Nevada Bureau of Mines and Geology

Special Publication MI-2014

The Nevada Mineral Industry 2014

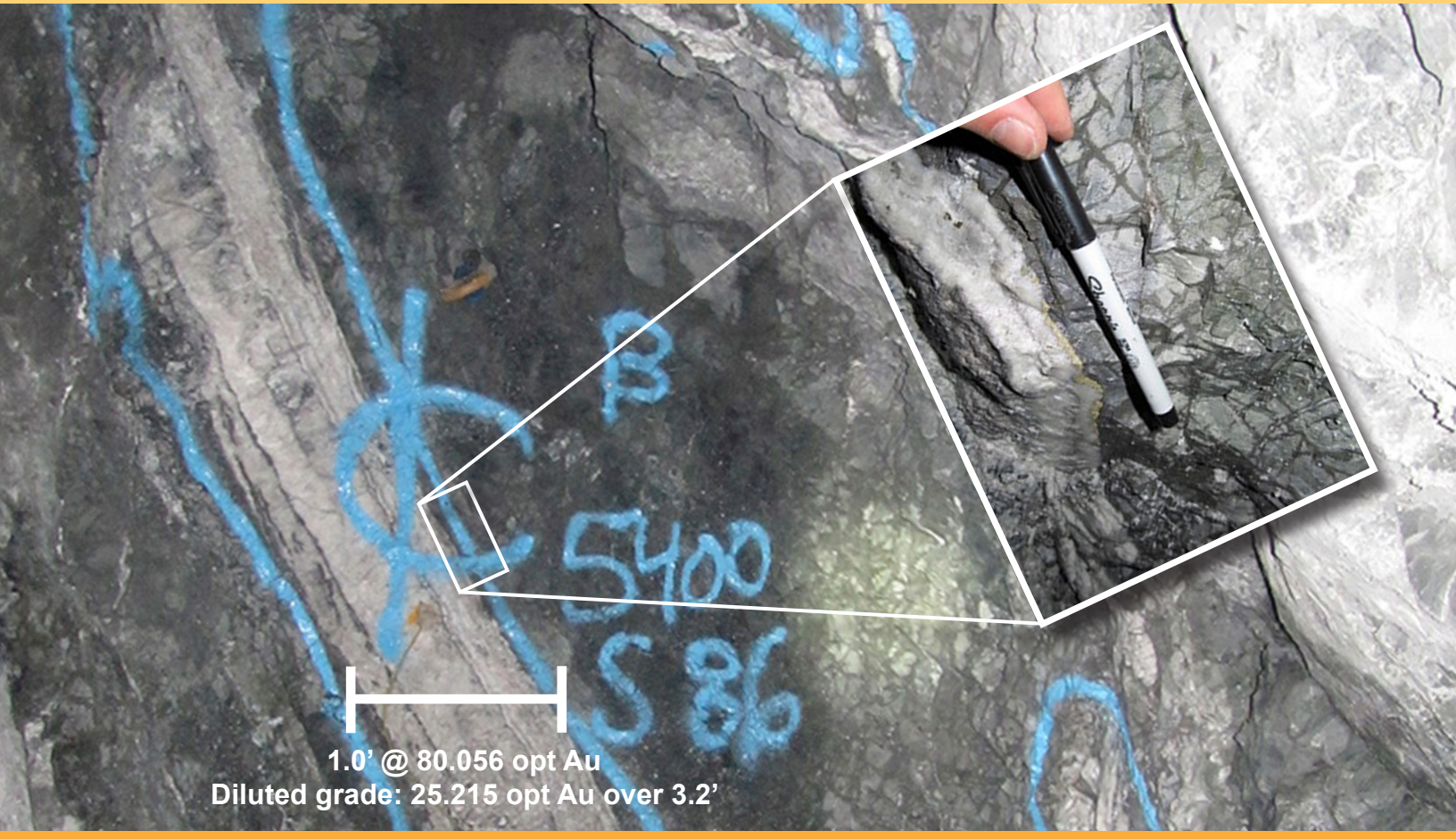
Metals

Industrial Minerals

Oil and Gas

Geothermal

Exploration
Development
Mining
Processing



University of Nevada, Reno

This report describes mineral, oil and gas, and geothermal activities and accomplishments in Nevada in 2014: 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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The Nevada Mineral Industry 2014

Contents

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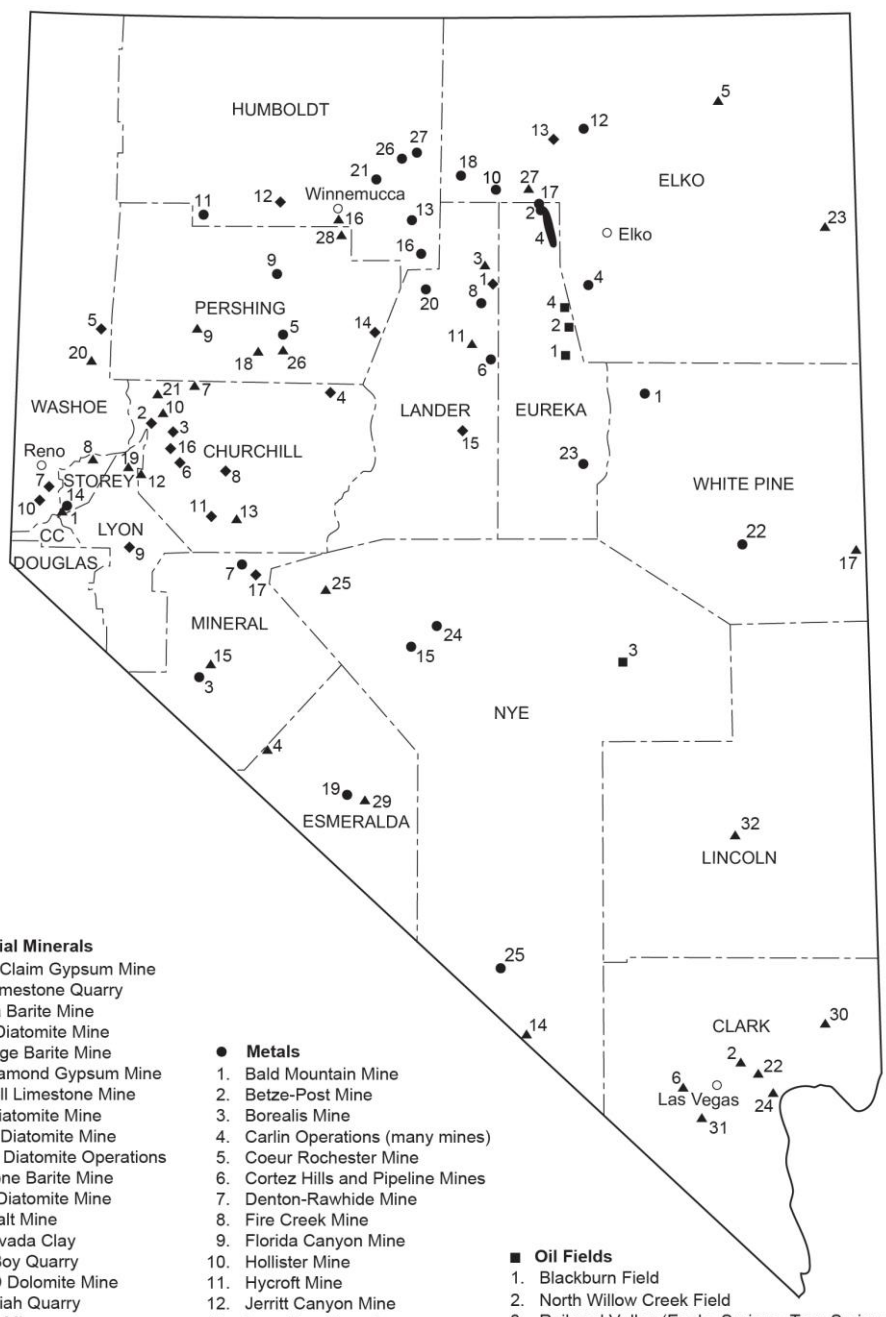

▲ Industrial Minerals

1. Adams Claim Gypsum Mine
2. Apex Limestone Quarry
3. Argenta Barite Mine
4. Basalt Diatomite Mine
5. Big Ledge Barite Mine
6. Blue Diamond Gypsum Mine
7. Churchill Limestone Mine
8. Clark Diatomite Mine
9. Colado Diatomite Mine
10. Fernley Diatomite Operations
11. Greystone Barite Mine
12. Hazen Diatomite Mine
13. Huck Salt Mine
14. IMV Nevada Clay
15. Lucky Boy Quarry
16. MIN-AD Dolomite Mine
17. Mt. Moriah Quarry
18. Nassau Mine
19. NCC Fernley Limestone Ops.
20. NCC Flanigan Clay Mine
21. Nightingale Diatomite Mine
22. PABCO Gypsum
23. Pilot Peak Limestone Quarry
24. Pioneer Gypsum Mine
25. Premier Magnesite Mine
26. Relief Canyon Limestone Mine
27. Rossi Barite Mine
28. Sexton Diatomite Mine
29. Silver Peak Lithium Ops.
30. Simplot Silica Products
31. Sloan Quarry
32. Tenacity Perlite Mine

● Metals

1. Bald Mountain Mine
2. Betze-Post Mine
3. Borealis Mine
4. Carlin Operations (many mines)
5. Coeur Rochester Mine
6. Cortez Hills and Pipeline Mines
7. Denton-Rawhide Mine
8. Fire Creek Mine
9. Florida Canyon Mine
10. Hollister Mine
11. Hycroft Mine
12. Jerritt Canyon Mine
13. Lone Tree Complex
14. Lucerne Mine
15. Manhattan Gulch Mine
16. Marigold Mine
17. Meikle Mine
18. Midas Mine
19. Mineral Ridge Mine
20. Phoenix Mine
21. Pinson Mine
22. Robinson Mine
23. Ruby Hill Mine
24. Smoky Valley Common Ops.
25. Sterling Mine
26. Turquoise Ridge Joint Venture
27. Twin Creeks Mine

■ Oil Fields

1. Blackburn Field
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)
4. Tomera Ranch Field

◆ Geothermal Power Plants

1. Beowawe
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, 2014.

OVERVIEW

by John L. Muntean

This report highlights activities through 2014 in metals, industrial minerals, geothermal energy, and petroleum. The value of overall mineral and energy production in Nevada in 2014 decreased 15.6% to just under $7.58 billion (table 1, fig. 1). The main cause, as was the case in 2013, was the decreasing price of gold from an all-time high average cost of $1,669/ounce in 2012, to $1,411/ounce in 2013, and to $1,266/ounce in 2014. Gold production decreased for the second year in a row, declining 9.1% to 4.94 million ounces, the first time it dropped below 5 million ounces since 1988 (fig. 2). Nevertheless, gold comprised 82.5% 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 2014, 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), gypsum, petroleum, silica, and molybdenum. Additional mined materials with production values less than $10,000,000 in 2014 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://pubs.nbmg.unr.edu/Active-mines-and-energy-2014-p/of2014-01.htm.

Nevada dropped behind Arizona to second in the United States, in terms of value of overall nonfuel (excluding oil, gas, coal, uranium, and geothermal) mineral production in 2014 (according to the U.S. Geological Survey, Mineral Commodity Summaries 2014, http://minerals.usgs.gov/minerals/pubs/mcs/2015/mcs2015.pdf). Arizona is the country's major copper producer. Minnesota, the leading iron ore producer in the U.S., was third. Texas rose to fourth, mainly due to its booming construction industry and demand for aggregate and cement. Utah was fifth, mainly because of its Bingham Canyon copper-gold mine near Salt Lake City. The contributions that mining makes to the economies of Nevada and the U.S. are significant in terms of jobs, commerce, taxes, improvements to the infrastructure, and lowering of the U.S. trade deficit.

Nevada's production of gold, valued at $6.26 billion, accounted for 73% of the U.S. total and helped the U.S. become the fourth leading gold producer in the world in 2014. Nevada alone accounted for 5.4% of world production of gold, which was approximately 92 million ounces in 2014. Only China, Australia, Russia, and Canada produced more gold than the state of Nevada. Second to gold in terms of Nevada's mineral value in 2014 was copper ($427 million), followed by silver ($209 million), which was produced chiefly as a byproduct of gold production. Electrical power from geothermal energy production in Nevada was valued at $204.5 million. Construction aggregate ranked fifth, with a value of $166 million.

The section on **Metals** and the tables in **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 2014 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, about the same as in 2013. 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 5.63 billion ounces. Although this seems like a large quantity, all the gold ever mined would fit into a cube only ~21 m (68 ft) 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. Total gold production in Nevada through 2014 was 213.4 million ounces. Remarkably, 89% 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 27% has been produced in the last ten years. Cumulative U.S. production, primarily since 1835, is approximately 581 million ounces or about 10.3% 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 2014, cumulative production from the Carlin trend was 84.2 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 261 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

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

Commodity	2013 (revised) Quantity	2013 (revised) Value (millions)	2014 Quantity	2014 Value (millions)	Change from 2013 to 2014 Quantity	Change from 2013 to 2014 Value
Gold (thousand troy ounces)	5,436	$7,672.1	4,941	$6,256.7	-9.1%	-18.4%
Silver (thousand troy ounces)	8,669	206.3	10,934	208.6	26.1%	22.3%
Copper (thousand pounds)	137,715	468.2	132,616	427.0	-3.7%	-9.6%
Molybdenum (thousand pounds)	830	8.6	445	5.4	-46.4%	-37.2%
Aggregate (thousand short tons	19,566	150.1	21,590	165.5	10.3%	10.3%
Barite (thousand short tons)	883	85.1	905	103.7	2.5%	21.9%
Gypsum (thousand short tons)	2,088	25.6	2,803	33.3	34.2%	30.0%
Geothermal energy (net, thousand megawatt-hours)	2,527	184.7	2,742	204.5	8.5%	10.7%
Petroleum (thousand 42-gallon barrels)	336	31.4	316	26.9	-6.3%	-14.3%
Other minerals[2]	-----	159.4	-----	148.6	-----	-7.3%
Total	-----	$8991.5	-----	$7580.2	-----	-15.6%

[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 ($1411.23/oz for 2013 and 1266.40/oz in 2014) and silver ($23.80 for 2013 and $19.08/oz for 2014), as reported by www.kitco.com.

Copper and molybdenum: production reported by NDOM using average annual prices for copper ($3.40/lb for 2013 and $3.22/lb for 2014) and molybdenum ($10.31 for 2013 and $12.20 for 2014), as reported by USGS.

The values of all the other commodities were the gross proceeds in 2013 and 2014 reported by the Nevada Department of Taxation.

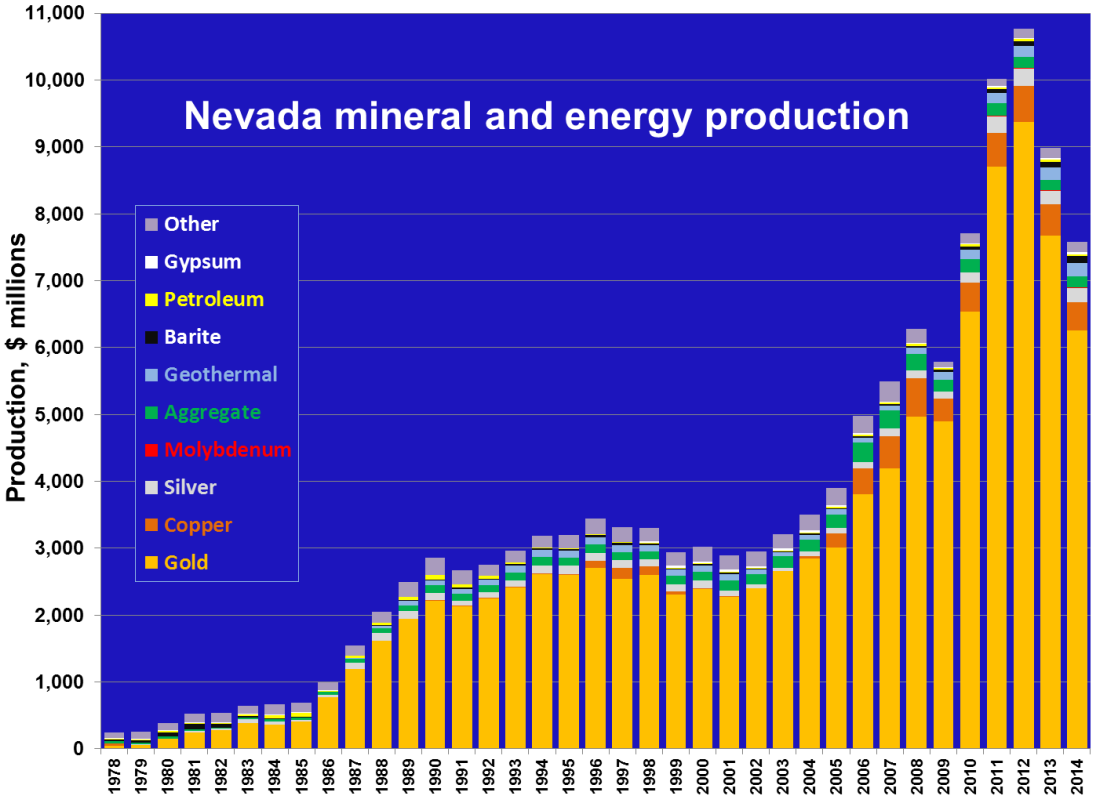

Figure 1. Chart showing relative values of Nevada production of gold, copper, silver, molybdenum, aggregate, geothermal energy, barite, petroleum, gypsum and other minerals from 1978 to 2014. Molybdenum production is only shown for 2011 to 2014.

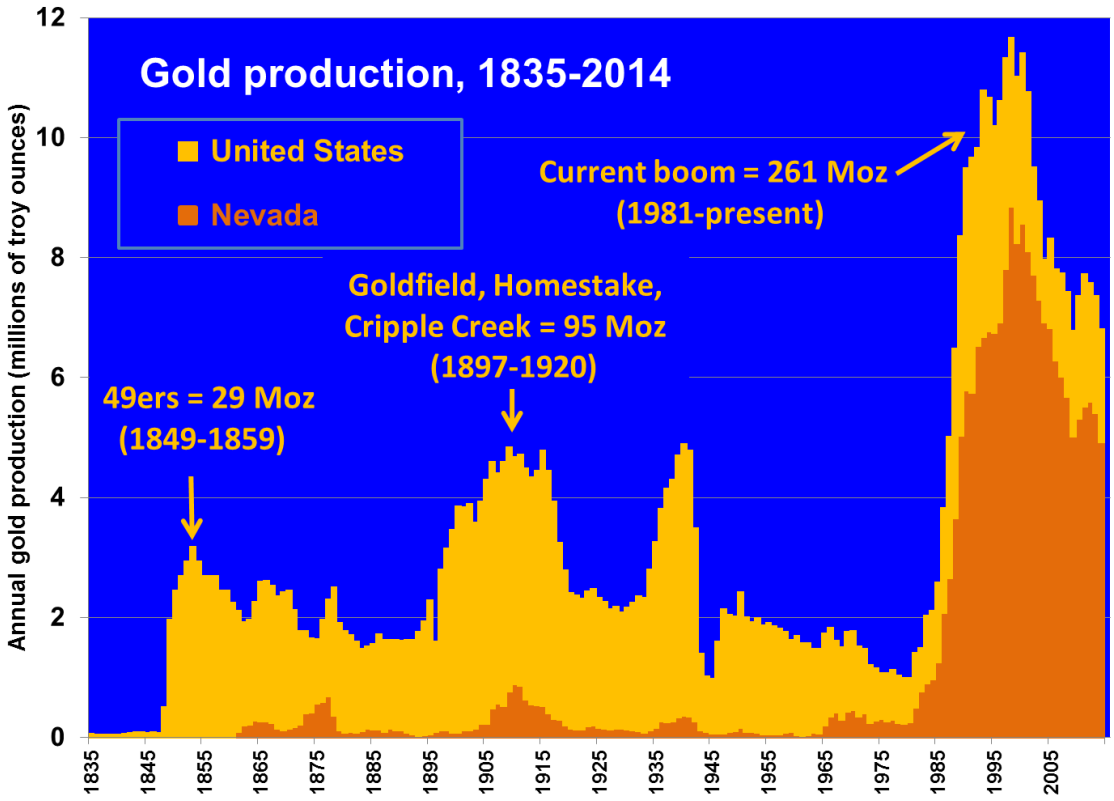

Figure 2. Chart comparing U.S. and Nevada gold production from 1835 to 2014.

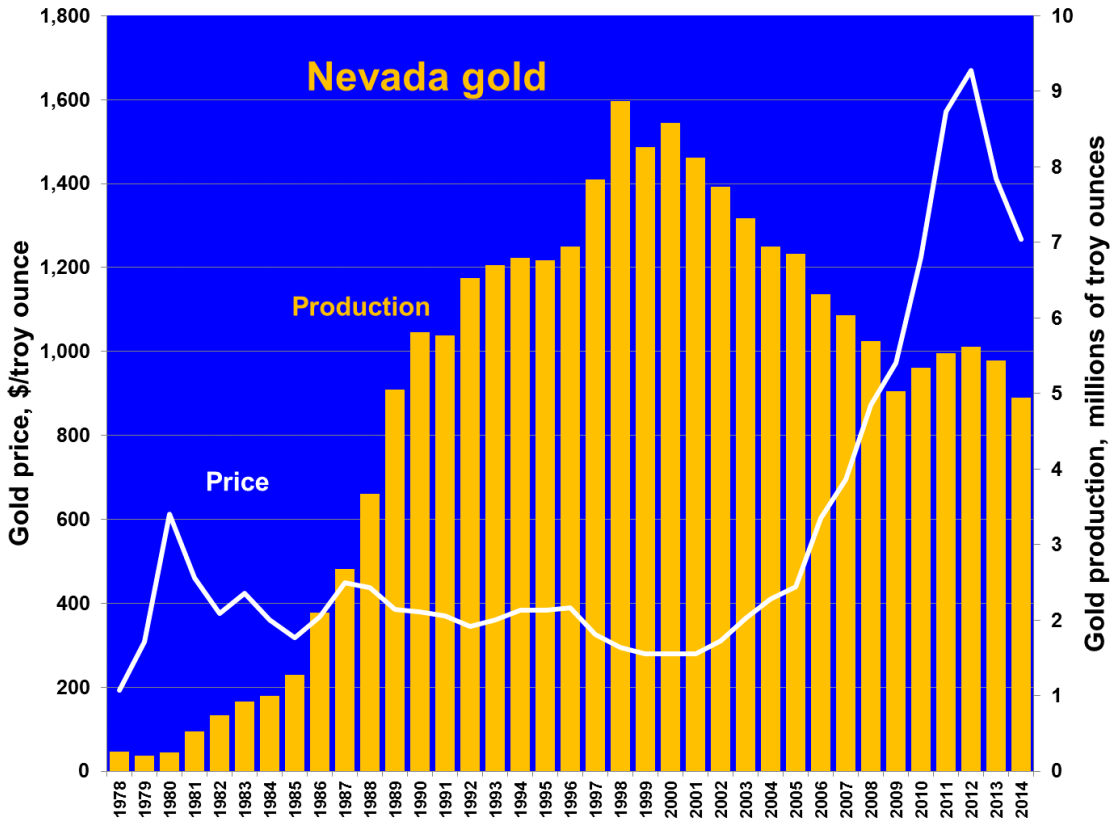

Figure 3. Chart showing Nevada gold production compared to the price of gold from 1978 to 2014.

decade from 2005 through 2014 alone was 75 million ounces. The current boom is bigger than previous booms not only in terms of cumulative production but also in terms of peak annual production (11.6 million ounces in 1998 versus 4.8 million ounces in 1909, 2.6 million ounces in 1866, and 3.1 million ounces in 1853) and duration (at least 35 years for the current boom versus no more than 24 years for any of the earlier booms).

Barrick Gold Corp. and Newmont Mining Corp. accounted for 76% of Nevada gold production in 2014, mostly from mines in northeastern Nevada. Barrick produced 2.36 million ounces of gold mainly from its Goldstrike and Cortez operations, both of which produced just over 900,000 ounces in 2014. Other large gold operations were Newmont's mines on the Carlin trend, which also produced just over 900,000 ounces, Newmont's Twin Creeks mine (385,169 ounces) in Humboldt County, and the Round Mountain mine (330,071 ounces), a joint venture between Kinross Gold Corp. and Barrick, in Nye County.

Nevada's silver production in 2014 totaled 10.93 million ounces (fig. 4). About 62% of the silver production was a byproduct of gold mining. With a ratio of value (average price of gold to average price of silver) of 66:1 in 2014, only those deposits with more than 66 times as much silver as gold can be considered primary silver deposits. Only one such mine operated in Nevada in 2014—Coeur Mining Inc.'s Rochester Mine in Pershing County, which had a silver-to-gold production ratio of 93:1 and total silver production of 4.19 million ounces. It produced about 38% of Nevada's silver in 2014. Nevada's silver production in 2013 accounted for 29% of the U.S. total, which was second in the U.S. behind Alaska.

Nevada's copper production in 2014 was dominated by the Robinson copper-gold-silver-molybdenum mine, operated by KGHM International Ltd. near Ely in White Pine County, which produced nearly 87 million pounds of copper (fig 5). Copper was also produced at Newmont's Phoenix mine near Battle Mountain in Lander County, where the value of the nearly 46 million pounds of copper was about 60% of the value of the mine's gold production. At Phoenix, Newmont produces copper on site with a solvent extraction-electrowinning (SX-EW) plant, as well as producing concentrates that are shipped to smelters outside Nevada, which KGHM's Robinson mine ships as well. KGHM also produced 1,384,649 pounds of by-product molybdenum from Robinson, the only reported molybdenum production in Nevada in 2014.

Mineral exploration activity in 2014 is summarized in the sections on **Metals and Industrial Minerals**. Most exploration focused on gold; however, some companies explored for copper, silver, zinc, iron, vanadium, antimony, barite, diatomite, fluorspar, limestone for cement, lithium, and rare earth elements.

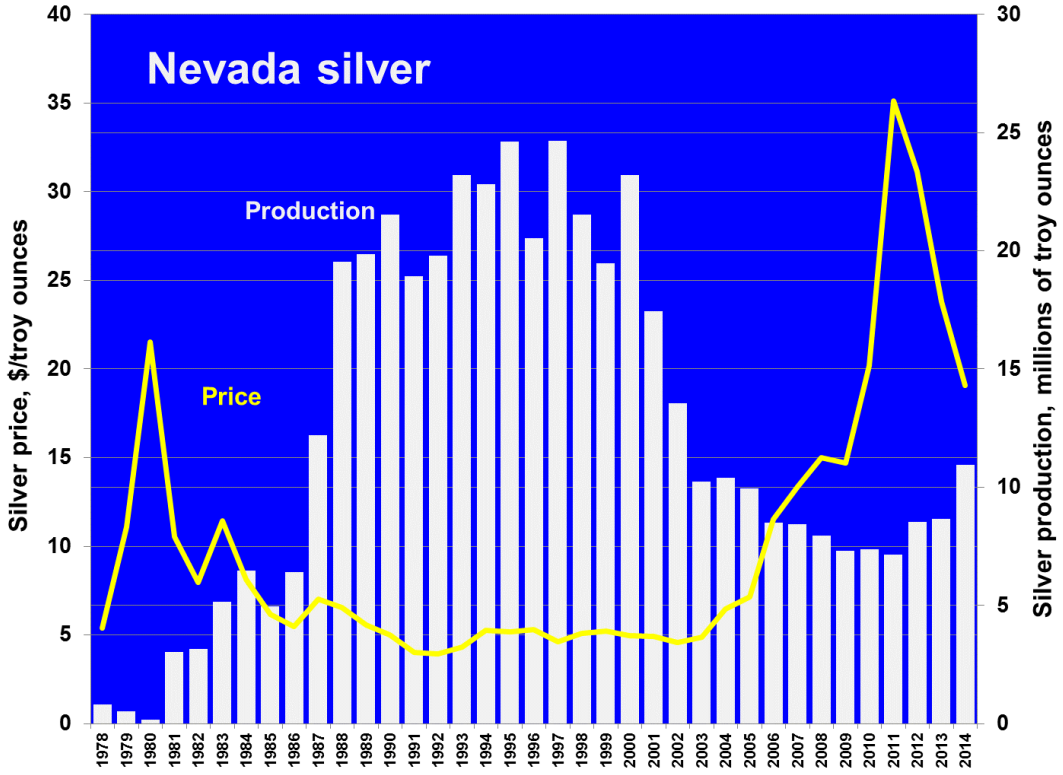

Figure 4. Chart showing Nevada silver production compared to the price of silver from 1978 to 2014.

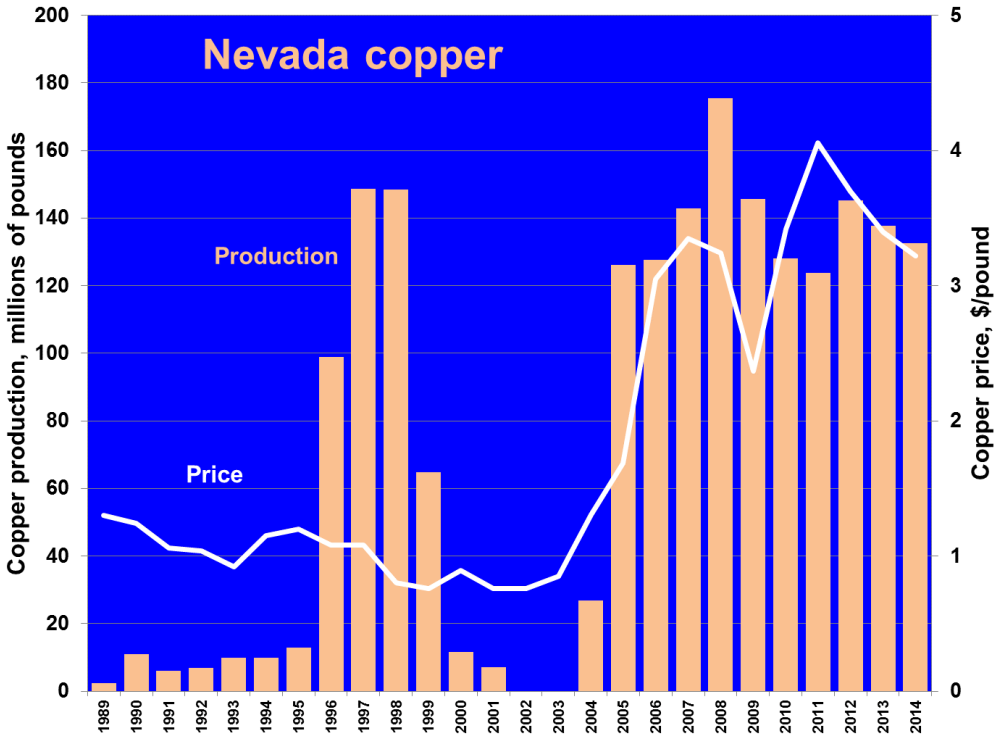

Figure 5. Chart showing Nevada copper production compared to the price of copper from 1989 to 2014.

Exploration activity for metals dropped again in 2014, as budgets of major companies shrank and very little money flowed into the junior company market. 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, Lander, and Elko counties, such as Barrick's large Goldrush deposit near its 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, the Pumpkin Hollow copper project near the town of Yerington is poised for production but requires a capital investment of over one billion dollars. The Bureau of Land Management's LR2000 database indicated 182,429 active mining claims at the end of 2014, a decrease of 10.7% from the end of 2013 and remaining at its lowest level since 2006 (fig. 6). The decrease in exploration activity for metals is also reflected by a decrease in projects that were drilled, dropping from 81 projects in 2013 to 72 in 2014 (fig. 7).

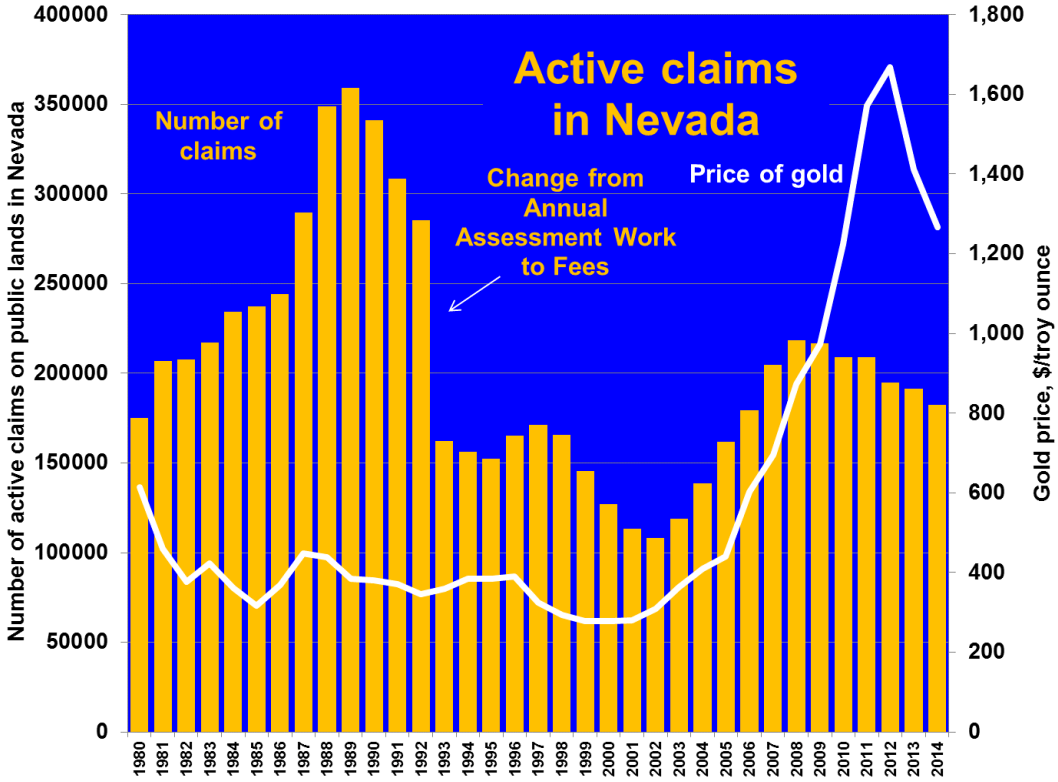

Figure 6. Chart showing number of active mining claims at the end of the year from 1980 to 2014. For comparison, chart also shows the price of gold during that period.

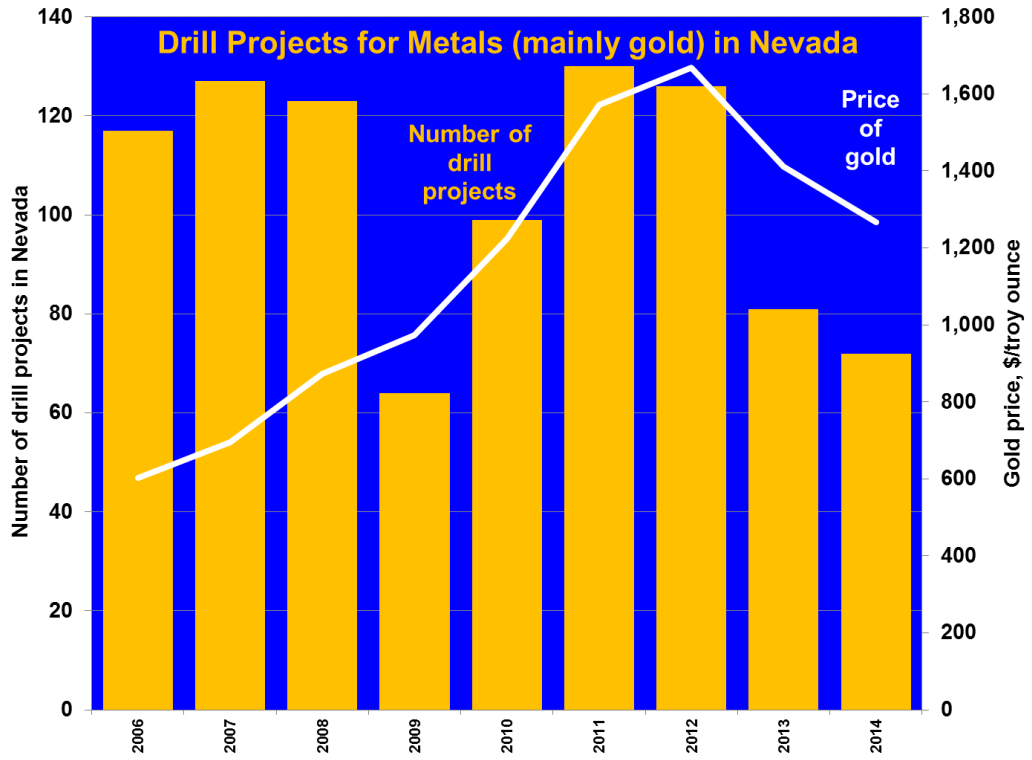

Figure 7. Chart showing number of drill projects targeting metals, mainly gold, from 2006 to 2014. For comparison, chart also shows the price of gold during that period.

The section on **Industrial Minerals** covers developments during 2014 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 financial crisis of 2008 that 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 raw materials for construction will likely grow in the future because of Nevada's population and need for highways. However, Nevada's population in 2014 was 2.839 million, up only slightly from 2.701 million in 2010 (www.census.gov). The recent slower growth in population is reflected in a fairly steady decrease in aggregate production since 2006; however, it increased 10.3% in 2014 (table 1, fig. 8), indicating building construction is on the rebound. Likewise, Nevada's gypsum production continued to increase, up 34% in 2014, after a 41% increase in 2013.

Tesla Motors Inc. began construction of its $5 billion plant near Reno in Storey County in June 2014, with production expected to begin in 2017. The plan is to produce lithium-ion batteries for Tesla electric cars and for home, commercial, and business use. Its plant will more than double the present world production of lithium-ion batteries. Tesla is projecting annual production of 500,000 electric cars by 2020, which will require an annual production of 27,000 tons of lithium compounds on top of the present annual world production of almost 40,000 tons.

Rockwood Lithium Inc.'s Silver Peak operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, is the only producer of lithium in the United States. Most exploration for industrial minerals in Nevada was focused on lithium, mainly near Clayton Valley. In addition, Western Lithium USA Corp. continued with exploration, testing, and evaluation of the lithium-bearing clay resources on its Kings River Valley project in northern Humboldt County. The company was awarded a patent for developing a process to separate lithium from hectorite and other lithium-rich clays. Results of testing lithium carbonate from Kings Valley for lithium ion batteries proved positive.

Nevada was once again the leading domestic producer of barite, of which 95% is used for drilling muds. Production in Nevada increased only a modest 2.5% in 2014 (fig. 9), in line with a 5% increase in the average weekly domestic drill rig count for oil and gas in 2014.

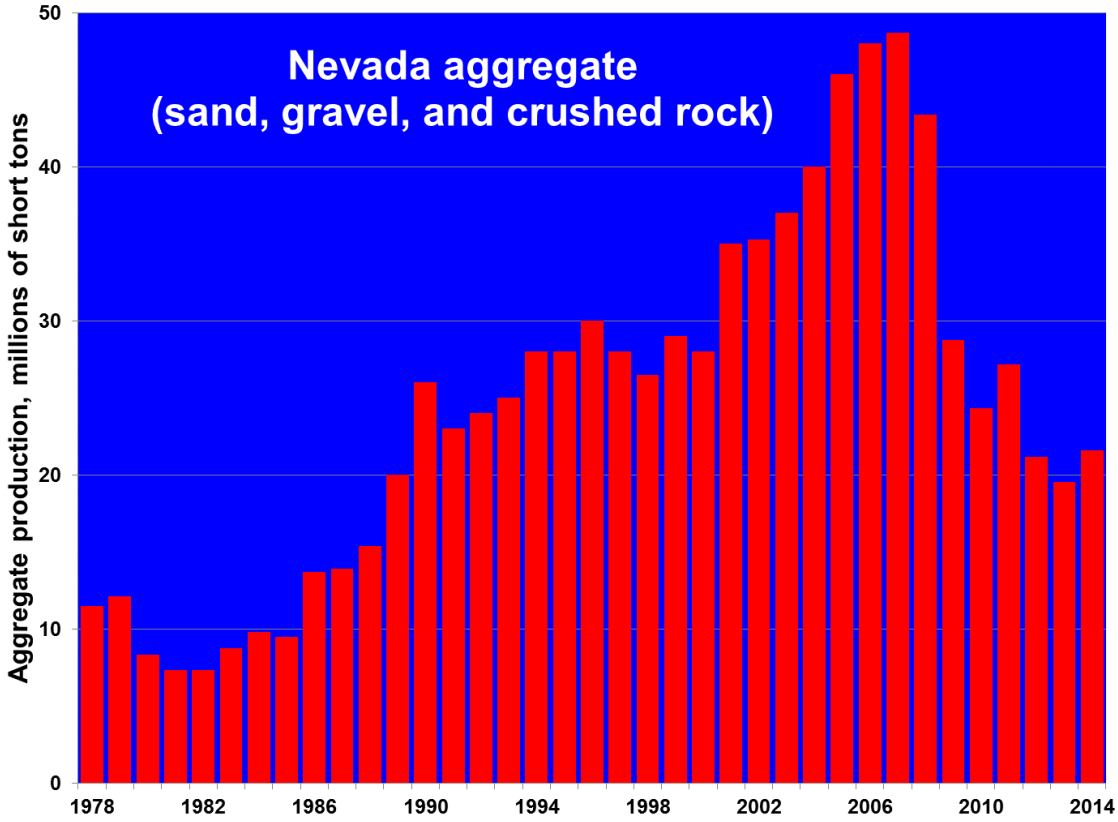

Figure 8. Chart showing Nevada aggregate production from 1978 to 2014.

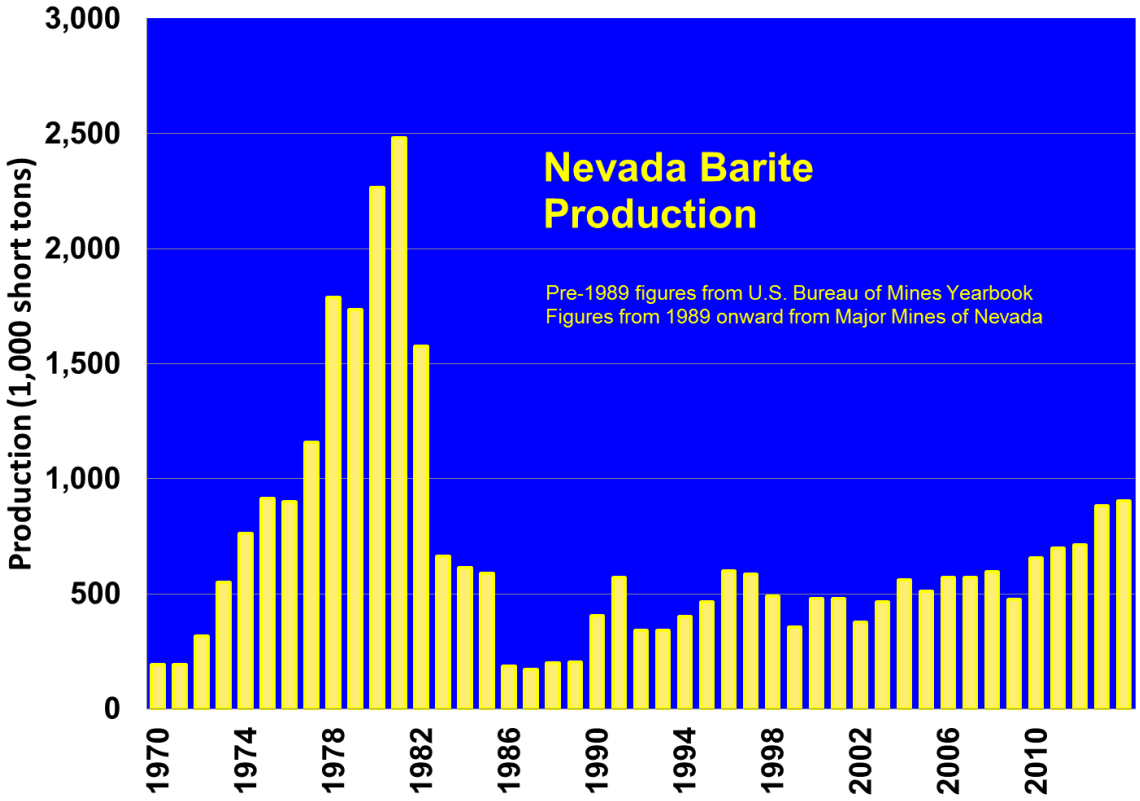

Figure 9. Chart showing Nevada barite production from 1970 to 2014.

Nevada's production of diatomite, which is mainly used in filtration, was second only to California in the U.S. 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 earth elements (REE) in the United States. 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. However, Elissa spent very little money on the project in 2014. 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**. In 2014, Nevada set another record for geothermal power generation with 2.742 million net MWh from approximately 25 plants at 16 geothermal fields, enough to power 247,000 Nevada households. This was an 8.5% increase from 2013 (table 1, fig. 10). Although geothermal leasing and drilling activity has slowed in Nevada since 2010, various trends have stabilized, and there have been significant successes with the promise for future development. Two new power plants were constructed in 2014 at blind geothermal systems. These were Don A Campbell, near the town of Gabbs, and McGinness Hills in central Lander County, both of which are Ormat Technologies Inc. facilities. 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 2014, 24 projects (compared to 45 projects at the end of 2013) were in various stages of development in Nevada. Five projects, for which a capacity was reported, indicate approximately 130 MW capacity may be added in Nevada in the next few years.

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 6.3% from 2013 (table 1, fig. 11). Small amounts of co-produced natural gas are used to fuel equipment used in oil production.

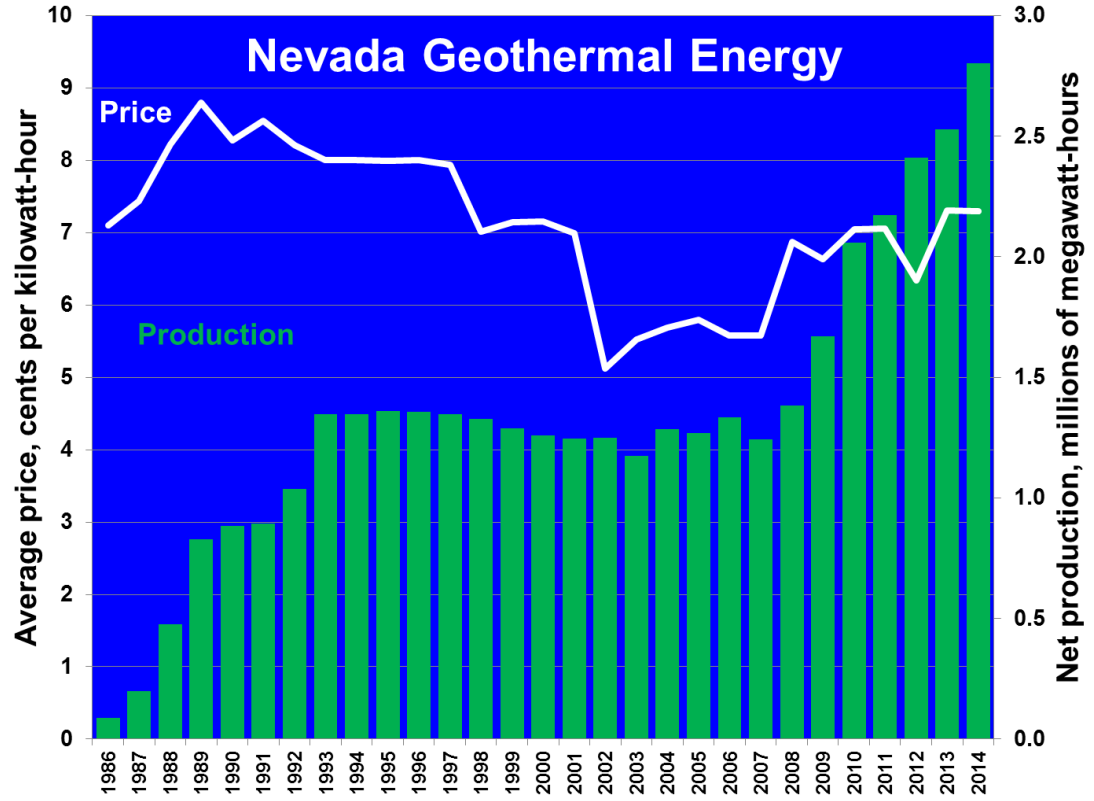

Figure 10. Chart showing net geothermal production in megawatt-hours in comparison to the average price of geothermal power in cents per kilowatt-hour for the period from 1986 to 2014.

