. 14	442	07/85	Prod; SI 2001-2008	NE/4, SE/4, S7, T27N, R52E	15,314	29,997		342
Blackburn No. 16	458	12/85	Prod; SI 2009-2013	SE/4, NE/4, S7, T27N, R52E	765	2,406		45
Blackburn No. 18	660	11/92	Prod	NE/4, SE/4, S7, T27N, R52E	7,272	377,142		360
Blackburn No. 19	724	06/94	Prod	NW/4, SW/4, S8, T27N, R52E	10,246	831,389		345
Blackburn No. 21	802	09/97	Prod	NE/4, SE/4, S7, T27N, R52E	243	32,203		18
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	SI 1993-2007, 2013	NW/4, NW/4, S21, T7N, R57E	0	0		0
Grant Canyon No. 9	642	04/92	Prod	NW/4, NW/4, S21, T7N, R57E	6,600	7,001		363
Grant Canyon No. 10	706	07/11	Prod; PA 1993-2010	NW/4, NW/4, S21, T7N, R57E	37,257	313,453		365
Grant Canyon No. 22-21	705	01/94	Prod	SE/4, NW/4, S21, T7N, R57E	6,660	317,386		363
KATE SPRING (Nye Co., 1986)								
Makoil, Inc.								
Kate Spring No. 12-2	544	08/89	Prod	NW/4, NW/4, S2, T8N, R57E	6,099	96,237	1,258	365
Western General, Inc.								
Kate Spring No. 1	436	01/86	Prod	W/2, SW/4, S2, T8N, R57E	4,500	32,000	318	N/A
Kate Spring No. 1A	560	12/89	Prod	NW/4, SW/4, S2, T8N, R57E	16,005	109,355	1,630	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	2,798	100,389	272	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	3,757	0		363
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	360		4
Southern Pacific Land Co. No. 1-27	633	01/92	SI 2002	NW/4, SE/4, S27, T29N, R52E	0	0		0
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)								
Makoil, Inc.								
Duckwater Creek No. 19-11	542	03/90	Prod	NW/4, NW/4, S19, T9N, R57E	119	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	1,318	0		43
Federal No. 12-14	673	06/93	SI 1993	SW/4, SW/4, S14, T7N, R56E				
GHOST RANCH (Nye Co., 1996)								
Makoil, Inc.								
Ghost Ranch Springs No. 2-21X	800	08/97	Prod	NE/4, NW/4, S2, T8N, R57E	5,783	170,307		365
Kirkwood Oil and Gas, LLC								
Ghost Ranch Springs No. 38-35	793	01/97	Prod	SE/4, SW/4, S35, T9N, R57E	2,877	159,431		365
Ghost Ranch Springs No. 47-35	799	03/97	Prod	SE/4, SW/4, S35, T9N, R57E	4,933	155,212		365
Ghost Ranch Springs No. 48-35	779	07/96	Prod	SE/4, SW/4, S35, T9N, R57E	3,638	115,479		365
DEADMAN CREEK (Elko Co., 1996)								
Deadman Creek No. 44-13	342	01/96	PA 1998	SE/4, SE/4, S13, T39N, R65E				
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	2,567	49,525		351
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 refineries

Compiled from *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
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	Bacon Flat Blackburn Grant Canyon Sans Spring	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 Website: 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 Corporation	Currant Refinery		HC 34 Box 34830 Ely, NV 89301 Phone: 775-863-0229