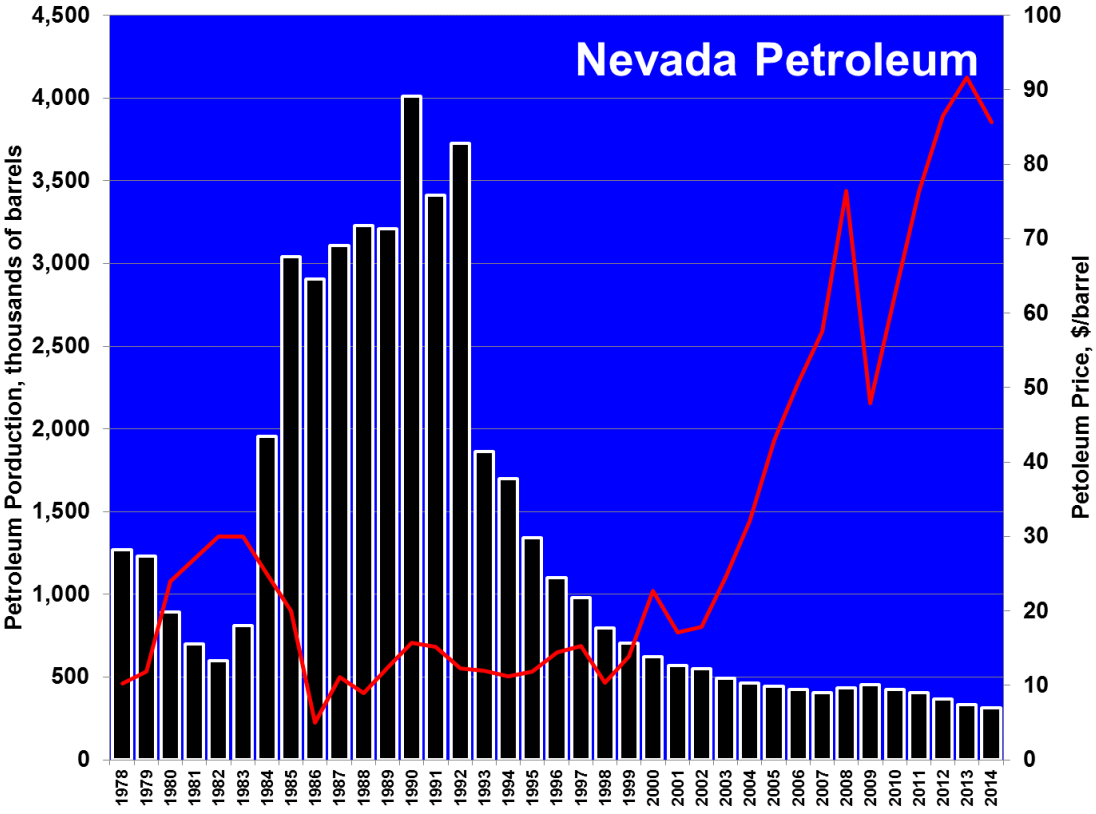

Figure 11. Chart showing Nevada petroleum production from 1978 to 2014 in comparison with the price per barrel of oil (red line).

The 2013 Nevada Legislature tasked the Nevada Division of Minerals and Nevada Division of Environmental Protection to jointly develop hydraulic fracturing regulations, and the Commission on Mineral Resources to adopt and implement the regulations concerning hydraulic fracturing activities in the state. Proposed rules were issued in February, and after extensive reviews, comments, and revisions, the final rules were approved in October of 2014.

Noble Energy Inc. drilled a new producer and began production from a well it completed in 2013. The wells produced a few thousand barrels of oil before being shut-in in December of 2014. Both wells are located in Elko County, one in Lamoille Valley between the towns of Elko and Wells, and the other in Huntington Valley, south of Elko near the town of Jiggs. Both wells were hydraulically fractured and both produced from black shales of the Elko Formation at depths between about ~2,438 and ~2,743 m (8,000 and 9,000 ft).

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 14,433 employees in 2014. The average pay for mineral industry employees during this time was $88,608 per year, the highest average of any employment sector in the state. In addition, it is estimated that 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 (Perry and Visher, 2015, Major Mines of Nevada 2014, Mineral Industries in Nevada's Economy, Nevada Bureau of Mines and Geology Special Publication P-26, 28 p.; available at http://pubs.nbmg.unr.edu/Major-mines-of-Nevada-2014-p/p026.htm).

Additional information about the Nevada mineral industry and the U.S. gold industry, including the contents of selected publications, is readily available on the Nevada Bureau of Mines and Geology website (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 its website that are backed by periodically updated databases on mineral and energy resources and potential, exploration activity, land ownership and restrictions, and other types of geographic information (http://www.nbmg.unr.edu/Maps&Data/index.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 4,940,540 ounces of gold, 10,933,774 ounces of silver, 132,616,318 pounds of copper, and 741,717 pounds of molybdenite from 30 active mines based on records from the Nevada Division of Minerals. Table 1 shows the production of gold, silver, copper, and molybdenum in 2014 that was reported to the Nevada Division of Minerals.

Gold production decreased 9.1% in 2014, the second consecutive year of decreasing production after three years of annual increases. 2014 marked the first year of production below five million ounces since 1988. Barrick Gold Corp. and Newmont Mining Corp. accounted for 76% of Nevada's gold production, down from 83% in 2013. The Carlin trend produced 1,809,602 ounces of gold, a decrease of 5.4% from 2013. Despite the decrease, the Carlin trend's share of Nevada's gold production increased slightly to 37%. Through 2014, the Carlin trend had produced 84,175,843 ounces of gold since the original Carlin mine went into production in 1965.

Barrick remained the leading producer of gold in 2014, producing 50% of Nevada's gold. The company produced 2,324,264 ounces in 2014, a decrease of 15% from 2013. Production came from its Bald Mountain, Cortez, Goldstrike, and Turquoise Ridge mines (75% share), plus its 50% share of the Round Mountain mine's production. Barrick's Nevada production total does not include its 33% share of production from the Marigold mine during the first three months of 2014, prior to acquisition of Marigold by Silver Standard Resources Inc. in April, 2014. The open pit and underground mines at the Cortez Hills deposit produced 901,367 ounces of gold, a 34% decrease from 2014, which explains much of the decrease in Barrick's overall Nevada production. At the end of 2014, Barrick reported 26,240,000 ounces of proven and probable reserves in Nevada.

Newmont produced 1,571,847 ounces of gold, an 11% decrease from 2013. Newmont's production came from ten open pit and six underground mines, including its Carlin trend mines and from its Emigrant, Midas (1 month), Phoenix, and Twin Creeks mines, plus its 25% share of the Turquoise Ridge mine. The majority of gold that Newmont produced in Nevada was from refractory ores. Newmont reported 29,810,000 ounces of gold reserves in Nevada, for year-end 2014.

Other gold mines reporting production in 2014 included: Round Mountain (330,071 oz; 50% Kinross Gold Corp., 50% Barrick), Hycroft (214,345 oz; Allied Nevada Gold Corp.), Marigold (162,382 oz; Silver Standard), Jerritt Canyon (160,921 oz; Veris Gold Corp.); Fire Creek (65,655 oz, Klondex Mines Ltd.), Rochester (44,887 oz, Coeur Mining Inc.), Standard/Florida Canyon (40,311 oz; Jipangu International), Mineral Ridge (40,814 oz; Scorpio Gold Corp.), Denton-Rawhide (28,446 oz, Rawhide Mining LLC), Midas (21,984 oz, Newmont and then Klondex), Lucerne (19,601 oz, Comstock Mining Inc.), Borealis (10,859 oz; Borealis Mining Co. LLC), Sterling (5,700 oz; Imperial Metals Corp.), Pinson (3,780 oz, Atna Resources Ltd.), and Hollister (2,342 oz; Waterton Global Mining Co. LLC). At least 26% of Nevada's gold production in 2014 was from underground mining. However, Newmont does not break out its production into open pit versus underground; thus, the percentage of Nevada gold production was likely closer to 33%. Midway Gold's Pan mine was the only new mine under construction in 2014.

Coeur Mining was the leading silver producer at 4,189,071 ounces, a 33% increase from 2013. All of its production came from its Rochester mine, the only primary silver mine in Nevada. Newmont, was the state's second leading producer, at 2,170,978 ounces of silver, 76% of which came from its Phoenix mine. Other mines that produced over one million ounces of silver include Hycroft (Allied Nevada) and Midas (Newmont and then Klondex). KGHM International's Robinson mine produced 78% of Nevada's copper, which amounted to 86,601,987 pounds, a 20% decrease from 2013. Newmont's Phoenix mine made up the balance of the copper production, producing 46,014,331, a 54% increase from 2013. KGHM International produced 741,717 pounds of by-product molybdenum from Robinson, a 46% decrease from 2013.

EXPLORATION

Exploration activity decreased again in 2014, mainly due to a decreasing gold price. Gold averaged $1266.40 per ounce, a decrease of 10% from $1411.23 in 2013. Gold started 2014 at $1219.75 per ounce and ended the year at $1199.25. It peaked at $1343.25 per ounce in July. Silver averaged $19.08 per ounce, a decrease of 20% from $23.79 per ounce in 2013. Silver started 2014 at $19.94 per ounce and ended the year at $15.97. Nevada county recorders registered 195,034 claims in fiscal year 2014 (which ended June 30, 2014), a 10.7% decrease from fiscal year 2013. These included new claims and annual maintenance of existing claims. The number of claims at the end of 2014, as derived from U.S. Bureau of Land Management's (BLM) LR2000 database, was 182,429 claims, a decrease of 4.7% from the end of 2013. The distribution of active claims at the end of 2014 is shown in figure 1. The decrease in exploration is also clearly reflected by the continuing decrease in new claim staking. The BLM listed 8,515 new claims that were located in calendar year 2014 (figure 2), a 24% decrease from 2013, and a decrease of 60% from 2012. Table 2 shows the companies that staked over 300 new claims in calendar year 2014. Kinross Gold staked, by far, the most claims in 2014. The 1,456 claims they staked were focused on several pediment projects, including the Cuprite district along Highway 95, the north end of the Toquima Range along Highway 50, the pediment on the northwestern flank of Lone Mountain in Kobeh Valley, the pediment along the western flank of the Mahogany Hills where Barrick had recently explored, and the pediment on the east

flank of the Toquima Range near Corcoran Canyon. Newmont staked large blocks of claims in Elko County, including over Paleozoic rocks in the Granite Range in the southeastern part of the Contact district, the south end of the Goshute Mountains east of Kinsley Mountain, and the pediment on the west flank of the Snake Range.

At least 72 projects were drilled in 2014, down from 81 projects in 2013. Table 3 shows the breakdown of the drill projects by size of company and drill program. Five "major" companies (Barrick, Newmont, Kinross, KGHM, and Teck) and five "mid-tier" companies (Coeur Mining Inc., Allied Nevada Gold, Imperial Metals, Silver Standard Resources, and Jipangu) drilled at least 28 projects in 2014, down from 30 in 2013. The remaining 44 projects were drilled by 33 "junior" companies. Figure 3 shows the location of projects across the state that were drilled in 2014. More than the 72 projects reported here were likely drilled in 2014, especially small drill programs carried out by major or mid-tier companies, because these companies only occasionally release information on such projects.

The main exploration target in Nevada continued to be gold. Of the 72 projects that were known to have been drilled in 2013, 64 of them targeted gold. Three were targeted primarily for silver, two for zinc, and three were drilled mainly for copper. Coeur Mining 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 to 2014 was just under 85:1. Coeur's 2014 drill program discovered a previously unknown zone of high-grade silver mineralization east of the pit. Other silver projects included the old Taylor mine south of Ely (Silver Predator Corp.) and Klondike in the Alpha district in the Sulfur Springs Range (Bullfrog Gold Corp.). The zinc projects targeted high-grade mineralization at Lone Mountain in Kobeh Valley (Nevada Zinc Corp.) and at Gunman at the southeast end of the Diamond Mountains (Cypress Development Corp.)

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 copper project that had the most drilling in 2014 was Ann Mason in the Yerington district, where Entrée Gold Inc. drilled 40 holes totaling over 63,000 feet. Other copper projects that were drilled included Majuba Hill in Pershing County (Max Resource Corp.) and the Robinson mine near Ely (KGHM International Ltd.). Though they did not drill in 2014, Nevada Copper Corp. continued to make great strides in driving its Pumpkin Hollow project in the Yerington district toward production. It spent much of the year sinking a production shaft to access its underground East deposit. Importantly, a federal land bill was signed into law in 2014, which will result in the conveyance of 10,400 acres of federal land to the City of Yerington in 2015. The city will then re-convey the land to Nevada Copper. With the project being on private land, Pumpkin Hollow anticipates permitting and financing will be easier. 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 exploration expenditures by the major companies, mainly Barrick and Newmont, were spent on drilling near their active mines. Barrick spent $86 million on exploration in North America out of the $183 million it spent worldwide in 2014, according to its 2014 annual report. The vast majority of the North American expenditures were in Nevada. Barrick continued to advance it Goldrush discovery near its Cortez Hills mine. As of year-end 2014, the Goldrush project had 10.6 million ounces of measured and indicated resources and 4.9 million ounces of inferred resources. Drilling in the Cortez Hills area was focused on the underground portion of the deposit, where mineralization remains open at depth to the south and west. The new zones Barrick is delineating are mainly oxidized and higher grade than the ore they are currently mining underground at Cortez Hills. Barrick earned-in on the Spring Valley project (70% Barrick, 30% Midway Gold Corp.) by having spent $38 million on Spring Valley since partnering with Midway Gold in 2009. Barrick released its first resource estimate for Spring Valley – a measured and indicated resource of 4.12 million ounces of gold from material with an average grade of 0.019 opt gold (0.06 opt gold cut-off grade). Newmont spent $68 million on exploration in North America out of the $164 million it spent worldwide in 2014, according to its 2014 annual report. Like Barrick, the majority of its North American expenditures were in Nevada. Newmont continued to advance its Long Canyon project in the Pequop Mountains. In early 2015 Newmont's Board of Directors approved full funding for the first phase of construction at Long Canyon. Newmont announced a probable reserve at Long Canyon of 1.2 million ounces of gold in oxide ore grading 0.067 opt gold.

Junior companies carried out at least 36 drill projects that targeted gold in 2014. Drill programs in 2014 that drew attention were Gold Standard Ventures Corp.'s Railroad project, Klondex Mines Ltd.'s Fire Creek project, Pershing Gold Corp.'s Relief Canyon project, Pilot Gold Inc.'s Kinsley Mountain project, Corvus Gold Inc.'s North Bullfrog project, Premier Gold Mines Ltd.'s Cove project, Anova Metal Ltd.'s Big Springs project and Western Exploration LLC's Gravel Creek project. Gold Standard's drilling at the Pinion deposits on its Railroad property

Table 1. 2014 Metallic Mine Production for Nevada (as reported to the Nevada Division of Minerals)

Mine (type)	Operator	Gold (ounces)	Silver (ounces)	Copper (pounds)	Molybdenite (pounds)
Manhattan Gulch (p)	A.U. Mines Inc.	1,230	419		
Pinson (ug)	Atna Resources	3,780			
Cortez Hills (ug)	Barrick Cortez	395,093	13464		
Cortez Hills/Pipeline (op)	Barrick Cortez	506,274	17,739		
Bald Mountain (op)	Barrick Gold	161,036	48,240		
Turquoise Ridge (ug)	Barrick Gold (75% Barrick, 25% Newmont)	259,345			
Betze Post (op)	Barrick Goldstrike Mines	515,641	17,993		
Meikle (ug)	Barrick Goldstrike Mines	386,679	15,707		
Borealis (lp)	Borealis Mining	10,859	35,133		
Rochester (op)	Coeur Rochester	44,887	4,189,071		
Lucerne (op)	Comstock Mining	19,601	222,416		
Ruby Hill (op)	Homestake Mining	33,124	65,020		
Hycroft (op)	Allied Nevada Gold	214,345	1,818,637		
Florida Canyon (op)	Jipangu International	40,311	79,231		
Robinson (op)	KGHM International	26,303		86,601,987	741,717
Fire Creek (ug)	Klondex	65,655	62,911		
Midas (ug, Feb-Dec))	Klondex	18,600	1,302,000		
Mineral Ridge (op)	Mineral Ridge Gold	40,814	18,182		
Carlin Trend Operations (op, ug)	Newmont Mining	907,282	76,614		
Lone Tree (lp)	Newmont Mining	21,702	920		
Midas (ug, Jan)	Newmont Mining	3,384	187,149		
Phoenix (op)	Newmont Mining	189,474	1,653,459	46,014,331	
Twin Creeks (op, ug)	Newmont Mining	385,169	252,836		
Denton-Rawhide (lp)	Rawhide Mining	28,446	256,138		
Round Mountain (op)	Round Mountain Gold (50% Kinross, 50% Barrick	330,071	580,685		
Marigold (op)	Silver Standard Resources	162,382	3,085		
Sterling (ug)	Sterling Gold Mining	5,700			
Sunrise Placer (p)	Sunrise Minerals	90	19		
Jerritt Canyon (ug)	Veris Gold	160,921	7,273		
Hollister (ug)	Waterton Global Mining	2,342	9,433		
	Totals	**4,940,540**	**10,933,774**	**132,616,318**	**741,717**

lp=leach pad, no mining, op=open pit, p=placer, ug=underground

Table 2. Companies that staked the most new claims in 2014.

Claimant	Number of Claims	Main Areas of Staking
KINROSS GOLD CORP. (and Round Mountain Mine)	1456	1) Cuprite District along Highway 95. 2) North end of the Toquima Range and south end of the Simpson Park Mountains along Highway 50. 3) Chert Cliff area, Roberts Mountains. 4) Pediment of the northwest flank of Lone Mountain in Kobeh Valley. 5) Pediment along the western flank of the Mahogany Hills and the Fish Creek Range in Antelope Valley. 6) Pediment on east flank of Toquima Range near Corcoran Canyon.
ENTRÉE GOLD	550	1) West flank of the Singatse Range around its Ann Mason and Blue Hills projects.
NEWMONT MINING CORP.	478	1) .Paleozoic rocks in the Granite Range in the southeastern part of the Contact District. 2) South end of the Goshute Mountains across Antelope Valley east of Kinsley Mountain. Extends eastward into Ferber Flat area. 3) Pediment on the west flank of Snake Range, northeast of Loomis Mountain.
CORDEX (and COLUMBUS GOLD)	359	1) Eastside project on the eastern flank of the Monte Cristo Range 2) Eagle District at the southeast end of the Red Hills in White Pine County.
KLONDEX MINES LTD.	347	1) Various claim blocks over large area that surround its Fire Creek Mine, extending to the Mule Canyon and Beowawe areas.
RENNTIGER RESERCES LTD.	326	1) South end of the Jackson Mountains in the Red Butte District.

Table 3. Breakdown of 2014 drill programs for metals in Nevada.

	Major/Mid-Tier Companies	Junior Companies	Total
Major Drill Program	**13** (18)	**15** (12)	**28** (30)
Minor Drill Program	**15** (12)	**29** (39)	**44** (51)
Total	**28** (30)	**44** (51)	**72** (81)

For comparison, the number of drill programs in 2013 is shown in parentheses

Major programs are arbitrarily defined as >25 drill holes.

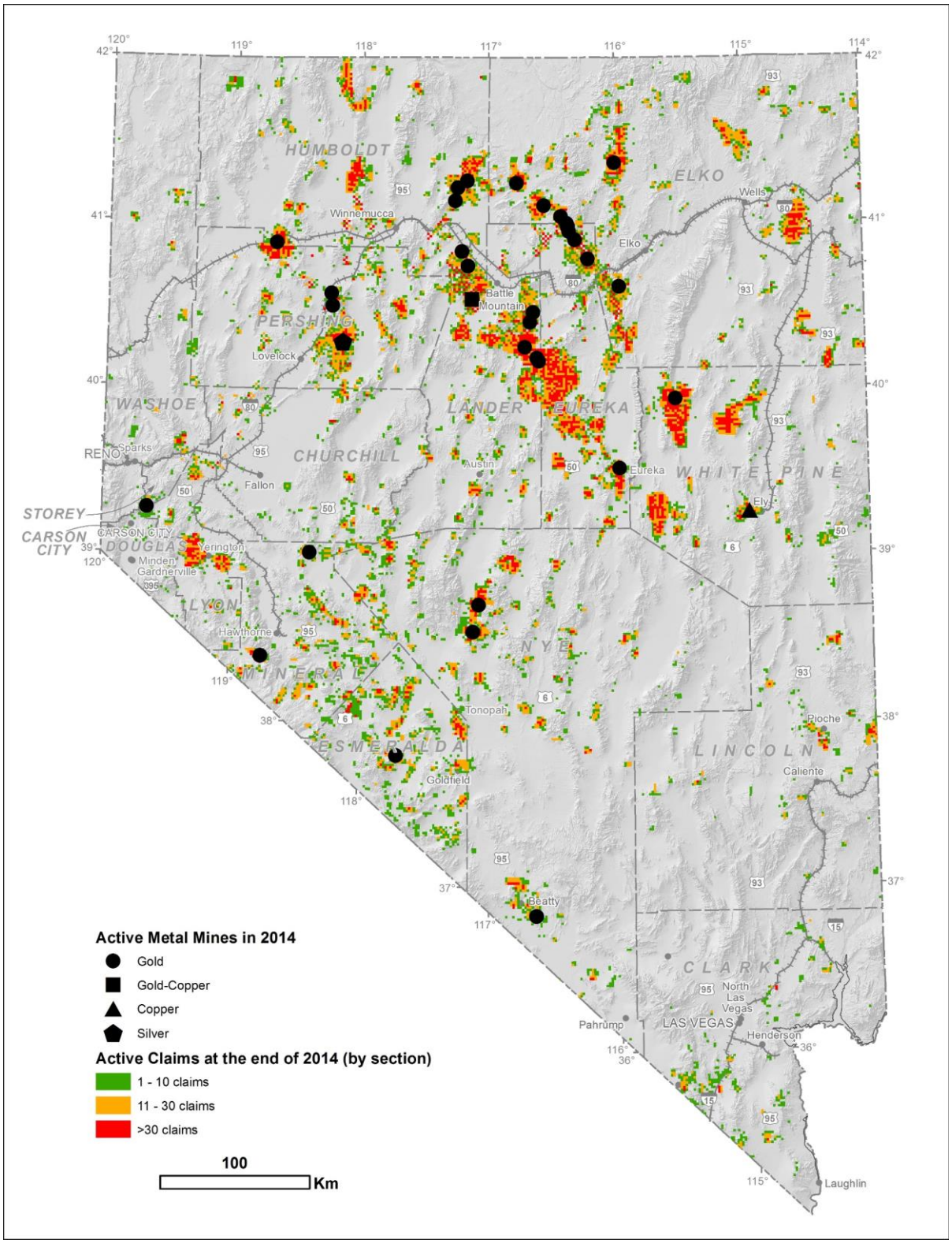

Figure 1. Map showing distribution of active mining claims by section at the end of 2014. Source of data is the U.S. Bureau of Land Management's LR2000 database.

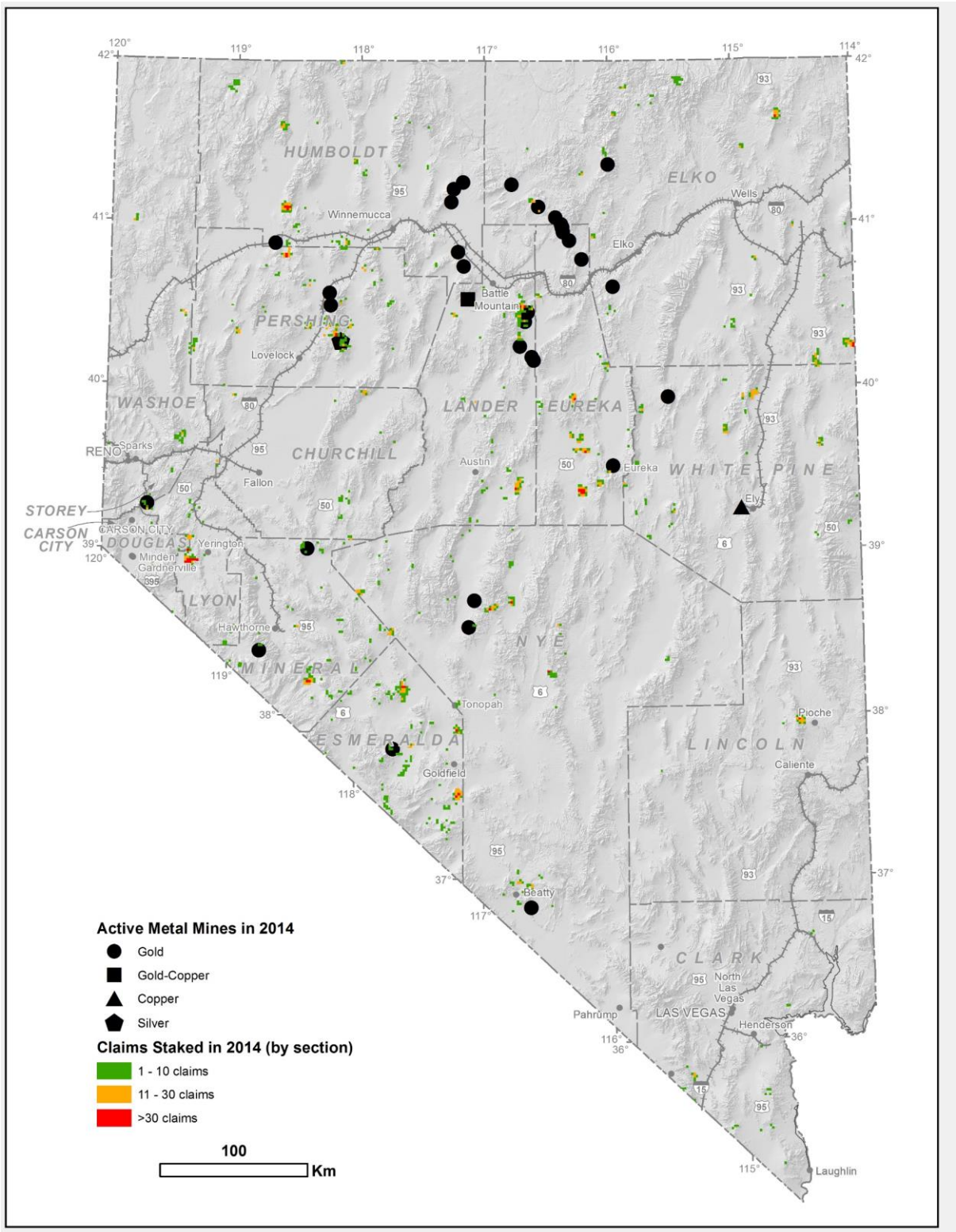

Figure 2. Map showing distribution of active mining claims by section that were staked in 2014. Source of data is the U.S. Bureau of Land Management's LR2000 database.

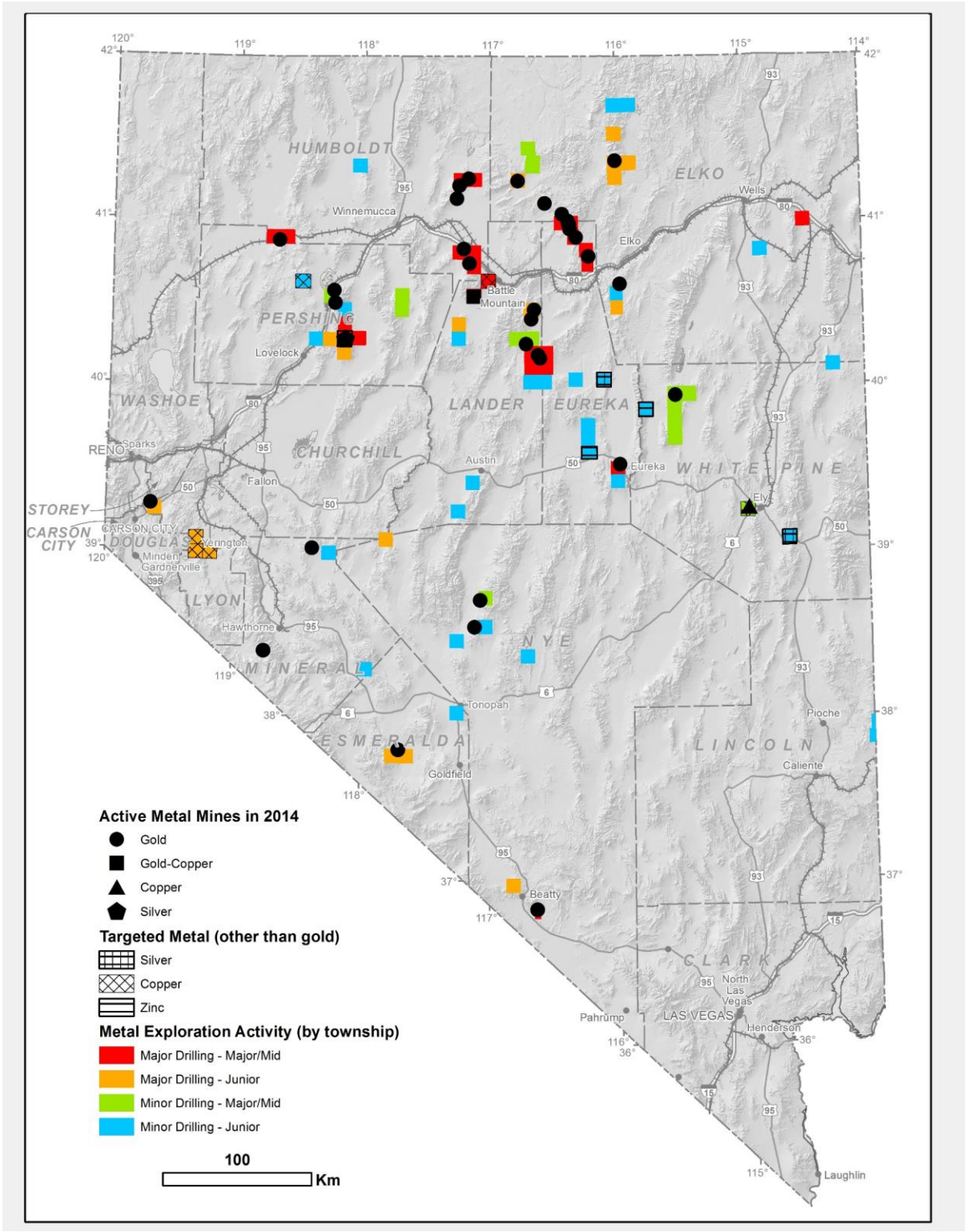

Figure 3. Map summarizing 2013 drill projects by township.

confirmed and expanded oxide mineralization and discovered a separate zone of thicker, higher grade gold mineralization extending south-southwest from the Main Zone. In 2014, Klondex was still in the bulk sampling phase at Fire Creek in 2014, during which it produced 65,655 ounces of gold. Drilling was mainly for infilling and extending the Joyce, Vonnie, Karen, and Hui Wu veins. Also in 2014, Klondex acquired the Midas mine from Newmont, and carried out an aggressive exploration program there as well. Pershing Gold's program extended and upgraded the known deposit at Relief Canyon, drilling some of the highest grade intercepts at Relief Canyon to date. The drilling demonstrated the deposit consisted of three stacked mineralized zones controlled by low-angle structures. Pershing Gold received the remaining permits it needed to commence open pit mining, though they did not announce plans on when that would occur. Pilot Gold continued to drill high-grade gold intercepts at its West Flank deposit at Kinsley Mountain. Corvus Gold's drilling at North Bullfrog extended the high-grade Yellowjacket vein mineralization. At Cove, Premier Mine Ltd.'s drilling demonstrated continuity in the Cove South Deep (CSD) zone and expanded the mineralized envelope within deeper the 2201 Zone. At Big Springs, Anova Metals carried out an infill program for proposed open pit mining of the 601 zone and underground mining of the 701 zone and the North Sammy deposit. Anova filed plans of operation for mining with the Forest Service. Lastly, results of Western Exploration's discovery of the high-grade epithermal Gravel Creek deposit located near the old Wood Gulch mine near Mountain City in Elko County were presented at the Geological Society of Nevada's symposium in May 2015. It drilled several intercepts grading greater than an ounce per ton gold in 2014.

Mine development projects in 2014 planned for production were Pan (2015, Midway Gold), South Arturo (2016, Barrick 60%, and Goldcorp Inc. 40%), and Long Canyon (2017, Newmont). In addition, not counting operating mines, 17 new reserve and/or resource estimates were released in 2014 or early 2015. Most were for gold, but one was for copper, and one was for molybdenum. The properties with new reserve or resource estimates included Long Canyon, Spring Valley, Goldrush, Big Springs, Bruner, Converse, Gold Springs, Hasbrouck, Lincoln Hill, Mount Hamilton, North Bullfrog, Pan, Pine Grove (Wheeler), Relief Canyon, Three Hills, Pumpkin Hollow (copper, Nevada Cooper Corp.), and Liberty (molybdenum, former Hall Molybdenum Mine, General Moly).

Exploration activity is summarized below by county and district. Projects that were drilled in 2014 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."

CHURCHILL COUNTY

Bell Mountain District

Bell Mountain. The British Columbia Securities Commission found that the 2012 resource estimate for the Bell Mountain Property owned by Lincoln Mining Co. was not NI 43-101 compliant. The company had the deficiencies addressed and an amended and restated technical report with unchanged estimated resources was issued. No drilling was conducted, and the company only spent $144,295 on exploration in 2014. In 2012, the company had finalized a purchase agreement with Laurion Mineral Exploration, Inc., to acquire the property. The company failed to make payments, and the property reverted to Laurion after that company cancelled the agreement in early 2015 (Lincoln Mining Co., Management Discussion and Analysis, 4/30/2015; Lincoln Mining Co., NI 43-101 Technical Report; 11/13/2014, Lincoln Mining Co., news, 9/9/2014, 2/4/2015; Lincoln Mining Co., 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. No details were released, but the company may have drilled several holes on the property in 2013 or 2014. It was trying to farm out the property in 2014. (M. Ressel, oral communication, 10/30/2014; BLM LR2000 database; Newmont Mining Corp. website, www.newmont.com)

ELKO COUNTY

Aura District

Gravel Creek. Gravel Creek is a recently discovered, low-sulfidation, epithermal silver-gold deposit, located in northern Elko County, Nevada, a few miles northeast of the old Wood Gulch open pit gold deposit. The deposit was discovered in 2013 by Western Exploration LLC. This was an excellent geological discovery, in that Western Exploration geologists reinterpreted Wood Gulch as the roots of an epithermal deposit rather than a Carlin-type gold deposit, as it was previously interpreted to be. It then explored to the northeast in middle Miocene Jarbidge Rhyolite, which had several large zones of high-level epithermal alteration, including sinter. In 2008, Western drilled four reverse circulation drill holes for a total of 2,640 feet in an exploration target that would come to be known as Gravel Creek. Three of the holes intercepted anomalous gold and silver mineralization with the most significant intercept being 125 feet grading 0.0145 opt gold in drill hole WG08-07 starting at a depth of 415 feet. This intercept, although far from economic, had the thickest anomalous gold intercept of any gold drilled in the Wood Gulch area.

Reinterpretation of Wood Gulch as roots of an epithermal deposit happened in 2011, which led to the drilling eight reverse circulation holes in 2013, totaling 18,733 feet. The 2013 drill program was designed to test the Tertiary-Paleozoic unconformity at depth beneath surface exposures with the most compelling alteration mapped in the Jarbidge Rhyolite. Although only four of the holes were completed to the Paleozoic rocks, all of the drill holes had significant gold intercepts. Intercepts included: 1) 145 feet grading 0.167 opt gold, 2) 220 feet grading 0.081 opt gold, and 3) 35 feet grading 0.320 opt gold. Most of the intercepts began at depths of greater than 1,400 feet. Western Exploration completed a more extensive exploration drilling program in 2014, including core drilling to better define the lithology and structure of the deposit. A total of 19 drill holes were completed for a total of 29,622 feet of reverse circulation drilling and 5,515 feet of core drilling. The drilling defined some lateral limits to the deposit, but expanded the deposit in unexpected directions. Though detailed results of the 2014 drilling have not been released, significant drill intercepts in excess of 1 opt gold were cut in both reverse circulation and core holes. The most significant silver-gold mineralization is stratabound within a 20° east-dipping section of a permeable upper Eocene ash-flow tuff situated immediately above the contact with basement metasedimentary rocks of the Schoonover Sequence. In drill samples the average silver:gold ratio is about 30:1. Associated with silver and gold are sulfur, arsenic and antimony. Elevated concentrations of tellurium are present in the highest grade samples. Gold is present as native gold. (Christensen, O.D., Cleary, J.G., Anderson, A.L., and Fimiani, C., 2015, Geology and Discovery of the Gravel Creek Silver-Gold Deposit, Elko County,, Nevada: in Pennell, W. M. and Garside, L. J., eds., New Concepts and Discoveries: Geological Society of Nevada Symposium Proceedings, May 2015, Sparks, Nevada, p. 285-294)

Bootstrap District

South Arturo. In the second quarter of 2014, an Environmental Impact Assessment and Plan of Operations were approved for the South Arturo project. During 2014, Barrick completed construction of a number of facilities and made improvements to existing infrastructure. Barrick stated its intention to start development with pre-stripping in late 2015. Barrick expects that the bulk of the ore from the South Arturo pit will be processed through Goldstrike's refractory processing facilities, ~5 miles to the south. In 2014 a total of 16,010 feet in 24 drill holes was drilled for resource definition (Phase 5 and Phase 2) using both reverse circulation and core with drill spacing of 115 feet or less. The South Arturo project consists of a series of sediment-hosted Carlin-type gold deposits adjacent to and including the former Dee gold mine. South Arturo is a joint venture with Barrick controlling 60% and Goldcorp Inc. 40%. In April 2015, Goldcorp announced the sales of its 40% share to Premier Mines Ltd. for $20 million and other interests. Franco-Nevada holds a sliding scale gross royalty (4-9%) on production from the Dee claims. The proven and probable reserve at South Arturo contains 242,000 ounces of gold from ore with an average grade of 0.128 opt gold. The indicated resource contains 1,525,000 ounces from ore with an average grade of 0.043 opt gold. (Barrick Gold Corp. SEC Form 40-F, 12/31/2014; Franco-Nevada Corp. website, www.franco-nevada.com)

Burner/Scraper Springs Districts

North Star. Altan Nevada Minerals Ltd.'s North Star property is located at the northern extent of prospective Paleozoic rock exposures along the northwest projection of the Carlin Trend. Gravity data compiled by Altan Nevada shows that North Star occupies part of an upthrown block of Paleozoic sedimentary rocks. Previous explorers conducted significant geochemical and geophysical surveys, including four lines of CSAMT profiling. Historic drilling focused on near-surface targets. The lower plate carbonate rocks, which host the major gold ore bodies on the Carlin Trend, were not tested by the previous drilling campaigns. Drilling south of Altan Nevada's property, however, intersected interpreted lower plate rocks at 1,600 feet. A north-northeast-striking fault zone cuts across the interpreted horst block and is characterized by hydrothermal alteration, including structurally controlled jasperoids, and anomalous concentrations of gold, arsenic, antimony, and mercury. Trenching by Altan Nevada in 2012 exposed a 10 foot-wide zone that assayed at 1.06 ppm gold. In December 2013, Altan Nevada took on Teck Resources as a joint venture partner and in October 2014 Teck commenced a drill program. In May 2015, Teck withdrew from the joint venture. Results of the drilling have not been released. (Altan Nevada Minerals Ltd. Management and Discussion Analysis, 6/30/2015; Altan Nevada Minerals Ltd. website, http://www.altnev.com)

Carlin District

Carlin. From 2009 through 2013, Evolving Gold Corp. drilled its Carlin/Humboldt project about two miles south of the town of Carlin. The property covered 10,880 acres and consisted of a combination of unpatented lode claims and private land either owned or leased by the company. Due to a lack of funding to continue exploration, reclamation work was reported for 2014, and the Humboldt portion of the property was abandoned. In early 2015, the leased claims were returned to Newmont Mining Corp. (Evolving Gold Corp., Management and Discussion Analysis, 7/29/2015; Evolving Gold Corp., Annual Information Form, 7/31/2015; Evolving Gold Corp. website, www.evolvinggold.com)

Carlin Vanadium. The Carlin Vanadium project is one of the largest known primary vanadium resources in the country. The property consists of 72 unpatented mineral claims covering 1,149 acres. The project is located on the northwestern flank of the Piñon Range about ten miles west

of the Emigrant open pit mine operated by Newmont Mining Corp. Formerly owned by EMC Metals Corp., the property was sold to Americas Bullion Royalty Corp., which in turn was combined with Resource Holdings, Ltd., under a reorganization plan to form Till Capital Ltd. in 2014. No work has been done on the property since a NI 43-101 technical report with a resource estimate was issued in 2010. (Till Capital, Ltd., Management Discussion and Analysis, 4/29/2015)

Emigrant. Newmont continued to mine at its Emigrant open pit mine. The production from Emigrant is included in Newmont's production totals for the Carlin Trend. It drilled about a half dozen holes on the north end of the pit in 2014. (M. Ressel, oral communication, 3/23/2016; Newmont Mining Corp. website, www.newmont.com)

Gold Circle District

Midas. Klondex Mines Ltd. acquired the Midas mine from Newmont Mining Corp. on February 11, 2014. This included the underground mine, the Merrill Crow processing facility, mining and milling equipment, and related support infrastructure. The mill rating was 1,200 tons per day, and the process was rated at 93% recovery. Newmont produced 3,384 ounces of gold and 187,149 ounces of silver in January. The operation was shut down but restarted after a few weeks with the mill processing ore from both Midas and Fire Creek. Klondex, through the remainder of the year, processed 115,104 tons of ore from Midas and produced 18,600 ounces of gold and 1,307,000 ounces of silver. Midas is the largest known gold-silver epithermal deposit along the middle Miocene Northern Nevada Rift.

The company spent $17,500,000, mainly on exploration and development, and completed 112 core holes totaling 76,990 feet on its underground in-fill and exploration drilling program. The drilling program was designed to: 1) advance the 805 and 905 Veins to support mine planning and development; 2) collect additional data to update the mineral resource estimate; 3) improve selective mining methods; 4) complete drilling and technical work on known veins including Queen, 777 and SR; and 5) discover new mineralization by testing the extensions of known structures and exploring new priority targets in the Opal Hill, Rico and Rattler zones. Significant intercepts from the Spirals 8 and 9 of the 905 Vein included: 1) 1.4 feet grading 2.9 opt gold and 65 opt silver, 2) 1.4 feet grading 1.4 opt gold and 329 opt silver, and 3) 2.6 feet grading 1.1 opt gold and 52 opt silver. Significant results from the Remnant Area 305 Vein North included: 1) 0.9 feet grading 2.5 opt gold and 25 opt silver, and 2) 1.1 feet grading 3.5 opt gold and 20 opt silver. Encouraging intercepts from the Remnant Area 205 Vein North included: 1) 7.8 feet grading 0.7 opt gold and 10 opt silver, and 2) 2 feet grading 1.2 opt gold and 5 opt silver. From the Remnant Area 105 Vein Central, better intercepts included: 1) 9.4 feet grading 0.3 opt gold and 6 opt silver and 2) 6.3 feet grading 0.3 opt gold and 5 opt silver.

The company issued two NI 43-101 technical reports on the mine and mill, which describe drilling activity between 2011 and 2014, mineralization, and geology. Resource estimates were released for the following individual veins: Ace, Charger Hill, Colorado Grande, Colorado Sur, Discovery, Gold Crown, Gold Crown Hanging, Gold Crown South, Gold Crown Sur, GP, Happy, MT, Queen, Sleeping Beauty, Snow White, and SR. Proven and probable reserves at the end of 2014 stood at 242,100 tons grading 0.378 opt gold and 10.93 opt silver. Measured and indicated resources stood at 1,117,000 tons grading 0.377 opt gold and 6.085 opt silver. The company was also preparing an NI 43-101 preliminary feasibility study of the mine. (Newmont Mining Corp. website, www.newmont.com; Klondex Mines Ltd. NI 43-101 Technical Reports, 3/31/2014, 11/15/2014, 3/31/2015, 4/2/2015; Klondex Mines Ltd. news release, 9/4/2014, 9/10/2014; Klondex Mines Ltd. Management Discussion and Analysis, 3/27/2015; Klondex Mines Ltd. Annual Information From, 3/31/2015; Klondex Mines Ltd. website, www.klondexmines.com)

Independence Mountains District

Big Springs. Anova Metals Ltd. of West Perth, Australia, completed 43 reverse circulation and seven core holes, totaling over 10,000 feet, on its Big Springs property. The reverse circulation holes were drilled as an infill project for the proposed 601 pit and underground zones, and the core holes were drilled for geochemical and metallurgical sampling of both the proposed 601 and 701 and North Sammy underground zones. Significant intercepts in the 601 Zone of the South Sammy orebody included: 1) 20 feet grading 0.4 opt gold, 2) 35 feet grading 0.3 opt gold, 3) 67 feet grading 0.26 opt gold, and 4) 25 feet grading 0.23 opt gold. The intercepts were at depths of less than 200 feet. At the 701 Zone, 15 feet grading 0.24 opt gold were encountered starting at 556 feet. The deposits at Big Springs are Carlin-type gold deposits hosted predominantly by Devonian to Permian sedimentary rocks.

The company filed Plans of Operations with the Forest Service to open pit mine the 601 orebody and mine the 701 orebody from underground. The company also advanced plans for underground mining of the North Sammy 601 ore bodies located below the pit. Anova Metals reached an agreement with Veris Gold Corp. to treat the Big Springs ore at the Jerritt Canyon processing plant, which is a 26 mile drive to the south. The ore would be transported at the rate of 1,000 tons per day and processed in 25,000-ton lots. Independence Mining Co. produced about 463,000 ounces of gold and over 50,000 ounces of silver at Big Springs between 1987 and 1995 (Anova Metals, Ltd., quarterly reports, 5/1/2013, 7/31/2014, 10/31/2014, 2/2/2015; Anova Metals, Ltd., website, anovametals.com.au).

Jerritt Canyon. Veris Gold Corp. produced 179,329 ounces of gold from its Jerritt Canyon property, an increase of 9% from 2013. The Jerritt Canyon property contains over 22 Carlin-type gold deposits on 119 square miles with production mainly occurring from the Smith, SSX/Steer, Starvation Canyon, and Saval underground mines. Underground mining at the Smith and Starvation Canyon underground mines was contracted out to Small Mine Development LLC (SMD). For the first three quarters of 2014, the mine total was 738,156 tons producing 121,841 ounces of gold. The Smith Mine produced 326,644 tons of ore resulting in 53,108 ounces of gold. The SSX/Steer Mine produced 165,187 tons of ore resulting in 23,831 ounces of gold. Starvation Canyon produced 240,860 tons of ore resulting in 44,376 ounces of gold. The grades varied between 0.15 and 0.19 opt gold. The Saval 4 Mine started full production in the fourth quarter of 2014. The average ore grade is 0.2 opt gold, and the mine life at Saval is estimated to be 1.5 years, though planned definition drilling is expected to lengthen its life. Planned production at Saval is 350 tons of ore per day. The roaster capacity was permitted for 6,000 tons per day. Though a record 4,015 tons per day with 86% recovery was set in October, the mill averaged less than 3,000 tons of company ore per day through the first three quarters of 2014. The company typically fills part of its remaining mill capacity with third party ores through toll milling contracts. An extra 73,567 tons of such third party ore were processed during the first three quarters of 2014.

Veris Gold and SMD completed 1,074 cubex reverse circulation holes for underground definition totaling 134,166 feet in the first three quarters of 2014. The drilling was done at the Saval 4, Smith, SSX-Steer, and Starvation Canyon. No surface drilling was conducted. Seven definition holes totaling 830 feet were drilled at Saval 4; 772 definition holes totaling 83,135 feet and 14 exploration holes totaling 2,465 feet were drilled in Zones 2, 4, 5, 7, and 8 at Smith; 147 definition holes totaling 26,271 feet and 32 exploration holes totaling 5,785 feet were drilled in Zones 1, 5, and 7 at SSX-Steer; and 61 definition holes totaling 10,215 feet and 41 exploration holes totaling 5,465 feet were drilled at Starvation Canyon. The purpose of the drilling was mainly to convert resources to reserves and to explore for more resources to extend the life of the mine, which was estimated at the end of 2012 to be six years.

As Veris Gold was about to miss a $77,239,321 payment coming due in June, the company sought and was granted protection from creditors under the U.S. and Canadian bankruptcy laws by courts in Nevada and British Columbia. The company sought protection to deal with near term liquidity issues caused by falling gold prices, higher than expected production costs, demand for payments under existing loan agreements, and unexpected shutdowns such as in January from a fire. In early 2015, Veris Gold Corp. sold its Jerritt Canyon operations to Jerritt Canyon Gold, LLC (Elko Daily Free Press Mining Quarterly, Winter 2014; Veris Gold Corp. Management Discussion and Analysis, 5/15/2014, 8/15/2014, 11/14/2014; Veris Gold Corp. news releases, 6/3/2014, 6/9/2014, 6/10/2014, 8/21/2014; Jerritt Canyon Gold website, www.jerrittcanyon.com).

Ivanhoe District

Hollister. Waterton Global Resource Management, Inc., acquired the underground Hollister Mine and Esmeralda Mill from Great Basin Gold, Ltd., through a bankruptcy auction in 2013. Mining ceased late that year. Its Esmeralda mill in the Aurora mining district in Mineral County continued processing stockpiles into 2014 until stockpiles were depleted. In 2014, 2,342 ounces of gold and 9,433 ounces of silver were produced from the stockpiles. In 2013, 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. In 2014, the BLM issued Record of Decision approving the company's plans. No drilling or other exploration was reported in 2014 (Elko Daily Free Press Mining Quarterly, Summer 2014; BLM, Hollister Underground Mine Project, Final Environmental Impact Statement, 7/5/2013; BLM, Record of Decision, 4/1/2014; Waterton Global Resource Management, press release, 5/6/2014; Waterton Global Resource Management, Inc. website, www.watertonglobal.com).

Kinsley District

Kinsley Mountain. Pilot Gold, Inc. completed 45 reverse circulation holes and 38 core holes totaling 86,080 feet and costing about $6,000,000 at its Kinsley Mountain project (Pilot Gold, Inc., 79%; Nevada Sunrise Gold Corp., 21%). The drilling concentrated in the area between the Western Flank resource and the historic open pits. The gold is concentrated at intersections of northwest and north-northeast-trending faults, and is predominantly hosted by the Cambrian Dunderberg Shale and the Secret Canyon Shale. The 2014 drill program showed that gold mineralization in the Secret Canyon Shale horizon at the Right Spot, Secret Spot, and Silica Knob targets occurs along a 2.2 mile-long north-northeast corridor that includes the Western Flank high-grade gold deposit. Significant intercepts at the Western Flank included: 1) 150 feet averaging 0.21 opt gold, including 63 feet grading 0.47 opt gold; 2) 130 feet averaging 0.35 opt gold, including 71 feet grading 0.58 opt gold; 3) 100 feet averaging 0.21 opt gold; 4) 96 feet averaging 0.15 opt gold; and 5) 20 feet averaging 0.24 opt gold, including 10 feet grading 0.38 opt gold. Six holes were drilled in the Racetrack area about 3,900 feet south of the Western Flank along a potential parallel north-northeast trending structure where shallow oxide surface mineralization is hosted in the Dunderberg Shale. One hole intercepted 25 feet grading 0.09 opt gold in shallow oxide mineralization and 35 feet grading 0.04 opt gold farther downhole in Secret Canyon Shale. (Pilot Gold, Inc., Annual

Information Form, 3/25/2015; Pilot Gold, Inc., news releases 7/10/2014, 9/10/2015, 12/9/2014; Pilot Gold, Inc., Management Discussion and Analysis, 3/25/2015; Pilot Gold, Inc., website, www.pilotgold.com; Nevada Sunrise Gold Corp. website, www.nevadasunrise.ca)

Pequop District

Long Canyon. Newmont Mining Corp. completed the definition stage of development for the first phase of its Long Canyon project. It submitted an Environmental Impact Statement to federal and state permitting agencies for approval and continued to progress its exploration program in the district. In 2014, Newmont carried out another major drill program that included definition and exploration, both on growing the known resource and testing several outlying targets in the Pequop Mountains. Very little information was released, but drilling of the deep northeast extension of the Long Canyon resource encountered 72 feet grading 0.38 opt gold. At the end of 2014, Newmont reported 18,400,000 tons of probable reserves, grading 0.067 ounce per ton for 1.2 million ounces of gold at Long Canyon. Newmont's Board of Directors approved full funding for the first phase of the Long Canyon project in the first quarter of 2015. The Environmental Impact Statement Record of Decision was issued by the Bureau of Land Management on April 7, 2015. (Newmont Mining Corp. Form 10-K, 12/31/2014; R. Reid, Newmont Mining Corp., oral communication, AIPG meeting, 12/11/2014; Newmont Mining Corp. website, www.newmont.com)

Wood Hills South. Renaissance Gold Inc. entered into an agreement with Newmont Mining Corp., whereby Newmont would continue to fund exploration of the Wood Hills South project. NuLegacy Gold Corp. drilled the property in 2013 but terminated their joint venture with Renaissance Gold due to poor results. Newmont conducted proprietary low-detection soil surveys in conjunction with mapping of the pediment to distinguish different alluvial fans and surface cover types. Newmont also ran a CSAMT survey, created resistivity maps, and completed five reverse circulation holes totaling 3,460 feet in November. No significant intercepts were encountered, and Newmont terminated the agreement (NuLegacy Gold Corp. news release 4/9/2013; NuLegacy Gold Corp. website, nulegacygold.com; Renaissance Gold, Inc., Management Discussion and Analysis, 9/15/2014, 11/14/2014, 2/12/2015, 5/15/2015; Renaissance Gold, Inc. website, www.rengold.com).

Railroad District

Railroad. Gold Standard Ventures Corp. completed five reverse circulation holes totaling 6,220 feet on the Bald Mountain target on its Railroad Project. The target is 1,800 feet east-west by 700 feet north-south in size, with the mineralization ranging between 40 and 250 feet thick starting at a depth of 325 feet on the east side of the target. Disseminated gold and copper mineralization is hosted in strongly oxidized breccia within hornfelsed mudstone of the Mississippian Webb Formation, directly overlying marble of the Devonian Devil's Gate Formation. The gold and copper zones are separate with gold occurring in the upper part of the breccia and copper in the lower part. The target is cut by faults striking north, northeast, and west-northwest, many of which are filled with felsic dikes. Hydrothermal alteration is both vertically and horizontally extensive and consists of silicification, quartz veins and stockworks, and clays. The hydrothermal system correlates with a distinct gravity low on the south flank of Bald Mountain. Significant intercepts included: 1) 20 feet grading 0.013 opt gold, 0.44 opt silver, 0.12% copper, and 0.043% zinc; 2) 500 feet averaging 0.003 opt gold, 0.14 opt silver, 0.145% copper, and 0.031% zinc, including 85 feet grading 0.009 opt gold, 0.28 opt silver, 0.391% copper, and 0.038% zinc; 3) and 620 feet averaging 0.002 opt gold, 0.19 opt silver, 0.122% copper, and 0.032% zinc, including 80 feet grading 0.004 opt gold, 0.61 opt silver, 0.334% copper, and 0.005% zinc. (Gold Standard Ventures Corp. news release, 9/24/2014; Gold Standard Ventures Corp. Audited Financial Statements, 3/31/2015; Gold Standard Ventures Corp. Annual Information Form, 3/31/2015; Gold Standard Ventures Corp. NI 43-101 Technical Report, 3/31/2015; Gold Standard Ventures website, goldstandardv.com)

Robinson Mountain District

Dark Star. Gold Standard Ventures Corp. acquired the Dark Star and Dixie Creek prospects from Scorpio Gold Corp. in early 2014 and consolidated them with its Pinion Project. No new drilling was conducted, but the company reviewed data from 105 historical reverse circulation drill holes and prepared an NI 43-101 technical report with a maiden resource estimate. Dark Star is hosted in Pennsylvanian siliciclastic and carbonate rocks of the Tomera and Moleen Formations and occurs in a linear, north-northeast-striking horst block in the footwall of two major faults that bound the east and west flanks of the deposit. Both the Dark Star and Dixie Creek prospects lie along the Dark Star structural trend, which consists of a five-mile long system of prominent north-south to northeast-trending folds; steep en echelon normal faults; and extensive hydrothermal alteration. (Gold Standard Ventures Corp. news releases, 12/11/2014; Gold Standard Ventures Corp. Annual Information Form, 3/31/2015; Gold Standard Ventures Corp. NI 43-101 Technical Report, 3/31/2015, 4/17/2015; Gold Standard Ventures website, goldstandardv.com)

Pinion. Gold Standard Ventures Corp. completed 44 reverse circulation holes totaling 35,730 feet on its Pinion deposit, which is part of its greater Pinion project. The company spent $2,018,286 on drilling and a total of $19,648,332 on exploration of its Railroad and Pinion properties. The gold mineralization at the Pinion Project is

very continuous and widespread within a highly permeable, silicified, and oxidized collapse breccia sandwiched between relatively impermeable silty micrite of the overlying Mississippian Tripon Pass Formation and thickly-bedded calc-arenite of the underlying Devonian Devils Gate Formation. Phase 1 of the drilling program was designed to verify and confirm historic drilling results in the Pinion North and Main Zones, test the predictability of a new geological model, and collect data for the initial resource estimate, which was completed in September and was to be incorporated into an 43-101 technical report. Phase 2 drilling was designed to extend areas of known shallow oxide gold mineralization along strike and at depth, and to test new targets identified by the Phase 1 program. All holes penetrated the collapse breccia, and 38 intercepted at least 20 feet grading 0.009 opt gold. Significant intercepts included: 1) 215 feet averaging 0.026 opt gold, including 115 feet grading 0.044 opt gold and 20 feet grading 0.198 opt gold; 2) 105 feet averaging 0.066 opt gold, including 20 feet grading 0.14 opt gold; 3) 110 feet averaging 0.032 opt gold, including 35 feet grading 0.066 opt gold; and 4) 125 feet averaging 0.022 opt gold, including 25 feet grading 0.065 feet. Four of the holes were drilled into the new Anticline target, and all successfully intersected mineralization over a strike length of 560 feet. This represents a separate zone of thicker, higher grade gold mineralizaton extending south-southwest from Main Zone mineralization. The drilling also confirmed and expanded additional oxidized mineralization along the axis of the anticline. Higher grade intervals of >0.07 opt gold in two of the holes remain open along strike to the south. Three holes drilled at East Pinion expanded the lateral extent of the breccia-hosted gold zone 250 feet to the north and 250 feet to the east. (Gold Standard Ventures Corp. news releases, 5/22/2014, 6/25/2014, 9/10/2014, 11/17/2014; Gold Standard Ventures Corp. Audited Financial Statements, 3/31/2015; Gold Standard Ventures Corp. Annual Information Form, 3/31/2015; Gold Standard Ventures Corp. NI 43-101 Technical Report, 3/31/2015, 4/17/2015; Gold Standard Ventures website, goldstandardv.com)

West of the Tecoma District

12 Mile, Bandito, and Lewis Spring. West Kirkland Mining, Inc. let its agreement with Rubicon Minerals lapse. (West Kirkland Mining, Inc., Management Discussion and Analysis, 4/30/2015; West Kirkland Mining, Inc., website, www.wkmining.com)

ESMERALDA COUNTY

Cuprite District

Cuprite Hills. Kinross Gold Corp. had a notice of intent to drill approved in late October, 2014 on its large claim block located on the east side of the Cuprite Hills, including the pediment along Highway 95. The notice was for drilling T05S, R42E and T05S, R43E. It is unknown whether Kinross drilled holes in 2014. (BLM LR2000 database)

Divide District

Hasbrouck Mountain. West Kirkland Mining Inc. acquired a 75% interest in the Hasbrouck Mountain property from Allied Nevada Gold Corp. and completed 14 reverse circulation holes totaling 4,150 feet. Hasbrouck is a low-sulfidation, epithermal gold–silver deposit hosted in tuffs and sediments of the Siebert Formation with limited mineralization in the underlying Fraction Tuff. Sinter exists near the top of the mountain. Gold and silver mineralization consists principally of thin discontinuous silica-pyrite veinlets, sheeted veinlets and stockworks, all of which are closely associated with bodies of hydrothermal breccia. Mineralization is accompanied by strong pervasive silicification with associated adularia and pyrite. Sulfide minerals have been mostly oxidized. The current drill-defined resource extends 2,800 feet east-west by 2,400 feet north-south, to a depth of 900 feet. Mineralization is open at depth and to a limited extent to the northwest and east. The holes drilled in 2014 were widely spaced and drilled to the south, southeast, north, and northeast of the current resource, for condemnation purposes and to explore for new mineralization. Eight holes were drilled northeast of the resource area to test east-west structures identified in earlier surface sampling. No results were reported. The company issued a NI 43-101 technical report with resource estimates for both Hasbrouck Mountain and Three Hills (located in the Tonopah District about five miles to the north) and was also preparing a NI 43-101 preliminary feasibility study for both properties. (West Kirkland Mining, Inc., NI 43-101 technical reports, 2/21/2014, 7/15/2015; West Kirkland Mining, Inc., Management Discussion and Analysis, 4/30/2015; West Kirkland Mining, Inc., news release 10/22/2014; West Kirkland Mining, Inc., website, www.wkmining.com)

Gilbert District

Eastside. Columbus Gold Corp. drilled 24 holes on its Eastside project located 20 miles west of Tonopah in T4N, R39E in 2013, but it did not drill in 2014. The results of the earlier drilling programs and geologic mapping and sampling programs during 2014 were sufficiently encouraging for Columbus to stake more claims bringing the total for the property to 274. The company's plan of operation was approved, which includes more drilling. Columbus was also preparing an environmental assessment and a NI 43-101 technical report at the end of 2014. (Columbus Gold Corp., Management Discussion and Analysis, 1/9/2015; Columbus Gold Corp., news release, 10/22/2014; Columbus Gold Corp., NI 43-101 Technical Report, 3/19/2015; Columbus Gold Corp., website, www.columbusgoldcorp.com)

Goldfield District

Goldfield. Chaparral Gold acquired the Nevada properties of International Minerals in late 2013, which included Goldfield. In 2014, Chaparral Gold was the target of a hostile takeover by Waterton Precious Metals Bid Corp., which was completed in early 2015. (Chaparral Gold news release, 2/26/2014, 4/17/2014, 2/18/2015; International Minerals Corp. Annual Information Form, 9/30/2013; Chaparral Gold website, www.chaparralgold.com; Waterton Global Resource Management website, www.watertonglobal.com)

Silver Peak District

Mineral Ridge. Mineral Ridge Gold LLC, a subsidiary of Scorpio Gold Corp., produced 40,814 ounces of gold and 18,142 ounces of silver, mostly from the Mary and Drinkwater pits at the Mineral Ridge Mine (Scorpio Gold Corp. 70%; Elevon, LLC, an affiliate of Waterton Global Value L.P., 30%). Production came mostly from Mary and Drinkwater pits, with some from the Brodie pit. 1,074,022 tons ore were processed with a head grade of 0.048 opt gold at a cash cost of $845 per ounce. The Mineral Ridge project consists of seven separate gold deposits: the Drinkwater, Mary, Brodie, Bluelite, Oromonte, Solberry and Wedge. Mineralization is mainly associated with milky white quartz veins and lenses, accompanied by local argillization and some sericitization and minor amounts of galena, sphalerite, and anglesite/cerrusite. Individual zones consist of high-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. Two or more high-grade zones are commonly stacked in en echelon patterns. Mineralization is hosted in the lower unit of the Wyman Formation near its contact with the crystalline rocks and is structurally controlled. The gold mainly consists of irregular intergrowths of native gold and electrum in quartz. The gold also occurs as irregularly shaped intergrowths and as fracture fillings associated with goethite and local relict pyrite. Gold particles are mostly between five to 50 microns in size. The gold to silver ratio of ore averages 2:1.

In 2014, the company completed 399 reverse circulation holes totaling 145,086 feet, and 20 oriented core holes totaling 8,656 feet. Of that, 8,130 feet of the drilling contained average grades greater than the internal cut-off grade of 0.010 opt gold. Drilling was mostly at Brodie, Solberry, Bluelite, Mary LC, and various secondary targets, including Oromonte, Physik, and Wedge. Drilling in the Bluelite and Solberry areas produced promising results for future pit expansion. Drilling continued to expand the resources around the Brodie pit. The extension of the Northwest Brodie, which is the mineralized extension between the Brodie and Bluelite deposits, was also drilled with encouraging results. Significant intercepts at Mary LC included 1) 30 feet averaging 0.227 opt gold, 2) 15 feet grading 0.205 opt gold, and 3) 25 feet grading 0.15 opt gold. At Bluelite, encouraging intercepts included: 1) 35 feet grading 0.043 opt gold, 2) 30 feet grading 0.055 opt gold, and 3) 30 feet grading 0.186 opt gold. At the Northwest Bodie trend, drilling encountered 1) 10 feet grading 0.152 opt gold, 2) 10 feet grading 0.128 opt gold, and 3) 30 feet grading 0.059 opt gold. At the secondary targets, significant intercepts included: 1) 10 feet grading 0.015 opt gold and 5 feet grading 0.025 opt gold at Oromonte, 2) 15 feet grading 0.927 opt gold at the Physik target, and 3) 5 feet grading 0.044 opt gold at Wedge.

The company released a NI 43-101 technical report on the life of mine plan. The company also submitted a plan of operation amendment seeking authorization for mining of the expanded Brodie and Wedge B pits; the development of the Bluelite and Solberry satellite pits, and further expansion of the Mary LC pit. Nevada Department of Environmental Protection approved the plan amendment and issued the final permit. The BLM reviewed the plan and a draft environmental assessment was in preparation by year's end. (BLM Environmental Assessment, DOI-BLM-NV-B020-2015-0030-EA, 3/2015; Scorpio Gold Corp. news releases, 11/3/2014, 11/24/2014, 12/1/2014, 12/16/2014, 12/22/2014; Scorpio Gold Corp. Management Discussion and Analysis, 4/28/2015; Scorpio Gold Corp. NI 43-101 Technical Report, 9/3/2014; Scorpio Gold Corp. website, www.scorpiogold.com)

Tokop District

Tokop. Global Geoscience Ltd. completed 13 reverse circulation holes totaling 9,099 feet on its Tokop property. The program targeted shallow (<650 feet in depth) oxide gold mineralization. Weathering has completely oxidized rocks to a depth of between 160 to 500 feet and partially oxidized them to over 600 feet in depth. The mineralization is hosted both in and adjacent to a Jurassic granitic stock, which intruded a sequence of Paleozoic carbonate rocks resulting in the development of widespread skarn. The gold is associated with sheeted and stockwork quartz veins, quartz-sericite alteration, and elevated levels of silver, arsenic, bismuth, molybdenum, tellurium, and tungsten. Several sets of steeply dipping sheeted veins up to three feet in width are present. The sets mainly strike east-northeast and east-southeast. Significant intercepts included: 1) 45 feet grading 0.032 opt gold and 0.24 opt silver beginning at 635 feet; 2) 30 feet grading 0.007 opt gold and 4.7 opt silver from 415 feet; 3) 115 feet grading 0.014 opt gold and 0.18 opt silver from 40 feet; 4) 120 feet grading 0.013 opt gold and 0.105 opt silver from the surface; 5) 85 feet grading 0.011 opt gold and 0.44 opt silver from 120 feet; and 6) 65 feet grading 0.011 opt gold and 0.17 opt silver from 65 feet. (Global Geoscience, Ltd., Quarterly Activities Report, 4/29/2014, 6/30/2014; Global Geoscience, Ltd., news release, 5/7/2014; Global Geoscience, Ltd., website, www.globalgeo.com.au)

Tonopah District

Three Hills. West Kirkland Mining, Inc. acquired a 75% interest in the Three Hills property from Allied Nevada Gold Corp. and completed 11 reverse circulation holes totaling 7,200 feet and three core holes totaling 1,877 feet. Three Hills is a low-sulfidation, epithermal gold deposit occurring in a zone of pervasive silicification within the outcropping Siebert Formation immediately above and along the contact with the underlying Fraction Tuff. Mineralization is oxidized and occurs as discontinuous, irregular thin veinlets, vein stockworks, and erratic breccia veins of chalcedony and quartz. The current drill-defined extent of mineralization is about 1,000 feet east-west by 2,700 feet north-south to a depth of 500 feet. The core holes were drilled within the deposit to obtain samples for geotechnical studies. The reverse circulation holes were drilled mainly to expand the eastern and down-dip portions of the resource. Prior to drilling, the company also conducted a gravity survey over the western two thirds of the property and performed geologic mapping and surface rock-chip sampling activities. One hole drilled 980 feet east of the currently defined resource area intercepted 130 feet grading 0.046 opt gold and 0.15 opt silver, starting at a depth of 180 feet. The resource remains open to the east at depth, down-dip to the east along the Siebert/Fraction Tuff contact. Significant intercepts in other holes included: 1) 165 feet averaging 0.025 opt gold and 0.11 opt silver, including 30 feet grading 0.078 opt gold and 0.069 opt silver; 2) 216 feet grading 0.11 opt gold; 3) 70 feet grading 0.021 opt gold; and 4) 20 feet grading 0.035 opt gold and 0.17 opt silver. In November, the company filed a Plan of Operations with the BLM, and because of the small footprint and low environmental impact, the company was expecting to only carry out an environmental assessment. The company issued a 43-101 technical report with resource estimates for both Hasbrouck Mountain and Three Hills (Hasbrouck Mountain is in the Divide District about five miles to the south) and was also preparing a 43-101 preliminary feasibility study for both properties. (West Kirkland Mining, Inc., Management Discussion and Analysis, 4/30/2015; West Kirkland Mining, Inc., NI 43-101 technical reports, 2/21/2014, 7/15/2015; West Kirkland Mining, Inc., news releases 9/9/2014, 11/17/2014, 11/25/2014; West Kirkland Mining, Inc., website, www.wkmining.com)

EUREKA COUNTY

Alpha District

Klondike. Bullfrog Gold Corp. drilled at least 27 holes mainly targeting silver at its Klondike project, located near the old Whalen mine at the north end of the Alpha mining district in the Sulfur Springs Range. Polymetallic mineralization occurs in high-angle replacement zones and mantos in karsted zones along the contact between the Devonian-Silurian Roberts Mountain Formation and the underlying Hanson Creek Formation. The holes were drilled in three areas: Copper Hill, Glory Hole, and Black Lizard. The best intercept was at Copper Hill, where a hole targeting a high-angle replacement zone encountered 30 feet grading 1.178 opt silver and 0.23% copper. The holes typically had downhole lengths of less than 500 feet. (Bullfrog Gold Corp, press release, 7/15/2014; Bullfrog Gold Corp. website, http://www.bullfroggoldcorp.com)

Antelope District

Gold Bar. McEwen Mining Inc. submitted a Plan of Operation in late 2013 to reinitiate mining of the Gold Bar deposit. The BLM assessed it as complete and determined that an Environmental Impact Statement (EIS) was necessary. Upon completion of the EIS, the BLM will be able to proceed with the approval determination of the Plan of Operation. McEwen completed contracted baseline studies in support of the BLM and State of Nevada permitting required for mine development and construction. McEwen drilled and pump-tested one potential water well location for future mining operations. (McEwen Mining Inc. Management Discussion and Analysis, 3/31/2014; McEwen Mining Inc. website, http://www.mcewenmining.com)

South Robert. McEwen Mining Inc. funded Kinetic Gold Corp. to drill 4 reverse circulation holes and 2 core holes at Kinetic's South Roberts project, which is located about a mile south of the Afgan Carlin-type gold deposit. All six holes encountered anomalous gold and Carlin-related trace elements in Ordovician Vinnini Formation and Mississippian Webb Formation. The maximum gold assay was 0.008 opt. Silicified zones, breccias, and zinc-bearing mineralization were encountered; and the contact with the Webb and underlying Devonian Devil's Gate Formation was intercepted in five of the holes. (Kinetic Gold Corp. website, www.kineticgold.com)

Cortez District

Garden Gate Pass. Rye Patch Gold Corp. spent $957,415 on exploration, which included the completion of two mud-rotary holes totaling 6,452 feet, on its wholly owned Garden Gate Pass property. The drilling focused on a target on trend with drilling at Barrick's Goldrush deposit to the north. One hole intercepted 25 feet grading 0.017 opt gold and 5 feet grading 0.12 opt gold. The other hole returned no significant results but did confirm the presence of lower plate rocks by intercepting part of the Devonian Horse Creek formation and the entire upper section of the Devonian Wenban Limestone. (Rye Patch Gold Corp., news release, 4/29//2014; Rye Patch Gold Corp. Management Discussion and Analysis, 4/27/2015; Rye Patch Gold Corp., Audited Annual Financial Statements, 4/27/2015; Rye Patch Gold Corp., website, www.ryepatchgold.com)

Goldrush. Barrick Gold Corp.'s Goldrush project, located six kilometers southeast of its Cortez Hills open pit, is one

of the largest gold discoveries in the world in this century. Barrick was the recipient of the prestigious 2014 Thayer Lindsley Award, presented by the Prospectors & Developers Association of Canada, to an exploration team that makes a significant mineral discovery. It is one of only a few discoveries since 2001 that exceed 10 million ounces of gold, and it boasts the third-highest grade among those discoveries.

In 2014 Barrick carried out another major drill program. The resource now occurs as a ~40–125 foot thick zone in the upper limestone of the Wenban Formation. The zone is continuous for three miles. It is characterized by grades >0.04 opt, with most of the zone grading >0.15 opt. The ore is Carlin-type, largely refractory, and occurs at depths of mainly 500 to 1,500 feet. Highlights of the 2014 drill program include: 1) 125 feet grading 0.88 opt gold, 2) 120 feet grading 0.73 opt gold, 3) 117 feet grading 0.63 opt gold, 4) 103 feet of 0.72 opt gold, and 5) 70 feet of 0.73 opt gold. The drilling indicated the deposit still has room for growth, especially to the north and the east.

Barrick was advancing through a prefeasibility study in 2014. A number of development options are being considered, including underground mining or a combination of both underground and open pit mining. Barrick is increasingly certain that there will be an underground mining component. A permit application for exploration declines was submitted in the second quarter of 2014 to facilitate adequate drill spacing for underground exploration. Infill drilling in 2014 helped bring over 70% of the resource base to measured and indicated category. As of year-end 2014, the Goldrush project had 10.6 million ounces of measured and indicated resources and 4.9 million ounces of inferred resources. Further studies will provide a better understanding of the potential of this asset and the economic drivers for its development. The prefeasibility study is expected to be completed by mid-2015. (Barrick Gold Corp. SEC Form 40-F Annual Report; 12-31-14; Barrick Gold Corp. website, www.barrick.com)

Eureka District

Ruby Hill. Barrick Mining Corp. never resumed mining at its Ruby Hill mine, after the wall failure in November 2013. The mine still produced 33,124 ounces of gold in 2014, likely from the leach pads. No exploration drilling was reported. (Barrick Gold Corp. Annual Report 2104; Barrick Gold Corp. website, www.barrick.com)

South Eureka. Timberline Resources Corp. drilled a reverse circulation hole testing a new target area in the Lookout Mountain area in December of 2014. The hole intersected 25 feet of 0.144 opt gold within a longer 65 foot interval assaying 0.094 opt. This hole was drilled 140 feet from a hole drilled in 2012, which first encountered the new zone, but was not completed due to drilling difficulties. (Timberline Resources Corp. Form 10-Q, June 30, 2015)

Gibellini District

Gibellini. American Vanadium Corp. spent almost $2,615,053 on its Gibellini vanadium project in the southern Fish Creek Range. About 75% went towards environmental permitting, metallurgy; engineering, procurement, construction management, leach pad design, and geotechnical studies. The company also owns two other nearby vanadium properties—the Del Rio project about eight miles south of Gibellini and the Hot Creek project on vanadium-bearing shale south of Del Rio. The company submitted its plan of operation to the BLM and Nevada Division of Environmental Protection. The plan of operation includes the design for an open pit mine and processing facilities and the reclamation plan, and 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 per year and have a mine life of eight years. The BLM was preparing an Environmental Impact Statement at year's end. (BLM Battle Mountain District Office Annual report 2014; American Vanadium Corp. Management Discussion and Analysis, 4/30/2015; American Vanadium Corp. Audited Financial Statements, 4/30/2015; American Vanadium Corp. website, www.americanvanadium.com)

Lone Mountain District

North Lone Mountain. Goldspike Exploration Inc. (named changed to Nevada Zinc Corp. in early 2015) completed 11 reverse circulation holes totaling 7,000 feet on the company's wholly-owned North Lone Mountain project, located 16 miles west-northwest of Eureka. The drilling was about 1,500 feet northwest of the old Mountain View Mine. Significant intercepts in the Discovery Section included: 1) 295 feet averaging 6.22% zinc and 1.34% lead, including 15 feet grading 2.39% zinc and 22.82% lead and 35 feet grading 27.22% zinc; 2) 255 feet averaging 2.76% zinc and 0.29% lead, including 65 feet grading 9.08% zinc; and 3) 148 feet averaging 11.22% zinc and 0.25% lead, including 50 feet grading 33.06% zinc. Significant intercepts in the Northwest Section (100 feet northwest of and parallel to the Discovery Section) included: 1) 230 feet grading 1.05% zinc and 1.82% lead, including 75 feet grading 0.83% zinc and 5.34% lead; and 2) 210 feet grading 5.87% zinc and 1.11% lead, including 55 feet grading 19.82% zinc and 3.76% lead. All the intercepted zinc mineralization is oxidized.

The property consists 217 claims, which surround the one 20-acre claim containing the Mountain View Mine which had been the main producer in the Lone Mountain District. Between 1943 and 1964, production, mostly from the Mountain View Mine, was 4,952,627 pounds of zinc, 649,579 pounds of lead, 600 pounds of copper, and 4,040 ounces of silver. The mined mineralization reportedly consisted mainly of smithsonite, zincite, and hydrozincite with minor cerussite, malachite and

azurite along with local sulfides, including sphalerite, galena, chalcopyrite, and pyrite. The ore was hosted in highly brecciated hydrothermal dolomite cut by calcite veins in limestone of the Devonian Devils Gate Formation. It was localized in breccias at the intersections of northeast-striking, southeast-dipping and northwest-striking, southwest-dipping faults. (NBMG Bulletin 64, 1967; Nevada Zinc Corp., news releases, 10/20/2014, 10/30/2014, 11/19/2014, 12/11/2014, 1/15/2015; Nevada Zinc Corp., Management Discussion and Analysis, 4/24/2015; Nevada Zinc Corp., website, www.nevadazinc.com)

Northwest Lone Mountain Pediment. Kinross Gold Corp. had a Notice of Intent to drill approved by the BLM in late October, 2014 on its large claim block located on the northwestern pediment of Lone Mountain. The notice for drilling was in T20N, R51E. It is unknown whether Kinross drilled holes in 2014. (BLM LR2000 database)

Lynn District

Northern Carlin Trend. Newmont Mining Corp. focused its 2014 exploration program in the northern Carlin Trend on the Fence-Pete-Bajo corridor southeast of the Carlin pit. Drill intercepts included 118 feet grading 0.292 opt gold. The drilling was mostly from underground, but included some surface drilling. There was also drilling, mainly underground, in the Exodus corridor between the Genesis and Lantern open pits. Several surface holes were drilled at the north end. An underground target at the southeast end of Genesis was drilled from the surface. In that area a hole intercepted 60 feet grading 0.417 opt gold in a target referred to as Deep Beast Feeders. It occurs at the base of the Popovich Formation between the Gen and Deep Star Faults. Several surface holes were drilled at the Perry open pit, located along the Castle Reef Fault. In the Gold Quarry area, a few surface holes were drilled in the historic Copper King mine area, less than a mile southwest of Tusc.

Newmont reported 907,282 ounces from its Carlin Trend operations, which represented a 12% decrease due primarily to stripping at Gold Quarry. Production came from four open pit and four underground operations. Decreased mining output was partially offset by higher Mill 6 throughput and higher Mill 5 recovery as a result of continuous improvement projects. Mining at the north end included underground mines at Leeville, Pete-Bajo, and Exodus, whereas at the south end open pit mining occurred at Gold Quarry, as well as the underground Chukar mine accessed from the bottom of the Gold Quarry pit. Work proceeded on the Turf shaft in 2014 at the north end of the underground Leeville mine. The all in sustaining costs of Newmont's mining in the northern Carlin Trend was $1072/ounce in 2014, an increase from $968/ounce in 2013. (M. Ressel, oral communication, 3/23/2016; R. Reid, Newmont Mining Corp., oral communication, AIPG meeting, 12/11/2014; Newmont Mining Corp. website, www.newmont.com)

Goldstrike. At Barrick Gold Corp.'s Goldstrike operation, there were two drill projects northwest of the Betze-Post pit in 2014. First, key structural intersections were tested with 12 reverse circulation holes (~14,100 feet), spaced at 100 to 130 feet. Second, an advanced exploration program focusing on newly recognized high-grade ore was tested with 25 reverse circulation (~17,880 feet) at 100 foot spacings. At its underground Meikle mine, Barrick conducted five underground exploration projects ranging from initial drill testing to infill and reserve definition drilling for a total of nearly 38,000 feet in 125 holes using both reverse circulation and core drilling.

Barrick produced 515,641 ounces of gold from the Betze-Post open pit, and 386,679 ounces from the Meikle underground mine. The cash costs for the total 902,320 ounces produced at the Goldstrike operation was $571 per ounce and an all-in sustaining costs of $854 per ounce, compared to 891,570 ounces of gold at cash costs of $618 per ounce and all-in sustaining costs of $913 per ounce in 2013. Metallurgical recoveries were 76.5% for the open pit ore and 87.6% for the underground ores. Barrick continued to retrofit the pressure oxidation circuit in the autoclave to use thiosulphate instead of cyanide to process double refractory ore. The thiosulphate circuit will have its own tailings pond, which promises environmental benefits, as the leaching agent is non-toxic and is commonly used as a fertilizer. After its commissioning in 2015, the thiosulfate circuit will result in increased production from the autoclave. (Barrick Gold Corp., SEC Form 40-F for period ending 12/31/2014; Barrick Gold Corp. website, www.barrick.com)

Maggie Creek District

Gold Quarry. As mentioned above, Newmont Mining Corp. drilled a few surface holes were drilled in the historic Copper King mine area, less than a mile southwest of Tusc. No results were released. (M. Ressel, oral communication, 3/23/2016; R. Reid, Newmont Mining Corp., oral communication, AIPG meeting, 12/11/2014; Newmont Mining Corp. website, www.newmont.com)

Monitor Range

Pediment North of Monitor Range. After staking a large claim block in 2012 on the pediment north of the Monitor Range, mainly north of Highway 50, Barrick Gold Corp. had two notices of intent to drill approved in early 2014. The notices are located in T19N, R49E; T20N, R49E; and T20N, R50E. It is unknown whether Barrick drilled holes in 2014. (BLM LR2000 database).

Mount Hope District

Mount Hope. General Moly Inc. (joint venture: General Moly Inc., 80%; POS-Minerals Corp., 20%) issued a 43-101 feasibility study with upgraded reserves and resources for the Mount Hope project. The current plan for the open pit operation mining and processing of molybdenite has an

estimated life span of 41 years and will produce 1,200,000,000 pounds of molybdenum as technical grade molybdenum oxide. The operational stripping ratio over the first five years will be 3:1 (waste to ore), and the life-of-mine stripping ratio will be 1.7:1. Annual high-grade ore production from the mine will be 24,000,000 tons. Low-grade material between the mill cut-off and a breakeven cut-off will be mainly stockpiled for later processing. The company submitted to the BLM an amendment to the approved plan of operation to reflect necessary minor design changes identified during continued engineering and the early phases of construction. The BLM determined an environmental assessment was required to address these changes. No drilling was done in 2014. (General Moly Inc. NI 43-101 Technical Report, 1/15/2014; General Moly Inc. Form 10-K, 3/16/2015; General Moly Inc. website, www.generalmoly.com)

Northern Simpson Park Mountains

Red Hill (Iceberg and Wilson). NuLegacy Gold Corp. (various agreements with Barrick Gold Corp., and Idaho Resources Corp.) spent $1,771,927, including $882,064 on drilling its Red Hill property. NuLegacy Gold has options to buy into the Iceberg (Barrick Gold Corp.) and Wilson (Idaho Resources Corp.) portions of the property. NuLegacy drilled 19 reverse circulation holes and 7 core holes in 2014. Seventeen RC holes were drilled to expand the Iceberg deposit. Two RC holes drilled on the central pediment target, one into the Avocado anomaly and one into a different geophysical anomaly. The seven core holes drilled in the Iceberg deposit were mainly to confirm historic drilling and to improve geological knowledge of the deposit. NuLegacy also completed a gravity survey at the Iceberg and Jasperoid Basin areas to assist in targeting. It also completed mapping, sampling, and target definition of the VIO and Jasperoid Basin areas. Significant intercepts included 20 feet grading 0.045 opt gold in the South Zone; and 40 feet grading 0.053 opt gold and 40 feet grading 0.011 opt gold in the Central Zone. At North Iceberg, drilling encountered 105 feet averaging 0.042 opt gold, including 35 feet grading 0.11 feet and five feet grading 0.43 opt gold; and 46 feet averaging 0.07 opt gold, including five feet grading 0.33 opt gold. Step-out drilling of the Iceberg deposit discovered a new zone of gold mineralization to the south and confirmed a further northwest extension to the Central zone of the deposit. This extended the Iceberg deposit southward by 3,200 feet.

The Iceberg property encompasses most of the JD Window in the northern Simpson Park Mountains. The main high-grade zone of oxide gold mineralization in the Iceberg deposit is hosted in silicified and decalcified Devonian carbonates along a north-northwest trend. Step-out drilling also intercepted an important interval of gold mineralization in the middle Wenban-5 part of the Wenban Formation, which hosts the bulk of the gold in the nearby Barrick Gold's Goldrush deposit. Until the discovery of mineralization in the Wenban-5, most of the oxide gold mineralization was in the contact zone between the Horse Canyon and the upper Wenban-8 carbonate horizons at depths ranging from 250 to 500 feet. The Avocado zone is a 6,500 foot by 3,300 foot induced polarization/resistivity anomaly. The hole, which was drilled on the margin of the anomaly, intercepted three anomalous pyritic gold zones in black, carbonaceous limestone, ranging in thickness from 40 to 115 feet at depths of 830 to 1,490 feet. (NuLegacy Gold Corp. news releases, 7/8/2014, 9/11/2014, 10/28/2014, 11/25/2014, 3/31/2015; NuLegacy Gold Corp. Management Discussion and Analysis 2/26/2015, 7/29/2015; NuLegacy Gold Corp. website, www.nulegacygold.com)

HUMBOLDT COUNTY

Awakening District

North Sleeper. Montezuma Mines, Inc. a subsidiary of CMQ Resources Inc., completed five core holes totaling 4,000 feet on its North Sleeper property about two miles north of the old Sleeper Mine. No results were reported. CMQ Resources Inc. was consolidated with Matco Investments Ltd. (CMQ Resources, Inc., Management Discussion and Analysis, 5/23/2014; CMQ Resources, Inc., notice, 7/25/2014; CMQ Resources, Inc., website, www.cmqresources.com)

Battle Mountain District

Marigold. In 2014, 162,382 ounces of gold and 3,085 ounces of silver were produced from three active pits at the Marigold mine. In April, Silver Standard Resources Inc. acquired the Marigold Mine operation (66.7% Goldcorp Inc., 33% Barrick Gold Corp.) for $275,000,000. Ore mined after Silver Standard took over averaged 0.02 opt gold. The strip ratio was 4:1, and the recovery rate from the leach pads was 73%. Mining was from the Mackay Phase 1 and Terry Phase 2 stages of the mine. The production cash cost averaged $838 per ounce, with a fourth quarter cash cost of $665 per ounce due to a record quarterly production of 67,113 ounces of gold. This resulted from higher grade ore mined from the lower benches of the Mackay Phase 1. The fourth quarter grade of mined ore was 59% higher than the previous quarter.

Marigold is a Carlin-type deposit, with both structural and stratigraphic controls to ore. The ore is oxidized and hosted in argillite, quartzite, sandstone, limestone, chert and meta-volcanic rocks of (in upward stratigraphic order) the Ordovician Valmy Formation, Pennsylvanian-Permian Antler sequence, and Mississippian-Permian Havallah sequence. These rocks are cut by Cretaceous granodiorite dikes and sills trending northwestward. The mineralized zones are generally tabular and shallow-dipping, becoming steeper near normal faults, which trend N10°E to N20°W.

The company completed 116 reverse circulation holes totaling 71,022 feet and one core totaling 4,050 feet. The RC holes were drilled on oxide targets in the Mackay,

Hercules, 5 North and 8 South areas. The drilling increased the resource at the South Pit Extension. Significant intercepts included: 1) 300 feet averaging 0.082 opt gold, including 120 feet grading 0.197 opt gold; 2) 175 feet averaging 0.08 opt gold, including 50 feet grading 0.25 opt gold; 3) 235 feet averaging 0.08 opt gold, including 55 feet grading 0.27 opt gold; and 4) 355 feet averaging 0.073 opt gold, including 80 feet grading 0.26 opt gold. A deep sulfide exploration project was underway to evaluate the potential for a high-grade underground mineral deposit. The completed core hole and the two more in progress at year's end more were part of this project. The drill results have confirmed the existence of favorable host rocks underlying the Valmy formation, from which most of the oxide ore is currently being mined.

The company issued a 43-101 technical report with updated reserve and resource estimates. The current mine life is 13 years including nine years of active mining followed by four years of processing of the heap leach pads. The current mine plan has three main pit areas. The Mackay pit contains 96% of the remaining resource tons. It is designed for 11 phases of mining. The remaining resource tons occur in the 5 North pit and the Hercules pit. (Elko Daily Free Press Mining Quarterly Spring 2014, Summer 2014; Standard Silver Resources, Inc., NI 43-101 Technical Report, 11/19/2014; Standard Silver Resources, Inc., Management Discussion and Analysis, 8/6/2014, 11/5/2014, 2/19/2015; Standard Silver Resources, Inc., new releases 4/4/2014, 12/12/2014; Standard Silver Resources, Inc., website, www.silverstandard.com)

Buffalo Mountain District

Converse. Chaparral Gold acquired the Nevada properties of International Minerals in late 2013, which included Converse. In 2014, and Chaparral Gold was the target of a hostile takeover by Waterton Precious Metals Bid Corp., which was completed in early 2015. (Chaparral Gold news release, 2/26/2014, 4/17/2014, 2/18/2015; Chaparral Gold Management Discussion and Analysis, 11/7/2014; International Minerals Corp. Annual Information Form, 9/30/2013; Chaparral Gold website, www.chaparralgold.com; Waterton Global Resource Management website, www.watertonglobal.com)

Lone Tree Complex. Newmont Mining Corp. continued to develop its Brooks project located about 3 miles southwest of its Lone Tree mine. It drilled several holes at Brooks in 2015, but no results were released. Besides the drilling, Newmont was permitting for planned mining at Brooks, which would result in a new open pit. The pit will be mined above the water table and will not require dewatering. (Elko Daily Free Press Mining Quarterly Winter 2014; M. Ressel, oral communication, 3/23/2016; Newmont Mining Corp. website, www.newmont.com)

Potosi District

Pinson. Atna Resources Ltd. produced 3,780 ounces of gold from its Pinson underground mine in 2014. The mine was closed and placed on care and maintenance on June 15, 2013, but production resumed July 20, 2014. The company mined 4,210 tons of oxide ore grading 0.377 opt gold and 4,800 tons of sulfide ore grading 0.423 opt gold. The cash cost was $1,030 per ounce, and the all-in sustaining cost was $1,325 per ounce. The underground mining cost was $233 per ton. The underground mining consists of two main mining methods: long-hole stoping with delayed backfill and underhand drift and fill. No drilling was reported for 2014, though future in-fill drilling will be needed to convert resources to reserves.

The company issued a 43-101 preliminary feasibility study for the Mag open pit mine in October. In addition to open pit reserves and resources for the Mag pit and the South Zone pit, the report included underground reserves and resources, separated by sulfide and oxide for CX Section 32, CX Excluding Section 32, CX West, Line Hole North, Line Hold South, Ogee, Otto, Range Front, and Adams Peak deposits. The Mag Pit deposit is adjacent to and separate from the Pinson underground mine. The deposits at Pinson are Carlin-type gold deposits with ore that ranges from fully oxidized to refractory sulfide at depth. Planned mining is currently limited to private fee-owned property that contain portions of the Mag pit deposit that are within Sections 33 and 28. The potential to develop additional reserves exists but would require expanding the pit onto federal lands. The cash-operating cost is expected to be $627 per ounce of gold for the Mag pit project. Gold recovery is expected to average 60 percent across all ore types. The total capital cost of the mine is estimated to be just under $67 million. (Atna Resources Ltd., Form 20-F Annual report, 3/17/2015; Atna Resources Ltd., NI 43-101 technical report, 10/17/2014; Atna Resources Ltd., news release, 1/15/2015; Atna Resources Ltd., website, www.atna.com)

Turquoise Ridge. The Turquoise Ridge underground mine, which is operated by Barrick Gold Corp., (75% Barrick Gold Corp., 25% Newmont Mining Corp.) produced 259,345 ounces of gold at cash costs of $473 per ounce and all-in sustaining costs of $628 per ounce in 2014, compared to 223,189 ounces of gold at cash costs of $586 per ounce and all-in sustaining costs of $928 per ounce in 2013. Barrick completed a prefeasibility study in January 2015 on the potential to develop an additional shaft at Turquoise Ridge, which could allow the mine to process more than one million ounces earlier than anticipated, roughly doubling output to an average of 500,000 ounces per year for the first full eight years of production. Drilling at the northern extension of the deposit confirms the ore body is larger than previously known, and has higher grades. Due to the substantial thickness of the mineralization, Barrick is also looking at the economics of introducing bulk underground mining in some parts of the ore body. Significant

exploration drilling was carried out, but no results were released. (Barrick Gold Corp., SEC Form 40-F for period ending 12/31/2014; Barrick Gold Corp. website, www.barrick.com)

Twin Creeks. Newmont Mining Corp. focused development at its Twin Creeks mine on stripping a layback known at Cut 23, which is planned to be mined through 2017. Newmont drilled a core hole near the Vista pit in 2014, but no results were released. (Elko Daily Free Press Mining Quarterly Winter 2014; M. Ressel, oral communication, 3/23/2016; Newmont Mining Corp. website, www.newmont.com)

Sulphur District

Hycroft. Allied Nevada Gold Corp. produced 214,345 ounces of gold and 1,818,637 ounces of silver from its Hycroft Mine, increases from 2013 of 18% and 112%, respectively. The cash cost was $1,064 per ounce, an increase of 24% from 2013. The average grade of mined ore was 0.011 opt gold and 0.434 opt silver. The heap leach pad had run-of-mine recoveries of approximately 50% for gold and 12% for silver. Present mining is from the Brimstone, Cut 5, and Bay zones. The company completed 260 drill holes totaling 76,945 feet. The drilling targeted oxide ore proximal to current ore reserves at the Bay, Central, and Brimstone pits to expand the oxide mineralized material. Significant intercepts at Bay included 235 grading 0.028 opt gold and 300 feet grading 0.012 opt gold. At Brimstone, the best intercept was 130 feet grading 0.027 opt gold and 0.69 opt silver.

The company issued two mill expansion pre-feasibility studies in 2014 with updated reserves and resources. The studies outlined three stream capabilities for the new mill: 1) Whole ore with high cyanide-soluble gold would be ground and leached with cyanide to extract gold and silver. This would account for 14.1% of the ore over the life of mine. 2) Sulfide ore would be ground and floated to produce a concentrate. The concentrate would then be oxidized through the Atmospheric Alkaline Oxidation (AAO) plant and cyanide leached to extract gold and silver. This accounts for 16.6% of the ore. 3) Transitional and high-grade sulfide ores would be ground and floated to produce a concentrate. The concentrate would then be oxidized and cyanide leached, while the remaining values that remain in the flotation tailing would be leached directly to extract the gold and silver. This would account for 69.3% of the ore that is typically high in silver and leave economically recoverable gold and silver in the flotation tailings.

Mine capacity was improved in 2014 with the overcoming of solution problems with the heap leach pads; the start-up of a new crusher, which added 400,000 tons to the pads; and the start-up of a new Merrill-Crowe plant. However, due to declining metal prices, the crusher was temporarily shut down in November. Due to lower than planned metal sales, low metal prices, and significant capital expenditures and debt service payments, the company's cash flow decreased to critical levels by year's end. In early 2015, the company filed Chapter 11 with the Bankruptcy Court, which, if successful, will recapitalize the balance sheet by reducing debt balances and providing additional liquidity. (Elko Daily Free Press Mining Quarterly, Fall 2014; Allied Nevada Gold Corp. news release, 3/10/2015; Allied Nevada Gold Corp. Form 10-K, 3/27/2015; Allied Nevada Gold Corp. NI 43-101 technical report, 5/21/2014, 11/7/2014; D. Harris, oral communication, 12/11/2014; Allied Nevada Gold Corp. website, www.alliednevada.com)

LANDER COUNTY

Battle Mountain District

Copper Basin. Newmont Mining Corp. was granted by the BLM a plan of operation in 2014 for its Copper Basin project, but it did not carry out any drilling.