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							
Fernley Operations	EP Minerals, LLC	S28, 32, T23N, R27E	diatomite	OP, ML	mining calcining classification drying grinding	36	P.O. Box 860 I-80 Frontage Rd. Fernley, NV 89408-0860 Phone: 775-423-6668 FAX: 775-423-6411 Web: http://www.epminerals.com
Huck Salt	Huck Salt Co.	S11, 12, 13, T16N, R31E; S7, T16N, R32E	salt	OS	mining evaporation	10	2900 Phritzie Lane Fallon, NV 89406 Phone: 775-423-2055 FAX: 775-423-0467 Web: http://www.hucksalt.com
Churchill Limestone Project	Nevada Cement Co.	S31, T25N, R29E	limestone	OP	mining	8 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web:http://www.eaglematerials.com
Nightingale Pit	Imerys Minerals California, Inc.	S17, 18, 19, 20, T24N, R26E	diatomite	OP	mining	14/5	100 Front St. Fernley, NV 89408 Phone: 775-575-2536 FAX: 775-575-1507 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	24	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	140/20 (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	10	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Blue Diamond Hill Mine	Gypsum Resources, LLC	S32, T21S, R59E	gypsum limestone	OP, ML	mining crushing screening	40/6	8912 Spanish Ridge Ave., Suite No. 200 Las Vegas, NV 89148 Phone: 702-334-4669 FAX: 702-586-3527 Web: http://www.bdhgypsum.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	22	250 Pilot Rd., Suite No. 160 Las Vegas, NV 89120 Phone: 702-597-1010 FAX: 702-597-3406 Web:http://www.impactsandandgravel.com
El Dorado Quarry	Portable Aggregate Producers, LLC	S14, T23S, R63E	sand gravel	OP, ML	mining crushing screening	6	250 East Chapparral Henderson, NV 89015 Phone: 702-558-9180 FAX: 702-558-9182
Georgia-Pacific Gypsum Plant	Georgia-Pacific Gypsum, LLC	S34, 35, T18S, R63E	gypsum	ML	crushing	80	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	140/20 (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	13	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	8	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Lone Mountain	Mel Clark, Inc.	S36, T19S, R59E	sand gravel	OP, ML	mining	8	4680 Melvin St. Las Vegas, NV 89115 Phone: 702-643-1914 FAX: 702-643-1954 Web: http://www.melclarkinc.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 FAX: 702-932-3992 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	B.J. Rees's Enterprise	S20, T13S, R71E	sand gravel	OP	mining crushing screening	5	1045 South Hoytsville Rd. Coalville, UT 84017-9741 Phone: 801-359-9781

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
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	6	4262 Blue Diamond Rd. Las Vegas, NV 89139 Phone: 702-399-8621 FAX: 702-633-4062 Web: http://www.snlsand.com
PABCO Gypsum-Apex Pit	Pacific Coast Building Products, Inc.	S7, 18, T20S, R64E	gypsum	OP, ML	mining crushing washing	145/3	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	9	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Pioneer Gypsum Mine	Pioneer Gypsum Mining Co.	S19, 20, 29, 30, T20S, R64E	gypsum	OP, ML	mining crushing screening	10/1	4880 Donovan Way North Las Vegas, NV 89081 Phone: 702-399-5939 FAX: 702-399-8353
Pittman Detention Pit	Aggregate Industries	S9, 10, T23S, R61E	sand gravel	OP	mining crushing screening	N/A	3101 East Craig Rd. North Las Vegas, NV 89030 Phone: 702-649-6250 FAX: 702-642-2213 Web: http://www.aggregate-us.com
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	31	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	6	151 Cassia Way Henderson, NV 89014 Phone: 702-798-0568 Phone: 702-798-0580 Web: http://www.srevicerock.com
Spring Mountain Pit and Mill	Wells Cargo, Inc.	S10, 15; T21S, R60E	sand gravel	OP, ML	mining gravity	8	9127 West Russell Rd., Suite 210 Las Vegas, NV 891148 Phone: 702-876-5090 FAX: 702-876-3977 Web: http://www.wcilv.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