Phoenix. Newmont Mining Corp. produced 189,474 ounces of gold and 46 million pounds of copper in 2014 from its Phoenixmine. The mill at Phoenix produces a gravity gold concentrate and a copper/gold flotation concentrate and recovers additional gold from cyanide leaching of the flotation tails. The Phoenix mine also constructed a copper leaching facility and a solvent extraction electrowinning facility to produce copper cathode. Newmont carried out several minor drill projects throughout its Phoenix property. It drilled holes on the pediment south of the range, in the Bonanza area. It drilled holes in the Glory Hole area in the central part of the property. A few holes were drilled in the Sonderman area in the west-central part of Phoenix, and a hole just south of the Sunshine pit, on the far side of the property. (M. Ressel, oral communication, 3/23/2016; Newmont Mining Corp. SEC form 10-K for period ending 12/31/2014; Newmont Mining Corp. website, www.newmont.com)

Plumas. Phoenix Gold Resources Corp. released a 43-101 report on its Plumas project, which is located adjacent and northeast to Newmont's Phoenix open pit gold-copper mine. It also drilled six core holes. The holes tested a north-northeast-trending fault zone over a strike length of about 3,500 feet. Results were released for only three of the holes drilled toward the south end of the fault zone. Several narrow zones (<2 ft) of greater than 0.03 opt gold and up to 0.462 opt gold and 27.36 opt silver were intercepted. The narrow intercepts typically occurred in wider zones (<50 feet) of lower grade mineralization (<0.015 opt gold). The higher grade intercepts were associated with veins and disseminations of pyrrhotite, pyrite, arsenopyrite, and minor amounts of chalcopyrite, galena, and sphalerite. (Zuri Capital Corp. NI 43-101 Technical Report, 3/10/2014; Phoenix Gold Resources Corp. press release 9/17/2014; Phoenix Gold Resources Corp. website, www. phoenixgoldresources.com)

Big Creek District

Porter Canyon. Highway 50 Gold Corp.'s Porter Canyon project comprises 201 unpatented claims located along the western pediment of the Toiyabe Range, near the previously mined Quito Carlin-type gold deposit that is located in the range. Although bedrock at Porter Canyon is largely covered by gravel, it occurs along the projection of an open shallowly plunging, northwest-trending anticline, which is cored is by lower plate Roberts Mountains Formation and capped at least in part by upper plate siliciclastic rocks. The northern limb of the anticline shows extensive dissolution collapse breccias with locally developed gold- and silver-bearing jasperoid over a strike length of about a half mile. The northwest-trending anticline is projected to intersect a set of north-striking structures which likely form the western edge of the Quito lower plate window, ~4,600 feet outboard of the range front. In March 2015, Highway 50 Gold completed a drill program, which started in 2014, comprised of six drill holes totaling 8,590 feet, of which 770 feet was diamond drill core and 7,820 feet was reverse circulation drilling. A total of 1,340 feet of bedrock was drilled in four of the holes. All the other footage was in alluvium. Bedrock units that were drilled included lower plate thin bedded silty limestones of the Silurian Roberts Mountain Formation and siltstones of the Ordovician Nine Mile Formation. Sporadic Carlin-type mineralization was encountered with values up to 952 ppm arsenic and 0.168 ppm gold. Of potentially more economic interest was a 65 foot thick zone that was drilled in colluvium in drill hole PC-6. This zone averaged 100 ppb gold, 144 ppm arsenic and 35 ppm antimony. The zone is coincident with a strong resistivity low at the gravel-bedrock interface, which Highway 50 Gold interprets as a buried channel. It interprets the source of the mineralized gravel and boulders in the channel to be north of the drilling. (Highway 50 Gold Corp. Management's Discussion and Analysis, 12/31/2014; Highway 50 Gold Corp website, www.highway50gold.com)

Bullion District

Fire Creek. Klondex Mines Ltd.'s Fire Creek project is still in the bulk sampling phase, and a production decision had not yet been made by the end of 2014. However, under its bulk sampling permit, Klondex produced 65,655 ounces of gold and 62,911 ounces of silver. The company mined 59,941 tons of ore grading 1.17 opt gold and 1.11 opt silver. The ore was processed at its Midas Mill with recovery rates of 94.1% for gold and 95.4% for silver. The production costs per gold equivalent ounce sold was $482.

The project area contains about 17,000 acres, including 831 unpatented lode mining claims; 1,114 acres of private fee land; and 229 acres of leased fee lands. Most of the current exploration is located within sections 15 and 22, T30N, R47E. The company completed 283 drill holes totaling 78,667 feet. Of this, nine reverse circulation holes totaling 2,385 feet and two diamond holes totaling 2,943 feet were drilled on the surface, and 272 diamond holes totaling 73,339 feet were drilled underground. The two surface core holes were drilled for condemnation purposes. The underground drilling was mainly for infilling and extending the Joyce, Vonnie, Karen, and Hui Wu Veins. Underground drilling to the east and west of the decline yielded positive results, including the discovery of the ore-grade Honeyrunner structure. Significant intercepts on the Joyce and Vonnie Veins included: 1) 5 feet grading 1.167 opt gold and 1.119 opt silver; 2) 20 feet grading 0.373 opt gold and 0.353 opt silver; 3) 8 feet grading 0.887 opt gold and 0.735 opt silver; 4) 4 feet grading 4.629 opt gold and 3.573 opt silver, including 1.3 feet grading 13.068 opt gold and 10.093 opt silver; 5) 2 feet grading 10.21 opt gold and 6.359 opt silver; and 6) 1.2 feet grading 27.653 opt gold and 11.931 opt silver. In addition to drilling, the company also commenced drifting of the Karen Vein about 150 feet west of the main decline and parallel to the Joyce and Vonnie Veins.

Fire Creek is a low-sulfidation, epithermal vein deposit. Of 47 known veins and structures, five are well-characterized. The Joyce Vein consists of 60% to 70% bladed calcite with minor quartz. It extends 1,750 feet along strike and 1,135 feet down dip. The Honeyrunner structure consists of a combination of tectonic breccias and a basalt dike, which may have a vein either along strike or at depth. It extends 1,515 feet along strike and 525 feet down dip. The Hui Wu Vein consists mainly of mineralized tectonic breccia moderately punctuated by a discrete vein system. It extends 650 feet along strike and 500 feet down dip. The Karen Vein, which contains fault-related breccia and veins averaging around six inches in width but can be up to 12 feet wide, consists mainly of calcite and lesser quartz, both of which can be vuggy. It extends 1,035 feet along strike and 450 feet down dip. The Vonnie Vein, which formed mainly along a dike contact, largely consists of crustiform/colloform quartz banding with lesser carbonate. It extends 1,910 feet along strike and 550 feet down dip. The company issued two 43-101 technical reports in 2014. The reports included updated total resources for Fire Creek and individually for the Joyce, Karen, and Vonnie Veins (proven and probable reserves) and the Far North, Main, West, North South, and Far North zones (measured, indicated and inferred resources). (Elko Daily Free Press Mining Quarterly, Summer 2014; Klondex Mines Ltd. Management Discussion and Analysis, 3/27/2015; Klondex Mines Ltd. news release, 5/21/2014; Klondex Mines Ltd. Annual Information Form, 3/31/2015; Klondex Mines Ltd. NI 43-101 Technical Reports; 10/31/2013, 11/14/2013, 6/13/2014; Klondex Mines Ltd. website, www.klondexmines.com)

Gold Ridge. Barrick Gold Corp. drilled three core holes totaling 10,466 feet on its joint venture partner Coral Gold Resources Ltd.'s Gold Ridge property. The Gold Ridge property consists of 108 claims covering 2.5 square miles and is part of Coral Gold's Robertson property. The Gold Ridge portion of the property was split off to be a joint

venture with Barrick. Barrick's drill program was designed to test strong gold and trace element anomalies (up to 0.28 opt gold), 2.8 miles north of Barrick's Pipeline open pit. Two of the holes were drilled on the Ridge Anomaly and intercepted scattered anomalous gold assays up to 0.024 opt along with several narrow intervals containing Carlin-type geochemical signatures. The holes penetrated a mostly mudstone and chert-dominated siliciclastic sequence disrupted by major west-dipping thrust faults in the upper 1,500 feet. The intervals containing Carlin-type geochemistry were spatially associated with thrust faults. Neither hole penetrated lower plate carbonate rocks.

The other hole was drilled to a depth of 4,117 feet and was located near a structural intersection between west-northwest and northwest striking dike swarms. It encountered a significant number of anomalous gold intercepts including one five foot thick interval that assayed 1.06 opt gold. Most of the higher grade gold assays (>0.34 ppm), including the high-grade intercept, are hosted by retrograde-altered calc-silicate hornfels replacing calcareous strata of the Ordovician Valmy Formation. Accompanying gold are anomalous levels of Se, Bi, Te, Ag, Cu and As. This elemental association and the relationship with zones of retrograde-altered hornfels are suggestive of distal disseminated mineralization related to an intrusion. The upper 900 m of hole RGR-0002D are dominated by an interbedded sequence of mudstone, chert and minor limestone intruded by numerous felsic dikes of likely Tertiary age. At depths between 3,500 and 3,700 feet, the hole encountered a major shear zone interpreted to be the Roberts Mountains thrust fault. From about 3,575 feet, rocks within the shear zone become increasingly calcareous and are thought to represent lower plate carbonate rocks. Barrick Gold Corp. terminated the joint venture in early 2015 due to budget constraints. (Coral Gold Resources, Ltd., news release, 5/15/2015; Coral Gold Resources, Ltd., Management Discussion and Analysis, 6/1/2015; Coral Gold Resources, Ltd., website, www.coralgold.com)

Pipeline Complex. Open pit mining at the Barrick Gold Corp's Pipeline complex at its Cortez mine resumed in January 2013 and will continue through 2023. Production figures are combined with those for the Cortez Hills open pit reported below. No drilling was reported around the Pipeline complex, except for Barrick's drilling on Coral Gold Resources Ltd.'s Gold Ridge property reported above. (Barrick Gold Corp. SEC Form 40-F Annual Report, 12-31-14; Barrick Gold Corp. website, www.barrick.com)

Cortez District

Cortez Hills. Barrick Gold Corp. produced 506,274 ounces of gold from its Pipeline and Cortez Hills open mines in 2014, a 39% decrease from 2013. Barrick also produced 395,093 ounces of 545,852 ounces of gold from its Cortez Hills underground mine in 2014, a 28% decrease from 2013. For all of the production at Barrick's Cortez mine in 2014 (Cortez Hill and Pipeline, open pit and underground), the cash costs were $498 per ounce, and the all-in sustaining costs were $706 per ounce. Mining at the Cortez Hills complex is scheduled through 2018 at the open pit and through 2026 underground.

In 2014, approximately 340,000 feet in 200 exploration holes were drilled at Cortez, including Cortez Hills and Goldrush. Drill results from Goldrush were discussed above. Drilling in the Cortez Hills area is conducted as underground platforms are developed. Mineralization remains open at depth to the south and west. A prefeasibility study for underground mining at Cortez below currently permitted levels is expected to be completed in late 2015. Mineralization in this zone is primarily oxide and higher grade compared to the current underground mine, which is sulfide in nature. The limits of the Cortez Hills Lower Zone have not yet been defined, and drilling has indicated the potential for new targets at depth. Drill results from 2014 includes 120 feet grading 0.919 opt gold and 90 feet grading 0.610 opt gold. Both intercepts were oxidized mineralization, which compare favorably with the average grade of 0.403 opt gold in refractory ore above the 3,800 foot level. (Barrick Gold Corp. SEC Form 40-F Annual Report, 12-31-14; Barrick Gold Corp. website, www.barrick.com)

Grass Valley

Grass Valley. Under a generative exploration agreement with Nevada Exploration Inc., McEwen Mining, Inc. completed one hole totaling 2,660 feet on the Grass Valley project on the west side of Grass Valley about 10 miles south of Barrick Gold Corp.'s Cortez Hills deposit. No results were released. McEwen Mining, Inc. withdrew from the agreement and quitclaimed the project to Nevada Exploration Inc., which now has 100% ownership. During the year, the cuttings and logs for six geothermal wells, five of which were drilled between 2005 and 2008 on the south end of the property, became publically available. These wells contained significant intervals of anomalous arsenic ranging between 100 ppm and 534 ppm in silicified limestone containing quartz and pyrite-arsenopyrite veinlets. (Nevada Exploration, Inc., news releases, 1/27//2014, 7/31/2014; Nevada Exploration, Inc., Management Discussion and Analysis, 8/22/2014, 9/29/2014; Nevada Exploration, Inc., website, www.nevadaexploration.com).

McCoy District

Cove. Premier Gold Mines Ltd. completed 31 drill holes totaling 66,026 feet on its Cove property. The drilling focused both on high-grade mineralization beneath the pit and tightening the drill spacing in areas of known mineralization. The results demonstrated continuity in the Cove South Deep (CSD) zone and expanded the mineralized envelope within the 2201 Zone. Significant intercepts in the CSD near the periphery of the pit included: 1) 530 feet grading 0.053 opt gold and 1.03 opt silver,

including 83 feet grading 0.21 opt gold and 5.53 opt silver beginning at 1,697 feet; 2) 242 feet averaging 0.08 opt gold and 0.048 opt silver beginning at 1,330 feet; 3) 48 feet averaging 0.087 gold and 0.12 opt silver at 1,397 feet, and 612 feet averaging 0.077 opt gold and 0.48 opt silver at 2,107 feet; and 3) 369 feet averaging 0.067 opt gold and 0.4 opt silver beginning at 2,293 feet. Significant intercepts from the 2201 Zone included: 1) 5 feet grading 5.33 opt gold and, 1.37 opt silver, and 0.1% lead/zinc; 2) 16 feet grading 1.17 opt gold, 5.93 opt silver, and 1.58% lead/zinc; 3) five feet grading 0.83 opt gold, 0.97 opt silver, and 0.89% lead/zinc; and 4) 14 feet grading 0.33 opt gold, 2.12 opt silver, and 2.45% lead/zinc. (Premier Gold Mines, Ltd., news release, 11/13/2014; Premier Gold Mines, Ltd., Annual Report, 5/26/2015; Premier Gold Mines, Ltd., Annual Information Form, 3/32/2015; Premier Gold Mines, Ltd., Management Discussion and Analysis, 3/31/2015; Premier Gold Mines, Ltd., website, www.premiergoldmines.com)

McCoy. During the third quarter, Premier Gold Mines Ltd. finalized acquisition of the McCoy property immediately south of Cove from Newmont Mining Corp. Premier acquired the property for $21,000,000, plus bonding, and the transfer of its interests in the South Carlin project, including the Saddle and Big Sage properties, to Newmont. A delineation drilling program was commenced on known mineralization in the east wall of the pit and was still in progress at year's end. No results were reported. McCoy is a gold skarn related to the Eocene Brown granitic stock. (Premier Gold Mines, Ltd., Annual Report, 5/26/2015; Premier Gold Mines, Ltd., news releases, 9/11/2014, 11/13/2014; Annual Information Form, 3/31/2015; Premier Gold Mines, Ltd., Management Discussion and Analysis, 3/31/2015; Premier Gold Mines, Ltd., website, www.premiergoldmines.com).

Southwestern Lander County

Golden Brew. Highway 50 Gold Corp.'s Golden Brew project is located on the western flank of the Toiyabe Range southwest of Austin, about 14 miles southwest of the previously mined Quito Carlin-type gold deposit. Previously eight shallow drill holes, totaling 2,885 feet, were completed in 1989. To date, gold mineralization at Golden Brew consists of a zone of gold-bearing jasperoids in an area 2,500 feet long and up to 200 feet wide, hosted in thin bedded platy Cambrian carbonates. Wherever sampled, the jasperoid is anomalous in pathfinder elements characteristic of Carlin-type gold deposits, with gold grades ranging up to 4 ppm. The zone is exposed on the western slope of the Toiyabe Range and is truncated on the west by a north-south trending range front fault. West of the range front fault is a gravel-covered pediment where Highway 50 Gold conducted gravity and CSAMT geophysical surveys. These surveys were designed to locate the gold-bearing structure within the favorable host rocks at reasonable exploration depths beneath the gravel cover. The geophysical program was successful in locating a buried horst block along the projection of jasperoid zone. Highway 50 Gold drilled four holes in 2014, totaling of 8,780 feet. The geophysically interpreted horst block was confirmed by three of the four drill holes, which encountered Paleozoic carbonate rocks at depths of 1,685 to 2,160 feet. Assay results show a 150 foot interval of anomalous arsenic (to 290 ppm) and antimony (to 24 ppm) in hole GB-3. Highway 50 Gold is party to a mining lease with Genesis Gold Corp. with an option to acquire a 100% interest in Golden Brew. In February 2014, Highway 50 Gold executed an option/joint venture agreement with Regulus Resources Inc., whereby Regulus may earn a 50% interest in the property by completing five million dollars in exploration expenditures over 5 years. (Highway 50 Gold Corp. Management's Discussion and Analysis, 12/31/2014; Highway 50 Gold Corp website, www.highway50gold.com)

LINCOLN COUNTY

Eagle Valley District

Gold Springs. TriMetals Mining Corp. (formerly High Desert Gold Corp.) completed nine reverse circulation holes, totaling about 5,000 feet, and two core holes, totaling about 600 feet, on the Grey Eagle Zone on the Nevada side of its Gold Springs project. Gold Springs is located along the border with Utah about 22 miles east of Pioche. The Utah side of the property contains the Jumbo and Etna Zones. The drilling was designed to explore the potential on the south end of the Grey Eagle Zone. Significant intercepts included: 1) 35 feet grading 0.025 opt gold and 0.29 opt silver; 2) 55 feet grading 0.025 opt gold and 0.27 opt silver; and 3) 13 feet grading 0.028 opt gold and 0.29 opt silver. The Grey Eagle Zone has only been penetrated to a maximum depth of 860 feet, and mineralization remains open both laterally and at depth. The mineralization is hosted by laterally extensive, complex sheeted veins, breccias, and stockwork vein zones that locally form resistant ledges and ribs protruding up to 30 feet above the surrounding ground surface. The veins contain quartz, adularia, and bladed calcite with minor sulfides and represent a low-sulfidation, epithermal gold-silver vein system.

The BLM issued a Record of Decision and a Finding of No Significant Impact for the company's Environmental Assessment covering the Nevada portion of the Gold Springs project. This allows the company to commence the work proposed in its Plan of Operation filed at the BLM, which includes staged exploration activities focused on the expansion of the Grey Eagle resource and the future exploration of 13 of the 26 identified outcropping gold targets. The company issued a 43-101 preliminary economic study. Updated resource estimates using new 2014 data were reported in 2015. (BLM, Preliminary Environmental Assessment DOI-BLM-NV-L030-2013-

0031-EA, 1/2014; TriMetals Mining Corp. Management Discussion and Analysis, 11/7/2014, 3/23/2015; TriMetals Mining Corp. news releases, 4/3/2014, 6/3/2015; TriMetals Mining Corp. NI 43-101 Technical Reports, 5/1/2014, 7/8/2014; TriMetals Mining Corp. Annual Information Form, 3/23/2015; TriMetals Mining Corp. website, www.trimetalsmining.com)

LYON COUNTY

Wilson District

Pine Grove. The British Columbia Securities Commission found that the 2012 resource estimate for the Pine Grove Property owned by Lincoln Mining Co. was not NI 43-101 compliant. The company had the deficiencies addressed and an amended and restated preliminary economic assessment was issued. No drilling was conducted and the company only spent $318,941 on exploration in 2014. (Lincoln Mining Co. Management Discussion and Analysis, 4/30/2015; Lincoln Mining Co. NI 43-101 Technical Report; 2/16/2015, Lincoln Mining Co. website, www.lincolnmining.com)

Yerington District

Ann Mason. Between August 2014 and the end of January 2015, Entrée Gold Inc. spent $5,000,000 on a prefeasibility drilling program and completed 40 combined reverse circulation pre-collars and core holes totaling 63,189 feet. The program, designed to upgrade the mineral resources contained in the Phase 5 pit from the indicated and inferred category to measured and indicated. The pre-collar reverse circulation drilling was mainly restricted to barren, overlying volcanic rocks. The drilling changed to core once mineralized rocks of the Yerington batholith were encountered or hole conditions required a change. Hole depths ranged between 900 feet and 2,900 feet. Of the 40 holes, 25 ended in mineralization containing copper values greater than the 0.15% copper cut-off. Lower grade holes tended to be located near the northernmost edge of the Phase 5 pit in areas where strong mineralization was not expected. Significant intercepts included: 1) 1,279 feet grading 0.35% copper and 1,342 feet grading 0.35% copper near the center of the deposit; 2) 335 feet grading 0.36% copper from the northeast rim of the deposit; and 3) 368 feet grading 0.34% copper from easternmost drill hole. Other significant intercepts included: 1) 577 feet grading 0.35% copper; 2) 1,074 feet grading 0.38% copper, including 660 feet grading 0.42% copper and 0.004 opt gold; 3) 1,528 feet grading 0.31% copper; 4) 490 feet grading 0.38% copper; 5) 1,235 grading 0.32% copper; 6) 623 feet grading 0.34% copper; and 7) 590 feet grading 0.38% copper.

The deposit is a large Jurassic copper-molybdenum porphyry system with a 0.15% copper envelope covering an area of 1.4 miles trending northwest and up to 0.8 miles trending northeast and extending more than a 0.6 miles at depth. The mineralization remains open in most directions. The highest grades occur within a 660 to 2,625-foot thick, west-plunging sulfide zone surrounding the intrusive contact between granodiorite and porphyritic quartz monzonite. The main sulfides are chalcopyrite and bornite. The flat Singatse Fault truncates part of the upper surface of the 0.15% copper envelope and places Tertiary volcanic rocks on top of the mineralized intrusive rocks.

The company amended and reissued its 2012 43-101 preliminary economic assessment of the deposit. The changes dealt mainly with tax numbers and "deficiencies" noted by the British Columbia Securities Commission. The Ann Mason property includes the Ann Mason and Blue Hill deposits as well as several copper porphyry targets within eight miles of the Ann Mason deposit, such as Blackjack IP, Blackjack Oxide, Roulette, Minnesota, Shamrock and Ann South (the last three being skarns). (Entrée Gold, Inc., news releases, 10/15/2014, 1/21/2015, 3/10/2015; Entrée Gold, Inc., NI 43-101 Amended Preliminary Economic Assessment, 10/15/2014; Entrée Gold Inc. Annual Information Form, 3/30/2015; Entrée Gold Management Discussion and Analysis, 3/30/2015; Entrée Gold, Inc., website, www.entreegold.com)

Pumpkin Hollow. Nevada Copper Corp. spent $48,000,000 on exploration, development, and engineering on its Pumpkin Hollow project in 2014. The company spent much of the year sinking the 24-foot diameter production shaft at the rate of 6 to 7 feet per day in order to access its underground East deposit. It reached the main haulage level at 1,900 feet in early 2015. For four years, the company, the City of Yerington, and the Nevada Congressional delegation were pushing a land bill (Northern Nevada Land Conservation and Development Act) in the U.S. Congress that would approve the acquisition, at fair market value, by the city of Yerington of 10,400 acres of BLM-administered land surrounding the Pumpkin Hollow project. On December 19, 2014, President Obama signed the Land Bill into law. It directs the Secretary of the Interior to convey the land to the city of Yerington by June 17, 2015. Under an agreement, the city of Yerington will acquire the land with company money and immediately re-convey most of the land to Nevada Copper at no additional cost. No drilling was reported in 2014. The property in 2014 contained 160 acres of fee land, 69 patented claims containing 1,388 acres, and 15,218 acres of unpatented claims.

Pumpkin Hollow consists of several deposits. The Northwest deposit is centered on a subhorizontal, pipe-like, copper-rich, magnetite-poor skarn breccia body hosted by hornfels of the Gardnerville Formation. The South deposit is a magnetite-chalcopyrite body closely associated with an intrusive contact of granodiorite and limestone of the Mason Valley Formation. The Southeast deposit is a 300-foot wide lens of chalcopyrite-magnetite-bearing garnet-actinolite skarn developed within limestones of the Mason Valley Formation grades up to 75% magnetite. The East deposit measures 2,000 feet by 1,200 feet and consists of flat-lying to gently dipping, bedding-controlled, stacked mineralized

zones within limestone of the Mason Valley Formation at depths of 1,400 to 2,200 feet. The E-2 deposit is a steeply northwest-dipping lens of high-grade copper-magnetite skarn breccia within Mason Valley limestone, which lies on the hanging wall of an endoskarn sill. Chalcopyrite-magnetite mineralization at E-2 follows the marble front. (Elko Daily Free Press Mining Quarterly, Spring 2014, Fall 2014, Spring 2015; Nevada Copper Corp. news releases, 7/16/2014, 2/26/2015; Nevada Copper Corp. Annual Information Form, 3/23/2015; Nevada Copper Corp. Management Discussion and Analysis, 3/23/2015; Nevada Copper Corp. NI 43-101 Technical Report, 7/9/2015; Nevada Copper Corp. website, www.nevadacopper.com)

Yerington. Singatse Peak Services LLC, a subsidiary of Quaterra Resources Inc., drilled its Yerington property in 2013 but not in 2014. In June of 2014, Freeport-McMoran signed a membership and option agreement with Singatse Peak Services to earn up to a 75% interest in Singatse's Yerington assets, which also include the Bear and MacArthur porphyry copper deposits. (Quaterra Resources, Inc., news release, 6/16/2014; Quaterra Resources, Inc., From 20-F, 3/31/2015; Quaterra Resources, Inc., website, www.quaterra.com).

MINERAL COUNTY

Borealis District

Borealis. Through its subsidiary Borealis Mining Co., Gryphon Gold Corp. produced 10,859 ounces of gold and 35,133 ounces of silver from its Borealis oxide heap leach mine (Gryphon Gold Corp. 40%, Waterton Global Value, L.P., 60%). The operation re-crushed and heap leached material from existing heap leach pads. No drilling was reported for 2014. 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. However, the company suspended operations in early 2015. The company's Nevada corporate listing was revoked in 2014. (Nevada Secretary of State, Nevada Business Search; Mineral County Independent-News, 5/14/2015; Gryphon Gold Corp. website, www.gryphongold.com)

Eagleville District

Eagleville. Idaho North Resources drilled 11 reverse circulation holes totaling 3,735 feet exploring for high-grade gold-silver quartz veins and skarn mineralization. Six of the holes encountered narrow zones of gold mineralization. The best intercept was 5 feet grading 0.148 opt gold. The Eagleville project encompasses a historically producing precious metals property with 8,000 feet of accessible underground workings along with many remaining untested underground and open pit targets. (Idaho North Resources press release, 1/27/2015).

Pilot Mountains

Long Canyon. Expedition Mining Inc. completed 11 reverse circulation holes that were drilled to a maximum depth of 500 feet. The best results were from holes LCR-03 and LCR-06 which tested a 500 foot section of a northwest-striking fault zone, which can be traced across the property. The fault zone starts at a depth of 187 feet, and may be up to 213 feet wide. The zone averaged 0.007 opt gold, which included two 20-foot intervals that assayed 0.033 opt gold and 0.030 opt gold. The zone comprises numerous individual shears displaying elevated quartz and limonite content. Hole LCR-03 targeted the intersection of the structure tested by LCR-06, with a north-trending vein system exposed at the surface. The best intercept was 10 feet that assayed 0.11 opt ppm gold at a depth of 80 feet. In both holes there is a direct correlation between quartz veins and elevated gold grades. No sulfides were encountered in any of the holes, indicating that the depth of oxidation is in excess of 330 feet. (Expedition Mining Inc. press release, 5/29/2014; Expedition Mining Inc. website, http://www.expeditionmining.com)

Denton-Rawhide. Rawhide Mining LLC owns and operates the Denton-Rawhide Mine and produced 28,446 ounces of gold and 256,138 ounces of silver from the mine in 2014. Emgold Mining Corp. completed acquiring 100% ownership of the Buckskin Rawhide East Property, and then leased it to the Rawhide Mining. The property consists of 52 unpatented claims covering 835 acres and sits between the Denton-Rawhide property to the south and east and the Regent property to the north and west. Rawhide Mining drilled the property in late 2013 but not in 2014. No results were announced from the drilling. (Emgold Mining Corp., news releases, 7/28/2014, 8/21/2014; Emgold Mining Corp. Management Discussion and Analysis, 5/28/2014, 8/28/2014, 11/19/2014, 4/29/2015; Emgold Mining Corp. website, www.emgold.com)

NYE COUNTY

Bare Mountain District

Reward. Atna Resources Ltd. sold its Reward (and its Clover gold properties in Elko County) to Waterton Nevada Splitter, a subsidiary of Waterton Precious Metals Fund II Cayman, LP, for $10,000,000. (Atna Resources Ltd., Management and Discussion Analysis, 11/12/2014; Atna Resources Ltd., news releases, 11/17/2014, 11/26/2014; Atna Resources Ltd. Form 20-F, 3/17/2015; Atna Resources Ltd. website, www.atna.com)

Sterling. Sterling Gold Mining Corp., a subsidiary of Imperial Metals Corp., produced 5,721 ounces of gold from

the company's Sterling mine. Mining was conducted underground in the 144 zone and consisted of stoping and drifting. 45,212 tons of ore averaging 0.121 opt gold was stacked on leach pads, and a stope measuring 200 feet long, 40 feet wide, and 100 feet tall was mined out. This stope exhausted the western section of the orebody. Drifts totaling 1,190 feet were completed for use in development.

The company drilled 12 underground core holes totaling 2,813 feet underground, 18 core holes totaling 5,385 feet from the surface, and 202 holes totaling 7,055 feet taken as samples from stopes using a longhole drill. The underground core holes focused on the 144 zone mineralization to the east of a dike, and most of the holes did encounter some gold mineralization. Significant intercepts included: 1) 35 feet grading 0.135 opt gold, including 5 feet grading 0.296 opt gold; and 2) 30 feet grading 0.154 opt gold, including 5 feet grading 0.513 opt gold. The surface core holes were designed to test and improve the block model for the planned open pits. Significant intercepts included: 1) 22 feet grading 0.199 opt gold, including 10 feet grading 0.41opt gold: 2) 96 feet grading 0.139 opt gold including 10 feet grading 0.495 opt gold; 3) 12 feet grading 0.181 opt gold; and 3) 8 feet grading 0.3 opt gold in the water tank hill pit area. Most of the longhole drill samples encountered gold mineralization. Significant intercepts included 50 feet grading 0.215 opt gold and 25 feet grading 0.217 opt gold.

Mining in the 144 zone was completed with leaching extending through to mid-2015. Besides the aforementioned drilling, remodeling of the original Sterling zones was done to assess the economics of re-opening the original Sterling surface mine with five pits. The Sterling, Ambrose and Burro Pits would be pushed back and deepened, and the two new pits, Panama and Water Tank Hill, would be developed. These open pits would extend the mine life for another three years. (Imperial Metals Corp., Management and Discussion Analysis, 3/31/2015; Imperial Metals Corp., Annual Information Form, 3/31/2015; Imperial Metals Corp., Annual Report, 3/31/2015; Imperial Metals Corp. website, www.imperialmetals.com)

Bruner District

Bruner. Canamex Resources Corp. completed 51 reverse circulation holes totaling 24,610 feet and 13 core holes totaling about 7,257 feet at its Bruner property (joint venture with Patriot Gold Corp.). Twenty-seven reverse circulation holes totaling 12,456 feet and ten core holes totaling 4,956 feet were drilled in the Historic Resource Area. The results improved and expanded the resource estimates of the central mineralized zone and increased the understanding of the geology and the distribution of grade. Significant intercepts included: 1) 230 feet grading 0.11 opt gold; 2) 135 feet grading 0.071 opt gold, including 20 feet grading 0.38 opt gold; and 3) 145 feet grading 0.24 opt gold. Mineralization remains open to the north. Twelve reverse circulation holes totaling 7,785 feet were drilled to test current density anomalies detected by a VLF-EM survey north and northwest of the Penelas East discovery area. Three reverse circulation holes totaling 1,935 feet and two core holes totaling 1,865 feet were also drilled at the northern open extension of the Penelas East discovery area to test deep high-grade intercepts encountered in earlier drilling. Significant intercepts included: 1) 30 feet grading 0.4 opt gold; 2) 85 feet grading 0.08 opt gold, and 3) 75 feet grading 0.11 opt gold. The drilling indicated the mineralization was also open to the north. Ten reverse circulation holes totaling 2,870 feet were drilled at the Paymaster Hill/Mine area to test currently inaccessible historic underground workings for the presence of high gold grades associated with the intersection of steeply dipping structures with flat lying volcaniclastic sediments overlying unaltered andesite flows. Significant intercepts included: 1) 55 feet grading 0.38 opt gold, 2) 43 feet grading 0.17 opt gold, and 3) 25 feet grading 0.34 opt gold. (Canamex Resources Corp. news releases, 11/17/2014, 1/8/2015, 1/6/2015; Canamex Resources Management Discussion and Analysis, 11/26/2014, 4/22/2015; Canamex Resources, NI 43-101 Technical Report, 2/27/2015; Canamex Resources website, www.canamex.us; Patriot Gold Corp. website, /www.patriotgoldcorp.com)

Bullfrog District

North Bullfrog. Corvus Gold Inc. completed 48 oriented core holes totaling 41,456 feet on its North Bullfrog property. The property contains five gold deposits – Connection, Jolly Jane, Mayflower, Sierra Blanca, and Yellowjacket. The 2014 drilling program, which was done in two phases between February and November, focused on resource definition and metallurgical sampling of the Yellowjacket vein and Stockwork system. The drilling was supplemented by two channel sample profiles totaling 595 feet along new road cuts. Significant drill intercepts included: 1) 32 feet grading 0.11 opt gold and 4.23 opt silver, 2) 16 feet grading 0.2 opt gold and 0.13 opt silver, 3) 74 feet grading 0.14 opt gold and 0.55 opt silver, 4) 179 feet grading 0.068 opt gold and 0.21 opt silver, 5) 124 feet grading 0.14 opt gold and 2.56 opt silver, 6) 16 feet grading 0.72 opt gold and 6.7 opt silver, and 7) 3 feet grading 1.04 opt gold and 8.67 opt silver. Prior to the drilling, the Yellowjacket system extended at least 3,300 feet along strike and almost 700 feet down dip and was open in all directions. The drilling extended the Yellowjacket mineralization at depth, 650 feet northward along the Josh Vein, and 650 feet southward. It also discovered the new high grade West Vein, Rhyolite, and Gap Zones. The West Vein zone, which is a splay of the north-northwest-trending Josh Vein, was traced for 400 feet along strike and 500 feet down dip, and the Gap Zone was traced 1,100 feet along strike. The company issued a new NI 43-101 technical report with updated resources for the deposit as a whole and for the Jolly Jane, Mayflower, Sierra Blanca and Yellowjacket vein and Yellowjacket heap leach areas individually. (Corvus Gold Inc., news releases, 5/1/2014, 9/4/2014, 10/1/2014, 10/7/2014, 1/13/2015, 1/20/2015;

Corvus Gold Inc., Management Discussion and Analysis, 1/9/2015, 4/9/2015; Corvus Gold Inc., Annual Information Form, 8/25/2015; Corvus Gold Inc., NI 43-101 technical report, 4/2/2014; Corvus Gold Inc., website, www.corvusgold.com)

Longstreet District

Longstreet. Star Gold Corp. completed 12 holes totaling 3,500 feet on its Longstreet property (joint venture with MinQuest Inc.). The drilling was designed to explore the eastern side of the Main deposit. No results were reported. The company conducted a scoping study for a small open pit and heap leach operation on the Main Deposit and later issued a 43-101 preliminary economic assessment using its 2013 resource estimate. The capital cost was estimated to be $25,400,000. 4,850,000 tons of ore grading 0.022 opt gold with a strip ratio of 0.7/1 would be mined at a rate of 2,800 tons per day with a recovery rate of 86% gold and 15% silver as a by-product. Assuming gold at $1,350 per ounce and silver at $24 per ounce and an operating cost of $760 per ounce, the mine life was estimated to be 4.4 years a with payback in 2.7 years with a life of mine revenue of $119,000,000. (Star Gold Corp., news releases, 6/2/2-14, 9/11/2014; Star Gold Corp., prospectus, 10/9/2014; Star Gold Corp., 10-K report, 8/13/2015; Star Gold Corp., NI 43-101 Technical Report, 10/10/2014; Star Gold Corp. website, www.stargoldcorp.com)

Manhattan District

East Manhattan. Max Resource Corp. drilled seven core hole that targeted a soil anomaly exposed over area in excess of 5,450 ft by 1,475 ft. Mineralization appears to be free gold in a welded lithic tuff. The first two holes were drilled vertically to depth of 150 feet and 125 feet, and returned anomalous gold concentrations throughout their entire lengths. The best drill result was from 45 feet of 0.003 opt Au beginning at a depth of 5 feet. The gold mineralization that was intercepted was interpreted to represent surficial supergene mineralization that did not have sufficient overall grade to warrant assaying of the remaining five holes. (Max Resource Corp. Quarterly Report March 31, 2015; Max Resource Corp. website, http://www.maxresource.com)

Goldwedge. Scorpio Gold Corp. completed four oriented core holes on its Goldwedge property. The mineralization consists of altered sedimentary host rock cut by a series of north-northwest-striking fractures and faults and complex anastomosing narrow shear zones, especially the Reliance fault zone, containing a combination of free gold and disseminated gold in the rock matrix. The drill holes were oriented to the historical interpretation of mineralization being controlled by structures trending north 30º west and paralleling the regionally significant Reliance fault zone. Significant intercepts included: 1) 5 feet grading 0.546 opt gold, 2) 5 feet grading 0.344 opt gold, and 3) 4 feet grading 0.328 opt gold. The 2014 drilling results with surface and underground mapping resulted in a re-interpretation of the primary structural control to mineralization actually trending north 60º west. The Goldwedge property includes milling facilities at Manhattan permitted to process 400 tons per day. The property also includes the Jumbo and Keystone deposits located 2.4 and 2.7 miles southeast of Goldwedge, respectively, which produced 5,750 ounces of gold for Nevada Goldfields from a small open pit in 1990. (Scorpio Gold Corp. news releases, 4/27/2015; Scorpio Gold Corp. Management Discussion and Analysis, 4/28/2015; Scorpio Gold Corp. website, www.scorpiogold.com).

San Antone District

Liberty. General Moly Inc. issued a 43-101 pre-feasibility study with updated reserves and resources for its wholly-owned Liberty molybdenum-copper project. The project will be an open pit operation with an estimated life span of 31 years. Processing will involve crushing, grinding, flotation, and dewatering, and the mill throughput will be 26,500 tons per day. The life-of-mine stripping ratio will be 1.8:1. During the first ten years of operation, the mine will produce ~100 million tons of ore with average mill grades of 0.087% molybdenum and 0.068% copper and mill recovery rates of 84.6% for molybdenum and 55.5% for copper. Over the life of the mine, it will produce ~300,000,000 tons of ore, resulting in production of 402,000,000 lbs. of molybdenum and 308,000,000 lbs. of copper. The initial capital investment is estimated at $359,000,000 with sustaining capital at $224,000,000. The porphyry molybdenum-copper deposit is associated with the Cretaceous Hall stock. The deposit was then tilted and cut by later faulting. The primary mineralization includes molybdenite with minor chalcopyrite. Much of the chalcopyrite has been oxidized and is locally enriched near the surface. No drilling was conducted in 2014. (General Moly Inc., News Release, 7/24/2014; General Moly Inc. NI 43-101 Technical Report, 7/30/2014; General Moly Inc. Form 10-K, 3/16/2015; General Moly Inc. website, www.generalmoly.com)

Round Mountain District

Round Mountain. The Round Mountain Gold Corp. produced 330,071 ounces of gold and 580,685 ounces of silver from its Round Mountain Mine (Kinross Gold Corp. 50%, Barrick Gold Corp. 50%). Mining was conducted at the main Round Mountain pit, the smaller Fairview and South Fairview pits on the east end of the main pit, and the Gold Hill pit north of the main pit. About 29,052,000 tons were mined with an average grade of 0.032 opt gold. Of the ore mined, 25,461,000 tons with an average grade of 0.012 opt gold were placed on the leach pads. Gold recovery was 68.6%. The cash cost per gold ounce was $936, and the all-in sustaining cost was $1,170. Exploration outside of the mine areas continued with the main emphasis on the area between the Round Mountain and Gold Hill pits. Exploration was also planned for the Eastern Barrel project

south of Round Mountain in the Manhattan Mining District. Drilling was conducted around the mine, but no details were reported. (Kinross Gold Corp. Annual Report, 4/6/2015; Kinross Gold Corp. Annual Information Form, 3/31/2015; Kinross Gold Corp. news release, 10/8/2014; Kinross Gold Corp. website, www.kinross.com; Barrick Gold Corp. Annual Report, 3/27/2015; Barrick Gold Corp. Annual Information Form, 3/27/2015; Barrick Gold Corp. website, www.barrick.com)

Tybo District

Keystone. As reported in last year's Nevada Mineral Industry Report, Newmont Mining Corp. drilled about a dozen holes on its Keystone Project south of Flagstaff Mountain. Most of those hills were likely drilled in 2014. No details were released. (M. Ressel, oral communication, 10/30/2014; BLM LR2000 database; Newmont Mining Corp. website, www.newmont.com)

PERSHING COUNTY

Antelope District

Majuba Hill. Max Resource Corp. completed a small drill program. It only announced results from one hole, MMX-24, which was drilled to 1200 feet. It intercepted 730 feet averaging 0.27% Cu and 0.29 opt silver, which included 385 feet of 0.43% Cu and 0.35 opt silver. MMX-24 was drilled roughly parallel to and 280 feet northwest of hole MM-21, drilled in 2012, which intersected 1090 feet grading 0.13% Cu and 0.29 opt silver. On November 14, 2014, due to market conditions, Max Resources was unable to continue making lease payments and relinquished the property to the vender. As a result of the termination of the option agreement, Max Resources wrote off $1,931,968 of accumulated acquisition and exploration costs during 2014. (Max Resource Corp. Management's Discussion and Analysis, 12/31/2014)

Antelope Springs District

Relief Canyon. Pershing Gold Corp. spent almost $5,900,000 on exploration activities at its Relief Canyon project, including completing 134 drill holes totaling about 74,000 feet from 2014 into early 2015. The drilling was designed to extend and upgrade the current deposit, mainly in the North Target area. Significant intercepts included 1) 65 feet averaging 0.043 opt gold, including six feet grading 0.29 opt gold; 2) 16 feet grading 0.14 opt gold; 3) 65 feet averaging 0.064 opt gold, including 5 feet grading 0.35 opt gold, 4) 110 feet averaging 0.069 opt gold, including 5 feet grading 0.34 opt gold and 5 feet grading 0.63 opt gold; 5) 115 feet averaging 0.074 opt gold, including five feet grading 0.35 opt gold and six feet grading 0.42 opt gold; and 6) 39 feet grading 0.34 opt gold, including five feet grading 2.61 opt gold. The drilling showed the deposit consisted of three stacked mineralized zones controlled by low-angle structures—the Main, Lower, and Jasperoid zones. The BLM and the Nevada Division of Environmental Protection/Bureau of Mining Regulation and Reclamation issued the final permits necessary authorizing mining within the existing open-pit mine. These agencies had already issued permits for the heap leach mineral processing facilities. (Elko Daily Free Press Mining Quarterly, Fall 2014, Winter 2014; Pershing Gold Corp., 10-K Form, 3/5/2015; Pershing Gold Corp., NI 43-101 Technical Reports, 11/17/2014, 8/17/2015; Pershing Gold Corp. news releases, 5/1/2014, 9/15/2014, 10/6/2014; Pershing Gold Corp. website, www.pershinggold.com)

Buena Vista District

Fourth of July. Renaissance Gold Inc. entered into an agreement with Summit Mining Exploration II Inc. (Summit II), a U.S. subsidiary of Sumitomo Corporation, whereby Summit would fund continuing exploration of Renaissance's Fourth of July project. The property covers numerous historic silver and gold prospects including the Arizona Mine, which was one of the largest silver mines in the state between 1860 and 1880. In October, Renaissance staff completed three core holes totaling 2,009 feet. The drill project was designed to test the concept that graben-bounding faults were conduits for mineralizing fluids that formed the flat veins of the Arizona Mine and other nearby smaller mines. The results of the drilling helped define the geometry of the graben-bounding structures and the depth and geometry of the unconformity between a limestone unit and an underlying rhyolite unit. The results also identified the presence of multiple generations of mineralization and intrusions, as well as strong alteration and mineralization in the rhyolite units within the graben. Regional surface geochemistry indicates a zoned intrusion-related system that concentrated silver within the Arizona Mine and the Wheeler Mine (one mile south of the Arizona Mine), and a peripheral high gold signature to the east and west. Significant intercepts from the 2014 drilling included: 1) 3 feet grading 0.46 opt silver and 0.007 opt gold starting at 200 feet on the East Graben margin; 2) 90 feet grading 0.003 opt gold, including seven feet grading 0.009 opt gold and 0.18 opt silver in pyrite-flooded rhyolite breccia between the unconformity and the East Graben fault; and 3) 11 feet grading 0.004 opt gold in silicified carbonate rock just above the unconformity. (Renaissance Gold, Inc., news release, 2/17/2015; Renaissance Gold, Inc., Management Discussion and Analysis, 9/15/2014, 11/14/2014, 2/12/2015, 5/15/2015; Renaissance Gold, Inc. website, www.rengold.com)

Goldbanks District

Goldbanks. Kinross Gold Corp. completed a drill program in the winter of 2013-2014. At least 15 core holes were completed. The drill program was designed to locate the upwelling zone of the hydrothermal system responsible for

the "Main Zone", along the western margin of an interpreted Miocene volcanic basin. The program was successful in intersecting high-grade zones, at greater depths than what was drilled in the past. One of the intercepts was a 3.7 foot wide vein of amethystine and coarse-grained comb-textured quartz with pyrite, electrum and silver selenide minerals. It assayed 5.6 opt gold and 316 opt silver. This vein is hosted in Paleozoic metasedimentary rocks immediately below the Tertiary unconformity, about 600 feet below the surface. The high silver:gold ratio is consistent with previous shallower drilling that showed increasing silver:gold ratios down-dip along the basin margin. A second follow-up drill hole in the area also encountered bonanza grade mineralization within narrow, amethystine quartz veins with visible electrum. The best drill intersection in this hole assayed 4.2 opt gold over a measured length of 2.6 feet. (Ellis, J. and Stroup, C., 2015, The Golden Devil zone, an new discovery in the Gold Banks district, Nevada: in Pennell, W. M. and Garside, L. J., eds., New Concepts and Discoveries: Geological Society of Nevada Symposium Proceedings, May 2015, Sparks, Nevada, p. 663–675. Kinross Gold Corp. website, www.kinross.com)

Imlay District

Florida Canyon/Standard. Jipangu Inc. produced 40,311 ounces of gold and 79,231 ounces of silver, a decrease of 13% and increase of 36% respectively, from its Standard open pit about five miles south of its Florida Canyon mine. Due to the company's proposed mine expansion and upgrade plans, it stopped mining at its Florida Canyon open pit in March 2011 and shifted mining to the Standard open pit. The BLM issued a preliminary environmental assessment about the company's South Expansion Project. The plans include the expansion of the Florida Canyon 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 (South Heap Leach Pad) to accommodate more ore. The expansion would also extend the mine life by eight years. Exploration and in-fill drilling were conducted, but no details were reported. (Elko Daily Free Press, 4/21/2015; Elko Daily Free Press Mining Quarterly, Spring 2014; BLM Preliminary Environmental Assessment, DOI-BLM-NV-W010-2013-0061-EA, 8/2014; Jipangu, Inc., website www.jipangu.co.jp)

Rochester District

Gold Ridge. Rye Patch Gold Corp. spent $154,646 on exploration and completed 12 reverse circulation holes totaling 2,479 feet on its wholly owned Gold Ridge property. The drill program was designed to test the north-south trending Silver Ridge zone, which is immediately east of and adjacent to the Lincoln Hill resource area. The Silver Ridge zone consists of brecciated jasperoid and vein quartz fragments interbedded with limestone and mudstone in the Triassic Prida Formation. The host rocks are folded into a large antiform with a steeply dipping western limb and a hinge zone consisting of a broad open fold containing several minor parasitic anticlines and synclines. The antiform is at least 2.8 miles long and sits on top of a west-dipping, low-angle fault zone. The drilling extended the mineralization over 1,600 feet northward. Significant intercepts included: 1) 65 feet averaging 0.023 opt gold and 0.97 opt silver, including 15 feet grading 0.026 opt gold and 2.96 opt silver; 2) 100 feet averaging 0.013 opt gold and 0.24 opt silver, including 35 feet grading 0.031 opt gold and 0.59 opt silver; and 3) 140 feet grading 0.015 opt gold and 0.22 opt silver, including 35 feet grading 0.044 opt gold and 0.42 opt silver. (Rye Patch Gold Corp., news release, 9/15/2014; Rye Patch Gold Corp. Management Discussion and Analysis, 4/27/2015; Rye Patch Gold Corp., Audited Annual Financial Statements, 4/27/2015; Rye Patch Gold Corp., website, www.ryepatchgold.com)

Lincoln Hill. Rye Patch Gold Corp. spent $767,130 on exploration and completed 28 reverse circulation holes totaling 10,460 feet on its wholly owned Lincoln Hill project. The drilling focused on the Roosevelt and Independence Hill targets. Four zones were tested at Independence Hill of which three returned positive results. Six holes were drilled at the Buck and Charlies mine, two at the Octopus mine, four at the Hilltop mine, three at the Roosevelt Zone, and 13 at the Looney mine. Most of the holes returned significant results from the Buck and Charlie, Octopus, and Looney Mines, but no significant results came from the Roosevelt Zone or Hilltop Mine. Significant intercepts included: 1) 10 feet averaging 0.004 opt gold and 0.44 opt silver and 15 feet grading 0.005 opt gold and 0.14 opt silver at the Buck and Charlie mine; 2) 75 feet averaging 0.021 opt gold and 0.33 opt silver, including 10 feet grading 0.11 opt gold and 0.35 opt silver at the Octopus mine; and 3) 45 feet averaging 0.14 opt gold and 0.70 opt silver, including 5 feet grading 0.22 opt gold and 4.86 opt silver; 5 feet grading 1.17 opt gold and 0.10 opt silver, and 30 feet grading 0.011 opt gold and 0.15 opt silver at the Looney mine. The company issued several 43-101 preliminary economic assessment reports with updated resource estimates. (Rye Patch Gold Corp., news releases, 5/28/2014, 11/14/2014; Rye Patch Gold Corp. Management Discussion and Analysis, 4/27/2015; Rye Patch Gold Corp., Audited Annual Financial Statements, 4/27/2015; Rye Patch Gold Corp. NI 43-101 Technical Reports, 7/2/2014, 7/10/2014, 10/2/2014; Rye Patch Gold Corp., website, www.ryepatchgold.com)

Rochester. Coeur Mining Inc. produced 4,189,071 ounces of silver and 44,887 ounces of gold from its Rochester mine, increases of 50% and 45%, respectively. Mined ore averaged 0.57 opt silver and 0.004 opt gold. Ultimate recovery from crushed ore on the heap leaches was estimated to be 50% for silver and 86% for gold. The total cost applicable to sales per ounce was $14.49.

Coeur spent $2,500,000 on exploration, which included drilling holes totaling 164,417 feet. The program focused on

expansion and definition drilling. However, drilling east of the pit resulted in a discovery of a new high-grade zone. The first reverse circulation drill hole encountered 1,300 feet of 1.11 opt silver and 0.003 opt gold. That intercept included 490 feet averaging 1.95 opt silver. In late 2014, a core hole was drilled to twin the first reverse circulation. The results were confirmed. The core hole intercepted of 179.1 feet averaging 4.75 opt silver, including 4.1 feet grading 55.80 opt silver and 0.081 opt gold. Several successful holes were also drilled in the eastern side of the Rochester pit to further define mineralization between current mining activity and the new East Rochester zone with results supporting possible expansion towards East Rochester. Nine encountered significant intercepts, ranging from 10 feet grading 6.69 opt silver to 320 feet averaging 2.02 opt silver. The East Rochester zone is located approximately 1,000 feet east of mining in the existing Rochester open pit and close to existing infrastructure.

Coeur issued a 43-101 technical report with updated reserves and resources for all of the Rochester property, as well as a separate estimate for the Nevada Packard deposit. The company filed an amendment to its plan of operation with the BLM to expand the heap leach pad number 4 and construct leach pad number 5. The BLM filed a Notice of Intent and began preparing an environmental impact statement concerning the proposed amendment. (BLM, Notice of Intent, News Release No. WDO 2014-011, 6/30/2014; BLM, Draft Environmental Impact Statement, 7/2015; Elko Daily Free Press Mining Quarterly, Fall 2014; Coeur Mining Inc. 10-K Report, 2/20/2015; Coeur Mining Inc. Management Discussion and Analysis, 3/31/2015; Coeur Mining Inc. NI 43-101 Technical report, 2/21/2014; Coeur Mining Inc. news release, 02/29/2016; Coeur Mining Inc. website www.coeur.com)

Spring Valley District

Spring Valley. Barrick Gold Corp. completed 13 reverse circulation holes and 73 core holes totaling 98,828 feet at Spring Valley (Barrick Gold Corp., 70%, Midway Gold Corp., 30%), but results were not released. Barrick spent $17,500,000 on the project in 2014. In early 2014, Barrick achieved their earn-in by having spent $38 million on the project since partnering with Midway in 2009. The Spring Valley 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 and 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. The gold also occurs along the edges of sulfide grains, indicating that the gold deposition is later than the sulfides. Midway Gold Corp. issued a 43-101 technical report, followed shortly after with an amended version, that contained updated resource estimates. The measured and indicated resources at a cut-off grade of 0.006 opt gold is 222.6 million tons grading 0.019 opt gold for a total of 4.12 million ounces of gold. (Midway Gold Corp., NI 43-101 Technical Reports, 9/9/2014, 12/19/2014; Midway Gold Corp. 10-K Form, 3/16/2015; Midway Gold Corp. website, www.midwaygold.com)

Table Mountain District

Fencemaker. First Liberty Power Corp. extracted 750 tons of stibnite ore from its Fencemaker underground mine between October 2013 and February 2014. 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. No drilling was reported for 2013 or 2014. The mine was placed in temporary shutdown status to conserve costs while First Liberty developed concentrating and refining plans. The ore is stibnite in a replacement deposit hosted in calcareous siltstone and dolostone of the Triassic Dun Glen Formation (First Liberty Power Corp. 10-Q Report, 6/23/2014; First Liberty Power Corp. website, www.firstlibertypower.com).

Willard District

Wilco. Rye Patch Gold Corp. spent $727,633 on exploration and completed 13 reverse circulation holes totaling 6,900 feet on its Wilco property. The drilling focused on the Colado (five holes), Gap (two holes), and Rhyolite (six holes) targets. Significant intercepts at Coladao included: 1) 30 feet averaging 0.045 opt gold and 0.30 opt silver, including 5 feet grading 0.094 opt gold and 0.70 opt silver; and 2) 135 feet grading 0.019 opt gold and 0.18 opt silver, including 5 feet grading 0.082 opt gold and 0.60 opt silver. Significant results at Gap included: 1) 50 feet averaging 0.062 opt gold and 0.75 opt silver, including 10 feet grading 0.098 opt gold and 1.26 opt silver; and 2) 10 feet grading 0.17 opt gold and 1.20 opt silver. Significant intercepts at Rhyolite included: 1) 40 feet averaging 0.060 opt gold and 0.22 opt silver; and 2) 120 feet averaging 0.031 opt gold and 0.27 opt silver, including 60 feet grading 0.048 opt gold and 0.25 opt silver.

The Colado high-grade zone has a “Wishbone” shape with a northwest and north-northeast trending zones intersecting to the south. In plan view, the northwest zone is 4,260 feet long by 280 feet, and the north-northeast zone is 1,670 feet long by 380 feet wide. Both zones are open to the north, northwest, and southeast. The Gap target lies between the Section Line and Colado resource areas. Results from the two drill holes suggest continuity between Section Line and Colado. One drill hole intersected three stratabound mineralized zones that were correlative with the upper mineralized zones at Section Line and indicating a continuation of the main mineralized horizon located at the contact between siltstone and claystone. Another hole discovered a new geothermal area. The Rhyolite Hill target is located north of the historical Willard pit. Two drill holes completed in the EW Draw pit extended gold mineralization 150 feet to the west. The high-grade mineralization is

oxidized and looks similar to gold mineralization encountered at about 150 feet below the pit floor. Another drill hole intercepted a high-grade zone with mineralization open to the north and west of the pit. Several drill holes designed to test the depth and extent of an area of strongly silicified and mineralized rhyolite in a dome complex intercepted two locally anomalous gold intervals but not the rhyolite at depth. This suggested the outcropping mineralization may be controlled by a low-angle, east-dipping structural zone, located at the base of the complex. (Rye Patch Gold Corp., news release, 10/15//2014; Rye Patch Gold Corp. Management Discussion and Analysis, 4/27/2015; Rye Patch Gold Corp., Audited Annual Financial Statements, 4/27/2015; Rye Patch Gold Corp., website, www.ryepatchgold.com)

STOREY/LYON COUNTIES

Comstock/Silver City Districts

Comstock. Comstock Mining Inc. produced 19,601 ounces of gold and 222,416 ounces of silver from the Lucerne pit. 700,754 tons were crushed with average grades of 0.03 opt gold and 0.527 opt silver. Recovery from the leach pads was estimated to be 81% for gold and 50% for silver. The ore was hauled to the processing plant at American Flat, which is 2.6 miles from the Lucerne Pit. Mining was completed for the Billie the Kid, Hartford and Justice patented claims but continued at the Lucerne patented claim.

Early in the year, the silver to gold ratio was about 10:1 but increased to 18:1 by year's end as the open cut developed the northern Justice part of the Lucerne and deepened down-dip along the Silver City fault zone. Recent exploration drilling has identified gold and silver mineralization over an almost one-mile strike distance. Mineralization is open to the north and south along strike and down-dip to the east, including the recently discovered Chute Zone in the eastern part of the Lucerne Resource Area. The Chute Zone is a secondary mineralized zone that as of 2014 had only been intersected in drill holes at depths of about 800 feet.

Comstock spent $2,658,473 on exploration and mine development. It commenced a five-month comprehensive compilation, reinterpretation, and feasibility modelling of existing data to improve mineral resource estimates and expand surface and initial underground mine development. In December, Comstock launched a 2014–2015 exploration and development program. The objectives of the program include expanding the Lucerne Eastside and Dayton gold and silver resources, establishing a third major resource in the Spring Valley area, expanding the surface mining, and accelerating plans for underground mining. The Eastside straddles State Route 342, and encompasses a nearly half-mile long segment of the Gold Hill/Silver City extension of the Comstock Lode. (Elko Daily Free Press Mining Quarterly, Winter 2014, Spring 2015; Comstock Mining, Inc., press releases, 10/16/2014, 12/18/2014, 1/29/2015; Comstock Mining, Inc. Form 10-K, 1/29/2015; Comstock Mining, Inc., Form 10-Q, 10/16/2014; Comstock Mining, Inc., website, www.comstockmining.com)

WASHOE COUNTY

San Emidio District

Wind Mountain. In July, Bravada Gold Corp. signed an option to sell its Wind Mountain project to SolidusGold, Inc. (formerly Mantra Capital, Inc.). SolidusGold, Inc. issued a 43-101 technical and preliminary assessment report followed shortly by an amended version, both of which said the project had merit, but more exploration and in-fill drilling was needed. Neither company drilled in 2014. SolidusGold, Inc., dropped the option in 2015, and Bravada Gold was afterwards looking for a joint venture partner. (SolidusGold, Inc., Management Discussion and Analysis, 2/25/2015; SolidusGold, Inc., NI 43-101 Technical Reports, 12/24/2014, 1/21/2015; Bravada Gold Corp. News Releases, 7/8/2014, 8/5/2015; Bravada Gold Corp. website, www.bravadagold.com)

WHITE PINE COUNTY

Bald Mountain District

Bald Mountain. Barrick Gold Corp. produced 161,036 ounces of gold from its Bald Mountain mine in 2014. Metallurgical recovery from this heap leach only operation was 72.5%. Total cash costs were $724 per ounce, and the all-in-sustaining costs were $1070 per ounce. Barrick likely carried out a minor drill program in 2014, but no results were released. (Barrick Gold Corp. SEC Form 40-F Annual Report; 12-31-14; Barrick Gold Corp. website, www.barrick.com)

Diamond District

Gunman. Cypress Development Corp. completed in February, 2014, a 43-101 technical report on its Gunman zinc-silver project at the southeast end of the Diamond Mountains. In May it then completed a reverse circulation drill program on the RH zone at Gunman. Results include an intercept of 175 foot that assayed 3.52 opt silver and 12% zinc, starting at a depth of 50 feet. It completed another drill campaign in August. Results from the second phase included a 230 foot interval that assayed 2.43 opt silver and 13.4% zinc starting at surface. Cypress doubled size of the land package in September. It also completed a detailed surface sampling program (zinc, silver, copper) on the RH South Target and purchased a high resolution air magnetics survey over Gunman. (Cypress Development Corp. Management Discussion and Analysis, 3/31/2015; Cypress Development website, www.cypressdevelopmentcorp.com)

Pancake District

Pan. Midway Gold Corp. began mine construction in January, 2014 and was far enough along for mining and stacking of the leach pads to begin in mid-September. Total construction was estimated to be $81,000,000 with $69,000,000 spent by year's end. Overall, the project will involve an open-pit gold mine consisting to 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 company poured its first gold in early 2015. The deposit is a Carlin-style, epithermal, disseminated, sediment-hosted gold system. The mineralization, which is entirely oxide and outcrops at the surface, is hosted in the Pilot Shale and limestone of Devils Gate Formation and occurs in elongate dissolution/collapse breccias along the Pan fault and along bedding near the Pilot-Devil's Gate contact. No drilling was carried out in 2014. (Midway Gold Corp., NI 43-101 Technical Report, 5/1/2015; Midway Gold Corp., 10-K Form, 3/16/2015; Midway Gold Corp., news releases, 1/15/2014, 9/15/2015, 3/27/2015; Midway Gold Corp., Audited Annual Financial Statements, 3/16/2015; Midway Gold Corp., website, www.midwaygold.com)

Robinson District

Robinson. KGHM International, Ltd. produced 86,601,987 pounds of copper and 741,717 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 26,303 ounces of gold as a by-product. No silver production was reported in 2014. Production ended at the Kimberly pit in January but continued mostly from the Ruth Pit area through the rest 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. All mining at Robinson is on 21,000 acres of private land. A minor drill program was carried out in 2014, but no results were reported. Exploration was focused in the Lane Valley northeast of the mine, and it may add another five to ten years to the mine life. (Elko Daily Free Press Mining Quarterly, Spring 2014; Directory of Nevada Mine Operations 2014, 8/19/2015; KGHM International, Ltd. Mineral Resources and Reserves Report, 6/2015; KGHM International, Ltd. website, kghm.com)

Taylor District

Taylor. Silver Predator Corp.'s 2014 spring drilling program was primarily designed to test outlying gold and silver targets to the east and southeast of the current silver resource area. In these outlying areas, 14 reverse circulation drill holes totaling 11,745 feet were completed. Two additional RC holes totaling 885 feet were completed within the resource area near the Bulls Eye target. Target areas, based on surface mapping and soil sampling, typically displayed strong precious and indicator element geochemistry, prominent silicification, known or projected faults, felsic intrusive bodies as dikes, and key silty carbonate host rocks. The most significant results obtained from the outlying target areas were concentrated in three holes drilled from a site immediately west of the Antimony prospect area, where potential bulk-minable gold mineralization was encountered in all three holes. Intercepts included 60 feet of 0.030 opt gold and 80 feet of 0.020 opt gold, both starting from the surface. The third hole encountered 40 feet of 0.023 opt gold and 2.58 opt silver starting at 235 feet. Both holes drilled in the Bulls Eye target area in the silver resource area intercepted strong silver zones in carbonates of the Devonian Guilmette Formation with significantly elevated gold assays associated with crosscutting intrusions. Other widespread targets across the property encountered strong alteration in the upper Guilmette transition with the overlying Pilot Shale in all 14 drill holes, although no ore grade mineralization was encountered. (Silver Predator Corp. Management and Discussion Analysis, 12/31/2014; Silver Predator Corp. website, http://www.silverpredator.com)

White Pine District

Gold Rock. Midway Gold Corp. spent $1,861,905 for exploration on its Gold Rock property (formerly known as Easy Junior). The property was not drilled in 2014. The company issued a 43-101 technical reports with updated resources followed by an amended version. A draft environmental impact statement was in preparation with completions planned in early 2015. The environmental impact statement was for the company's proposal to operate an open pit mine with two waste rock disposal areas, one heap leach pad, a mill, and other support facilities on the now closed and reclaimed former Easy Junior property. (BLM, Draft Environmental Impact Statement, BLM/NV/EL/ES/15-05+1793, 2/2015; Midway Gold Corp. 10-K Form, 3/16/2015; Midway Gold Corp. NI 43-101 Technical Reports, 5/29/2014, 1/8/2015; Midway Gold Corp. website, www.midwaygold.com)

Mount Hamilton. Mount Hamilton, LLC, (joint venture Solitario Exploration and Royalty Corp., 80%; and Ely Gold and Minerals, Inc., 20%, joint venture) issued a 43-101 technical report feasibility study with updated resource estimates. The study calls for two main pits measuring 1,900 feet by 2,600 feet long by 800 feet deep. Mining would be in at least three phases with a stripping ratio 2.5:1. Ore would be hauled to a primary crusher on the southwest rim of the Centennial pit or stockpiled near the crusher for later use. The life of the mine is estimated to be seven years, not including nine months of pre-stripping. The average mining rate would be about 3,500,000 tons of ore and 8,500,000 tons of waste annually. Both Solitario Exploration and Ely Gold sold their interests to Waterton Nevada Splitter, LLC,

a subsidiary of Waterton Precious Metals Fund II Cayman, LP, in 2015. (Solitario Exploration and Royalty Corp. Form 10-K, 4/13/2015; Solitario Exploration and Royalty Corp. news release, 8/14/2015; Solitario Exploration and Royalty Corp. website, www.solitarioresources.com; Ely Gold and Minerals, Inc., news release, 6/11/2015; Ely Gold and Minerals, Inc., Management Discussion and Analysis, 4/30/2015; Ely Gold and Minerals, Inc. website, www.elygoldandminerals.com)

MAJOR PRECIOUS-METAL DEPOSITS

by David A. Davis and John L. Muntean

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
CHURCHILL COUNTY				
Bell Mountain (Bell Mountain district)	1982: 1,000,000 tons, 0.055 opt Au, 1.4 opt Ag 1989: reserves-30,000 oz Au, 125,000 oz Ag 1997: 2,500,000 tons, 0.059 opt Au equiv. oz 2011: 10,760,000 tons, 0.015 opt Au, 0.514 opt Ag (measured and indicated resource, 0.007 opt, AuEQ cut-off); 2,255,000 tons, 0.013 opt Au, 0.387 opt Ag (inferred resource, 0.007 opt, AuEQ cut-off)	1914: 35 tons, 0.51 opt Au, 16 opt Ag	rhyolitic tuff	Miocene
Buffalo Valley (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, 341,750 oz AuEq, 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 resource, 0.02-0.03 opt Au cut-off grade) [JORC compliant] 2014: North Sammy: 1,607,000, 0.13 opt Au, 184,100 oz Au; North Sammy Contact: 1,441,000 tons, 0.06 Au, 71,800 oz Au; South Sammy: 8,380,000 tons, 0.06 opt Au, 437,200 oz Au; Beadle Creek: 2,978,000 tons, 0.08 opt Au, 201,700 oz Au; Mac Ridge: 2,080,000 tons, 0.04 opt Au, 81,100 oz Au; Dorsey Creek: 306,000 tons, 0.05 opt Au, 12,900 oz Au; Briens Fault: 881000 tons, 0.05 opt Au, 40,500 oz Au; Big Springs Total: 17,672,000 tons, 0.07 opt Au, 1,029,900 oz Au (combined measured, indicated and inferred resource, 0.03 opt Au cut-off grade) [JORC compliant]	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)		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Burns Basin (cont.)	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)			
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	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 2014: 2,342 oz Au 9,433 oz Ag	rhyolitic tuff, flows	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Hollister (cont.)	(measured and indicated resource, includes reserves) 1,035,300 tons, 1.340 opt Au, 2.72 opt Ag (inferred resource) 2010 (August, 0.25 opt Au cut-off grade): 1,121,000 tons, 1.305 opt Au, 10.35 opt Ag (measured and indicated resource, includes reserves) 1,487,000 tons, 0.690 opt Au, 11.1 opt Ag (inferred resource) 2012: 516,000 tons, 0.882 opt Au, 455,000 oz Au, 2.9 opt Ag, 1,470,000 oz Ag (proven and probable reserves, Au cut-off grade: 0.25 opt epithermal, 0.15 opt Tertiary mineralization); 1,260,000 tons, 0.595 opt Au, 750,000 oz Au, 2.5 opt Ag, 3,106,000 oz Ag (measured and indicated resource, includes reserves, cut-off 0.1 opt Au); 1,416,000 tons, 0.224 opt Au, 317,000 oz Au, 0.6 opt Ag, 872,000 oz Ag (inferred resource, cut-off 0.1 opt Au)			
Island Mountain (Island Mountain district)	2012: 32,000 oz Au (indicated resource); 385,000 oz Au (inferred resource)			
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)	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 (all deposits combined) 2014: 179,329 oz Au (all deposits combined)	Hanson Creek and Roberts Mountains Formations	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Jerritt Canyon (cont.)	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)			
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) 2014: 18,400,000 tons, 0.067 opt Au, 1,230,000 oz Au (probable reserves, 77% metallurgical recovery); 4,900,000 tons, 0.101 opt Au (mineralized material)		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	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):	Popovich and Roberts Mountains Formations	Eocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Meikle (cont.)	Goldstrike): 7,319,000 tons, 0.379 opt Au (proven and probable reserves); 3,234,000 tons, 0.386 opt Au (measured and indicated resource); 3,034,000 tons, 0.386 opt Au (inferred resource) 2006 (includes all underground resources at Goldstrike): 7,662,000 tons, 0.370 opt Au (proven and probable reserves); 4,143,000 tons, 0.338 opt Au (measured and indicated resource); 2,159,000 tons, 0.301 opt Au (inferred resource) 2007 (includes all underground resources at Goldstrike): 7,423,000 tons, 0.364 opt Au (proven and probable reserves); 4,129,000 tons, 0.329 opt Au (measured and indicated resource); 2,747,000 tons, 0.371 opt Au (inferred resource) 2008 (includes all underground resources at Goldstrike): 6,923,000 tons, 0.368 opt Au proven and probable reserves; 4,467,000 tons, 0.323 opt Au measured and indicated resource; 3,424,000 tons, 0.393 opt Au inferred resource 2009 (includes all underground resources at Goldstrike): 8,998,000 tons, 0.318 opt Au proven and probable reserves; 4,436,000 tons, 0.334 opt Au measured and indicated resource; 1,858,000 tons, 0.341 opt Au inferred resource 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) 2014 (includes all underground resources at Goldstrike): 7,342,000 tons, 0.258 opt Au, 1,890,000 oz Au (proven and probable reserves); 4,123,000 tons, 0.338 opt Au, 1,395,000 oz Au (measured and indicated resource); 1,827,000 tons, 0.301 opt Au, 550,000 oz Au (inferred resource)	413,186 oz Au, 74,000 oz Ag 2008 (includes all underground production at Goldstrike): 424,687 oz Au, 51,434 oz Ag 2009 (includes all underground production at Goldstrike): 388,548 oz Au, 30,198 oz Ag 2010 (includes all underground production at Goldstrike): 281,308 oz Au, 22,628 oz Ag 2011 (includes all underground production at Goldstrike): 279,348 oz Au, 16,345 oz Ag 2012 (includes all underground production at Goldstrike) 327,203 oz Au, 41,775 oz Ag 2013 (includes all underground production at Goldstrike) 360,578 oz Au, 58,352 oz Ag 2014 (includes all underground production at Goldstrike) 386,679 oz Au, 15,707 oz Ag		

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
MCE (Jerritt Canyon, Independence Mountains district)	2005-2007: 4,400 tons, 0.20 opt Au (underground measured and indicated resource) 7,800 tons, 0.19 opt Au (underground inferred resource)		Hanson Creek and Roberts Mountains Formations	
Midas (Ken Snyder) Mine (Gold Circle district)	1995: 13,000,000 tons, 0.16 opt Au, 2.7 opt Ag, announced resource, proven Au reserves<500,000 oz 1996: 1,100,000 tons, 1.324 opt Au, 14.95 opt Ag 1999: 3,000,000 tons, 0.816 opt Au, 9.835 opt Ag (proven and probable reserves) 2000: 3,400,000 tons, 0.63 opt Au, 7.77 opt Ag (proven and probable reserves) 2002: 3,400,000 tons, 0.65 opt Au (proven and probable reserves); 400,000 tons 0.46 opt Au (measured and indicated mineralized material); 200,000 tons 0.55 opt Au (inferred mineralized material) 2003: 700,000 tons, 0.83 opt Au (proven reserves); 2,700,000 tons, 0.51 opt Au (probable reserves); 900,000 tons 0.42 opt Au (indicated material) 2004: 2,900,000 tons, 0.510 opt Au (proven and probable reserves); 200,000 tons, 0.58 opt Au (indicated resource); 700,000 tons, 0.31 opt Au (inferred resource) 2005: 1,500,000 tons, 0.58 opt Au (proven and probable reserves); 600,000 tons, 0.42 opt Au, (inferred resource) 2006: 1,200,000 tons, 0.47 opt Au (proven and probable reserves which includes 6,800,000 oz Ag); 800,000 tons, 0.33 opt Au, (inferred resource) 2007: 1,000,000 tons, 0.493 opt Au, (proven and probable reserves which includes 7,500,000 oz Ag); 200,000 tons, 0.345 opt Au (measured and indicated resource); 100,000 tons, 0.3013 opt Au (inferred resource) 2008: 900,000 tons, 0.436 opt Au, (proven and probable reserves); 200,000 tons, 0.186 opt Au, (measured and indicated resource); 100,000 tons, 0.321 opt Au (inferred resource) 2009: 700,000 tons, 0.425 opt Au, (proven and probable reserves, also includes 4,600,000 oz Ag); 100,000 tons, 0.193 opt Au, measured and indicated resource); 100,000 tons, 0.248 opt Au (inferred resource) 2010: 500,000 tons, 0.319 opt Au (proven and probable reserves, 95% recovery, also includes 2,800,000 oz Ag); 120,000 tons, 0.167 opt Au (measured and indicated resource) 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) 2014: 242,100 tons, 0.378 opt Au, 91,600 oz Au, 10.93 opt Ag, 2,646,000 oz Ag (proven and probable reserve, 94% Au, 92% Ag recovery, 0.335 opt Au cut-off grade); 1,117,000 tons, 0.377 opt Au, 421,000 oz Au, 6.085 opt Ag, 6,765,000 oz Ag (measure and indicated resource, 0.96 opt Au cut-off grade); 858,000, 0.28 opt Au, 241,000 oz Au, 3.48 opt Ag, 2,988,000 oz Ag (inferred resource, 0.96 opt Au cut-off grade)	1998: 4,357 oz Au, 55,329 oz Ag 1999: 189,081 oz Au, 1,938,470 oz Ag 2000: 197,800 oz Au, 1,941,989 oz Ag 2001: 198,518 oz Au, 2,393,246 oz Ag 2002: 232,949 oz Au, 2,870,164 oz Ag 2003: 218,966 oz Au, 2,647,374 oz Ag 2004: 219,778 oz Au, 2,471,135 oz Ag 2005: 167,297 oz Au, 2,166,396 oz Ag 2006: 140,884 oz Au, 1,694,060 oz Ag 2007: 79,133 oz Au, 1,040,059 oz Ag 2008: 150,608 oz Au 1,872,883 oz Ag 2009: 123,621 oz Au, 1,634,601 oz Ag 2010: 127,196 oz Au, 1,710,318 oz Ag 2011: 111,476 oz Au; 1,512,287 oz Ag 2012: 82,922 oz Au; 1,247,994 oz Ag 2013: 52,195 oz Au, 1,368,896 oz Ag 2014: 21,984 oz Au, 1,489,149 oz Ag	Tertiary volcanic rocks	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Mill Creek (Jerritt Canyon, Independence Mountains district)	2005-2007: 78,400 tons, 0.12 opt Au (measured and indicated resource) 2011: 186,000 tons, 0.09 opt Au, 16,800 oz Au (proven and probable reserves, open pit) 276,200 tons, 0.094 opt Au, 26,100 oz Au (measured and indicated resource, includes reserves) 3,400 tons, 0.154 opt Au, 500 oz Au (inferred resource) 2012: 197,000 tons, 0.09 opt Au, 17,700 oz Au (proven and probable reserves, open pit) 302,000 tons, 0.094 opt Au, 28,300 oz Au (measured and indicated resource, includes reserves) 4,000 tons, 0.153 opt Au, 600 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Murray (Jerritt Canyon, Independence Mountains district)	2005: 243,300 tons, 0.26 opt Au (proven and probable reserves) 789,200 tons, 0.29 opt Au (measured and indicated resource, includes reserves) 2006: 18,400 tons, 0.266 opt Au (proven and probable reserves); 393,300 tons, 0.290 opt Au (measured and indicated resource, includes reserves); 152,000 tons, 0.220 opt Au (inferred resource) 2007: 393,300 tons, 0.290 opt Au (measured and indicated resource); 152,000 tons, 0.220 opt Au (inferred resource) 2011: 412,400 tons, 0.221 opt Au, 91,100 oz Au (proven and probable reserves, underground) 590,200 tons, 0.213 opt Au, 125,900 oz Au (measured and indicated resource, includes reserves) 86,000 tons, 0.215 opt Au, 18,500 oz Au (inferred resource) 2012: 495,400 tons, 0.165 opt Au, 81,700 oz Au (proven and probable reserves); 545,000 tons, 0.165 opt Au, 89,900 oz Au (measured and indicated resource, includes reserves); 61,000 tons, 0.162 opt Au, 10,000 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Pie Creek (Jerritt Canyon, Independence Mountains district)	2005-2007: 190,200 tons, 0.16 opt Au (measured and indicated resource) 28,300 tons, 0.14 opt Au (inferred resource) 2011: 205,400 tons, 0.087 opt Au, 17,900 oz Au (indicated resource, open pit); 4,900 tons, 0.09 opt Au, 400 oz Au (inferred resource) 2012: 225,000 tons, 0.086 opt Au, 19,200 oz Au (indicated resource, open pit); 5,000 tons, 0.089 opt Au, 500 oz Au (inferred resource)		Hanson Creek and Roberts Mountains Formations	
Piñon and Dark Star (South Bullion) (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: Piñon: 22,970,000 tons, 0.018 opt Au, 423,000 oz Au (indicated resource, 0.005 opt Au cut-off grade); 61,650,000 tons, 0.017 opt Au, 1,022,000 oz Au, 84,620,000 tons, 0.13 opt Ag, 9,430,000 oz Ag (inferred resource, 0.005 opt Au cut-off grade) 2015: Dark Star: 25,470,000 tons, 0.017 opt Au, 374,000 oz Au (inferred resource, 0.005 opt Au cut-off grade)		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: POD Zone: 1,500,000 tons, 0.085 opt Au drill-indicated resource			

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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 2013-2014: 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			
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) 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)		Hanson Creek and Roberts Mountains Formations	
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	2014: 2,732 oz Au	Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
	probable reserves); 369,300 tons, 0.254 opt Au (measured and indicated resource, includes reserves); 191,200 tons, 0.238 opt Au (inferred resource) 2007: 120,200 tons, 0.246 opt Au (proven and probable reserves); 379,800 tons, 0.252 opt Au (measured and indicated resource, includes reserves); 107,400 tons, 0.206 opt Au (inferred resource) 2010: 169,100 tons, 0.210 opt Au (proven and probable reserves, underground) 656,000 tons, 0.227 opt Au (measured and indicated resource, includes reserves); 201,700 tons, 0.209 opt Au (inferred resource) 2011 underground: 169,100 tons, 0.210 opt Au, 35,500 oz Au (proven and probable reserves) 333,600 tons, 0.224 opt Au, 74,800 oz Au (measured and indicated resource, includes reserves); 95,400 tons, 0.2 opt Au, 19,100 oz Au (inferred resource); open pit: 144,900 tons, 0.092 opt Au, 13,400 oz Au (proven and probable reserves) 654,300 tons, 0.074 opt Au, 48,600 oz Au (measured and indicated resource, includes reserves); 222,200 tons, 0.142 opt Au, 31,600 oz Au (inferred resource) 2012 underground: 168,000 tons, 0.207 opt Au, 34,800 oz Au (proven and probable reserves) 177,600 tons, 0.25 opt Au, 44,200 oz Au (measured and indicated resource, includes reserves); 51,000 tons, 0.238 opt Au, 12,200 oz Au (inferred resource); open pit: 83,000 tons, 0.129 opt Au, 10,800 oz Au (proven and probable reserves); 367,000 tons, 0.093 opt Au, 34,300 oz Au (measured and indicated resource, includes reserves);10,000 tons 0.083 opt Au, 800 oz Au (inferred resource)			
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)	<2013: Jerritt Canyon combined 2013: 82,309 oz Au 2014: 80,198 oz Au	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		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Smith East (cont.)	indicated resource); 125,200 tons, 0.280 opt Au (inferred resource)			
South Arturo (Bootstrap district)	2006: 21,073,000 tons, 0.060 opt Au (indicated resource); 1,310,000 tons, 0.053 opt Au (inferred resource) 2007: 29,880,000 tons, 0.070 opt Au (indicated resource); 1,020,000 tons, 0.022 opt Au (inferred resource) 2008: 36,857,000 tons, 0.045 opt Au (indicated resource); 3,253,000 tons, 0.013 opt Au (inferred resource) 2009: 43,857,000 tons, 0.051 opt Au (proven and probable reserve) 5,628,000 tons, 0.048 opt Au (indicated resource); 4,232,000 tons, 0.018 opt Au (inferred resource) 2010: 45,597,000 tons, 0.051 opt Au (proven and probable reserve) 26,735,000 tons, 0.043 opt Au (indicated resource); 11,623,000 tons, 0.018 opt Au (inferred resource) 2011: 47,062,000 tons, 0.05 opt Au 2,330,000 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) 2014: 3,143,00 tons, 0.128 opt Au, 402,358 oz Au (probable reserve); 59,552,000 tons, 0.043 opt Au, 2,542,667 oz Au (indicated resource); 10,653,839 tons, 0.020 opt Au, 210,000 oz Au, (inferred resource)		Popovich Formation Bootstrap Limestone Rodeo Creek Formation	
SSX-Steer (Jerritt Canyon, Independence Mountains district)	2005: 1,333,300 tons, 0.25 opt Au (proven and probable reserves); 2,597,500 tons, 0.28 opt Au (measured and indicated resource, includes reserves); 1,052,200 tons, 0.23 opt Au (inferred resource) 2006: 739,400 tons, 0.266 opt Au (proven and probable reserves); 2,332,500 tons, 0.266 opt Au (measured and indicated resource, includes reserves); 929,700 tons, 0.23 opt Au (inferred resource) 2007: 900,000 tons, 0.226 opt Au (proven and probable reserves); 2,561,400 tons, 0.259 opt Au (measured and indicated resource, includes reserves); 959,200 tons, 0.236 opt Au (inferred resource) 2010: 1,215,400 tons, 0.189 opt Au (proven and probable reserves, underground) 4,012,200 tons, 0.224 opt Au (measured and indicated resource, includes reserves); 479,100 tons, 0.194 opt Au (inferred resource) 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);	<2013: Jerritt Canyon combined 2013: 48,930oz Au 2014: 34,486 oz Au	Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
SSX-Steer (cont.)	3,643,000 tons, 0.199 opt Au, 724,300 oz Au (measured and indicated resource, includes reserves); 2,508,000 tons, 0.173 opt Au, 433,600 oz Au (inferred resource)			
Starvation Canyon (Jerritt Canyon, Independence Mountains district)	2005: 400,500 tons, 0.30 opt Au (probable reserves); 676,400 tons, 0.28 opt Au (measured and indicated resource, includes reserves); 51,400 tons, 0.31 opt Au (inferred resource) 2006: 369,600 tons, 0.305 opt Au (probable reserves); 636,500 tons, 0.290 opt Au (measured and indicated resource, includes reserves); 51,200 tons, 0.278 opt Au (inferred resource) 2007: 571,600 tons, 0.282 opt Au (probable reserves); 697,300 tons, 0.287 opt Au (measured and indicated resource, includes reserves) 25,500 tons, 0.252 opt Au (inferred resource) 2010: 363,000 tons, 0.264 opt Au (proven and probable reserves, underground) 502,400 tons, 0.285 opt Au (measured and indicated resource, includes reserves) 256,300 tons, 0.276 opt Au (inferred resource) 2011: 343,400 tons, 0.265 opt Au, 90,900 oz Au (proven and probable reserves, underground) 525,200 tons, 0.251 opt Au, 131,800 oz Au (measured and indicated resource, includes reserves) 244,400 tons, 0.253 opt Au, 64,600 oz Au (inferred resource) 2012: 970,000 tons, 0.178 opt Au, 172,600 oz Au (proven and probable reserves); 970,000 tons, 0.178 opt Au, 172,600 oz Au; (measured and indicated resource, includes reserves); 21,000 tons, 0.17 opt Au, 3,600 oz Au (inferred resource)	2013: 15,750 oz Au 2014: 61,913 oz Au	Hanson Creek and Roberts Mountains Formations	
Storm Mine (Rossi) (Bootstrap district)	1998: 3,100,000 tons, 0.371 opt Au (resource) 2000: 2,700,000 tons, 0.345 opt Au (resource) 2002: 1,900,000 tons, 0.335 opt Au (measured and indicated resource); 1,000,000 tons, 0.0335 opt Au (inferred resource) 2005 and 2006: 500,000 tons, 0.449 opt Au (measured and indicated resource) 800,000 tons, 0.376 opt Au, (inferred resource)	2008: 52,000 oz Au 2009: 64,558 oz Au, 50,069 oz Ag 2010: 74,429 oz Au, 63,309 oz Ag 2011: 86,508 oz Au, 73,588 oz Ag 2012: 33,802 oz Au, 18,875 oz Ag 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,		Hanson Creek and Roberts Mountains Formations	

MAJOR PRECIOUS-METAL DEPOSITS, ELKO COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
West Mahala (cont.)	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			
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) 2011: 90,300 tons, 0.162 opt Au, 14,600 oz Au (indicated resource, underground); 9,200 tons, 0.186 opt Au, 1,700 oz Au (inferred resource) 2012: 117,000 tons, 0.112 opt Au, 13,100 oz Au (indicated resource); 10,000 tons, 0.145 opt Au, 1,500 oz Au (inferred resource)		lower Paleozoic carbonate rocks	Eocene
Wright Window (Jerritt Canyon, Independence Mountains district)	1986: 1,300,000 tons, 0.095 opt Au 2005-2007: 32,600 tons, 0.226 opt Au, (probable reserves); 97,800 tons, 0.16 opt Au, (measured and indicated resource, includes reserves); 19,000 tons, 0.23 opt Au (inferred resource) 2010: 84,500 tons, 0.127 opt Au (probable reserve, open pit); 97,800 tons, 0.156 opt Au (measured and indicated resource, includes reserves); 19,000 tons, 0.229 opt Au (inferred resource) 2011: 112,900 tons, 0.096 opt Au, 10,900 oz Au (proven and probable reserves, open pit); 125,800 tons, 0.094 opt Au, 11,800 oz Au (measured and indicated resource, includes reserves) 4,800 tons, 0.093 opt Au, 400 oz Au (inferred resource) 2012: 114,000 tons, 0.096 opt Au, 11,000 oz Au (proven and probable reserves, open pit); 120,000 tons, 0.094 opt Au, 11,200 oz Au (measured and indicated resource, includes reserves) 5,000 tons, 0.089 opt Au, 500 oz Au (inferred resource)	1992: 3,500 oz Au	lower Paleozoic carbonate rocks	Eocene

ESMERALDA COUNTY

Boss (Gilbert district)	1987: 500,000 tons, 0.07 opt Au 1990: *reserves*-637,500 tons, 0.023 opt Au *geologic resource*-31,000 oz Au 1996: see Castle		Ordovician sedimentary rocks	Miocene?
Castle Black Rock (includes Castle and Boss) (Gilbert district)	1996: 3.7 million tons, 0.03 opt Au 1997: 10 million tons, 0.03 opt Au resource 2000: 215,000 oz Au indicated resource and 93,000 oz Au inferred resource 2012: Castle Zone: 16,185,000 tons, 0.013 opt Au (inferred resource, 0.007 opt Au cut-off grade)		Ordovician Palmetto Formation	
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		Sandstorm Rhyolite	21 Ma?

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gemfield (cont.)	Au, 74,000 oz Au, 0.059 opt Ag, 272,000 oz Ag (inferred resource, 0.009 opt Au cut-off grade) 2013: 19,702,000 tons, 0.0298 opt Au, 567,000 oz Au; (proven and probable reserves); 27,070,000 tons, 0.025 opt Au, 681,000 oz (measured and indicated resource, 0.007 opt Au cut-off grade); 1,190,000 tons, 0.015 opt Au, 18,000 oz Au (inferred resource, 0.007 opt Au cut-off grade)			
Goldfield Project (Goldfield district) **Goldfield Project (cont.)**	1983: 1,750,00 tons, 0.087 opt Au 1994: 3,480,000 tons, 0.071 opt Au 2003: 23,410,200 tons, 0.031 opt Au (measured and indicated resource); 10,239,100 tons 0.024 opt Au inferred resource (includes Goldfield Main, McMahon Ridge, and Gemfield) 2006: 16,856,000 tons, 0.034 opt Au (measured, indicated, and inferred resource, includes McMahon Ridge and Gemfield) 2013: 42,615,000 tons, 0.032 opt Au 1,340,000 oz Au (measured and indicated resource); 8,756,000 tons, 0.044 opt Au, 382,000 oz Au (inferred resource) (includes Goldfield Main, McMahon Ridge, and Gemfield)	1903-45: 4.19 million oz Au, 1.45 million oz Ag 1989-97: 28,373 oz Au	andesite, rhyodacite, rhyolite	21 Ma
Goldfield Main (Goldfield district)	2004: 6,651,000 tons, 0.036 opt Au measured and indicated resource; 2,129,000 tons, 0.038 opt Au inferred resource 2010 (Goldfield Main, 0.012 opt cut-off grade) 9,424,000 tons, 0.044 opt Au (indicated resource) 7,267,000 tons, 0.050 opt Au (inferred resource) 2011: 9,425,000 tons, 0.045 opt Au, 421,000 oz Au, (indicated resource, 0.009 opt Au cut-off grade); 7,264,000 tons, 0.05 opt Au, 360,000 oz Au (inferred resource, 0.009 opt Au cut-off grade)			
Goldfield West (Goldfield district)	2011: 5,042,444 tons, 0.015 opt Au, 76,080 oz Au, 0.12 opt Ag, 589,078 oz Ag (inferred resource. 0.009 opt Au cut-off grade)		rhyolite tuff	
Hasbrouck (Divide district)	1982: 5,000,000 tons 0.06 opt Au, 1.5 opt Ag 1986: 12,900,000 tons, 0.0291 opt Au, 0.59 opt Ag 1998: 7,700,000 tons, 0.036 opt Au, 0.7 opt Ag 2003: 26,036,00 tons, 0.023 opt Au (indicated resource); 8,200,000 tons, 0.021 opt Au (inferred resource) 2011: 128,608,197 tons, 0.009 opt Au, 0.228 Ag, 1,157,474 oz Au, 29,322,699 oz Ag (inferred resource, 0.005 opt Au cut-off grade) 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) 2015: 35,617,000 tons, 0.017 opt Au, 588,000 oz Au, 0.297 opt Ag, 10,569,000 oz Ag (proven and probable; Upper Siebert 0.008 opt Au, Lower Siebert 0.007 opt Au Cut-off grades); 54,185,000 tons, 0.014 opt Au, 738,000 oz Au, 0.26 opt Ag, 14,096,000 oz Ag (measured and indicated resource, 0.006 opt AuEq cut-off grade); 11,772,000 tons, 0.009 opt Au, 104,000 oz Au, 0.191 opt Ag, 2,249,000 oz Ag (inferred resource, 0.006 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

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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 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; NI43-101 compliant]	1991: 25,000 oz Au, 8,000 oz Ag See Mineral Ridge	Wyman Formation	Mesozoic?
McMahon Ridge (Goldfield district)	2004: 8,200,000 tons, 0.035 opt Au (measured and indicated resource); 171,000 tons, 0.019 opt Au (inferred resource) 2006: 4,138,000 tons, 0.042 opt Au (measured and indicated resource); 172,000 tons, 0.038 opt Au (inferred resource) 2011: 6,074,000 tons, 0.039 opt Au, 238,000 oz Au (indicated resource, 0.009 opt Au cut-off grade) 121,000 tons, oz, 0.032 opt Au, 4,000 oz Au (inferred resource, 0.009 opt Au cut-off grade)			
Mineral Ridge (Silver Peak district)	1995: 5,200,000 tons, 0.068 opt Au (proven and probable reserves, includes Mary-Drinkwater) 1998: 4,000,000 tons, 0.06 opt Au; 241,000 oz Au 2000: 2,840,000 tons, 0.074 opt Au (minable reserves) 2002: 2,660,000 tons, 0.079 opt Au (total Reserves) 2003: 8,300,000 tons, 0.061 opt Au resource (includes 2,660,000 tons, 0.079 opt Au reserves) 2010 (May): 4,697,000 tons, 0.047 opt Au (measured and indicated resource, Drinkwater and Mary deposits); 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 (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 2014: 40,814 oz Au, 18,182 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

MAJOR PRECIOUS-METAL DEPOSITS, ESMERALDA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 2015: 9,653,000 tons, 0.018 opt Au, 176,000 oz Au (probable; 0.005 opt Au cut-off grade); 10,897,000 tons, 0.017 opt Au, 189,000 oz Au (indicated resource, 0.005 opt AuEq cut-off grade); 2,568,000 tons, 0.013 opt Au, 32,000 oz Au (inferred resource, 0.005 opt AuEq cut-off grade)		Miocene Siebert Formation and Oddie Rhyolite	
Tip Top (Fish Lake Valley district)	1997: 109,000 tons, 0.103 opt Au, 0.88 opt Ag (indicated resource) 1998: 168,000 tons, 0.088 opt Au (inferred geologic resource) 2009: 388,920 tons, 0.096 opt Au (indicated resource) 323,230 tons, 0.072 opt Au (inferred resource)		Tertiary quartz latite	
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	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,	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.)	(mineral resource) 2001: 108,900,000 tons, 0.151 opt Au (proven and probable); 49,900,000 tons, 0.069 opt Au (mineral resource) 2002: 107,100,000 tons, 0.150 opt Au (proven and probable reserves); 47.6 million tons, 0.070 opt Au (mineral resource) 2003: 61,551,000 tons, 0.128 opt Au (proven Reserves); 48,191,000 tons, 0.162 opt Au (probable reserves); 14,077,000 tons, 0.059 opt Au (measured resource); 23,326,000 tons, 0.061 opt Au (indicated resource); 323,000 tons, 0.065 opt Au (inferred resource) 2004: 123,334,000 tons, 0.131 opt Au (proven and probable reserves); 22,318,000 tons, 0.050 opt Au (mineral resource) 2005: 114,512,000 tons, 0.128 opt Au (proven and probable reserves); 21,115,000 tons, 0.050 opt Au (measured and indicated resource); 417,000 tons, 0.089 opt Au (inferred resource) 2006: 105,206,000 tons, 0.125 opt Au (proven and probable reserves); 20,184,000 tons, 0.050 opt Au (measured and indicated resource); 489,000 tons, 0.078 opt Au (inferred resource) 2007: 94,914,000 tons, 0.128 opt Au (proven and probable reserves); 34,532,000 tons, 0.052 opt Au (measured and indicated resource); 5,014,000 tons, 0.064 opt Au (inferred resource) 2008: 86,254,000 tons, 0.119 opt Au (proven and probable reserves); 15,751,000 tons, 0.055 opt Au (measured and indicated resource); 479,000 tons, 0.092 opt Au (inferred resource) 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) 2014 (includes all open pit resources at Goldstrike): 81,783,000, 0.095 opt Au, 7,724,000 oz Au (proven and probable reserves); 4,956,000 tons, 0.055 opt Au, 274,000 oz Au (measured and indicated resource); 517,000 tons, 0.077 opt Au, 40,000 oz Au (inferred resource)	372,403 oz Ag 1999: 1,130,094 oz Au, 65,804 oz Ag 2000: 1,646,640 oz Au, 52,000 oz Ag 2001: 1,549,975 oz Au, 261,261 oz Ag 2002: 1,409,984 oz Au, 135,716 oz Ag 2003: 1,559,401 oz Au, 115,473 oz Ag 2004: 1,381,315 oz Au, 130,609 oz Ag 2005: 1,514,320 oz Au, 114,248 oz Ag 2006: 1,432,698 oz Au, 121,032 oz Ag 2007: 1,215,447 oz Au, 140,923 oz Ag 2008: 1,281,450 oz Au, 152,886 oz Ag 2009: 901,002 oz Au 120,736 oz Ag 2010: 884,200 oz Au 138,931 oz Ag 2011: 721,534 oz Au 94,572 oz Ag 2012: 812,707 oz Au 102,700 oz Ag 2013: 521,489 oz Au 86,124 oz Ag 2014: 515,641 oz Au 17,993 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

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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
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	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 **(Newmont)**
West Leeville	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 **(Newmont-Barrick)**

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Carlin North, Newmont (Lynn district) cont.				
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			
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)	2004-2014: 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.)	2004: 201,600,000 tons, 0.047 opt Au (proven and probable reserves); 13,200,000 tons, 0.022 opt Au (indicated material); 7,700,000 tons, 0.034 opt Au (inferred material) 2005: 238,300,000 tons, 0.043 opt Au (proven and probable reserves); 28,100,000 tons, 0.04 opt Au (measured and indicated resource); 4,200,000 tons, 0.024 opt Au (inferred resource) 2006: 271,600,000 tons, 0.042 opt Au (proven and probable reserves); 35,100,000 tons, 0.035 opt Au (measured and indicated resource); 6,300,000 tons, 0.022 opt Au (inferred resource) 2007: 213,500,000 tons, 0.045 opt Au (proven and probable reserves); 14,600,000 tons, 0.020 opt Au (measured and indicated resource); 3,700,000 tons, 0.037 opt Au (inferred resource) 2008: 202,400,000 tons, 0.045 opt Au (proven and probable reserves); 88,400,000 tons, 0.040 opt Au (measured and indicated resource); 21,100,000 tons, 0.023 opt Au (inferred resource) 2009: 259,300,000 tons, 0.044 opt Au (proven and probable reserves); 28,800,000 tons, 0.021 opt Au (measured and indicated resource); 10,400,000 tons, 0.034 opt Au (inferred resource) 2010: 263,500,000 tons, 0.043 opt Au (proven and probable reserve, 75% recovery); 91,800,000 tons, 0.020 opt Au (measured and indicated resource) 22,100,000 tons, 0.034 opt Au (inferred resource) 2011: 331,700,000 tons, 0.038 opt Au (proven and probable reserve, 77% recovery); 112,600,000 tons, 0.026 opt Au (measured and indicated resource) 15,300,000 tons, 0.02 opt Au (inferred resource) 2012: 313,200,000 tons, 0.037 opt Au, 11,650,000 oz Au (proven and probable reserve, 74% recovery); 88,900,000 tons, 0.027 opt Au, 2,370,000 oz Au (measured and indicated resource); 18,900,000 tons, 0.018 opt Au, 350,000 oz Au (inferred resource) 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) 2014: 244,300,000 tons, 0.037 opt Au, 9,090,000 oz Au (proven and probable reserve, 78% recovery); 81,900,000 tons, 0.027 opt Au (mineralized material)			
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)	2004-2014: 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.)	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) 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) 2014: 23,300,000 tons, 0.258 opt Au, 6,030,000 oz Au (proven and probable reserve, 84% recovery); 2,900,000 tons, 0.235 opt Au (mineralized material)			
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	reported with Gold Bar	Devonian McColley Canyon Formation	Eocene?