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
DOUGLAS COUNTY (continued)							
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							
Amy Mine	Ruggeri-Stocks, LLC	S21, T46N, R58E	gold	UG	mining milling	5	P. O. Box 260091 100 North Main Jarbidge, NV 89826 Phone: 775-488-2403
Big Ledge Mine and Dry Creek Jig Plant	National Oilwell Varco	S26, T42N, R61E	barite	OP, ML	mining gravity jigging	30/4 (Mine and plants combined)	247 Bluffs Ave. Elko, NV 89801 Phone: 775-738-7171 FAX: 775-738-7196 Web: http://www.nov.com
Boehler Pit	Staker Parson Co.	S12, T34N, R55E	aggregate sand gravel	OP, ML	mining crushing	5	2755 Last Chance Road Elko, NV 89801 Phone: 775-738-8155 Web: http://www.stakerparson.com
Dry Creek Jig Plant	National Oilwell Varco	15, T42N, R62E	barite	ML	milling gravity jigging	30/4 (Mine and plants combined)	247 Bluffs Ave. Elko, NV 89801 Phone: 775-738-7171 FAX: 775-738-7196 Web: http://www.nov.com
Elburz Pit	Vega Construction and Trucking Co.	S9, T33N, R52E	sand gravel	OP, ML	mining crushing screening	9	P.O. Box 1630 Elko, NV 89803 Phone: 775-738-5381 FAX: 775-738-6311
Emigrant Mine	Newmont Mining Corp.	S2, T31N, R53E; S26, 35 T32N, R53E	gold	OP, ML	mining milling	169	1655 Mountain Hwy. Elko, NV 89803 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Fraser Pit	Modern Concrete, Inc.	S30, T33N, R53E	sand gravel	OP, ML	mining crushing screening	7	1770 Sharps Access Rd. Elko, NV 89801 Phone: 775-753-5100 FAX: 775-738-9199 Web: http://www.modernconcrete.net
Hollister Mine	Waterton Global Mining Mining Co., LLC	S4, 5, T37N, R48E; S32, T38N, R48E	gold silver	UG	mining crushing milling	178	4000 West Winnemucca Blvd. Winnemucca, NV 89445 Phone: 775-623-5760 FAX: 775-623-5767 Web: http://www.watertonglobal.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	360/130	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	629	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	198/61	HC66 Box 125 Midas, NV 89414 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
Osino Grinding Plant	National Oilwell Varco	S10, T35N, R56E	barite	ML	milling gravity jigging	30/4 (Mine and plants combined)	247 Bluffs Ave. Elko, NV 89801 Phone: 775-738-7171 FAX: 775-738-7196 Web: http://www.nov.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
ELKO COUNTY (continued)							
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
Heart of Nature	Heart of Nature, LLC	S32, T1N, R38.5E	alum sulfur	OP, ML	mining crushing processing screening	6	34710 7th Standard Rd. Bakersfield, CA 93314 Phone: 877-324-3278 FAX: 661-399-9758 Web: http://www.heartofnature.biz
Mineral Ridge	Mineral Ridge Gold, LLC and Scorpio Gold U.S., Corp.	S1, T2S, R38E	gold silver	OP, HL, ML	mining heap leach	82/22	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.rockwoodlithium.com
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	1036	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	2335/710 (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	2335/710 (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	2335/710 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
EUREKA COUNTY (continued)							
Carlin South - Gold Quarry and adjacent mines	Newmont Mining Corp.	S3, T33N, R51E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2335/710 (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	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	5	2339 Dickerson Rd. Reno, NV 89503 Phone: 775-322-9994
Ruby Hill Mine	Homestake Mining Co. of California	S9-11, 14, 15, T19N, R53E	gold silver	OP, CIL, CIP, HL, ML	heap leach milling	136/6	P.O. Box 676 Eureka, NV 89316 Phone: 775-237-6060 FAX: 775-237-5408 Web: http://www.barrick.com
HUMBOLDT COUNTY							
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) 775-375-5955 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	472/165	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	56/55	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	343/17	P.O. Box 160 Valmy, NV 89438 Phone: 775-635-2317 FAX: 775-635-2551 Web: http://www.goldcorp.com
MIN-AD Mine	MIN-AD, Inc.	S28, T35N, R38E	dolomite	OP, ML	mining grinding	13/2	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	2	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	417/112	2055 Getchell Mine Rd. Golconda, NV 89414-9702 Phone: 775-529-5001 FAX: 775-529-0753 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
HUMBOLDT COUNTY (continued)							
Turquoise Ridge Quarry	R.E. Monks Construction	S33, T39N, R42E	gold silver	OP	mining	20	P. O. Box 17959 16646 E Laser Dr. Fontain Hills, AZ 85268 Phone: 480-837-3684 Web: http://remonks.com
Twin Creeks Mine	Newmont Mining Corp.	S3-10, 15-22, 27-32, T39N, R43E	gold silver	OP, HL, ML	mining heap leach milling	558/258	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	27/47 (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	27/47 (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	43	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	1017/124 (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	297/66	HC 66 Box 1250 Crescent Valley, NV 89821-1250 Phone: 775-468-4400 FAX: 775-468-4496 Web: http://www.barrick.com
Cortez Pipeline Mine	Barrick Cortez, Inc.	S31, T28N, R47E	gold silver	OP, HL, ML	mining heap leach milling	1017/124 (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, ML	mining milling	43/41	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	59	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