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Gold Ridge (cont.)	25,016 oz Au (inferred resource, 0.009 opt Au cut-off grade)			
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)			
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) 2014: 75,092,000 tons, 0.141 opt Au, 10,574,000 oz Au (measured and indicated resource); 30,776,500 tons, 0.158 opt Au, 4,868,000 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 oxidize 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,	included with Meikle production, Elko County		Eocene

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
	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			
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	
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) 2014: 1,726,000 tons, 0.014 opt Au, 24,000 oz Au (proven and probable reserves); 207,615,000 tons, 0.02 opt Au 3,923,000 oz Au (measured and indicated resource); 24,942,000 tons, 0.04 opt Au 1,010,000 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 2014: 33,124 oz Au, 65,020 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)	1987-88: 10,265 oz Au 1989-90: 3,821 oz Au, 1,872 oz Ag	Vinini Formation	Eocene?

MAJOR PRECIOUS-METAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
	2008 (May): 35,584,000 tons, 0.041 opt Au (measured and indicated resource) 9,290,000 tons, 0.033 opt Au, (inferred resource)			
Mineral Ridge (Eureka district)	1988: 3,000,000 tons, 0.03 opt Au 1995: mined out	1908-16: 24,000 oz Au 1975-84: 90,000 oz Au 1988: 6,380 oz Au, 59 oz Ag	Hamburg Dolomite	Eocene or Oligocene

HUMBOLDT COUNTY

Adelaide Crown (Gold Run district)	1989: south pit-585,000 tons, 1.313 opt Ag, 0.043 opt Au; additional area: 165,000 tons, 0.015 opt Au, 1.10 opt Ag	1990-91: 4,917 oz Au, 53,474 oz Ag	Preble Formation	Tertiary
Ashdown (Vicksburg district)	1987: 1,160,000 tons, 0.125 opt Au 1992: 1,100,000 tons, 0.12 opt Au 2002: 100,000 oz Au		Mesozoic granite	Mesozoic
Buckskin (National district)	1997: 50,221 oz Au, 466,243 oz Ag estimated resource		Miocene rhyolite flows and flow breccias	16 Ma
Chimney Creek (Potosi district)	1988: proven, probable-26,900,000 tons, 0.068 opt Au; inferred in south pit-2,100,000 oz Au 1993: *see* Twin Creeks	1987-88: 300,000 oz Au 1989: 222,556 oz Au, 55,953 oz Ag 1990: 220,000 oz Au 1991-92: 476,034 oz Au, 213,463 oz Ag 1993: *see* Twin Creeks	upper Paleozoic sedimentary rocks	
Converse/Redline (Buffalo Valley district)	2003: 77,459,000 tons, 0.020 opt Au (measured and indicated resource) 2004: 263,000,000 tons, 0.0150 opt Au, 0.0582 opt Ag (measured and indicated resource) 35,000,000 tons, 0.0143 opt Au, 0.0524 opt Ag 2011: 352,990,000 tons, 0.015 opt Au, 0.108 opt Ag, containing 5,170,000 oz Au, 37,950,000 oz Ag (measured and indicated resource, 0.008 opt cut-off grade); 34,440,000 tons, 0.015 opt Au, 0.087 opt Ag, containing 510,000 oz Au, 3,010,000 oz Ag (inferred resource, 0.008 opt cut-off grade) 2014: 400,000,000 tons, 0.017 opt Au, 6,120,000 oz Au; 0.11 opt Ag, 38,100,000 oz Ag (measured and indicated resource, 0.009 opt cut-off grade); 40,800,000 tons, 0.017 opt Au, 600,000 oz Au; 0.099 opt Ag, 3,500,000 oz Ag (inferred resource, 0.009 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	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	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.)	tons, 0.54 opt (inferred resource) 2006: Turquoise Ridge Mine (included Turquoise Ridge and Getchell Footwall deposits) 8,436,000 tons, 0.544 opt Au (proven and probable reserves); 4,801,000 tons, 0.432 opt Au (measured and indicated resource); 1,961,000 tons, 0.493 opt (inferred resource) 2007: Turquoise Ridge Mine (included Turquoise Ridge and Getchell Footwall deposits) 11,239,000 tons, 0.458 opt Au (proven and probable reserves); 3,291,000 tons, 0.409 opt Au (measured and indicated resource); 2,000,000 tons, 0.444 opt (inferred resource) 2008: Turquoise Ridge Mine 10,614,000 tons, 0.501 opt Au (proven and probable reserves); 3,289,000 tons, 0.435 opt Au (measured and indicated resource); 4,440,000 tons, 0.505 opt (inferred resource) 2009: Turquoise Ridge Mine 10,680,000 tons, 0.507 opt Au (proven and probable reserves); 2,307,000 tons, 0.431 opt Au (measured and indicated resource); 5,033,000 tons, 0.456 opt (inferred resource) 2010 Turquoise Ridge Mine: 12,339,000 tons, 0.456 opt Au (proven and probable reserve, 92% recovery); 85,625,000 tons, 0.131 opt Au (measured and indicated resource); 43,427,000 tons, 0.160 opt Au (inferred resource) 2011 Turquoise Ridge Mine: 15,981,000 tons, 0.442 opt Au, 7,054,000 oz Au, (proven and probable reserve, 92% recovery); 83,192,000 tons, 0.122 opt Au, 10,188,000 oz Au (measured and indicated resource); 33,992,000 tons, 0.13 opt Au, 4,404,000 oz Au (inferred resource) 2012 Turquoise Ridge Mine: 20,358,000 tons, 0.381 opt Au, 7,755,000 oz Au, (proven and probable reserve, 92% recovery); 80,690,000 tons, 0.123 opt Au, 9,912,000 oz Au (measured and indicated resource); 39,014,000 tons, 0.131 opt Au, 5,089,000 oz Au (inferred resource) 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) 2014 Turquoise Ridge Mine: 12,050,000 tons, 0.49 opt Au, 5,944,000 oz Au, (proven and probable reserve, 92% recovery); 119,352,000 tons, 0.135 opt Au, 16,148,000 oz Au (measured and indicated resource); 43,171,000 tons, 0.16 opt Au, 6,931,000 oz Au (inferred resource)	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 2014: 259,345 oz Au		
Hycroft (formerly Crofoot/Lewis) (Sulphur district)	1988: 25,000,000 tons, 0.025 opt Au 1999: 23,800,000 tons, 0.0204 opt Au (proven and probable reserves); 2,300,000 tons, 0.0177 opt Au (indicated reserves) 2000: 41,900,000 tons, 0.0196 opt Au (measured and indicated resource); 14,100,000 tons, 0.0152 opt Au (inferred resource) 2004: 47,479,000 tons, 0.016 opt Au (measured and indicated); 12,029,000 tons, 0.011 opt Au (inferred resource) 2005: 33,320,000 tons, 0.02 opt Au (proven and probable reserves); 52,700,000 tons 0.019 opt Au (measured and indicated resource); 8.700,000 tons, 0.015 opt Au (inferred resource) 2007: 33,320,000 tons, 0.020 opt Au (proven and probable reserves, January 2008); 19,780,000 tons, 0.018 opt Au (measured and indicated resource, January 2008); 283,392,000 tons, 0.019 opt Au (inferred resource, May 2008) 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);	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,	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.)	180,200,000 tons, 0.012 opt Au (oxide inferred resource, 0.005 opt Au cut-off grade) 199,400,000 tons, 0.20 opt Au (sulfide inferred resource, 0.013 opt Au cut-off grade) 2010: 177,228,000 tons, 0.014 opt Au, 0.18 opt Ag (proven and probable oxide reserves); 366,991,000 tons, 0.013 opt Au, 0.22 opt Ag (measured and indicated oxide resource) 143,927,000 tons, 0.018 opt Au, 0.72 opt Ag (measured and indicated sulfide resource); 95,510,000 tons, 0.011 opt Au, 0.33 opt Ag (inferred oxide resource); 148,804,000 tons, 0.017 opt Au, 0.85 opt Ag (inferred sulfide resource) 2010 (year-end): 196,000,000 tons, 0.013 opt Au, 0.25 opt Ag (proven and probable oxide heap leach reserves); 720,000,000 tons, 0.007 opt Au, 0.15 opt Ag (measured and indicated oxide and transitional heap leach resource); 620,000,000 tons, 0.014 opt Au, 0.71 opt Ag (measured and indicated oxide, transitional and sulfide mill resource); 181,000,000 tons, 0.015 opt Au, 0.56 opt Ag (inferred oxide, transitional and sulfide resource) 2011: 1,134,669,000 tons, 0.011 opt Au, 12,651,000 oz Au, 0.42 opt Ag, 481,881,000 oz Ag (proven and probable reserves, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 939,619,000 tons, 0.009 opt Au, 8,170,000 oz Au, 0.25 opt Ag, 236,851,000 oz Ag (measured and indicated resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 534,938,000 tons, 0.01 opt Au, 0.253 opt Ag (inferred resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade) 2012: 1,108,078,000 tons, 0.011 opt Au, 11,875,000 oz Au, 0.46 opt Ag, 509,559,000 oz Ag (proven and probable reserves, 0.005 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade); 1,596,780,000 tons, 0.008 opt Au, 12,429,000 oz Au, 0.23 opt Ag, 360,148,000 oz Ag (measured and indicated resource, 0.004 opt Au heap leach cut-off grade, 0.009 opt Au mill cut-off grade); 628,251,000 tons, 0.01 opt Au, 0.26 opt Ag (inferred resource, 0.004 opt Au heap leach cut-off grade, 0.01 opt Au mill cut-off grade) 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) 2014: 949,201,000 tons, 0.011 opt Au, 10,550,000 oz Au, 0.49 opt Ag, 465,275,000 oz Ag (proven and probable reserves); 1,357,064,000 tons, 0.008 opt Au, 11,057,000 oz Au, 0.24 opt Ag, 324,251,000 oz Ag (measured and indicated resource); 620,059,000 tons, 0.01 opt Au, 0.26 opt Ag (inferred resource) [NI43-101 compliant]	696,114 oz Ag 2013: 181,941 oz Au 858,073 oz Ag 2014: 214,345 oz Au 1,818,637 oz Ag		
Lone Tree (Buffalo Mountain district)	1990: 5,400,000 tons oxide mill ore, 0.159 opt Au, 5.700,000 tons heap-leach ore, 0.025 opt Au and 1.200,000 oz Au in sulfide ore 1994: 4,000,000 oz Au 2000: 40,800,000 tons, 0.060 opt Au proven and probable reserves (Lone Tree Complex) 2001: 29,200,000 tons, 0.065 opt Au (proven and probable reserves); 7,900,000 tons, 0.032 opt Au (mineralized material) 2002: 21,000,000 tons, 0.069 opt Au (proven and probable reserves); 2,000,000 tons, 0.057 opt Au (measured and indicated mineralized material); 1,000,000 tons, 0.047 opt Au inferred mineralized material 2003: 3,300,000 tons, 0.092 opt Au (proven reserves); 13,000,000 tons, 0.084 opt Au	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,	Havallah Formation, Antler sequence, and dacite porphyry	38 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Lone Tree (cont.) (Buffalo Mountain district)	(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)	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		
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) 2014: 2,300,000 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 2014: 21,702 oz Au 920 oz Ag		
Marigold (Battle Mountain district)	1987: 8,000,000 tons, 0.0935 opt Au 1990: 4,300,000 tons, 0.105 opt Au mill ore, 7,600,000 tons, 0.026 opt Au heap-leach ore 1999: 19,090,000 tons, 0.032 opt Au 2000: 30,200,000 tons, 0.035 opt Au (proven and probable reserves); 20,700,000 tons, 0.029 opt Au measured and (indicated resource) 2001: 75,500,000 tons, 0.027 opt Au (proven and probable reserves); 109,900,000 tons, 0.014 opt Au (measured and indicated resource) 2002: 79,100,000 tons, 0.026 opt Au (proven and probable reserves); 129,700,000 tons, 0.014 opt Au (mineral resource) 2003: 9,366,000 tons, 0.031 opt Au (proven Reserves); 83,909,000 tons, 0.023 opt Au (probable reserves); 19,937,000 tons, 0.020 opt Au (measured reserves); 20,069,000 tons, 0.020 opt Au (indicated resource); 177,450,000 tons, 0.014 opt Au (inferred resource) 2004: 71,218,500 tons, 0.023 opt Au (proven and probable reserves); 18,043,500 tons, 0.022 opt Au (measured and indicated resource); 21,000,000 tons, 0.014 opt Au (inferred resource) 2005: 98,210,000 tons, 0.021 opt Au (proven and probable reserves); 157,480,000 tons, 0.020 opt Au (measured and indicated resource, includes reserves); 163,230,000 tons, 0.013 opt Au (inferred resource) 2006: 102,870,000 tons, 0.021 opt Au (proven and probable reserves); 94,587,000 tons, 0.018 opt Au (measured and indicated resource); 88,212,000 tons, 0.011 opt Au (inferred resource) 2007: 84,660,000 tons, 0.020 opt Au (proven and probable reserves); 46,410,000 tons, 0.020 opt Au (measured and indicated resource); 122,530,000 tons, 0.013 opt Au (inferred resource) 2008: 69,600,000 tons, 0.020 opt Au (proven and probable reserves); 42,660,000 tons, 0.016 opt Au (measured and indicated resource); 44,810,000 tons, 0.013 opt Au (inferred resource) 2009: 150,000,000 tons, 0.016 opt Au (proven and probable reserves) 42,190,000 tons, 0.015 opt Au (indicated resource); 75,000,000 tons, 0.015 opt Au (inferred resource) 2010: 143,529,000 tons, 0.016 opt Au (proven and probable reserves); 80,526,000 tons, 0.014 opt Au (indicated resource); 46,638,000 tons, 0.014 opt Au (inferred resource) 2011: 226,889,000 tons, 0.015 opt Au (proven and probable reserves); 32,935,000 tons, 0.012 opt Au (measured and indicated resource); 11,037,000 tons, 0.013 opt Au (inferred resource)	1989-93: 322,219 oz Au, 9,784 oz Ag 1994-98: 363,771 oz Au 1999: 74,000 oz Au 2000: 68,000 oz Au 2001: 84,784 oz Au, 401 oz Ag 2002: 83,321 oz Au, 1,281 oz Ag 2003: 142,100 oz Au, 2,080 oz Ag 2004: 141,304 oz Au, 2,354 oz Ag 2005: 205,663 oz Au, 1,723 oz Ag 2006: 149,805 oz Au, 1,986 oz Ag 2007: 140,840 oz Au, 2,233 oz Ag 2008: 144,106 oz Au, 5,037 oz Ag 2009: 146,842 oz Au, 4,239 oz Ag 2010: 136,754 oz Au, 3,729 oz Ag 2011: 153,741 oz Au, 4,162 oz Ag 2012: 144,382 oz Au, 2,729 oz Ag 2013: 161,062 oz Au 3,394 oz Ag 2014: 162,382 oz Au 3,085 oz Ag	Paleozoic chert, argillite, and carbonate rocks	

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Marigold (cont.)	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) 2014: 143,970,000 tons, 0.017 opt Au 2,120,000 oz Au (probable reserves, 0.0022 opt Au cut-off grade); 268,630,000 tons, 0.017 opt Au, 4,000,000 oz Au (indicated resource, 0.0022 opt Au cut-off grade); 14,770,000 tons, 0.016 opt Au, 200,000 oz Au (inferred resource, 0.0022 opt Au cut-off grade)			
Pinson (Potosi district)	1980: 3,245,000 tons, 0.119 opt Au 1989: 480,000 oz Au 1996: 2,600,000 tons, 0.072 opt Au 2005: 1,692,000 tons, 0.421 opt Au (measured and indicated resource) 3,097,000 tons, 0.34 opt Au (inferred resource) 2006: (includes Range Front, Ogee and CX-West zones) 2,505,000 tons, 0.454 opt Au (measured and indicated resource) 3,374,500 tons, 0.340 opt Au (inferred resource) 2012: 1,738,738 tons, 0.369 opt Au, 642,236 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) 2014: Underground: 389,000 tons, 0.402 opt Au, 156,000 Au (proven and probable reserves, sulfide cut-off grade, 0.22 opt Au, oxide cut-off grade, 0.10 opt Au); 798,000 tons, 0.43 opt Au, 343,000 oz Au (measured and indicated resource, sulfide cut-off grade, 0.22 opt Au, oxide cut-off grade, 0.10 opt Au); 1,672,000 tons 0.419 opt Au, 700,000 oz Au (inferred resource, sulfide cut-off grade, 0.22 opt Au, oxide cut-off grade, 0.10 opt Au) Mag Pit: 7,170,000 tons, 0.0451 opt Au, 322,644 oz Au (proven and probable reserves, cut-off grade, 0.006 opt Au heap leach recoverable); 25,466,000 tons. 0.039 opt Au, 982,000 oz Au (measured and indicated resource, cut-off grade, 0.01 opt Au); 824,000 tons. 0.034 opt Au, 25,000 oz Au (measured and indicated resource, cut-off grade, 0.01 opt Au)	1980: 56,000 oz Au 1986-88: 189,864 oz Au 1989: 72,489 oz Au (includes Preble) 1990-91: 112,022 oz Au 1992-94: 145,210 oz Au, 12,700 oz Ag 1995: 44,854 oz Au 1996-98: 128,935 oz Au, 7,990 oz Ag 1999: 11,975 oz Au, 442 oz Ag 2000: 1,116 oz Au, 31 oz Ag 2001: 679 oz Au 2012: 1,378 oz Au 2013: 5,183 oz Au 2014: 3,780 oz Au	Comus Formation	Eocene?
Preble (Potosi district)	1985: 1,800,000 tons, 0.062 opt Au 1986: 3,160,000 tons, 0.093 opt Au heap leach, 80,000 tons, 0.242 opt Au mill grade 1989: 15,110 oz Au	1985: 17,000 oz Au 1987: 28,000 oz Au 1988: 18,828 oz Au 1989: included with Pinson 1990: 1,161 oz Au	Preble Formation	Eocene?

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 2014: 1,300,000 tons, 0.036 opt Au, 0.2 opt Ag (mineralized material)			
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) 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)	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
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	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,	Paleozoic	41-43 Ma

MAJOR PRECIOUS-METAL DEPOSITS, HUMBOLDT COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Twin Creeks (cont.)	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 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) 2014: 33,600,000 tons, 0.06 opt Au, 2,150,000 oz Au (proven and probable reserve, 74% recovery); 38,500,000 tons, 0.059 opt Au (mineralized material)	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 2014: 385,169 oz Au, 252,836 oz Ag		
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

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 2014: 22,100,000 tons, 0.019 opt Au (mineralized material)	1988-90: 39,668 oz Au		Eocene?
Copper Basin (Battle Mountain district)	1996: 638,000 oz Au, 1,228,000 oz Ag, 164,000,000 lbs Cu (estimated endowment) 2012: 1,200,000 oz Au, 2,300,000 oz Ag, 164,000,000 lbs Cu (resource)	1870-1987: Intermittent N/A		
Cortez Joint Venture (Bullion district) CJV includes original Cortez Mine, Pipeline, South Pipeline, Gold Acres (2007 and on includes Cortez Hills)	1968: 3,600,000 tons, 0.279 opt Au (Cortez deposit) 1987: 4,800,000 tons, 0.105 opt Au 1999: 189,400,000 tons, 0.050 opt Au (proven and probable); 119,100,000 tons, 0.035 opt Au mineralized material 2000: 151,300,000 tons, 0.047 opt Au (proven and probable); 60,000,000 tons, 0.047 opt Au (mineralized material) 2001: 191,100,000 tons, 0.044 opt Au (proven and probable); 76,600,000 tons, 0.040 opt Au (resource) 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	1942-84: 2.400,000 tons, 0.13 opt Au; 2,000,000 tons, 0.041opt Au leached. Little Gold Acres: 800,000 tons, 0.124 opt Au 1988: 42,322 oz Au (includes Horse Canyon) 1989: 39,993 oz Au,12,234 oz Ag (includes Horse Canyon) 1990-91: 107,445 oz Au, 16,750 oz Ag 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 2014 (open pit, includes Pipeline): 506,274 oz Au, 17,739 oz Ag	Roberts Mountains Formation, Wenban Limestone, Valmy Formation, quartz porphyry dikes	

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Cortez Joint Venture (cont.)	(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) 2014: 169,559,000 tons, 0.058 opt Au 9,851,000 oz Au (proven and probable reserves); 42,907,000 tons, 0.082 opt Au, 3,513,000 oz Au (measured and indicated resource); 26,048,000 tons, 0.044 opt Au, 1,156,000 oz Au (inferred resource)			
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)	2010-2014: 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,			

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Crescent Pit (cont.)	2.200,000 tons heap-leach, 0.029 opt Au 1997: included in Cortez Joint Venture			
Crescent Valley (Bullion district)	1994: placer reserves-8,000,000 cu yd, 0.031 oz Au/cu yd 1995: placer resource-6,000,000 cu yd, 0.03 oz Au/cu yd			
Crossroads (Bullion district)	2010: 125,842,000 tons, 0.027 opt Au (proven and probable reserve) 2011:129,391,000 tons, 0.03 opt Au, 3,937,000 oz Au (proven and probable reserve, 0.004-0.075 opt Au cut-off grade); 23,895,000 tons, 0.015 opt Au, 370,000 oz Au (measured and indicated resource); 7,273,000 tons, 0.015 opt gold, 112,000 oz Au (inferred resource)			
Dean (Lewis district)	1995: proven reserves-11,000 oz Au possible to probable resource-240,000 oz Au			
Elder Creek Project/Shoshone (Lewis district)	1989: 91,500 oz Au 1990: 1,500,000 tons, 0.041 opt Au	1990-91: 20,102 oz Au	Valmy Formation	Cretaceous or Eocene
Fire Creek (northeast of Bullion district)	1982: 350,000 tons, 0.06 opt Au 2005 (May): 1,779,196 tons, 0.328 opt Au (indicated resource) 2006: 1,961,195 tons, 0.576 opt Au (indicated resource) 2008 (April): 2,654,650 tons, 0.479 opt Au (indicated resource, 0.233 opt Au cut-off grade); 1,184,202 tons, 0.396 opt Au (inferred resource, 0.233 opt Au cut-off grade) 2011: 2,364,745 tons, 0.513 opt Au, 1,215,019 oz Au (indicated resource, 0.204 opt Au cut-off grade); 611,824 tons, 0.366 opt Au, 223,794 oz Au (inferred resource, 0.204 opt Au cut-off grade) 2011: 5,705,560 tons, 0.289 opt Au, 1,647,052 oz Au (indicated resource, 0.117 opt Au cut-off grade); 1,910,008 tons, 0.240 opt Au, 458,084 oz Au (inferred resource, 0.117 opt Au cut-off grade) 2014 (Joyce, Karen, Vonnie Veins): 158,800 tons, 1.285 opt Au, 138,700 oz Au; 0.927 opt Ag, 172,200 oz Ag (proven and probable reserve, 0.494 opt Au cut-off grade); (Far North, Main, North, South West West Zones): 377,400 tons, 1.1 opt Au, 415,500 oz Au; 0.86 opt Ag, 324,200 oz Ag (measured and indicated resource, 0.256 opt Au cut-off grade); 840,000 tons, 0.43 opt gold, 358,300 oz Au; 0.38 opt Ag, 320,800 oz Ag (inferred resource, 0.256 opt Au cut-off grade)	1983-84: 767 oz Au 2012: 191 oz Au, 286 oz Ag	basaltic andesite	Miocene
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			

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Independence (cont.)	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 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)	1986: 50,000 oz Au 1987-98: 3,046,660 oz Au, 85,790,000 oz Ag 1999: 124,500 oz Au, 8,430,000 oz Ag 2000: 162,784 oz Au, 12,328,297 oz Ag 2001: 94,633 oz Au 6,451,425 oz Ag 2002: 33,142 oz Au, 1,987,421 oz Ag 2003: 4,699 oz Au, 706 oz Ag 2004: 8,454 oz Au, 64,335 oz Ag 2005: 2,740 oz Au, 776 oz Ag 2006: 2,939 oz Au, 596 oz Ag	Panther Canyon Formation (conglomerate, sandstone), Augusta Mountain Formation (limestone), granodiorite	39.5 Ma
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	basalt and basaltic andesite	15-16 Ma

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Mule Canyon (cont.)		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		
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); 156.300,000 tons, 0.17% Cu (proven and probable reserves); 73,800,000 tons, 0.026 opt Au mineralized material; 99,600,000 tons, 0.14% Cu (mineralized material) 2002: 174,200,000 tons, 0.034 opt Au (probable reserves); 156,300,000 tons, 0.16 % Cu (probable reserves); 1,.500,000 tons, 0.033 opt Au (measured and indicated mineralized material); 72,300,000 tons, 0.026 opt Au (inferred mineralized material); 63.500,000 tons, 0.14 % Cu (inferred mineralized material) 2003: 175,700,000 tons, 0.035 opt Au (probable reserves); 94,700,000 tons, 0.022 opt Au (indicated material); 18,900,000 tons, 0.029 opt Au (inferred material); 85,200 tons, 0.12% Cu (indicated material); 14,300 tons, 0.11% Cu (inferred material) 2004: 248,000,000 tons, 0.034 opt Au (proven and probable reserves); 33,900,000 tons, 0.022 opt Au (indicated material); 34,900,000 tons, 0.028 opt Au (inferred material); 216,700,000 tons, 0.15% Cu probable; 32,000,000 tons, 0.21% Cu (indicated); 29,800,000 tons, 0.17% Cu (inferred) 2005: 308,.400,000 tons, 0.029 opt Au (proven and probable reserves); 22,200,000 tons, 0.023 opt Au (measured and indicated resource); 16.500,000 tons, 0.026 opt Au (inferred resource) 2006: 295,200,000 tons, 0.027 opt Au (proven and probable reserves); 92,800,000 tons, 0.017 opt Au (measured and indicated resource) 23,200,000 tons, 0.022 opt Au (inferred resource) 2007: 278,100,000 tons, 0.027 opt Au (proven and probable reserves); 92,800,000 tons, 0.017 opt Au (measured and indicated resource); 22,900,000 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);	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. 2012: 158,843 oz Au 1,325,200 oz Au 27,809,189 lbs Cu 2013: 202,055 oz Au 1,550,346 oz Ag 29,815,908 lb Cu 2014: 189,474 oz Ag 1,653,459 oz Ag 46,014,331 lb Cu		Eocene

MAJOR PRECIOUS-METAL DEPOSITS, LANDER COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Phoenix (cont.)	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) 2014: 322,700,000 tons, 0.017 opt Au, 5,510,000 oz Au, 324,900,000 tons, 0.24 opt Ag, 78,600,000 oz Ag (proven and probable reserve, recovery: Au 72%, Ag 346%); 49,500,000 tons, 0.019 opt Au, 0.22 opt Ag (mineralized material)			
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) 2007: 91,300,000 tons, 0.025 opt Au (inferred resource) 2009: 178,924,188 tons, 0.0189 opt Au (inferred resource, used higher gold price than in 2007) 2011: 191,725,418 tons, 0.0143 opt Au 2,741,673 oz Au (inferred resource, 0.0067 opt Au cut-off grade)	1989: 3,700 oz Au	Valmy Formation	early Oligocene
Slaven Canyon property (Bateman Can. Dist.)	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	

MAJOR PRECIOUS-METAL DEPOSITS, LINCOLN COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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
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) 2015: (Grey Eagle Zone): 7,359,000 tons, 0.022 opt Au, 140,000 oz Au, 0.24 opt Ag, 1,554,000 oz Ag (measured and indicated resource, 0.01 opt Au cut-off grade); 1,474,000 tons, 0.015 opt Au, 19,000 oz Au, 0.177 opt Ag, 223,000 oz Ag (inferred resource, 0.01 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			

MAJOR PRECIOUS-METAL DEPOSITS, LYON COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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) 2015 Wheeler: 1,268,000 tons, 0.06 opt Au, 75,700 oz Au (measured and indicated Resource, 0.014 opt Au cut-off grade) 3,000 tons, 0.032 opt Au, 100 oz Au (inferred resource, 0.014 opt Au cut-off grade) Wilson: 959,000 tons, 0.05 opt Au, 47,600 oz Au (measured and indicated Resource, 0.014 opt Au cut-off grade) 85,000 tons, 0.068 opt Au, 5,800 oz Au (inferred resource, 0.007 opt Au cut-off grade)			
South Comstock Joint Venture (Silver City district)	1994: 3,000,000 tons, 0.05 opt Au 1995: 100,000 oz Au			
Talapoosa (Talapoosa district)	1988: 2,500,000 tons, 0.041 opt Au, 0.53 opt Ag oxide 14,900,000 tons, 0.03 opt Au, 0.49 opt Ag sulfide 1995: *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

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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 tons, 0.027 opt Au, 0.196 opt Ag (inferred resource, combined sulfide, partially oxidized and oxide); 8,546,000, 0.028 opt Au, 0.222 opt Ag (measured and indicated resource, oxide and partially oxidized, 13,706,000 tons, 0.018 opt Au, 0.096 opt Ag (inferred resource, oxide and partially oxidized, 2009: 16,650,000 tons, 0.023 opt Au, 0.19 opt Ag (measured and indicated resource, oxide, partially oxidized) 2010: 14,294,000 tons, 0.023 Au (proven and probable reserve, in situ, oxide, partially oxidized); 16,650,000 tons, 0.023 Au (proven and probable reserve, in situ leach pads and dumps, oxide, partially oxidized); 35,643,000 tons, 0.040 opt Au (measured and indicated resource, in situ leach pads and dumps, oxide, partially oxidized, and sulfide); 50,225,000 tons, 0.022 opt Au (inferred resource, in situ leach pads and dumps, oxide, partially oxidized, and sulfide)	1981-84: 170,000 oz Au 1986-88: 116,256 oz Au 1989-90: 107,495 oz Au 52,401 oz Ag 2011: 3,171 oz Au 1,992 oz Ag 2012: 32,066 oz Au 13,871 oz Ag 2013: 10,556 oz Au 21,187 oz Ag 2014: 10,859 oz Au 35,133 oz Ag	rhyolite flow dome, andesite flows, breccias, volcaniclastic rocks	5 Ma
Candelaria Mine (Candelaria district)	1982: 18,500,000 tons, 1.09 opt Ag, 0.009 opt Au 1988: 24,000,000 tons, 1.267 opt Ag, 0.011 opt Au 1999: 27,300,000 tons, 3.4 opt Ag unmined resource; additional 800,000 oz Ag in low-grade stockpile 2000: 48,000 oz Au and 45.400,000 oz Ag indicated reserves	1982: 1.700,000 oz Ag, 9,000 oz Au 1987: total production was 1000,000 oz Ag as of June 1987 1988-98: 30.6700,000 oz Ag, 95,218 oz Au 1999: 96,896 oz Ag, 237 oz Au	Candelaria Formation serpentinite, granitic dikes	Cretaceous
Denton-Rawhide (Rawhide district)	1986: 24,100,000 tons 0.045 opt Au, 0.47 opt Ag 1989: reserves-29,400,000 tons, 0.040 oz Au and 0.368 opt Ag; *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	rhyolite plugs, flows, tuffs, breccias	16 Ma

MAJOR PRECIOUS-METAL DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Denton-Rawhide (cont.)		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		
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) 2014: 28,446 oz Au 256,138 oz Ag	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		
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: 5,000,000 tons, 0.050 opt Au (geologic resource)			
Bruner property (Bruner district)	1992: Duluth Zone: 15,000,000 tons, 0.026 opt Au (geologic resource) 2015: Total: 11,350,000 tons, 0.024 opt Au, 239,000 oz Au, 0.2 opt Ag, 1,950,000 oz Ag (indicated resource, cut-off grade 0.212 opt Au); 2,700,000 tons, 0.026 opt Au, 61,000 oz Au, 0.12 opt Ag, 270,000 oz Ag (inferred resource, cut-off grade 0.212 opt Au); Historic Resource Area: 3,860,000 tons, 0.026 opt Au, 86,000 oz Au, 0.28 opt Ag, 920,000 oz Ag (indicated resource, cut-off grade 0.212 opt Au); 385,000 tons, 0.012 opt Au, 4,000 oz Au, 0.11 opt Ag, 40,000 oz Ag (inferred resource, cut-off grade 0.212 opt Au); Penalas Zone: 7,500,000 tons, 0.024 opt Au, 153,000 oz Au, 0.16 opt Ag, 1,030,000 oz Ag	1931-1942 (Penalas): 80,100 tons ore, 26,000 1993: exploration	Tertiary volcanic rocks	Miocene

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Bruner property (cont.)	(indicated resource, cut-off grade 0.212 opt Au); 1,540,000 tons, 0.024 opt Au, 32,000 oz Au, 0.092 opt Ag, 120,000 oz Ag (inferred resource, cut-off grade 0.212 opt Au); Paymaster Zone: 770,000 tons, 0.037 opt Au, 125,000 oz Au, 0.16 opt Ag, 110,000 oz Ag (inferred resource, cut-off grade 0.212 opt Au)			
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.)	2012-2014: included with Round Mountain	rhyolite ash-flow tuff	26 Ma(?)
Gold Wedge property (Manhattan district)	2002: 104,706 oz Au, 0.494 opt Au measured resource; 47,052 oz Au, 0.583 opt Au indicated resource; 394,626 oz Au, 0.494 opt Au inferred resource 2005: 333,000 tons, 0.310 opt Au (measured and indicated resource)	2008: 406 oz dore		
Longstreet property (Longstreet district)	1989: 400,000 tons, 0.024 opt Au, *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: 100,000 tons, 0.50 opt Au (geologic resource) 1997: 1,700,000 tons, 0.13 opt Au (proven and probable)		Cambrian Gold Hill Formation	

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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: 50,000 oz Au (geologic resource)			
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, 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) 2015: Total Mill: 6,250,000 tons, 0.075 opt Au, 0.57 opt Ag, (measured and indicated resource resource); 1,630,000 tons, 0.028 opt Au, 0.14 opt Ag, (inferred resource); Total Heap Leach: 25,518,000 tons, 0.01 opt Au, 0.16 opt Ag, (measured and indicated resource); 194,400,000 tons, 0.0065 opt Au, 0.023 opt Ag, (inferred resource); Yellowjacket Mill: 4,250,000 tons, 0.087 opt Au, 316,510 oz Au, 0.67 opt Ag, 2,445,230 oz Ag (measured resource, 0.018 opt Au cut-off grade); 2,000,000 tons, 0.052 opt Au, 89,090 oz Au, 0.35 opt Ag, 593,250 oz Ag (indicated resource, 0.018 opt Au cut-off grade); 1,630,000 tons, 0.028 opt Au, 39,360 oz Au, 0.14 opt Ag, 203,350 oz Ag, (inferred resource, 0.018 opt Au cut-off grade); Sierra Blanca and Yellowjacket Heap Leach: 340,000 tons, 0.0085 opt Au, 2,340 oz Au, 0.093 opt Ag, 26,280 oz Ag (measured resource, 0.005 opt Au cut-off grade); 14,000 tons, 0.0085 opt Au, 1,070 oz Au, 0.068 opt Ag, 8,560 oz Ag (indicated resource, 0.005 opt Au cut-off		Miocene Crater Flat Tuff	

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
North Bullfrog (cont.)	grade); 185,600,000 tons, 0.0064 opt Au, 1,041,800 oz Au, 0.023 opt Ag, 3,664,420 oz Ag (inferred resource, 0.005 opt Au cut-off grade); Jolly Jane Heap Leach: 19,400,000 tons, 0.0085 opt Au, 141,440 oz Au, 0.015 opt Ag, 240,990 oz Ag (indicated resource, 0.005 opt Au cut-off grade); 8,760,000 tons, 0.007 opt Au, 51,000 oz Au, 0.018 opt Ag, 137,330 oz Ag (inferred resource, 0.005 opt Au cut-off grade); Mayflower Heap Leach: 5,650,000 tons, 0.016 opt Au,77,260 oz Au, 0.014 opt Ag, 68,270 oz Ag (inferred resource, 0.005 opt Au cut-off grade)			
Northumberland (Northumberland district)	1988: 12,000,000 tons, 0.06 opt Au 2005 (July): 30,910,000 tons, 0.067 opt Au (measured and indicated resource) 4,381,000 tons, 0.091 opt Au (inferred resource) 2008 (June): 36,518,000 tons, 0.06 opt Au (measured and indicated resource); Au (measured and indicated resource); 7,418,000 tons, 0.10 opt Au (inferred resource)	1939-42: 32,700 oz Au 1981-84: 950,000 tons/year 1988: 29,667 oz Au, 130,394 oz Ag 1981-1990: ~230,000 oz Au, 485,000 oz Ag	Roberts Mountains and Hanson Creek Formations, granodiorite, tonalite, quartz porphyry dikes	
Paradise Peak/ Ketchup Flats pit (Fairplay district)	1984: 10,000,000 tons, 0.1 opt Au, 3 opt Ag 1989: 5,220,000 tons, 0.09 opt Au, 3.62 opt Ag, mill ore; 11.5200,000 tons, 0.036 opt Au, 0.445 opt Ag, leachable 1996: 5,000,000 tons, 0.022 opt Au, 0.2 opt Ag (Ketchup Flats)	1986-88: 560,000 oz Au, 8,500,000 oz Ag 1989-94: 1,054,084 oz Au, 15,600,000 oz Ag	rhyolite and andesite flows, ash-flow and air-fall tuffs	Miocene
Reward property (Bare Mountain district)	1998: 77,500 oz Au 2007: 5,181,340 tons, 0.0266 opt Au (proven and probable reserves); 6,423,571 tons, 0.0245 opt Au (measured and indicated resource) 2009: 7,147,721 tons, 0.0243 opt Au (proven and probable reserves) 2010: 7,709,000 tons, 0.023 opt Au (proven and probable reserves) 2011: 11,856,200 tons, 0.0224 opt Au, 265,800 oz Au (proven and probable reserves) 18,055,000 tons, 0.0201 opt Au, 362,000 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade) 4,757,000 tons, 0.0138 opt Au, 65,600 oz Au (inferred resource, 0.006 opt Au cut-off grade) 2012: 12,347,000 tons, 0.022 opt Au, 269,248 oz Au (proven and probable reserves) 18,055,000 tons, 0.02 opt Au, 362,600 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade) 4,757,000 tons, 0.014 opt Au, 65,600 oz Au (inferred resource, 0.006 opt Au cut-off grade) 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) 2014: 60,186,000 tons, 0.027 opt Au, 1,378,000 oz Au; 6,892,000 tons, 0.32 opt Ag, 1,870,000 oz Ag (proven and probable reserves); 52,399,000 tons, 0.02 opt Au, 880,000 oz Au; 2,414,000 tons, 0.29 opt Ag, 598,000 oz Ag (measured and indicated resource); 17,330,000 tons, 0.017 opt Au, 260,000 oz Au; 1,426,000 tons, 0.2 opt Ag, 242,000 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 2014: 330,071 oz Au, 580,685 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 2014: 5,721 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	

MAJOR PRECIOUS-METAL DEPOSITS, NYE COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
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
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: 600,000 tons, 0.04 opt Au (geologic reserves) 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			

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Lincoln Hill (cont.)	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) 2014: Oxide: 4,194,000 tons, 0.014 opt Au, 51,000 oz Au, 0.37 opt Ag, 1,347,000 oz Ag (measured resource, 0.003 opt Au equivalent cut-off grade); 21,686,000 tons, 0.013 opt Au, 234,000 oz Au, 0.32 opt Ag, 5,914,000 oz Ag (indicated resource, 0.003 opt Au equivalent cut-off grade); Sulfide: 448,000 tons, 0.017 opt Au 7,000 oz Au, 0.64 opt Ag, 246,000 oz Ag (measured resource, 0.007 opt Au equivalent cut-off grade); 5,982,000 tons, 0.014 opt Au, 72,000 oz Au, 0.53 opt Ag, 2,741,000 oz Ag (indicated resource, 0.007 opt Au equivalent cut-off grade); Oxide: 9,702,000 tons, 0.009 opt Au, 74,000 oz Au, 0.27 opt Ag, 2,227,000 oz Ag (inferred resource, 0.003 opt Au equivalent cut-off grade); Sulfide: 13,250,000 tons, 0.016 opt Au, 182,000 oz Au, 0.52 opt Ag, 5,936,000 oz Ag (inferred resource, 0.006 opt Au equivalent cut-off grade)			
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) 2015 Oxide: 36,918,000 tons, 0.02 opt Au, 7316,000 oz Au (measured and indicated resources, 0.005 opt Au cut-off grade); 6,928,000 tons, 0.01 opt Au,70,000 oz Au (inferred resource, 0.005 opt Au cut-off grade); Sulfide: 417,000 tons, 0.054 opt Au, 23,000 oz Au (indicated resource, 0.02 opt Au cut-off grade); 2,000 tons, 0.025 opt Au, 40 oz Au (inferred resource, 0.025 opt Au cut-off grade)	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,	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	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.)	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) 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) 2014: 145,235,000 tons, 0.55 opt Ag, 80,204,000 oz Ag, 0.004 opt Au, 518,000 oz Au (proven and probable reserve, 0.123 opt Au cut-off grade); 173,201,000 tons, 0.44 opt Ag, 0.003 opt Au (mineralized material, 0.41 opt Equivalent Ag cut-off grade) NI43-101 compliant]	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 2014: 44,887 oz Au, 4,189,071 oz Ag		
Rosebud Project (Rosebud district)	1992: 570,000 oz Au (0.362 opt), 5.500,000 oz Ag (5.5 opt) 1999: 216,000 tons, 0.323 opt Au	1997-98: 225,651 oz Au, 815,123 oz Ag 1999: 112,652 oz Au, 247,900 oz Ag 2000: 47,944 oz Au, 191,919 oz Ag	Tertiary volcanic rocks	Miocene
Spring Valley (Spring Valley district)	2005-2006: 10,030,000 tons, 0.024 opt Au (measured and indicated resource) 7,753,000 tons, 0.025 opt Au (inferred resource) 2007: 50,600,000 tons, 0.0196 opt Au (inferred resource) 2008: 87,750,000 tons, 0.021 opt Au (inferred resource) 2011: 159,641,000 tons, 0.013 opt Au (measured and indicated resource) 114,567,000 tons, 0.017 opt Au (inferred resource) 2014: 222,600,000 tons, 0.019 opt Au, 4,120,000 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade), 62,100,000 tons, 0.016 opt Au, 990,000 oz Au (inferred resource, 0.006 opt Au cut-off grade)			
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	1939-42, 1946-49: 45,743 oz Au, 127,451 oz Ag 2004-2010: included with Florida Canyon	Natchez Pass Limestone, Grass Valley Formation argillite	

MAJOR PRECIOUS-METAL DEPOSITS, PERSHING COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Standard (cont.)	(proven and probable reserves) 2010 reserve: 292,000 oz Au; resource: 14,300 oz Au	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 2014: 40,311 oz Au, 79,231 oz Ag		
Tag-Wildcat (Farrel district)	1989: 416,000 tons, 0.076 opt Au opt Au (reserves); 1,500,000 tons, 0.043 opt Au (geologic resource) 2003: see Wildcat		Tertiary volcanic rocks	Miocene
Trinity (Trinity district)	1987: 1,000,000 tons, 5.25 opt Ag Sulfide resource: ~4,000,000 tons, 2.5 opt Ag 2012: 19,790,000 tons, 1.07 opt Ag, 21,265,000 oz Ag, 0.217% Pb, 85,987,000 lbs, Pb, 0.354% Zn, 140,253,000 lbs. Zn (inferred resource, 0.8 opt Ag cut-off grade)	1987-89: ~5-600,000 oz Ag	rhyolite porphyry, rhyolite tuff	26 Ma
Wildcat (Farrel district)	2003: 38,108,000 tons, 0.018 opt Au (indicated resource); 28,355,000 tons, 0.015 opt Au (inferred resource)		Tertiary volcanic	Miocene
Wilco –Colado (Willard district)	2012: Oxide: 6,399,000 tons, 0.009 opt Au 58,000 oz Au, 0.047 opt Ag, 300,000 oz Ag (measured resource, 0.003 opt Au cut-off grade); 37,571,000 tons, 0.008 opt Au, 285,000 oz Au, 0.047 opt Ag, 1,753,000 oz Ag (indicated resource, 0.003 opt Au cut-off grade); Sulfide: 3,449,000 tons, 0.014 opt Au 49,000 oz Au, 0.195 opt Ag, 672,000 oz Ag (measured resource, 0.006 opt Au cut-off grade); 16,864,000 tons, 0.012 opt Au, 197,000 oz Au, 0.162 opt Ag, 2,735,000 oz Ag (indicated resource, 0.006 opt Au cut-off grade); 39,032,000 tons, 0.007 opt gold, 541,000 oz Au, 0.082 opt Ag, 6,100,000 oz Ag (inferred resources)		Jurassic-Triassic Auld Lang Syne Group	
Wilco –Section Line (Willard district)	2012: Oxide: 12,279,000 tons, 0.011 opt Au 140,000 oz Au, 0.113 opt Ag, 1,393,000 oz Ag (measured resource, 0.003 opt Au cut-off grade); 23,676,000 tons, 0.008 opt Au, 193,000 oz Au, 0.081 opt Ag, 1,906,000 oz Ag (indicated resource, 0.003 opt Au cut-off grade); Sulfide: 5,558,000 tons, 0.015 opt Au 81,000 oz Au, 0.128 opt Ag, 710,000 oz Ag (measured resource, 0.006 opt Au cut-off grade); 20,024,000 tons, 0.014 opt Au, 274,000 oz Au, 0.126 opt Ag, 2,517,000 oz Ag (indicated resource 0.006 opt Au cut-off grade); 18,947,000 tons, 0.014 opt gold, 258,000 oz Au, 0.154 opt Ag, 2,917,000 oz Ag (inferred resources)		Jurassic-Triassic Auld Lang Syne Group	
Willard (Willard district)	2007: 17,295,000 tons, 0.016 opt Au (oxide, measured and indicated resource) 448,000 tons, 0.070 opt Au (sulfide, measured and indicated resource) 20,849,000 tons, 0.015 opt Au (inferred resource)	Late 1980s to early 1990s: ~90,000 oz Au	Jurassic-Triassic Grass Valley Formation	6 Ma

STOREY COUNTY

Comstock heap leach project (Comstock district)	1992: 475,000 tons, 0.072 opt Au, 0.60 opt Ag 1996: 100,000 oz Au, 1.200,000 oz Ag			
Comstock Mine Project (Comstock/Silver City districts)	2011 (Lucerne and Dayton Resource Areas): 51,260,000 tons, 0.029 opt Au, 1,508,000 oz Au, 0.28 opt Ag, 14,360,000 oz Ag (measured and indicated resource, 0.007 opt Au, cut-off grade) 33,580,000 tons, 0.026 opt Au, 881,000 oz Au, 0.179 opt Ag, 6,030,000 oz Ag (inferred resource, 0.007 opt Au, cut-off grade)	2004-2014: Production under Lucerne Resource Area	Santiago Canyon tuff; Alta Formation	

MAJOR PRECIOUS-METAL DEPOSITS, STOREY COUNTY (continued)

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Comstock Mine Project (cont.)	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)			
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 2014: 19,601 oz Au, 222,416 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, 225,000 oz Au, 0.5 opt Ag, 2.2500,000 oz Ag (geologic resource)	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

MAJOR PRECIOUS-METAL DEPOSITS, WHITE PINE COUNTY

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Alligator Ridge (Bald Mountain district)	1983: 500,000 tons, 0.09 opt Au 1989: 100,000 tons, 0.064 opt Au 1992: 11.500,000 tons, 0.046 opt Au; *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) 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)	1986: 50,000 oz Au 1988-89: 103,731 oz Au 1990-93: 287,110 oz Au, 76,745 oz Ag 1994: 80,000 oz Au 1995-96: 221,908 oz Au, 62,460 oz Ag 1997-98: 243,500 oz Au, 63,416 oz Ag 1999: 105,475 oz Au, 18,058 oz Ag 2000: 134,469 oz Au, 14,400 oz Ag 2001: 108,392 oz Au, 18,321 oz Ag 2002: 172,328 oz Au, 21,547 oz Ag 2003: 90,602 oz Au, 26,810 oz Ag 2004: 46,685 oz Au, 27,635 oz Ag 2005: 77,767 oz Au, 32,652 oz Ag 2006: 277,615 oz Au, 32,121 oz Ag 2007: 125,998 oz Au, 21,702 oz Ag 2008: 103,610 oz Au,15,352 oz Ag 2009: 75,037 oz Au, 12,389 oz Ag 2010: 60,333 oz Au, 15,000 oz Ag 2011: 92,818 oz Au, 14,615 oz Ag 2012: 171,154 oz Au, 40,954 oz Ag 2013: 95,497 oz Au, 29,479 oz Ag 2014: 161,036 oz Au, 48,240 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.)	2014: 66,664,000 tons, 0.020 opt Au, 1,361,000 oz Au (proven and probable reserves); 228,120,000 tons, 0.018 opt Au, 4,160,000 oz Au (measured and indicated resource); 32,174,000 tons, 0.014 opt Au, 758,000 oz Au (inferred resource)			
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: 26,241,000 tons, 0.021 opt Au, 540,000 oz Au (measured and indicated resource, 0.006 opt Au cut-off grade); 35,416,000 tons, 0.017 opt Au, 596,000 oz Au (inferred resource, 0.006 opt Au cut-off grade)	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	
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	1995-97: 99,500 oz Au, 207,500 oz Ag	Dunderberg Shale	Cretaceous

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Mt. Hamilton (cont.)	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) 2014: 22,500,000 tons, 0.024 opt Au, 545,400 oz Au, 0.198 opt Ag, 4,459,600 oz Ag (proven and probable reserves, 0.006 opt Au cut-off grade); 33,710,000 tons, 0.022 opt Au, 727,000 oz Au, 0.195 opt Ag, 6,569,000 oz Ag (measured and indicated resource, 0.006 opt Au cut-off grade); 6,721,000 tons, 0.018 opt Au, 119,000 oz Au, 0.171 opt Ag, 1,153,000 oz Ag (inferred resource, 0.006 opt Au cut-off grade)			
Pan (Pancake district)	1989: 241,000 oz Au 1998: 10,860,000 tons, 0.022 opt Au Drill-indicated and inferred 2003: 17,890,000 tons, 0.019 opt Au indicated resource; 7,986,000 tons, 0.016 opt Au inferred resource 2009 (0.006 opt au cut-off grade: 34,650,000 tons, 0.018 opt Au (measured and indicated resource) 1,600,000 tons, 0.017 opt Au (inferred resource) 2010 (0.004 opt au cut-off grade: 42,750,352 tons, 0.016 opt Au (measured and indicated resource); 1,600,000 tons, 0.017 opt Au (inferred resource) 2011: 53,253,000 tons, 0.016 opt gold, 864,220 oz Au (proven and probable reserves, 0.006 opt Au cut-off grade); 88,226,224 tons, 0.128 opt Au, 1,129,809 oz Au (measured and indicated resource, 0.004 opt Au cut-off grade); 4,330,080 tons, 0.105 opt Au, 45, 261 oz Au (inferred resource, 0.004 opt Au cut-off grade) 2015: Total: 21,196,000 tons, 0.0143 opt gold, 302,400 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); North Pan: 10,685,000 tons, 0.0148 opt gold, 158,300 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); Red Hill: 337,000 tons, 0.0337 opt gold, 11,400 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); Central Pan: 335,000 tons, 0.0132 opt gold, 4,700 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); South Pan: 9,273,000 tons, 0.0131 opt gold, 121,600 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); South Satellite: 546,000 tons, 0.0119 opt gold, 6,500 oz Au (proven and probable reserves, 0.005 opt Au cut-off grade); Pan Mine: 34,157,000 tons, 0.014 opt Au, 477,100 oz Au, (measured and indicated resource, 0.006 opt Au cut-off grade); 9,517,080 tons, 0.012 opt Au, 112,500 oz Au (inferred resource, 0.006 opt Au cut-off grade)		Mississippian rocks	
Robinson (Robinson district)	1989: 46,000,000 tons, 0.019 opt Au; *geologic resource*-100,000 oz Au	1986: 48,000 oz Au, 96,000 oz Ag	Rib Hill Sandstone, Riepe Spring	Cretaceous

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

Deposit name	Reserves/resources	Production	Host rock	Mineralization age
Robinson (cont.)	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) 2014: 131,586,000 tons, 0.41 % Cu, 1,078,869,000 lbs. Cu, 0.005 opt Au, 579,227 oz Au (proven and probable reserves); 394,750,000 tons, 0.45 % Cu, 3,565,945,000 lbs. Cu, 0.006 opt Au, 2,050,027 oz Au (measured and indicated resource); 13,164,000 tons, 0.38% Cu, 100,025,000 lbs. Cu, 0.006 opt Au, 389,056 oz Au (inferred resource)	1987-88: 88,957 oz Au 1989-90: 153,828 oz Au, 121,340 oz Ag 1991: 21,674 oz Au 1992: 35,581 oz Au, 55,000 oz Ag 1993: 13,432 oz Au 1996-98: 196,000 oz Au, 783,500 oz Ag, 370,000,000 lbs Cu 1999: 26,250 oz Au, 153,104 oz Ag, 6200,000 lbs Cu 2004: 12,228 oz Au, 27,00,000 lbs Cu 2005: 80,941 oz Au, 191,479 oz Ag, 126,000,000 lbs Cu 2006: 75,074 oz Au, 156,839 oz Ag, 121,319,197 lbs Cu, 260,000 lbs Mo 2007: 108,118 oz Au, 179,238 oz Ag, 131,986,134 lbs Cu, 62,033 lbs Mo 2008: 137,628 oz Au, 183,903 oz Ag, 159,684,092 lbs Cu, 78,855 lbs Mo 2009: 99,000 oz Au, 200,819 oz Ag, 122,000,000 lbs Cu, 88,711 lbs Mo 2010: 72,998 oz Au, 245,746 oz Ag, 108,967,015 lbs Cu, 226,688 lbs Mo 2011: 31,969 oz Au, 116,774 oz Ag, 88,893,372 lbs Cu, 1,261,309 lbs Mo 2012: 30,948 oz Au, 225,421 oz Ag, 117,509,548 lbs Cu, 449,001 lbs Mo 2013: 47,452 oz Au, 161,638 oz Ag, 107,898,857 lbs Cu, 1,384,649 lbs Mo 2014: 26,303 oz Au, 86,601,987 lbs Cu 741,717 lbs Mo	Limestone, intrusions	
Taylor (Taylor district)	1980: 10,000,000 tons, 3 opt Ag 1988: 5,920,000 tons, 2.7 opt Ag (resource) 2007: 6,433,000 tons, 2.31 opt Ag (measured and indicated resource) 757,000 tons, 2.54 opt Ag (inferred resource) 2013: 8,894,000 tons, 1.89 opt Ag, 16,820,000 oz Ag (measured and indicated resource, 1 opt Ag cut-off grade); 1,716,000 tons, 2.3 opt Ag 3,941,000 oz Ag (inferred resource,1 opt Ag cut-off grade)	1981-1984: 3,800,000 oz Ag, 3,000 oz Au	Guilmette and Joana Limestones, rhyolite dikes	Eocene or Oligocene
White Pine (White Pine district)	1989: 63,000 oz Au, 0.04 opt Au	1989: 20,654 oz Au	Pilot Shale	Oligocene?
Yankee (Bald Mountain district)	1992: 683,000 oz Au 1993: *see* Bald Mountain	1990: ~15,000 oz Au 1992: 10,800 oz Au	Pilot Shale	36-38 Ma?

Newmont Gold and Silver Production in the Carlin Trend

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

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
2014	907,282	76,614

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)	
Silver Leaf (Tri-State) (Bunkerville district)	W	1963: 21,000 tons (inferred reserve) 1981: 44,000 tons, 0.35% WO_3, 96,000 tons, 0.3% WO_3 (indicated and inferred resource)	1953-1971, 1980: 165 units
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)	

OTHER METALLIC DEPOSITS, ELKO COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Hot Spot No. 1 (Mountain City district)	U	1956: 13,200 tons, 0.137% U_3O_8 in eight small deposits (indicated ore)	
Indian Springs (Delano district)	W	2007: 10,800,000 tons, 0.171% WO_3 (indicated resource); 8.200,000 tons, 0.167% WO_3 (inferred resource)	
Marshall (Contact district)	Cu	1972: 8,128,115 tons, 2.3% Cu equivalent	1917-1930: N/A
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
Vivian Tunnel (Contact district)	Cu	1930: 4,000,000 tons (commercial ore)	

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

Deposit name	Metals	Reserves/resources	Production
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)	

OTHER METALLIC DEPOSITS, HUMBOLDT COUNTY

Deposit name	Metals	Reserves/resources	Production
HUMBOLDT COUNTY			
Alpine (Porvenir) (Potosi district)	W	1946: 10,000 tons, 0.475% WO_3 (estimated and inferred reserve)	1943: 8,000 tons, 0.5% WO_3 1942-1943, 1952-1953: est. 24,000 units WO_3
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)	
Granite Creek (Potosi district)	W	1946: 118,000 tons, 0.48% WO_3 (measured, indicated, and inferred reserve)	1942-1944: 88,000 tons, 0.5% WO_3 1942-1946, 1950-1957: 149,100 units WO_3
Kings Valley (Disaster district)	U	2006: 2,978,000 tons, 0.081% U_3O_8 (inferred resource)	
Kirby (Potosi district)	W	1946: 5,500 tons, 0.42% WO_3 (measured, indicated, and inferred reserve)	<1943: 32,000 tons, 0.43% WO_3 1943, 1950-1951: est. 25,000 units WO_3
Knight (Potosi district)	W	1946: 2,100 tons, 0.52% WO_3 (estimated and inferred reserve)	
Markus (Potosi district)	W	1946: 7,650 tons, 0.4% WO_3 (measured, indicated, and inferred reserve)	1956-1957: 100,000 units WO_3
McDermitt (Opalite district)	Hg	1982: 1,325,000 tons, 10 lbs per ton Hg (measured reserve)	1974-1990: N/A
Pacific (Getchell) (Potosi district)	W	1946: 40,000 tons, 0.5% WO_3 (estimated and inferred reserve)	1951-1956: est. 150,000 units WO_3
Richmond (Potosi district)	W	1946: 20,000 tons, 0.5% WO_3 (estimated and inferred reserve)	1942-1943: 30,000 tons, 0.5% WO_3 1942-1943, 1954: 15,100 units WO_3
Riley (Dernan) (Potosi district)	W	1946: 578,500 tons, 0.7% WO_3 (estimated and inferred reserve)	1943-1945: 88,000 tons 1943-1957: est. 337,000 units WO_3
Uranium Lode Star (Virgin Valley district)	U	1984: 15 to 20,000,000 tons low grade uranium-bearing material ("submarginal" resource)	
Valley View (Saunders) (Potosi district)	W	1945: 56,000 tons, 0.49% WO_3 (estimated and inferred reserve)	<1945: 1,500 tons 1942-1944, 1951-1956: est. 37,680 units WO_3

OTHER METALLIC DEPOSITS, LANDER COUNTY

Deposit name	Metals	Reserves/resources	Production
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); 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	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 lbs Cu 2014: 46,014,331 lbs Cu (See Major Precious Metal Deposits also.)

Deposit name	Metals	Reserves/resources	Production
Phoenix (cont.)		tons, 0.22% Cu, 710,000,000 lbs Cu, (probable reserve, 57% recovery); (total): 220,500,000 tons, 0.14% Cu (mineralized material) 2014 (mill): 324,900,000 tons, 0.14% Cu, 940,000,000 lbs Cu, (mill, proven and probable reserve, 58% recovery); 211,700,000 tons, 0.19% Cu, 790,000,000 lbs Cu, (leach proven and probable reserve, 57% recovery); (total): 89,100,000 tons, 0.13% Cu (mineralized material)	

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)	
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)	

OTHER METALLIC DEPOSITS, LYON COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
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)	
	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	

Deposit name	Metals	Reserves/resources	Production
Pumpkin Hollow (cont.)		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)	
	Cu, Au, Ag, Fe	2015: Western Open-Pit Area: 539,285,000 tons, 0.39% Cu, 4,210,511,000 lbs. Cu, 0.001 opt Au, 591,590 oz Au, 0.044 opt Ag, 23,939,204 oz Ag (proven and probable reserves, 0.156% Cu cut-off grade); 566,400,000 tons, 0.43% Cu, 4,840,000,000 lbs. Cu, 0.001 opt Au, 750,000 oz Au, 0.042 opt Ag, 26,621,000 oz Ag, 13.6% Fe, 76,800,000 tons Fe (measured and indicated resource); 8,000,000 tons, 0.52% Cu, 83,000,000 lbs. Cu, 0.001 opt Au, 6,000 oz Au, 0.052 opt Ag, 414,000 oz Ag, 6.1% Fe, 500,000 tons Fe (interred resource); Eastern Underground Area: 32,603,000 tons, 1.287% Cu, 839,158,000 lbs. Cu, 0.005 opt Au, 168,995 oz Au, 0.113 opt Ag, 3,697,769 oz Ag (proven and probable reserves, $29 per ton ore, NSR cut-off grade); 54,100,000 tons, 1.39% Cu, 1,503,000,000 lbs. Cu, 0.005 opt Au, 291,000 oz Au, 0.116 opt Ag, 6,257,000 oz Ag, 17.8% Fe, 9,600,000 tons Fe (measured and indicated resource); 29,200,000 tons, 1.09% Cu, 636,000,000 lbs. Cu, 0.003 opt Au, 87,000 oz Au, 0.064 opt Ag, 1,875,000 oz Ag, 12.8% Fe, 3.700,000 tons Fe (interred resource)	
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]	
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	

OTHER METALLIC DEPOSITS, MINERAL COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
Pine Tree (cont.)		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)	
	Mo, Cu	2014: 309,216,000 tons, 0.078% Mo, 482,000,000 lbs Mo, 0.098% Cu, 606,000,000 lbs. Cu (proven and probable reserves, $8.83 NSR/ton cut-off grade); 566,159,000 tons, 0.067% Mo, 762,200,000 lbs. Mo; 0.084% Cu, 956,400,000 lbs. Cu (measured and indicated resource, $7.05 NSR/ton cut-off grade); 148,598,000 tons, 0.052% Mo, 154,500,000 lbs. Mo, 0.115% Cu, 341,800,000 lbs. Cu (inferred resource, $7.05 NSR/ton 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
Buena Vista (Mineral Basin district)	Fe	1958: 45,517,153 tons, 29.24% Fe, 1,331,035,114 units (assured ore); 21,557,550 tons, 26,57% Fe, 572,930,865 units (possible ore); 55,934,000 tons, 24.95% Fe, 1,396,056,000 units (prospective Ore); 123,008,703 tons, 26.83% Fe, 3,300,008,703 units (total)	
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

OTHER METALLIC DEPOSITS, PERSHING COUNTY

Deposit name	Metals	Reserves/resources	Production
Gold Banks (Goldbanks district)	Hg	1965: 71,000 tons, 5.87 lbs. per ton (probable); 24,000 tons, 8.07 lbs. per ton (possible)	
Humboldt (Mill City district)	W	1958: est. 50,000-70,000 units WO_3	1917-1918: 8,075 tons, 2% WO_3, milled 1918-1919: 15,220 tons, 0.68% WO_3, milled 1919-1958: N/A
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
Rose Creek (Rose Creek district)	W	1940: 6,000 tons, 15% WO_3 (reserve)	1943-1945: 1,898 tons, 1% 1943-1944, 1952-1956: 3,690 units WO_3
Springer (Mill City district)	W	1983: 3.590,000 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) [NI43-101 compliant; STU: standard ton unit = 20 lbs.]	1917-1919: 1,356 tons, 1.32% WO3 1920-1958: N/A

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	
Lage (Butte Valley District)	Sb	1951: 200,000 tons, low grade ore 1954: 500 tons, 5% Sb; 270,000 tons, 0.22% Sb	
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 1972: 59,625 tons (proven ore), 30,200 tons (probable ore), 191,900 tons (possible ore)	

OTHER METALLIC DEPOSITS, WHITE PINE COUNTY (continued)

Deposit name	Metals	Reserves/resources	Production
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) 2014: 131,586,000 tons, 0.41 % Cu, 1,078,869,000 lbs. Cu (proven and probable reserves); 394,750,000 tons, 0.45 % Cu, 3,565,945,000 lbs. Cu (measured and indicated resource); 13,164,000 tons, 0.38% Cu, 100,025,000 lbs. 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 2014: 86,601,987 lbs Cu, 741,717 lbs Mo (See also Major Precious Metal Deposits.)

INDUSTRIAL MINERALS

by David A. Davis

The total value of industrial minerals produced in Nevada was estimated to be $476,000,000, an increase of 13% from 2013. Minus the value of aggregate, the total value was $310,500,000, an increase of 15%. In decreasing order of estimated value, Nevada industrial minerals with production values of more than $100,000,000 were aggregate and barite. Industrial minerals with production values of $10,000,000 to $100,000,000 were diatomite, gypsum, lime and limestone, silica, lithium, and dimension stone/landscape rock. Industrial mineral commodities with production values of less than $10,000,000 were clay, magnesia, cement, perlite, dolomite, iron ore, salt, and opal. Zeolite was processed in Nevada but mined in California, and as such was not included in the estimate of total value of industrial minerals. 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 (NDT), the U.S. Bureau of Land Management (BLM), the U.S. Geological Survey (USGS), and directly from companies that produced the commodities. Unless otherwise noted, data are given in short tons unless otherwise noted. Also, unless otherwise noted, individual and compiled state production data are from NDOM. The gross proceeds are from NDT. USGS data (mostly domestic production, consumption, prices, and trends) cited are from commodity reports on the agency's website at minerals.usgs.gov/minerals/pubs/ commodity.

Aggregate (Sand and Gravel, Crushed Stone)

The estimated domestic production of construction sand and gravel was 996,500,000 tons valued at $7,310,000,000, increases of 7% and 9% respectively from 2013. 2014 marked the fourth annual increase since 2010 and the highest production since 2008 but was still 32% below the 2006 peak of 1,460,000,000 tons. The estimated domestic production of crushed stone was 1,400,000,000 tons valued at $13,000,000,000, increases of 8% and 10% respectively. 2014 marked the third annual increase since 2011, but was still 29% below the 2006 peak of 1,962,000,000 tons. The estimated apparent consumption of construction sand and gravel increased 13% to 1,007,500,000 tons. This marked the fourth annual increase after four years of decreases, but was still 31% below the 2006 peak of 1,460,000,000 tons. The estimated apparent consumption of crushed stone increased 7% to 1,444,000,000 tons. The average price of construction sand and gravel increased 2% to $7.34 per ton. The average price of crushed stone increased 2% to $9.29 per ton in 2014. The recent increases reflect improvements in the construction market, with construction spending increasing 3% in the first 10 months of 2014. However, some operations were forced to close or move away from densely populated areas, due to continued concerns over environmental, health, permitting, safety, and zoning regulations resulting in local shortages and increased transportation costs.

Nevada produced an estimated 13,890,000 tons of construction sand and gravel valued at $91,700,000 and 7,770,000 tons of crushed stone valued at $73,800,000. The production and value of construction sand and gravel increased 28% and 32%, respectively, from 2013. However, the production and value of crushed stone decreased 11% and 9%, respectively. Production from sand and gravel deposits accounted for about 64% of aggregate production statewide, up from 55% in 2013. Crushed stone and lightweight aggregate made up the balance. The total estimated production value of $165,500,000, which is 10% higher than 2013, made construction aggregate the fourth most valuable mineral/energy commodity produced in the state.

An estimated 13,360,000 tons of construction aggregate were produced in the Las Vegas area with sand and gravel operations accounting for about 63% of the production. The Lone Mountain area in northwest Las Vegas accounted for about a quarter of the production and continued to be the area's most important source of sand and gravel. Significant production also came from sand and gravel pits and stone quarries south and northeast of Las Vegas, and from 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 Sierra Ready Mix. Las Vegas Paving, a major producer of asphalt concrete, produced sand and gravel from their Blue Diamond, Lone Mountain, and Primm pits and some crushed stone from the Apex Landfill pit. Nevada Ready Mix, a subsidiary of the Mitsubishi Corp. mined most of its aggregate from a complex of pits in alluvium in the Lone Mountain area, with minor production coming from quarries in adjacent bedrock. 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.

The Lone Mountain Community pit covers 4,053 acres, of which 1,620 acres are in the current mine plan, of which 620 acres have currently been disturbed. Annual production at the Lone Mountain area peaked at more than 10,000,000 tons in 2005 and 2006, but declined rapidly from 2007 onward with the construction downturn. However, the recent uptick in construction activity increased sales for existing operators and requests from companies for leasing information. Also, six contracts with the BLM for material from the Lone Mountain area were due to expire in August 2014, and the operators requested to have their contracts

renewed. The BLM issued an environmental assessment addressing these issues. New contracts were subject to competitive bidding. Old contracts were renewable for up to one year, but after that, they too were subject to competitive bidding. About 640 acres were considered for competitive sale of which 445 acres had previously been disturbed. An auction held in early 2015 resulted in the sale of 9,600,000 tons of material for $10,700,000. The high bidders included: Las Vegas Paving, $4,000,000 for 4,000,000 tons; Mel Clark, Inc., $3,200,000 for 2,500,000 tons; Wells Cargo, $2,000,000 for 2,000,000 tons; Boulder Sand and Gravel, $708,000 for 600,000 tons; Rice Construction, $679,000 for 388,000 tons; and Hollywood Gravel, $115,000 for 100,000 tons (BLM Environmental Assessment, Case file number N-43006-21, 2014; Vegasinc; vegasinc.com/news/2015/mar/03/blm-sells-107-million-worth-sand-gravel/, 3/3/2015).

The Cind-R-Lite Block Company shipped lightweight aggregate to the Las Vegas market from their 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.

An estimated 4,093,000 tons of construction aggregate were produced in the Reno-Sparks-Carson City area. Crushed rock accounted for 55% of the aggregate production, significantly less than the typical 60%–80% for the last ten years. Martin Marietta Materials Inc. was the largest producer. The company operated the Spanish Springs (Rocky Ridge) quarry north of Sparks, which produced crushed granitic rock and some decomposed granite. B.J. Ree's Enterprises was the second largest producer, though it only stockpiled material at its Tracy pit. Rilite Aggregate produced sand and crushed stone at its pit on the southeast end of the Truckee Meadows. Granite Construction continued producing crushed andesite and granitic rock from the Lockwood pit, though production was down considerably in 2013 and 2014. Lightweight aggregate, an important component of crushed rock production in the area, was produced by CEMEX and Basalite Concrete Products. CEMEX owned the former All-Lite Aggregate crushed rhyolite pit and also ran the sand and gravel operation at the Paiute pit, which is leased from the Pyramid Lake Paiute Tribe. Sierra Nevada Construction Inc. produced aggregate from its Mustang pit, and Gopher Construction Inc. produced aggregate from its Trico pit in Storey County. 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 4,207,000 tons of aggregate, 84% of which was sand and gravel, were produced outside of the major metropolitan areas, mostly from BLM administered pits on public lands. At over 1,200,000 tons, Elko County had the largest rural aggregate production. Humboldt and Lyon Counties produced slightly more and slightly less than 500,000 tons, respectively. Douglas, Lincoln, and Pershing Counties each produced between 250,000 and 400,000 tons. The remaining counties each produced less than 250,000 tons. In addition, a quarry operation on Barrick Gold Corp.'s Turquoise Ridge Mine property in Humboldt County produced 40,000 tons per month of aggregate for use as backfill in underground gold mining.

The BLM issued an environmental assessment for the issuance of free use permits to the Washoe County Road Department to operate a new gravel pit called the Boulder Reservoir Gravel pit. The pit is located in the northeastern corner of Section 34, T41N, R20E, in northern Washoe County. The new gravel pit would cover ten acres, and up to 5,000 cubic yards of material would be mined annually for ten years. A Finding of No Significant Impact and a Record of Decision in favor of the project were issued after the year's end (BLM Boulder Reservoir Gravel Free Use Permit, EA No. DOI-BLM-CA-N070-2015-010-EA, Environmental Assessment 12/10/2014; Finding of No Significant Impact, 4/18/2015; Decision Record, 4/18/2015).

The BLM identified a need to designate the Red Mountain Creek material site as a community pit as soon as possible. The site is located at Hualapai Flat about 18 miles north of Gerlach and is accessed by existing roads. The total disturbed area will eventually be 15.6 acres. Local ranchers, farmers, and other users have requested sales from this site, and the Washoe County Road Department has used the site in the past and will continue to do so. Free-use permits may also be issued (BLM, CX No.: DOI-BLM-NV-W030-2014-0011-CX, 5/28/2014).

The BLM issued an environmental assessment for a request from Rockwood Lithium Inc. for the non-competitive purchase of material from the Goat Island pits over a five-year period. The company proposed to annually mine up to 20,000 cubic yards of rip-rap largely by drilling rock at the Goat Island rip-rap pit, and the same amount of clay by skimming it from the playa floor at the Goat Island clay pit. The material will be stockpiled and used as needed for maintaining the existing dikes around the evaporation ponds and for building new dikes and lining new ponds. The existing pits are in sections 13, 14, and 23, T2S, R39E. The present disturbed areas are six acres at the rip-rap pit and 30 acres at the clay pit. Over the proposed five-year period, the disturbed area will increase less than one acre at the rip-rap pit, but up to 14 acres at the clay pit (An Environmental Assessment of Rockwood Lithium Inc.'s Proposed Goat Island Mineral Material Sale, DOI-BLM-NV-B020-2013-0049-EA, 6/2014).

The BLM, Federal Highway Administration, and Nevada Department of Transportation issued an environmental assessment involving the completion of USA Parkway over the Virginia Range to Opal Avenue in Silver Springs. The paved part of USA Parkway presently ends about six miles southeast of Patrick. The completion will extend the paved section about 13 miles. An estimated 1,700,000 cubic yards of material will be excavated and mostly reused as fill. Little roadway construction material is

expected to be imported from outside the area, but two adjacent sites were included in the study for any extra needed material (Environmental Assessment, USA Parkway SR 439 project, FHWA-NV-EA 13.02, 9/2014).

Barite

Domestic production and value of barite increased 3% to an estimated 793,000 tons, valued at about $90,000,000. Most of this production came from Nevada, and the remainder came from a mine in Georgia. Estimated apparent consumption increased 25% to 3,770,000 tons. Imported barite, mostly from China and some from India and Morocco, increased 29% to about 3,200,000 tons. China provided 80% of the barite imported into the United States in 2014. Also, China and India accounted for 62% of the world's production and China, India, and Kazakhstan accounted for 62% of the world's reserves. The estimated average price of barite remained high, increasing 8% to $125 per ton free on board from the mine. Free on board refers to the price for what mines sell the barite and does not include costs of additional processing once it is shipped. The price of barite has increased 500% since 2001. The recent rise in prices is primarily due to the worldwide oil and gas drilling boom that continued through 2014.

About 95% of the barite sold in the United States is used as a weighting agent for drilling. Barite mined in Nevada was sold mainly to customers drilling for oil and gas in Colorado, New Mexico, North Dakota, Utah, and Wyoming with some crude barite being shipped to Alberta, for the western Canada drilling mud market. Imported barite came through Louisiana and Texas ports mostly for use in oil and gas drilling offshore in the Gulf of Mexico and onshore drilling in Louisiana, Oklahoma, and Texas. The average weekly U.S. rig count increased 5% to 1,862 for 2014. The average combined weekly rig count for the five main states making up the market for barite produced in Nevada ranged between 384 and 450 and averaged 415, an increase of 6% from 2013 (Baker Hughes website: www.bakerhughes.com).

Nevada's barite production comes from four operations, which shipped 904,516 tons, a 3% increase from 2013. Differences in production exist because the U.S. Geological Survey reports run-of-mine, flotation, or other beneficiated material that is sold or used by the producer, while NDOM reports only shipped raw barite, which may include some material from stockpiles. The gross proceeds were $103,667,130, an increase of 22% from 2013.

M-I SWACO, a subsidiary of Schlumberger Ltd. was the largest Nevada barite producer. The company shipped 301,180 tons of crude and ground barite from its Greystone mine and Battle Mountain plant, both in Lander County, a 5% decrease from 2013. A small amount of barite was also taken from stockpiles at the nearby Mountain Springs Mine for blending at the plant. The barite of the Greystone Mine is in black chert and minor argillite and shale of the Middle to Late Devonian Slaven Chert.

Deep Pit 1 in area Q is the main and only currently operating pit at the Greystone mine. Run-of-mine barite ore averages 40-45% $BaSO_4$ and is either stockpiled or processed at the Greystone mine and then sent to the mill in Battle Mountain for concentration. Barite concentrates intended for use as a drilling mud must contain between 65% and 75% $BaSO_4$ with a specific gravity greater than 4.1. The mill consists of a three-stage crushing and screening circuit and a jig circuit for gravity separation (Nevada Department of Environmental protection Fact Sheet, M-I Swaco LLC, Greystone Mine, 2013).

An environmental assessment was issued for the company's proposal to mine barite at the Dana 15 site on patented mining claims in sections 25 and 36, T28N, R45E, which required improved access across public land. The deposit has a projected six month reserve with the barite being taken directly to the nearby Greystone mine for processing (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 258,464 tons, a 3% increase from 2013. The company mined barite from the Rossi Mine in Elko County and processed it at the Dunphy Mill in Eureka County. Heemskirk Canada Ltd. acquired crude barite from the Rossi Mine and shipped it from Dunphy to their Lethbridge, Alberta processing plant. The barite was then supplied to the western Canadian drilling mud market. The barite occurs in structurally complex chert and argillite of Ordovician to Devonian age. The Rossi Mine is the largest source of barite in the country and consists of the King Lode pit, which produces high-grade barite ore, and the Queen Lode pit, which produces low-grade ore. At the present production rate, the Rossi Mine has a projected life of 22 years. The mine is located on 768 acres with plans to expand the property to 908 acres in the near future.

The company opened its new barite plant, located on 75 acres at Dunphy, on June 25, 2014. The new plant was built by Mouat and is adjacent to the existing plant originally built in 1964. The new plant contains two 85-inch Williams Crusher Mill Systems, capable of producing 50 tons of material per hour, and an automated packaging system using robotic arms capable of packaging and palletizing up to 800 tons of material in 100-pound bags daily. The plant also has systems to load palletized material, bulk processed material, and crude ore onto rail cars and trucks. Covering 66,000 square feet including the mill building, this is the largest barite grinding plant in North America (Mouat Co., Inc., www.mouat.com/mineral-processing/ mineral-processing-recent-projects/halliburton-barite-grinding-plant; (4-Traders, www.4traders.com/ HALLIBURTON-COMPANY-12871/news/Halliburton--Announces-Completion-of-Minerals-Processing-Plant-in-Nevada-18767762/).

Baker Hughes Oilfield Operations Inc. shipped 150,713 tons of barite from its Argenta plant near Battle Mountain in Lander County, down slightly from 2013. The plant processed combined ore from both its Argenta Mine and the

Slaven Mine, which began operation under N.A. Degerstrom Inc. for Baker Hughes in 2013. Though 11 miles apart, both barite deposits are in the Slaven Chert in the upper plate of the Roberts Mountain thrust fault.

National Oilwell Varco shipped 41,965 tons of barite concentrate from its Dry Creek jig plant, an 18% decrease from 2013. The company also shipped 55,275 tons of ground barite from its new Osino grinding plant, a 35% increase from 2013. Another 96,919 tons of crude ore was also shipped. No production was reported from its Big Ledge mine, which was temporarily shut down in December with a restart planned for May 2015. Mined barite ore is hauled to the jig plant for crushing, washing, sorting, and concentrating. It is then stockpiled for later hauling to Osino. In the past, barite was also shipped to the company plant in Evanston, Wyoming, but that plant was shut down and abandoned in late 2013. The barite is shipped to warehouses across the country with the product from Osino expected to supply Ohio and Pennsylvania. The barite at the Big Ledge Mine occurs in argillite and chert of the Ordovician Valmy Formation.

Baker Hughes has a lease for the rights to mine barite on Bravada Gold Corp.'s Shoshone Pediment property, with a six-year option to acquire those rights by April 2015. Bravada Gold would retain all other mineral rights. The property consists of 70 claims, and the area of interest is largely within Section 24, T31N, R47E, in the Argenta mining district. Baker Hughes drilled the property in 2013 and then exercised the option in 2014, which includes a $1 per ton royalty on all barite over 150,000 tons and a split of drill samples to Bravada Gold for logging and assaying. The company completed three core holes in 2014, but the results were not released. The barite occurs in the Devonian Slaven Chert (NBMG Bulletin 98; Bravada Gold Corp., Management Discussion and Analysis, 12/22/2014; Bravada Gold Corp., website, www.bravadagold.com).

In August 2014, Baker Hughes provided the BLM with baseline reports on its Scruffy Oz project, located about 13 miles southeast of Battle Mountain. The project covers 2,180 acres, mostly in portions of the eastern part of T31N, R46E and the western part of T31N, R47E in the Argenta Mining District. Supplemental baseline data are needed for the project, which proposes the surface extraction of barite involving 155 acres of disturbance. The immediate area contains several deposits with up to 1,000,000 tons of past production. The barite occurs in beds at least 10 feet thick hosted in the Devonian Slaven Chert (Bureau of Land Management Battle Mountain District Annual Report, 2014; NBMG Bulletin 98; BLM LR2000 Database).

Halliburton Energy Services Inc. received a reclamation permit from the Nevada Bureau of Mining Regulation and Reclamation in 2013 for the Pleasant View project in the Bateman Canyon Mining District in Lander County. In 2014, the company staked an additional 16 lode claims bringing the total area to over 1,000 acres in Section 2, T30N, R46E and Sections 34 and 35, T31N, R46E. 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 also added another 20 claims to its Chris project in the Northumberland mining district in Nye County, bringing the claimed area to almost 1,200 acres in portions of T12N, R46E and T13N, R47E. This claim block is in the area of the Chris deposit, which underwent periods of trenching and drilling prior to 1981 and adjacent to the East Northumberland project of National Oilwell Varco. The barite occurs with chert, claystone, and mudstone of probable Devonian age (NBMG Bulletin 98; Bureau of Mining Regulation and Reclamation Permit 0341, 3/20/2013; BLM LR2000 Database).

On November 16, 2014, the Halliburton Co. and Baker Hughes Inc. entered into a merger agreement that was expected to be completed in the second half of 2015. The details were to be worked out over time, and details of the fate of the companies' barite operations in Nevada were not released (Baker Hughes, Inc., news release, 11/17/2014, 10-K Form, 2/26/2015; Halliburton Co., 10-K Form, 2/24/2015).

The U.S. Forest Service approved a plan of operation that National Oilwell Varco had filed in 2013 for its East Northumberland project, which covers about 1,600 acres. The plan of operation calls for drilling reverse circulation and core holes at 51 sites, mostly using existing drill roads. The project is adjacent to the Black Star deposit, which consists of several barite units of variable thickness hosted in thinly bedded black chert and limy mudstone of probable Devonian age. The Black Star was explored by some bulldozer cuts and drilling in the late 1960s but never produced (NBMG Bulletin 98; U.S. Forest Service, National Oilwell Varco East Northumberland Exploration, Plan of Operations Decision Memo, 8/2014).

In January 2014, Progressive Contracting Inc. submitted a plan of operation to the BLM for its proposed Coyote stockpile project. The project is located at the Coyote mine in Section 7, T36N, R51E, in the Beaver mining district in the south central Tuscarora Mountains. Between 1979 and 1980, the Coyote Mine produced less than 25,000 tons of barite, which was hosted in black chert of the Ordovician Vinini Formation. The project proposes to remove 60,000 tons of barite from a four-acre site between April and November 2015. The barite will be transported to its Maggie Creek plant for processing. The company's permit limits processing at the plant to 75,000 tons annually. The BLM was preparing an environmental assessment at year's end (BLM, Coyote Stockpile project Summer Campaign, Environmental Assessment, DOI-BLM-NV-E000-2015-0003-EA (3809) NVN-092866, April 2015; Fact Sheet – Maggie Creek Plant Progressive Contracting, Inc., NEV 2012111, New 2013).

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

Cement

Domestic cement production increased 8% to an estimated 91,200,000 tons, valued at $8,900,000,000. Estimated apparent consumption increased 10% to 100,100,000 tons with the difference made up by imports from Canada, South Korea, China, and Greece. Both have increased steadily since 2010. The estimated average mill price increased 4% from 2013, to $89.36 per ton. 2014 marks the third annual price increase.

The only cement producer in Nevada is Nevada Cement Co. (a subsidiary of Eagle Materials, Inc.), which has a plant in Fernley. The plant's annual capacity is 500,000 tons of cement and 560,000 tons of clinker. The gross proceeds were $6,616,964, an 8% increase from 2013. The plant produces Type I/II, low alkali, moderate sulfate-resistant cement; Type II/V, low alkali, high sulfate-resistant cement; IP portland-pozzolan moderate sulfate-resistant cement; and Class N pozzolan. The cement is manufactured from limestone mined from three areas, pozzolan from the nearby Mustache pit, iron oxide from the Barth Mine in northern Eureka County, and clay from the Terraced Hills north of Pyramid Lake. In the past, the clay production was contracted to the Art Wilson Co., but in 2014, Nevada Cement Co. employees did the mining. Most of the limestone comes from the company quarry a few miles south of Fernley, a quarry in the Trinity Range about 40 miles east of the plant, and a quarry near the Relief Canyon mine in the southern Humboldt Range about 70 miles northeast of the plant. Overall, the company has at least 50 years of limestone reserves, including 13,700,000,000 tons on company-owned land and 71,100,000,000 tons on leased land. Nevada Cement serves markets in northern Nevada and California, and the company has a rail terminal in Sacramento. (Eagle Materials Inc., 10-K Report, 5/22/2015; Nevada Cement website, www.nevadacement.com).

Clay

Domestic clay production increased 3% to an estimated 27,200,000 tons in 2014, with a sales value of $1,550,000,000. The U.S. Geological Survey divides output into: ball clay, bentonite, common clay, fire clay, fuller's earth, and kaolin. Estimated apparent consumption increased 3% to 29,400,000 tons in 2014. The difference between production and consumption was mainly attributed to exports. Nevada has never been a large clay producer, and the state's 2014 clay production only accounts for 0.6% of domestic production. Despite Nevada's small national standing in clay production, the state's production increased a robust 350% to 160,255 tons (not including clay produced from stockpiles). The gross proceeds for all Nevada clay production increased 14% in 2014, to $8,759,460.

IMV Nevada, a subsidiary of Lhoist North America, produced 143,000 tons of sepiolite and bentonite, but no saponite, in 2014 from deposits in the Ash Meadows-Amargosa Flat area of Nye County, a seven-fold increase from 2013. The bentonite is a white to off-white, calcium-based montmorillonite with an unusually well-developed dioctahedral crystalline structure and an extremely high cation exchange capacity. Saponite is similar to sodium bentonite except that magnesium has replaced all or most of the aluminum and exchangeable sodium. It is a swelling clay with a trioctahedral structure and a flat tubular mica-like crystal form and a low cation exchange capacity that imparts thixotropy to aqueous solutions. Saponite has the same uses as bentonite, but has a much lower cation exchange capacity, which makes it more stable. Sepiolite is a hydrous magnesium-bearing clay. It is structurally similar to bentonite and saponite, but the crystals are much more highly ordered and contain very few of the imperfections which give rise to cation exchange capacity. The nearly perfect crystal structure, which forms long "ribbons", contribute to high thermal stability, and help impart viscosity to aqueous suspensions. Unlike bentonite and saponite, sepiolite is unaffected by electrolytes and can gel salt solutions. It also serves as an asbestos replacement, and an excellent binder. The clays occur in shallow, flat-lying deposits in Pliocene lacustrine sediments. It is processed at a plant in Amargosa Valley, and clay products are exported worldwide. 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, www.imvnevada.com).

Two companies intermittently mine and ship minor amounts of smectite from several sites for use in high-value specialty products. At its White Caps Mill near Beatty in Nye County, Vanderbilt Minerals Co. processes small amounts of clay stockpiled from several deposits in Nevada, Arizona, and California. In 2014, 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 clay at the New Discovery Mine is derived from altered perlite and periltic pitchstone interbedded with Tertiary tuff-breccia. The clay at the Blanco Mine is derived from altered tuff and tuffaceous sedimentary rocks of the late Miocene to early Pliocene Esmeralda Formation. The clay at the Satin and Buff Mines is derived from late Miocene to early Pliocene altered welded and non-welded tuffs. Mining at the New Discovery Mine was temporarily shut down in November 2011 and is planned to restart in 2016. Mining at the Buff and Satin Mines was temporarily shut down in December 2012 and is planned to restart in 2017. Mining at the Blanco Mine was temporarily shut down in July 2012, but no date has been set yet for a restart.

The American Colloid Co. intermittently produces calcium bentonite from its Nassau property in Coal Canyon in the Willard mining district for use in specialty clay products. The company did not mine but did process 1,500 tons in 2014. It mined about 2,000 tons in 2013. The mine was temporarily shut down in February 2014 and is planned

to restart in June 2015. The clay is hosted in altered rhyolite tuff-breccia of probable Miocene-Pliocene age.

The Nevada Cement Co. mined 17,534 tons of halloysite on an as-needed basis from its Flanagan pit in the Terraced Hills about 8 miles northwest of Pyramid Lake. Production decreased 36% from 2013. Because of its high alumina content, halloysite is used in the production of Portland cement at the Nevada Cement's plant in Fernley. The halloysite occurs in partly altered, lapilli tuff in a pyroclastic unit separating late Miocene to Pliocene andesitic and basaltic flows. In the past, the Art Wilson Co. was contracted to mine the clay, but Nevada Cement employees mined the clay in 2014.

In 2013, Nevada Mining, Milling, and Manufacturing Inc. acquired Specialty Clays Corp. and its Fallon Bentonite project, which contains a sodium bentonite deposit in T18N, R30E, sections 23 through 26 and 36 and T18N, R31E, sections 18 and 19 in the Sand Springs Marsh mining district in Churchill County. The deposit reportedly contains proven reserves of 34,000,000 tons on 100 acres, and 7,000 tons of API/ISO grade material were stockpiled for shipment. The area is largely underlain by Quaternary lacustrine deposits of clay, silt, and mud. All of the claims were allowed to lapse in 2014 (NBMG Map 168; BLM LR2000 Database).

Precious Minerals Mining and Refining Corp. (PMMR) produced 3,000 tons of material from it East Walker clay mine in 2014 in the Washington mining district in Lyon County. The company mines volcanically derived clay-based mineral and 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 (PMMR, website, www.pmmrcorp.com).

Western Lithium USA Corp. owns the Kings River Valley lithium project. The property is within the McDermitt caldera, and contains high-lithium clays, including hectorite in the moat sediments in the western part of the caldera where significant amounts of clay formed by hydrothermal alteration of the sediments. This site is discussed in detail in the section on lithium.

The descriptions of 31 Nevada clay deposits are compiled in NBMG 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 world's largest producer of diatomite. Domestic production increased 3% to an estimated 882,000 tons, valued at $240,000,000. Estimated apparent consumption increased 4% to 789,000 tons, and exports decreased 5% to 96,000 tons in 2014, the third consecutive annual decrease. Production was from six companies with 11 mining areas and nine processing facilities in California, Nevada, Oregon, and Washington, with California and Nevada accounting for most of the production. Nevada produced 383,115 tons of diatomite, a decrease of 17% from 2013. Gross proceeds increased slightly to $42,313,054 in 2014. About two-thirds of the diatomite produced in Nevada is used in filtration and the remainder is largely used in absorbents, fillers, and cement. Emerging small-scale uses include pharmaceutical processing and nontoxic insecticides.

The estimated average price of unrefined diatomite materials increased 2% to $272 per ton from 2013. The world's two largest producers, both of which have operations in Nevada, increased prices in 2014. Imerys S.A., a large French industrial minerals company, increased prices 3% to 10% on all diatomite, perlite, cellulose and silicate products shipped within North America. EP Minerals, LLC, a subsidiary of Golden Gate Capital and the world's second largest diatomite producer, increased global prices between 4% to 7% (Imerys Filtration Minerals, press release, 5/15/2014; EP Minerals, News Detail, 9/22/2014).

EP Minerals, LLC, produced most of Nevada's diatomite. Its Colado plant and mine in Pershing County is the company's most productive Nevada operation. It produced 228,236 tons in 2014, an increase of 12% from 2013. 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 freshwater tuffaceous sedimentary rocks of probable Miocene age. The company produced diatomite used in fillers and absorbents at its Clark plant and mine in the Clark mining district in Storey County, about 20 miles east of Reno and diatomite used in insulation from a pit near Hazen in Lyon County. The Clark operation produced 87,193 tons, a decrease of 38% from 2013. The diatomite at Clark contains about 90% of the diatom *Melosira granulate*, and is interbedded with Neogene diatomaceous shale and thin beds of lacustrine volcanic tuff. The company also produced 32,410 tons at its Fernley mine and mill, an increase of 6% from 2013. The Fernley diatomite was processed into absorbent products, cat litter, and soil conditioner. The mine and mill (acquired from the Moltan Company in 2013) are located about 20 miles northeast of Fernley in the Desert Mining District. The company produced 4,189 tons from its Hazen pit, a decrease of 56% (NBMG Bulletin 89; 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 25,300 tons 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 Hazen are interbedded with Neogene lacustrine tuffaceous shale, sandstone, and limestone, and siliceous tuff (NBMG Bulletin 83).

Grefco Minerals Inc.'s 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 company produced 5,796 tons in 2014. The deposit is in Miocene-Pliocene lacustrine sedimentary rocks consisting of diatomite, argillaceous and calcareous diatomite, clay, sand, and volcanic ash. The main diatoms are *Melosira granulate*, *Stephanodiscus aslraea*, and *Eunotia robusta*.

Sunrise Resources PLC, based in England, conducted initial reconnaissance work as part of its County Line Diatomite project on the Mineral and Nye County line in sections 5 and 6, T7N, R38E and section 32, T8N, R38E in the Bell Mining District. (NBMG Bulletin 65; Sunrise Resources, PLC, news releases 2/17/2014, 5/12/2014, 6/30/2014, 11/20/2014, 4/27/2015; Sunrise Resources, PLC, website, www.sunriseresourcesplc.com).

Dimension Stone and Landscape Rock

Domestic production of dimension stone decreased 1% to 2,480,000 tons, valued at $451,000,000. Estimated apparent consumption increased 4% to $2,590,000,000 in 2014. The difference between production and consumption was due to imports, largely from China, Brazil, and Italy. The decrease in production is due to the slow growth of the U.S. economy and decreases in residential construction of smaller houses. Annual production in Nevada, which includes landscape rock, was estimated to be about 300,000 tons with an estimated value of about $20,000,000. Nevada supplied local and regional markets.

Mt. Moriah Stone Quarries LLC mined flaggy quartzite of several colors from the Cambrian Prospect Mountain Quartzite from a quarry about 15 miles north of Baker in White Pine County. The company produced 8,257 tons, an increase of 58% from 2013. 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 (Las Vegas Rock website vegasrock.com).

Kalamazoo Materials Inc. of Tucson, Arizona, mined crushed stone for landscaping from the its quarry located about 5 miles north of Beatty, and the Modoc Quarry about 16 miles west of Searchlight. The company produced 188,309 tons. Kalamazoo is leasing the quarry from D and H Mining. Production is from Pliocene tuff. In the past, D and H Mining mined and sold the material under the name of "Spicerite" (strong, bright white, hydrothermally altered tuff used to make bricks and blocks). The Modoc Quarry is mainly in Precambrian gneiss, schist, and granitic rocks (Kalamazoo Materials website, 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 144,400 tons of fluorspar equivalent, the same as in 2013. Apparent consumption increased 5% to 637,000 tons. Imports, mostly from Mexico and China, and some from South Africa, made up the difference. After a recent peak of between $298 and $351 per ton in early 2013, the average price of metallurgical grade fluorspar dropped to between $218 and $240 per ton in June 2013 and remained stable through to end of 2014 (*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 increased its hydrofluoric acid production capacity and diverted fluorspar from export to internal consumption. This restriction of exports of fluorspar through quotas and/or taxes, as well as an increase in worldwide demand around 2010, has led to increased exploration and development of new deposits and the reopening of mines. However, world demand dropped in 2014 largely due to a slowdown in the fluorochemicals market, resulting in a decline in production and the 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. Production from Nevada mines continued through 1991 and then from stockpiles for several years afterwards. The demise in Nevada production was not from depletion of reserves but due to other factors. Factors included cheaper imports, largely from China; the closing and replacing of open hearth steel furnaces with improved steel production methods requiring less fluorspar; and the ban on the production of chlorofluorocarbons.

In late 2014, Tertiary Minerals PLC completed 9 reverse circulation holes totaling 8,252 feet as part of a third phase of drilling on the MB project of Nevada Fluorspar, Inc. around the Bisoni deposit in the Fish Creek Mining District in Eureka County. In 2012, the company took out a 50-year renewable lease on the property with the option to buy from Nevada Fluorspar. The drilling was concentrated in the Western area and more than doubled the size of a previously defined JORC-compliant mineral resource. One vertical hole drilled 2,300 feet west of the previously defined resource was completed to a depth of 1,670 feet and encountered mineralization that increased in grade with depth to the bottom of the hole. The hole intercepted 1,010 feet averaging 8.42% CaF_2 that started at a depth of 195 feet. This zone included 230 feet averaging 16.63% CaF_2 and 465 feet averaging 11.55% CaF_2 starting at 740 feet. The

mineralization occurs in pegmatitic quartz veins, skarn veins, greisen veins, and quartz veins spatially associated with late Cretaceous granite porphyry dikes intruding dolomitized limestone of the Ordovician Antelope Valley Formation. Fluorite is the ore mineral, which occurs with sphalerite, molybdenite, beryl, and scheelite (NBMG Bulletin 93; Tertiary Minerals, PLC, news releases, 11/27/2014, 12/18/2014, 6/17/2015; Tertiary Minerals, PLC, annual report, 9/30/2014; Tertiary Minerals, PLC, website, www.tertiaryminerals.com).

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

Gemstones

Precious opal is produced from several small mines in the Virgin Valley area of northern Humboldt County. Virgin Valley is a well-known source of gemstones in North America. The best known mines are the Royal Peacock, Rainbow Ridge, and Bonanza Mines, which produce about 500 pounds of opal annually from pay-to-dig operations. The opal occurs in lacustrine sedimentary rock, volcanic ash and tuff, and bentonite of the Miocene Virgin Valley Beds of Merriam (NBMG Bulletin 59). The reported gross proceeds were $130,293, an increase of 25% from 2013. Turquoise was last produced from the Damele Mine in Lander County and the Royston claims in Nye County in 2011.