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
LANDER COUNTY (continued)							
Phoenix Mine	Newmont Mining Corp.	S22, 27, 33, 34, T31N, R43E	gold silver	OP, HL, ML	mining heap leach	486/312	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 (Mine and mill combined)	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	70/1	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	12/5	100 Front St. Fernley, NV 89408 Phone: 775-575-2536 FAX: 775-575-1570 Web: http://www.worldminerals.com
Dayton Materials	3D Concrete, Inc.	S23, T16N, R21E	aggregate sand	OP, ML	mining crushing screening	8	11998 East Interstate 80 Sparks, NV 89434 Phone: 775-348-1898 FAX: 775-348-7920 Web: http://3dconcrete.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
Mound House Pit	B.J. Rees's Enterprise	S19, T16N, R21E	sand gravel	OP	mining crushing screening	5	1045 South Hoytsville Rd. Coalville, UT 84017-9741 Phone: 801-359-9781
Nevada Cement Mine	Nevada Cement Co.	S3-6, 9, T19N, R25E; S31-33, T20N, R25E	limestone	OP	mining	8 (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	109	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web:http://www.eaglematerials.com
MINERAL COUNTY							
Borealis Mine	Borealis Mining Co., LLC	S8, 9, 16, 17; T6N, R29E	gold silver	HL, ML	heap leach milling	39/2	P.O. Box 549 Hawthorne, NV 89415 Phone: 775-341-0042 FAX: 604-608-3262 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	64/42	P.O. Box 2070 Fallon, NV 89407 Phone: 775-945-1015 FAX: 775-945-1213
Esmeralda Mill	Waterton Global Mining Mining Co., LLC	S2-4, 7-11, 15-20, 29-32, T5N, R28E	gold silver	OP, HL	milling	45	4000 West Winnemucca Blvd. Winnemucca, NV 89445 Phone: 775-623-5760 FAX: 775-623-5767 Web: http://www.watertonglobal.com
Lucky Boy Quarry	James Hardie Building Products Inc.	S34, T7N, R29E	quartzite	OP	mining	1/6	3000 Waltham Way McCarran, NV 89434 Phone: 775-355-3036 FAX: 775-355-3099 Web: http://www.jameshardie.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
NYE COUNTY							
Ash Meadows Plant	Saint Cloud Mining Co.	S25, T18S, R50E	unaltered ash zeolite	ML	crushing screening packaging	6/1	HCR 70 Box 7006 East Spring Meadows Rd. Amargosa Valley, NV 89020 Phone: 775-372-5524 FAX: 775-372-5524 Web: http://www.stcloudmining.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://wwwkalamazoomaterials.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	6	4745 Mitchell St. North Las Vegas, NV 89081 Phone: 702-651-1550 FAX: 702-651-1551 Web: http://www.abmnv.com
IMV Pits	IMV Nevada	S28, 29, T17S, R49E	clay	OP, ML	mining classification crushing grinding screening	30	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	32/2	1325 Airmotive Way Reno, NV 89502 Phone: 775-657-8751 FAX: 775-657-8752
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	98/5	P.O. Box 177 Gabbs, 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	830/150	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	42	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
Wulfenstein (BLM) Pit	Wulfenstein Construction	S28, 29, T20S,	sand gravel	OP, ML	mining crushing screening	4	2281 East Postal Dr. P. O. Box 38 Pahrump, NV 89048 Phone: 775-727-5900 FAX: 775-727-6010

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
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	275/44	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	calcining classification drying grinding	100	P.O. Box 959 150 Coal Canyon Rd. Lovelock, NV 89419 Phone: 775-824-7591 FAX: 775-824-7595 Web: http://www.epminerals.com
Fencemaker Mine	First Liberty Power Corp.	S6, T25N, R37E; S31, T26N, R37E	antimony	UG	mining	3	7251 West Lake Mead Blvd, Suite 300 Las Vegas, NV 89128 Phone: 800-709-1196 Web: http://www.firstlibertypower.com
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	158/56 (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 428 Lovell, WY 82431 Phone: 307-548-5135 FAX: 307-548-6449 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	158/56 (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	3	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	2	415 Wellington Street Winnemucca, NV 89445 Phone: 775-623-1151 FAX: 775-623-1153 Web: http://www.nutritionaladditives.com
STOREY COUNTY							
Basalite Dayton Pit	Basalite Concrete Products	S8, 9, 16, 17, T17N, R22E	sand gravel	OP	mining crushing milling	5	2500 Boeing Way Carson City, NV 89701 Phone: 775-882-9336 FAX: 775-887-1025 Web: http://www.basalite.paccoast.com
Clark Mill	EP Minerals, LLC	S35, T20N, R22E	diatomite	ML	calcining classification drying grinding	55	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7633 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
STOREY COUNTY (continued)							
Clark Mine	EP Minerals, LLC	S27, 33, 34, T20N, R23E	diatomite	OP	mining	4/9	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	118/15	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							
327 Apex Mine	Lake Mountain Mining, LLC	S29, T21N, R23E	gold silver	UG	mining	10	5655 Riggins Court, Suite 17 Reno, NV 89502 Phone: 775-843-5352 FAX: 775-829-6882
Flanigan (Terraced Hill) 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
Golden Valley Pit	A and K Earthmovers	S11, 12, T19N, R20E	aggregate	OP, ML	mining screening	8	515 Windmill Rd. Fallon, NV 89406 Phone: 775-423-6085 FAX: 775-423-8410 Web: http://www.akearthmovers.com
Lockwood Quarry	Granite Construction Co.	S17, T19N, R21E	aggregate	OP, ML	mining crushing screening washing	13	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	8	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	14	10 Hill Ranch Rd. Wadsworth, NV 89442 Phone: 775-575-1162 Web: http://www.cemex.com
Rilite Aggregate	Rilite Aggregate Co.	S23, T18N, R20E	sand rock	OP, ML	mining crushing	6	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	14	11059 Pyramid Lake Rd. Sparks, NV 89436 Phone: 775-425-4455 FAX: 775-425-5131 Web: http://www.martinmarietta.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	425/13	P.O. Box 2706 Elko, NV 89803 Phone: 775-237-7100 FAX: 775-237-7101 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
WHITE PINE COUNTY (continued)							
Mount Moriah Quarry	Mount Moriah Stone Quarries, LLC	S22, 23, 26, 27, 33-36, T16N, R70E	building stone landscape rock	OP	mining	32	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	608/40	P.O. Box 382 Ruth, NV 89319 Phone: 775-289-7000 FAX: 775-289-7349 Web: http://www.quadrafnx.com

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

Statewide Commodity Publications

- Antimony (B61)
- Barite (B98)
- Fluorspar (B93)
- Gypsum (B103)
- Iron (B53)
- Mercury (B41)
- Montmorillonite, bentonite, and fuller's earth (B76)
- Oil and gas (B104, OF01-7, OF04-1, OF11-2, OF11-6, M162)
- Nevada active mines and energy producers (OF14-1)
- Radioactive minerals (B81, OF06-19)
- Talcose minerals (B84)
- Thermal waters (B91, M161, M151)
- Tungsten (B105)
- Zeolites (B79)

County Mineral Resource Bulletins

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

Other Publications

- Index to geothermal well files housed at NBMG (L-5)
- Gold and silver resources in Nevada (M149)
- Geothermal resources (M161)
- Industrial mineral deposits (M142)
- Nevada oil and gas well database (OF04-1)
- Major mines of Nevada 2013 (P-25)
- Outline of Nevada mining history (SP15)
- Mining districts of Nevada (R47)

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

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

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