Gypsum

Domestic crude gypsum production increased 5% to an estimated 18,800,000 tons, valued at $154,000,000. 2014 marked the fourth consecutive annual increase in production. Estimated apparent consumption increased 5% to 37,100,000 tons, the fifth consecutive annual increase. Crude gypsum production has also been offset by the production of synthetic gypsum. Synthetic gypsum is produced from scrubbed emissions from coal-fired power plants. The production of synthetic gypsum has increased almost every year between 2003 and 2014. Production of synthetic gypsum increased 3% to 14,600,000 tons in 2014. The difference between production and consumption was mostly made up with imports from Canada, Mexico, and Spain, which increased 6% to 3,930,000 tons. The increase in consumption was due to increased activity in construction. The estimated price of crude gypsum increased slightly to $8.16 per ton from the mine.

Nevada ranked fourth among six states that account for 69% of domestic production of natural gypsum. Nevada's production increased 34% to 2,803,848 tons in 2014, the consecutive annual increase and surpassing the previous production record of 2,600,000 tons in 1999. The reported gross proceeds was $33,300,001.

PABCO Gypsum in Clark County northeast of Las Vegas was the largest producer in Nevada with production of 1,137,216 tons, a decrease of 3% from 2013. PABCO Gypsum processes its gypsum to make wallboard at a plant adjacent to their mining operation. The plant has an annual capacity of 1,260,000,000 square feet of wallboard. 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 (Global Gypsum Magazine, 9/2013; PABCO Gypsum website, www.pabcogypsum.com).

Gypsum Resources LLC mined 1,116,784 tons of gypsum from its Blue Diamond pit, an increase of 255% from 2013. The operation covers over 3,000 acres. Gypsum Resources processes the gypsum for wallboard, cement, and agricultural soil amendments at its plant adjacent to the mine. The operation serves Nevada, Arizona, and southern California, and is looking to expand markets into Oregon and Washington. The gypsum is interbedded with limestone, dolomite, and red shale of the Lower Permian Kaibab Formation (NBMG Bulletin 103; USA Business Review, p. 99–105, October, 2014; Gypsum Resources, LLC, website, www.bdhgypsum.com).

Material from two smaller operations is used in cement and agricultural applications. The Art Wilson Co. produced 479,562 tons of gypsum and anhydrite from the Adams Mine in Lyon County, an increase of 9% from 2013. The Adams deposit is a folded body associated with limestone in Triassic metavolcanic rocks. In 2015, the Art Wilson Co. was acquired by ACG Materials (formerly Harrison Gypsum Company) of Norman, OK (ACG Materials, news release, 8/5/2015). The Pioneer Gypsum Mining Company produced 66,185 tons of gypsum from the Pioneer Mine about 10 miles east of Las Vegas, a decrease of 57% from 2013. The Pioneer Mine mines the same late Miocene gypsite deposit as the PABCO operation.

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. The plant has an annual capacity of 270,000,000 square feet of wallboard. 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. (Global Gypsum Magazine, 9/2013; Georgia-Pacific Gypsum LLC, website, www.gp.com).

CertainTeed Gypsum Manufacturing Inc. produced gypsum board, land plaster (soil amendment), and plaster products from its plant at Blue Diamond, Clark County, in 2014. The plant has an annual capacity of 700,000,000 square feet of wallboard. The Black Rock Mine in Mojave County, Arizona, about 120 miles northeast of Blue Diamond, was the source of its gypsum, which is trucked to the plant. (Global Gypsum Magazine, 9/2013; Water Conservation Plan, CertainTeed Gypsum Manufacturing, Inc., 6/5/2015; CertainTeed website, www.certainteed.com).

Transnational Group Inc. of Las Vegas was in negotiations with the Nevada Outdoor School to acquire the right to mine gypsum on the Mount Vista gypsum property covering 204 acres in Section 12 of T22S, R60E, in the Arden Mining District in Clark County. The gypsum is interbedded with limestone of the Lower Permian Kaibab Formation, and was mined mostly in the early 20th century. The company is proposing to mine up to 1,000,000 tons of gypsum annually, and the property's total gypsum resource was most recently estimated to be between 150 and 200 million tons with an estimated value between approximately $4.5 and $6 billion at today's prices. Its estimated lifespan is 100 years. (BLM LR2000 Database; Globe Newswire, 3/19/2015, 4/30/2015; Transnational Group, Inc. news release, 4/9/2014; Transnational Group, Inc. website, www.transnationalgroup.net).

The Art Wilson Company staked two mills sites and five lode claims adjacent to the five older claims on its Ludwig property in T13N, R27E on the west edge of the Singatse Range in Lyon County. The Ludwig gypsum deposit, which is hosted in Jurassic limestone, measures about 3,300 feet by 500 feet and is covered by up to 50 feet of pediment gravel. It was mined from between 1911 and 1930 from an open pit 300 feet in diameter and 80 feet deep. Mining was planned for 2015 (LR2000 Database; NBMG Bulletin 103). Mining commenced in 2015.

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

Iron Oxide

The USGS reports iron ore that is not used in general iron and steel production as iron oxide pigments (IOP). This includes use in concrete and other construction materials (60%); coatings and paint (25%); foundry uses (5%); and animal food, magnetic tapes, and other uses (6%). Mine production was withheld, but the estimated combined production of finished natural and synthetic IOP increased 4% to 54,000 tons valued at $80,000,000. Estimated apparent consumption of combined naturally and synthetically produced IOP increased 3% to 231,000 tons. About 80% of IOP consumed was imported. The estimated average price was $1,452 per ton, about the same as for the previous two years. Nevada's production of IOP was small and not reported, but one company sold iron oxide from stockpiles in 2014. The reported gross proceeds for IOP in Nevada, which was reported as iron ore, decreased 11% to $1,392,559 from 2013.

Saga Exploration Company shipped iron oxide from stockpiles at the Nevada Barth Mine in Eureka County. 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 Southern Pacific Railroad 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.

From at least 2000 through 2013, Standard Industrial Minerals Inc. of Bishop, California, sold several hundred tons of iron oxide annually from stock piles at the Minnesota Mine near Yerington, but the company sold nothing in 2014. 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

Domestic production of quicklime and hydrate decreased 1% in 2014 to an estimated 20,900,000 tons valued at $2,200,000,000. Apparent consumption decreased 1% to 21,000,000 tons. In 2014, the average price was $105 per ton for quicklime and $126 per ton for hydrate. The USGS rolls its production figures of limestone and dolomite not used in lime production into the figure for crushed stone. In 2014, 69% of the 1,400,000,000 tons of crushed stone produced nationwide was from limestone and dolomite.

Nevada produced 7,898,641 tons of limestone 346,590 tons of dolomite in 2014. The gross proceeds increased 1.5% to $38,613,519.34 for limestone (including cement), and decreased 7% to $3,953,975 for dolomite.

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 operation produced 1,726,619 tons of limestone, an 11% increase from 2013. 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. Production is mainly from the Devonian Devils Gate Limestone (Graymont Western US, Inc. website, 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 produced 1,475,742 tons of limestone and 303,430 tons of dolomite, decreases of 14% and 5%, respectively, from 2013. 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. Production is from the Devonian Sultan Limestone.

Of Nevada's specialty dolomite and limestone producers, the Nutritional Additives Corp. produces agricultural and nutritional dolomite products along the northwest edge of the Sonoma Range about five miles south of Winnemucca. The company shipped 1,739 tons, a 2% increase from 2013, which was mined from the Triassic Dun Glen Formation. Min-Ad Inc., a subsidiary of Inter-Rock Minerals Inc. of Toronto, Canada, also produced 41,421 tons, a 6% increase from 2013, from the Dun Glen Formation about three miles south of the Nutritional Additives' operation. Inter-Rocks's 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 produced some pure calcitic limestone from the Adams Mine. The limestone is used for soil pH control and reportedly contains no detectable magnesium.

Kelzyme Research and Development LLC was developing a small mine to produce calcium carbonate containing trace elements for soil, plant, and animal and poultry feed nutritional additives. Four tons of samples for marketing were shipped from stockpiles at the mine site in Section 8, T32N, R35E. The deposit is hosted in massive limestone and dolomite of the Triassic Natchez Pass Formation (Kelzyme Research and Development, LLC, website: www.kelzyme.com).

Lithium

Nevada is the only state with domestic production of lithium raw materials. Subsurface brines were the dominant raw material for lithium carbonate production worldwide Production costs for brines are much lower compared with the mining and processing costs associated with hard-rock ores, which are largely spodumene. However, with the growth of demand from China over the last few years, hard-rock lithium operations in Australia, Brazil, Canada, and China, are now estimated to supply about half the market. A spodumene operation in Australia along with two brine operations in Chile dominated world production in 2014.

Lithium was produced as a by-product from brine in California since 1938, but the Nevada operation, initiated at Silver Peak in Esmeralda County in 1966 by Cyprus Mines, was the first to extract lithium as the sole commercial product from brine. This operation was the world's dominant lithium producer until the late 1980s, when a Chilean lithium brine operation started up, followed by brine operations in Argentina and China. U.S. lithium imports totaled 2,300 tons in 2014.

After decreasing 26% in 2009, global lithium production almost doubled by 2012 to 39,000 tons and has remained about the same since then. Most of the increase was due to lithium-based rechargeable battery sales, which accounted for 31% of the global lithium market. Ceramics and glass account for 35% and lubrication grease for 8% of the market. The remainder includes air treatment, metallurgy, polymers, pharmaceuticals, aluminum production, and other uses.

The U.S. price for lithium carbonate in 2014 decreased from $3.00–3.50 per pound to $2.63–$2.95 per pound at year's end (*Industrial Minerals*).

Tesla Motors, Inc., began construction of its $5,000,000,000 Gigafactory in Storey County in June 2014, with production expected to begin in 2017. The plan is to produce lithium-ion batteries for Tesla electric cars and for home, commercial, and business use. The Gigafactory will more than double the present world production of lithium-ion batteries. It will also produce batteries for significantly less cost using the economies of scale, innovative manufacturing, reduction of waste, and having most manufacturing processes under one roof. Tesla is projecting annual production of 500,000 electric cars by 2020, which will require an annual production of 27,000 tons of lithium compounds on top of the present annual world production of almost 40,000 tons. The company stated that it prefers to have lithium sourced as close as possible to its Gigafactory, preferably North America, but will go abroad if necessary. Nevada is well placed as a supplier with the current operation at Silver Peak, large resource at Kings Valley, and potential at other exploration projects. (Tesla Motors, Inc., website, www.teslamotors.com; *Industrial Minerals*; Lithium-titanate Batteries, https://en.wikipedia.org/wiki/Lithium%E2%80%93_titanate_battery).

Rockwood Lithium Inc. (formerly Chemetall Foote Mineral Co.) owned and operated the Silver Peak lithium facility through 2014. The company was acquired by bromine products manufacturer Albemarle Corp. at the beginning of 2015. The Silver Peak operation produced lithium carbonate, lithium hydroxide monohydrate, and lithium hydroxide anhydrite. The lithium chemicals are produced by pumping lithium rich brines from beneath the Clayton Valley playa and into evaporation ponds where the brines are further concentrated. The highly concentrated brines are refined to form the lithium compounds. The pumped brine varies between 100 and 300 ppm lithium. The operation shipped 9,430,641 pounds of lithium compounds, an increase of 2% from 2013. Gross proceeds decreased 6% to $20,627,036 in 2014 (Albemarle Corp. and Subsidiaries 10-K Report, 2/27/2015; *Industrial Minerals*).

Most exploration for lithium-rich brines in Nevada occurred near the Silver Peak operation. AmeriLithium of Henderson, Nevada, changed its name to Integrated Energy Solutions, Inc., and retained its Clayton Deep, Full Monty, and Jackson Wash exploration properties. Clayton Deep consists of one 80-acre association placer claim covering part of the 2,200-acre gravity low target that is less than ten miles southwest of Silver Peak. It is underlain by the upper Miocene to Pliocene Esmeralda formation, which consists of approximately 15,000 feet of lacustrine tuffaceous sediments including poorly sorted conglomerate and sandstone, limestone, and mudstone. The Full Monty consists of five 80-acre association placer claims near the center of T5N, R41E in Smoky Valley about 25 miles north of Clayton Valley. It covers a large gravity low at the intersection of the Montezuma Trough and the Great Smoky

Valley lineaments. It is underlain by a thick sequence of layered and interbedded Quaternary alluvium. Part of the property is also covered by a playa containing evaporites. The property is just west of the old Hall molybdenum mine. The Hall deposit contains anomalous lithium, which may be a source of the lithium on the Full Monty property. The Jackson Wash property consists of three 40-acre association placer claims in the eastern portion of T4S, R41E in Jackson Wash west of the Goldfield Hills. The property covers part of a gravity low and is underlain by Quaternary alluvium. The company developed a drilling program but was seeking funding to carry it out (Integrated Energy Solutions, Inc., 10-Q Report, 11/19/2014; AmeriLithium Corp. 10-K Report, 4/25/2014; Integrated Energy Solutions, Inc., website, ies-ne.com).

Clayton Valley Lithium Inc. staked 90 20-acre (NSP) placer claims in Sections 27, 31 T1S, R40E in the Silver Peak Marsh Mining District, Esmeralda County. The claim block is just north of the Rockwood Lithium Silver Peak Operation (BLM LR2000 Database).

Dajin Resources (US) Corp. conducted a 550 station gravity survey at its Alkali Lake project, which consists of 138 20-acre placer claims covering 2,811 acres mostly in T1S, R41E, about 7.5 miles east-northeast of the Silver Peak operation. The company also holds claims covering 5,405 acres mainly in T3N, R33E in the Teels Marsh region of Mineral County, which contains elevated lithium and boron values in an 18,000-foot-long by 6,000-foot-wide zone. Of 74 surface samples collected, the highest assayed 460 ppm lithium, 28 samples assayed above 150 ppm lithium, and 23 more assayed above 100 ppm lithium (Market Watchpress release, 2/5/2015; Thenewswire.ca, 7/23/2015).

Lithium Corp. was looking for a joint venture partner for its Fish Lake Valley and San Emidio properties. Fish Lake Valley property, which the company drilled in 2012 and 2013, consists of 40 80-acre association placer claims covering 3,200 acres mostly within T1N, R36E and T1S, R36E, Esmeralda County, about 22 miles northwest of the Silver Peak operation. The San Emidio Property, which the company drilled in 2012, consisted of 20 80-acre placer claims covering 1,600 acres in T29N, R23E in the San Emidio Desert, Washoe County, about 65 miles north-northeast of Reno. (Lithium Corp. 10-K Report, 3/13/2015; Lithium Corp. news releases, 3/4/2014, 6/23/2015; Lithium Corp. website: www.lithiumcorporation.com).

Pure Energy Minerals, Ltd. of Vancouver, British Columbia, completed one hole to 900 feet, issued a 43-101 technical report, and was compiling another, more comprehensive 43-101 report containing inferred resources on its Clayton Valley South project, located in T3S, R39E, just south of the Silver Peak operation. The project consists of placer claims leased from GeoXplor Corp. and Nevada Alaska Mining, plus claims that it staked. The project includes ground drilled and then dropped by Rodinia Lithium in 2013. At a depth of 480 feet, the hole drilled by Pure Energy intersected a 430-foot interval of fluids in excess of 200 ppm lithium. Samples from pumped fluids assayed up to 255 ppm lithium, 486 ppm magnesium, and 4,650 ppm potassium. The brine occurs within basin deposits of mainly finer clay and silt and interbeds of volcanic ash and tuff. In the northern half of Clayton Valley, where the main Silver Peak operation is, the zone of lithium bearing sediments and aquifers is about 7.5 miles long by 2 miles wide, and 300 to 1,000 feet deep. The southern half of the valley, which contains the Clayton Valley South project, the zone is about 10 miles long by 1.8 to 2.2 miles wide and at least 820 feet thick (Pure Energy Minerals, Ltd., Audited Annual Financial Statements, 10/17/2014; Pure Energy Minerals, Ltd., 43-101 technical reports, 2/5/2015, 7/17/2015; Pure Energy Minerals, Ltd., news releases, 10/3/2014, 11/5/2014; Pure Energy Minerals, Ltd., website, www.pureenergyminerals. com).

Pure Energy Minerals Ltd. also drilled a hole to 960 feet into bedrock on the Alkali Flats project. The project consists of association placer claims covering about 2,240 acres mostly in T2S, R41E, in the Montezuma mining district in Esmeralda County. The drilling results were still pending at the end of 2014 (Pure Energy Minerals Ltd., Management and Discussion Analysis, 2/26/2015; Pure Energy Minerals, Ltd., news release, 10/3/2014; Pure Energy Minerals, Ltd., website, www.pureenergyminerals.com).

Sovereign Lithium Inc. dropped its option agreement with GeoXplor Corp. to acquire the Big Smoky Valley project. The block consisted of 31 160-acre association placer claims covering 4,960 acres mostly in T2S, R39E, in the Silver Peak Mining District just northwest of the Silver Peak lithium operation. The basin contains two areas of bedrock depths exceeding 1,600 feet separated by a small saddle, suggesting a large area favorable to the accumulation of lithium bearing brines (Sovereign Lithium, Inc., 8-K Report, 4/11/2014; Sovereign Lithium, Inc., website, www. sovereignlithium.com).

Western Lithium USA Corp. continued with exploration, testing, and evaluation of the lithium resources on its Kings River Valley project northern Humboldt County. Also, since 2011, the company has been developing processes for separating out lithium carbonate and making drilling mud additives. An updated 43-101 report was also issued. The property consisted of 1,882 unpatented lode claims covering 37,641 acres within the middle Miocene McDermitt caldera. It covers several areas containing inferred uranium resources and broader zones of uranium, molybdenum, and lithium mineralization. The lithium largely occurs in high-lithium clays, including hectorite, with significant amounts of clay formed from the 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 as PCD, South Lens, South Central Lens, North Central Lens, and North Lens by Chevron (who drilled the area in 1985) and Stages I through V respectively by Western Lithium. In each area, the high lithium clay occurs in thick, apparently continuous

accumulations with the zones of mineralization varying between about 3 and 300 feet thick.

Western Lithium spent two years developing methods to process hectorite into a drilling mud additive and a strategy to enter the specialty drilling mud business. The hectorite clay was processed using an extruder and combined with several additives to produce an organoclay, which was given the trade name Hectatone. The organoclay was also being developed as an animal feed additive under the trade name Hectabind. Western Lithium also started using bentonite in some of its organoclay products. In 2014, an organoclay plant with an initial 10,000-ton annual capacity was completed at the company-owned industrial complex in Fernley adjacent to rail and freeway access. Western Lithium identified certain areas within the Stage I (PCD) deposit for clay extraction to support commercial development operations. The clay lenses of interest range in thickness from 3 to 10 feet throughout the deposit. About 3,000 tons of hectorite clay was stockpiled, and the plant began operations in December 2014.

A potential market for lithium carbonate is the aforementioned Gigafactory being built by Tesla. Results of testing by the Department of Energy's Argonne National Laboratory of lithium carbonate from Kings Valley for lithium ion batteries proved that Western Lithium can produce high purity lithium products for use in multiple types of lithium ion battery chemistries. The company was then awarded a patent (US 8,431,005) for developing a process in separating lithium and potassium from hectorite and other lithium-rich clays. A pre-feasibility study was completed, which evaluated two production scenarios based on this technique with the plant capable of producing up to 14,600 tons of lithium carbonate annually. At full production, the estimated cost of production is $878 per ton of lithium carbonate. The start-up capital is estimated to be $248 million. The capital then needed to bring to full production is estimated to be $161 million, and sustaining capital is estimated to be $40 million. A test bulk sample was processed at a calcination facility in Weimar, Germany, which resulted in an 85%–92% recovery rate. This was in line with the prefeasibility study. The company had a test plant designed and built that would process 13.2 tons of lithium clay per day resulting the extraction of 132 pounds of battery-grade lithium carbonate and 617 pounds of potassium sulfate. Start-up operations were underway in mid-October to confirm equipment performance. The calcination section of the plant successfully produced enough feed for the extraction plant to operate for three months, and the crystallizer to concentrate lithium and obtain glaserite salt also went into operation. The results of an initial run of 75 tons from the Kings River Valley project were due in early 2015 (Western Lithium USA Corp. Annual Information Form, 12/18/2014; Western Lithium USA Corp. Management Discussion and Analysis, 12/18/2014, 2/12/2015; Western Lithium USA Corp. 43-101 technical report, 5/9/2014; Western Lithium USA Corp. news release 5/22/2014, 2/24/2015; Western Lithium USA Corp. website, www.westernlithium.com; *Industrial Minerals*).

Magnesia

Domestic production of magnesium compounds increased 8% in 2014 to an estimated 353,000 tons, valued at $251,000,000. About 69% of domestic magnesia production came from seawater and natural brines, and the rest was produced from mining magnesite and minor brucite in Nevada and olivine in Washington. Estimated apparent consumption increased 13% to 628,000 tons, with the difference between consumption and production being made up by imports, mostly from China. About 52% 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 $213 and $310 per ton in 2014. Price increases toward the end of 2014 were likely due to China increasing the cost of export licenses and imposing resource and water taxes on magnesite mining and concerns about the availability of raw materials that have led some producers to secure "captive" magnesia sources (*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, and in the 1940s were processed in Henderson, Nevada, to make magnesium metal. From the 1950s to the 1980s, mining and processing was by Basic Industries, a major producer of refractory magnesia. During the 1990s, the availability of cheap foreign refractory magnesia caused production at Gabbs to be switched to light-burned (caustic calcined) magnesia that is mainly marketed for wastewater treatment and agricultural uses.

Premier Chemicals shipped 103,304 tons of magnesium compounds in 2014, a decrease of 5%. The gross proceeds increased 9% to $6,705,956 from 2013. The plant capacity is rated at 150,000 tons per year. The magnesite and brucite occur as complex replacement bodies in Triassic dolomite in an area of about 1,300 acres in the Paradise Range just east of the town of Gabbs. The resource is 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. owns the Tami-Mosi magnesium property, which covers about 1,637 acres in Sections 22, 28, 33, and 34, T16N, R64E and Sections 3 and 4, T15N, R64E in the western foothills of the Schell Creek Range southeast of Ely in White Pine County. Nevada Clean Magnesium released an updated 43-101 report. It formed a joint venture with ScanMag AS of Norway for mutual collaboration on Tami-Mosi (60% NCMI, 40% ScanMag AS) and a property in Norway. The company spent $106,638 on exploration on Tami-Mosi in 2014

(Nevada Clean Magnesium, Inc., Management and Discussion Analysis, 2/27/2015; Nevada Clean Magnesium, Inc., 43-101 Technical Report, 7/4/2014; Nevada Clean Magnesium, Inc., website, www. nevadacmi.com).

Perlite

Domestic production of perlite in 2014 increased 5% to 485,000 tons, which was valued at $24,200,000. Until 2003, the U.S. was the world's largest producer of perlite, but was surpassed by Greece in 2004 and Turkey in 2014. Estimated apparent consumption increased 4% to 635,000 tons, and imports decreased 2% to 202,000 tons from 2013. About 51% of perlite production is used in building construction products, the manufacturing of which has picked up with the recovery in construction. Most of the rest is used in fillers, filters, and horticulture. The estimated average price in 2014 was $50 per ton, the same as in 2013.

Nevada has large perlite resources, and several deposits in central Pershing, northern Lincoln, and southern Clark Counties have been mined extensively. However, the state now produces only minor amounts of perlite. Current perlite production in Nevada is restricted to relatively small-scale mining of two deposits for niche markets, which accounted for less than 5% of the domestic production in 2014. 19,887 tons were processed and shipped, a 65% increase from 2013, and the gross proceeds increased 51% to $6,210,740.

Wilkin Mining and Trucking Inc. produced 1,784 tons of perlite, an 18% decrease from 2013, 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 of 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. In the 1950s, it was estimated to contain a reserve of over 15,000,000 tons.

EP Minerals processed and shipped 18,281 tons of expanded perlite, an increase of 85% from 2013, from its Colado diatomite plant in Pershing County. The product is marketed as a filter aid. The crude perlite comes from the Popcorn Mine about 15 miles south of Fallon. It is typically mined a week or two per year. The perlite occurs as glassy rhyolite lava flows (BLM LR2000 Database; NBMG Bulletin 83).

Potassium Sulfate, Sodium Sulfate, and Alum

Potassium sulfate within the resource at Western Lithium Corp.'s Kings Valley project is summarized under the section on lithium. During the lithium extraction process, potassium sulfate and sodium sulfate would be recovered as a by-product and processed and sold for fertilizer (Western Lithium Corp. 43-101 Technical Report, 1/27/2012; Western Lithium Corp. website, www.westernlithium.com).

Heart of Nature LLC processed material from its Alum/Sulfur pit in the Alum mining district in Esmeralda County. The company campaign mines the deposit, but no mining was reported for 2014. Minerals that are mined includes 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. Jarosite occurs locally in the pit. The material is mined, crushed, stockpiled, and 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, www.heartofnature. biz).

Rare Earths

Molycorp Inc.'s Mountain Pass Mine in California, which restarted production in 2012, was the only domestic producer of rare earths elements (REEs) in 2014. The mine was placed on care and maintenance in 2015. The company processed REEs from the fluorocarbonate mineral bastnasite, and production increased 27% to 7,700 tons of bastnasite concentrates (60–70% rare earth oxides). Estimated domestic consumption increased 13%, with the difference being made up by imports predominantly from China. Despite the increase, the estimated value of imported refined REEs was $210,000,000, a decrease of 18%. China contains 42% of the world reserves and accounted for 86% of world production of 121,000 tons in 2014. China accounted for 75% of U. S. imports between 2008 and 2013.

Largely because of its own increasing consumption, China cut its exports by 70% in 2010 and 2011, while tripling its domestic consumption in 2011. Through 2014, China continued export restrictions in an effort to consolidate its domestic REEs industry, build up its domestic stockpile, clamp down on illegal production and export, conserve resources, and protect the environment. The export restrictions resulted in price increases ranging from 140% to over 7,000% on various REEs especially from the second half of 2010 through 2011. However, sluggish economic conditions and improved efficiency in material processing resulted in price decreases through 2014. The fall in prices did stimulate domestic consumption, though consumption was tempered with the increased use of LED lighting, which requires less REEs than fluorescent lighting. The world has little near-term production capacity outside of China, with only the recent startup of the Mount Weld operation in Australia, the restart of Mountain Pass in California, the projected start-up of a monazite sand processing plant in Odisha, India, and the 2015 projected start-up of the Nolans bore project in Australia. This has led to an increase in exploration in at

least nine states, including Nevada, and 17 countries (*Industrial Minerals*).

Through its subsidiary, Red Hill, Elissa Resource Ltd. only spent $37,647, mainly in claim maintenance, consulting fees and reclamation costs on its Thor REE project in 2014. The company was seriously considering selling the Thor project. The Thor project consists of 198 lode claims covering 3660 acres located mostly in T28-29S, R61E in the Crescent Mining District in Clark County. The project area is in Precambrian rocks, but unlike Mountain Pass where bastnasite is enriched in light REEs, the mineralization at Thor occurs in structurally-controlled zones containing monazite, apatite, and xenotime enriched in heavy REEs. Significant REEs and some thorium mineralization occurs along the Lopez and Santos trends and in the Black Butte and NED areas. 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, covered by shallow alluvium. 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, 12/31/2014; Elissa Resource, Ltd., news release, 7/23/2015; Elissa Resource, Ltd., website, www.elissaresources. com).

Salt

Domestic production of salt increased 9% in 2014 to 48,600,000 tons, which was valued at $2,200,000,000. Nevada's only producer, the Huck Salt Co., produced 17,000 tons of salt, a decrease of 26% from 2013. The gross proceeds from the Huck Salt operation declined 15% in 2014 to $529,899. The salt is mainly used for water softener and de-icing roads, the production levels of which are dependent on weather. The salt is mined from the playa on Fourmile Flat about 25 miles southeast of Fallon. It has been harvested almost continuously since the 1860s, when it was hauled to the mills that processed Comstock silver and gold ore. The descriptions of brine and evaporite deposits are compiled in Nevada Bureau of Mines and Geology Bulletin 87, *Evaporites and Brines in Nevada Playas*, 1976, by Keith Papke.

Silica

The USGS includes silica industrial sand and gravel. The U.S. is by far the world's largest silica sand producer, and the estimated domestic production increased 21% in 2014 to 2,800,000 tons, which was valued at $4,200,000,000, both all-time highs. Estimated apparent consumption increased 22% in 2014 to 79,700,000 tons. The U.S. is a major exporter of silica, and estimated exports increased 1% to 3,310,000 tons in 2014 after decreasing 32% in 2013. The estimated average price increased slightly in 2014 to $50.80 per ton. The uses of silica are hydraulic fracturing sand and well-packing and cement sand (72%); manufacturing glass (13%); foundry sand (6%); and fillers and building products, golf course sand, and other uses (9%). Most silica production in Nevada goes to manufacturing glass and foundry castings, construction materials, and a small amount for golf courses. None was used for hydraulic fracturing in 2014. Nevada shipped 853,520 tons of silica, a 15% increase from 2013. The gross proceeds increased 3% to $19,257,455.

Nevada's main silica producer, Simplot Silica Products at Overton in Clark County, shipped 734,667 tons of silica sand, an increase of 22% from 2013. The sand is mined from a large open pit in the relatively friable Cretaceous Baseline Sandstone, washed in the pit, and transported via a 5-mile slurry pipeline to a plant where it is screened and bagged. The facility produces four grades of sand based on coarseness, AFS 55, 60, 70, and 100. AFS 70, which is used mainly in manufacturing glass and foundry castings.

James Hardie Building Products Inc. shipped 15,338 tons, the last of their stockpile of high purity silica from the Lucky Boy Quarry about 10 miles southwest of Hawthorne in Mineral County. None was mined or processed, and the mine was temporarily shut down in June. The material was transported to the company's crushing plant near Reno. 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 Lucky Boy Quarry is in a 1300-foot by 350-foot body of milky quartz hosted in granodiorite.

Southern Nevada Liteweight produced 100,515 tons of silica sand in 2014 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

Domestic production and apparent consumption of zeolite decreased 3% and 4% respectively to estimated 74,400 tons and 71,900 tons. Prices varied between $45 and $725 per ton, depending upon the zeolite, and have remained flat for four years. Nine companies mined chabazite in Arizona and clinoptilolite in five other states. Over 70% of the zeolites sold are used in animal feed, pet litter, odor control, drill hole cement, and water treatment.

Nevada contains large known resources of zeolite; however, zeolite production has been small, and no zeolite is currently mined in Nevada. Saint Cloud Mining Co. of Winston, New Mexico, operated the Ash Meadows plant, which annually ships 1,000 to 5,000 tons of processed 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, www.stcloudmining.com)

KMI Zeolite Inc. operated its plant in Sandy Valley about 32 miles southwest of Las Vegas. The source is a deposit that reportedly has a proven reserve of 53,700,000

tons of largely clinoptilolite. The deposit is located eight miles west of Death Valley Junction in California about 85 miles northwest of the plant (KMI Zeolite, Inc., website, www.kmizeolite.com).

Zeolite minerals (most of which are rare) reportedly found in Nevada include analcime, chabazite, clinoptilolite, epistilbite, erionite, ferrierite, heulandite, mordenite, natrolite, offretite, phillipsite, scolecite, and stilbite, and reported locations of these minerals are given in Nevada Bureau of Mines and Geology Special Publication 31, *Minerals of Nevada*, 2004, by Stephen B. Castor and Gregory C. Ferdock. The descriptions of a few Nevada zeolite deposits are also compiled in Nevada Bureau of Mines and Geology Bulletin 79, *Erionite and Other Associated Zeolites in Nevada*, 1972, by Keith Papke. A collection zeolite samples from near Lovelock, Nevada, which was acquired by Keith Papke, is available at the Nevada Bureau of Mines and Geology Great Basin Science Sample and Records Library.

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
Hot Springs Mtn. (Desert district)	Limestone	1964: 2,500,000 tons, 91.4-97% $CaCO_3$, 0.84-2.11% $MgCO_3$, 1.46-4.75% SiO_2 (estimated reserves)	
CLARK COUNTY			
Anderson (Moapa district)	Gypsum	1936: 1,500,000 tons, (estimated reserve)	
Blue Diamond (Arden district)	Gypsum	2014: >25,000,000 tons, (proven and probable reserves)	1909-1988: N/A 1962: >300,000 tons annually 1989-2004: 8,287,349 tons 2012: 43,120 tons 2013: 314,141 tons 2014: 1,116,784 tons
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)	1980-2014: N/A
Mica Peak (Gold Butte district)	Vermiculite	2007: 2,000,000-3,000,000 tons, (estimated recoverable reserve)	
Mount Vista (Arden) (Arden district)	Gypsum	2014: 200,000,000 tons, (resource)	1909-1931: N/A
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 2014: 1,137,216 tons

INDUSTRIAL MINERAL DEPOSITS, CLARK COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
Searchlight Insulation (Searchlight district)	Perlite	1951: 10,581,000 tons (indicated reserves)	1940s-1955: N/A
Sloan (Sloan district)	Dolomite	1952: 48,000,000 tons (indicated ore) 22,000,000 tons (inferred ore)	1928-2012: N/A
Sloan Hills (Sloan district)	Dolomite Limestone	2011: 126,000,000 tons (material proposed to be mined)	

ELKO COUNTY

Ivanhoe Creek (Ivanhoe district)	Bentonite	2007: 2,200,000 tons, Ca-Bentonite (inferred resource)	
Lakes (Beaver district)	Barite	1982: 8,000,000 tons, 4.1 sp. gr. (resource)	1959-1965; 1973-1981: <1,000,000 tons
Southern Pequop Mtns. (Pequop district)	Phosphate	1987: 250,000 tons, 16.4% P_2O_5 (resource)	

ESMERALDA COUNTY

Clayton Valley South	Li	2015: Northern Zone, upper part of Main Ash Aquifer saturation thickness: 118 feet, 11,350 tons Li, 102 mg/L; Northern Zone, Main Ash Aquifer saturation thickness: 102 feet, 34,940 tons Li, 370 mg/L; Northern Zone, Lower Aquifer System saturation thickness: 981 feet, 179,700 tons Li, 194 mg/L; Southern Zone, Main Ash Aquifer saturation thickness: 141 feet, 270,100 tons Li, 102 mg/L; Southern Zone, Lower Ash Aquifer saturation thickness: 581 feet, 403,400 tons Li, 37 mg/L; Total; 899,500 tons Li (Lithium Carbonate Equivalent inferred resource)	
Diatom Hill	Diatomite	2014: 192,000,000 tons (proven indicated); 232,000,000 tons (probable indicated)	
Monte Cristo (Gilbert district)	Diatomite, Silica	2014: >220,000,000 tons (reserve)	
Silver Peak (Silver Peak Marsh district)	Li	1975: 775,000 tons Li to 1,200 feet (brine reserves) 44,500 tons Li (recoverable) 2008: 44,000 tons (economic reserves)	1966-1997: N/A 1998: 1,200,000 lbs $LiCO_3$, 500,000 lbs LiOH 1999-2014: 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 (indicated mineral resource, 8% CaF_2 cut-off); 32,500,000 tons, 10.4% CaF_2 (inferred mineral resource, 8% CaF_2 cut-off) [JORC compliant] 2015: 6,700,000 tons, 10.8% CaF_2 (indicated mineral resource, 9% CaF_2 cut-off); 88,500,000 tons, 0.7% CaF_2 (inferred mineral resource, 9% CaF_2 cut-off) [JORC compliant]	

INDUSTRIAL MINERAL DEPOSITS, EUREKA COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
Unnamed (29N, 46E, S7) (Lewis district)	Silica	1964: 1,000,000 cu. yds. quartzite	
Unnamed (29N, 46E, S25) (Bullion district)	Silica	1964: 150,000,000 cu. yds. chert	
Unnamed (30N, 46E, S7) (Lewis district)	Silica	1964: 4,000,000 cu. yds. quartzite 99.2% SiO_2, 0.3% Fe_2O_3, 0.1% Al_2O_3	
HUMBOLDT COUNTY			
Kings Valley (Disaster district)	Li, K, Na	2011: 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, 0.327% Li cut-off grade)	
	Li, K, Na	2012: 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, 0.32% Li cut-off grade)	
Lone Tree Hill (Potosi district)	Silica	1964: 60,000,000 cu. yds. quartzite	
Unnamed (36N, 41E, S17) (Potosi district)	Marble	1964: 10,000,000 tons, 93.39% $CaCO_3$, 1% $MgCO_3$, 4.24% SiO_2, 1% Al_2O_3, 0.43% Fe_2O_3, 0.33% P_2O_5 (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
Unnamed (32N, 42E, S23) (Buffalo Valley district)	Silica	1964: 50,000,000 cu. yds. chert	
LINCOLN COUNTY			
Acoma (Acoma district)	Perlite	1951: 38,700,000 tons (indicated reserves) 21,850,000 tons (inferred reserves)	
Blue Nose (Viola district)	Limestone	2011: 227,725,000 tons (indicated resource; low, <5%, MgO); 30,595,000 tons (inferred resource, low; <5%, MgO); 16,649,000 tons (indicated resource, high MgO); 2,086,000 tons (inferred resource, high MgO)	
Boyd (Boyd district)	Clay	1936: 800,000 cubic feet	1920-1930: N/A
Eccles and Minto (Acoma district)	Perlite	1951: 15,281,000 tons (indicated reserves) 9,640,000 tons (inferred reserves)	

INDUSTRIAL MINERAL DEPOSITS, LINCOLN COUNTY (continued)

Deposit name	Minerals	Reserves/resources	Production
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)	1950-2014: N/A
LYON COUNTY			
East Walker Clay Mine (Washington district)	Clay	2000: 938,522,358 cu. yds. (resource)	1998-2012: 5,000 tons 2014: 3,000 tons
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)	
Unnamed (20N, 24E, S7) (Olinghouse district)	Gravel	1964: 3,700,000 cubic yards	
Unnamed (20N, 24E, S11)	Sand	1964: 200,000,000 tons	
MINERAL COUNTY			
Fluftrok (Aurora district)	Perlite	1950s: 300,000 tons (resource)	
Fluorspar King and Blue Bell (Buena Vista district)	Fluorspar	1945: 25,000-37,500 tons, 65% CaF_2	1929: 200 tons

INDUSTRIAL MINERAL DEPOSITS (continued)

Deposit name	Minerals	Reserves/resources	Production
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)	1935-2014: 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)	
Union Canyon (Sea Bee) (Union district)	Fluorspar	1974: 433,000 tons, 18.5% CaF_2 (estimated open pit mineable) 20,000 tons, 16% CaF_2 (stockpiled)	1953-1954: 360 tons Early 1970s: mined and stockpiled: 20,000 tons
PERSHING COUNTY			
Lovelock (Muttlebury district)	Gypsum	1964: 3,000 tons gypsite	1890s: N/A
Nassau (Nevada district)	Bentonite	2012: 535,000 tons, Ca-Bentonite (wet tons of reserves)	1981-2014: <2,000 tons annually
Unnamed (31N, 30E, S11) (Nevada district)	Perlite	1964: >1,000,000 tons (source of commercial quality)	
Unnamed (31N, 30E, S35) (Nevada district)	Perlite	1964: 250,000 tons (source of commercial quality)	
Unnamed (31N, 36E, S11) (Willow Creek district)	Marble	1964: 30,000,000 tons, 89.22% $CaCO_3$, 8.21% $MgCO_3$, 24% SiO_2, 0.17% Al_2O_3, 0.004% P_2O_5	
Valery (Imlay district)	Fluorspar	1965: 800,000 tons, 25% CaF_2	1953-1955: 1,932 tons
WASHOE COUNTY			
Marble Bluff	Limestone	1965: 200,000,000 tons, >95% $CaCO_3$ (reserve)	
Spanish Springs Quarry (Nevada district)	Aggregate	2012: 139,849,000 tons, hard rock (reserve) 2013: 139,342,000 tons, hard rock (reserve)	1984-2014: N/A
Terraced Hills (Sand Pass district)	Halloysite	1965: >50,000,000 tons (reserve)	1968-2014: N/A
Winnemucca Lake Silica (Nightingale district)	Quartz	1964: 1,000,000 tons	

INDUSTRIAL MINERAL DEPOSITS (continued)

Deposit name	Minerals	Reserves/resources	Production
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
Mount Wheeler (Lincoln district)	Be, W, Fluorspar	1969: 200,000 tons, 0.75% BeO, 0.3% WO_3, 22% CaF_2 (ore reserves)	
Tami-Mosi (Nevada district)	Mg	2011: 454,000,000 tons, 12.3% Mg, 111,000,000,000 lbs. Mg metal content (inferred resource, 12% cut-off grade)	

GEOTHERMAL ENERGY

by Lisa Shevenell

In 2014, Nevada exceeded 30 years of geothermal power generation with 2014 production of 2.742 million net MWh at 16 geothermal fields, enough to power 247,000 Nevada households. Production from these fields contributes significantly to the renewable energy portfolio standard of 25% by 2025. Geothermal accounted for 6% of Nevada's total energy capacity in 2014, accounting for 50% of the non-hydro renewable energy capacity state-wide. In northern, Nevada geothermal generation accounted for 10% of overall power production, and 66% of the non-hydro renewable energy generation (PUCN Docket No. 15-03042, tables 5.1 and 5.2).

Although geothermal leasing and drilling activity has slowed in Nevada since a recent (somewhat artificial) boom ended around 2010, various trends have stabilized, and there have been significant successes with the promise for future development.

Two new power plants were constructed in 2014 at blind geothermal systems: Don A Campbell (formerly Wild Rose) and McGinness Hills, both Ormat facilities. McGinness Hills phase I (30 MW) went into operation in 2012, but experienced such success in the development of the field that Ormat added additional capacity to bring the project to 48 MW in 2013. An additional 48 MW is planned for commissioning in 2015, which will make McGinness Hills the second largest field developed in Nevada (after Steamboat).

The first phase of the Don A. Campbell project came online in late 2013, both under budget and ahead of schedule, delivering power from its new 22.5 MW facility. The second phase was commissioned in in September 2015, adding an additional 22.5 MW capacity. Both these projects helped to increase total geothermal production capacity for the state to approximately 608 MW by the end of 2014, second only to California in installed capacity in the U.S.

Also in 2014, the Nevada One transmission line was completed, beginning service in January, allowing for an additional 800 MW of transmission capability from northern to southern Nevada. This new transmission should allow for greater development of geothermal and other renewables in northern Nevada to help satisfy southern Nevada power needs.

During 2014 the Nevada Division of Minerals issued 27 geothermal well permits that included the following: 8 industrial production well permits, 5 industrial injection well permits, 3 domestic well permits, 1 gradient well permit, and 10 observation well permits. A total of 14 geothermal wells of all types (see table 5 below) were reported as drilled during 2014, 6 of which were production wells. Two of the wells drilled were permitted in 2013.

Nevada geothermal electrical production in 2014 from federal and private lands combined was 3,650,767 megawatt-hours (MWh) gross and 2,742,479 MWh net. This was an increase in gross production of 194,387 MWh, compared to the 2013 production, and an increase in net production of 164,955 MWh from 2013. According to the Nevada Department of Taxation (2015), the total 2014 gross proceeds from 20 operators of geothermal power generation in Nevada were $204,465,789 (approximately $20 million greater than in 2013. The largest adjusted gross yields were generated at the Dixie Valley field at $21.1 million (nearly $10 million less than in 2013; $4 million less than in 2011), followed by McGinness Hills at $14 million (Department of Taxation, 2014; 2015). This is the first time in many years that the gross proceeds from the Steamboat project did not generate the largest revenues of the state's geothermal power plants.

The total proceeds were not entirely from power generation but also included Elko Heat Company's $212,548 gross proceeds from commercial heating, and Nevada Geothermal Utility Company's $119,626 (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 and pools.

Currently installed capacity (nameplate/ gross) at 16 existing geothermal power production sites (24 power plant units) in Nevada is 608 megawatts (MW), a modest 15 MW increase from 2013. Table 1 lists operators, plant locations, and energy production for individual Nevada geothermal power producers at the end of 2014 (based on data supplied to the Nevada Division of Minerals by individual companies). Table 2 lists operator addresses, and figure 1 shows the location of these power plants.

In Nevada during 2014, there were only 3 authorized federal leases covering approximately 3,438 acres (1,391 hectares), offered for bid (table 3). This shows a steep decline from previous years from 2007 to 2012 in the number of leases sold, the percent of available leases that were sold, and the revenue generated. 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. Leases from 2014 were so few and small that they cannot be depicted on a figure at this scale.

One lease sale was held in 2014 on September 10 that resulted in the sale of the 1 of 3 offered parcels, and yielded a total lease sale income in Nevada of only $315 in comparison to the peak year of 2008 in which $28,207,806 were generated (tables 3 and 4).

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, 2014.

Plant name	Nameplate Capacity (MW)[1]	Flash or Binary	Commission Year	2014 Production (MWhr) Gross	Net	Location	Operator
Beowawe	18.5	F/B	1985	129,395	108,333	S13,T31N,R47E	Terra-Gen Power
Blue Mountain/Faulkner I	49.5	B	2009	324,341	238,063	S14,T34N, R34E	NGP Blue Mountain 1 LLC
Brady	26.1	F/B	1992	92,455	52,331	S12,T22N,R26E	BPP, Ormat Nevada
Desert Peak			1985	0	0	Decommissioned	BPP, Ormat Nevada
Desert Peak II	23.0	B	2006	95,949	73,289	S21,T22N,R27E	BPP, Ormat Nevada
Dixie Valley	64.7	F	1988	548,754	487,764	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	189,534	150,334	S12, T11N, R32E	Ormat Nevada
Jersey Valley	23.5	B	2011	117,841	78,673	S28,T27N,R40E	Ormat Nevada
McGinness Hills	48.0	B	2012	394,763	326,928	S15, T20N, R45E	Ormat Nevada
Patua	48.0	B	2012	221,604	136,918	S21, T20N, R26E	Gradient Resources
Salt Wells	23.6	B	2009	141,497	103,452	S36,T17N,R30E	Enel Salt Wells
San Emidio	11.75	B	2012	104,582	76,894	S21,T29N,R23E	U.S. Geothermal Inc.
Soda Lake No. 1	5.1	B	1987	28,201	17,349	S33,T20N,R28E	Alterra Power Corp.[2]
Soda Lake No. 2	18.0	B	1991	83,026	50,954	S33,T20N,R28E	(Magma Energy Corp.)
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	111,503	74,242		
Steamboat III	23.9	B	1992	111,579	76,076		
Galena 1	30.0	B	2005	181,099	150,675		
Galena 2	13.5	B	2007	94,173	80,309		
Burdette (Galena 3)	30.0	B	2008	180,633	135,767		
Steamboat Hills	13.2	F	1988	71,383	47,276	S5,6,T17N,R20E	
Total MW at Steamboat						***134.5***	
Stillwater 2	47.2	B	2009	219,909	137,842	S6,T19N,R31E	Enel Stillwater
Tuscarora	32.0	B	2012	189,823	138,395	S2, T41N, R52E	Ormat Nevada
Wabuska	5.6	B	1984	18,725	10,615	S15,16,T15N,R25E	Homestretch Energy
Total:	**607.8**			**3,650,769**	**2,752,479**		

Footnote to Table 1.

[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]Note that Alterra Power Corp. had local offices for the Soda Lake property under the previous Magma Energy Corp. name, and sold the power plants to Cyrq Energy in early 2015.

Addresses, telephone numbers, and websites for companies listed in Table 1 follow (based on information supplied to Nevada Division of Minerals as of fall 2015).

Table 2. Geothermal power plant operator contact information.

Company Address	Local Contact	Project	MW
NGP Blue Mountain 1 LLC 8403 Colesville Road, Suite 915 Silver Springs MD 20910 (240) 723-2300	NGP Blue Mountain 1 15250 Blue Mountain Road Winnemucca, NV 89445 (775) 786-4322 http://www.nevadageothermal.com/s/Home.asp	Blue Mountain (Faulkner 1)	49.5
Magma Energy Corporation *(Alterra Power Corp. through 2014)* 5355 Kietzke Lane #100 Reno, NV 89511 (775) 787-7050 http://www.alterrapower.ca/	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
Enel North America 1755 East Plumb Lane, Suite 155 Reno, NV 89502 (775) 557-2940 http://www.enel.it/northamerica/	(775) 423-5374 (775) 423-0322	Salt Wells Stillwater	23.6 47.2
Homestretch Energy 1147 N. Daybreak Drive Washington, UT 84780 (435) 668-6003	Homestretch Geothermal 10 Julian Lane Yerington, NV 89447 (775) 463-4633 http://www.homestretchenergy.com/	Wabuska	5.6
Gradient Resources 2440 Vassar Street Reno, NV 89521 (775) 284-8842 http://www.gradient.com/	Patua Project LLC 17388 Patua Road Hazen, NV 89408 (775) 217-2650	Patua	48
Ormat Technologies, Inc. 6225 Neil Rd #300 Reno, NV 89511 (775) 356-9029 http://www.ormat.com/	(775) 322-7782 (775) 423-5800 (775) 852-1444 (775) 384-7807 (775) 852-1444 (775) 852-1444 (775) 384-7807	Bradys Desert Peak Jersey Valley McGinness Hills Steamboat Tuscarora Campbell (Wild Rose)	26.1 23 23.5 48 134.5 32 22.5
Terra-Gen Power, LLC 9590 Prototype Ct., #220 Reno, NV 89521 (775) 850-1125 http://www.terra-genpower.com/	(775) 635-2130 (775) 423-6535	Beowawe Dixie Valley	18.5 70.9
U.S. Geothermal Inc. 1505 Tyrell Lane 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)	11.75
	Total Installed MW (nameplate capacity)		607.75

Figure 1. Locations of existing power plants noted in Table 1 (as of May 2015. Modified from Shevenell and Zehner, 2011).

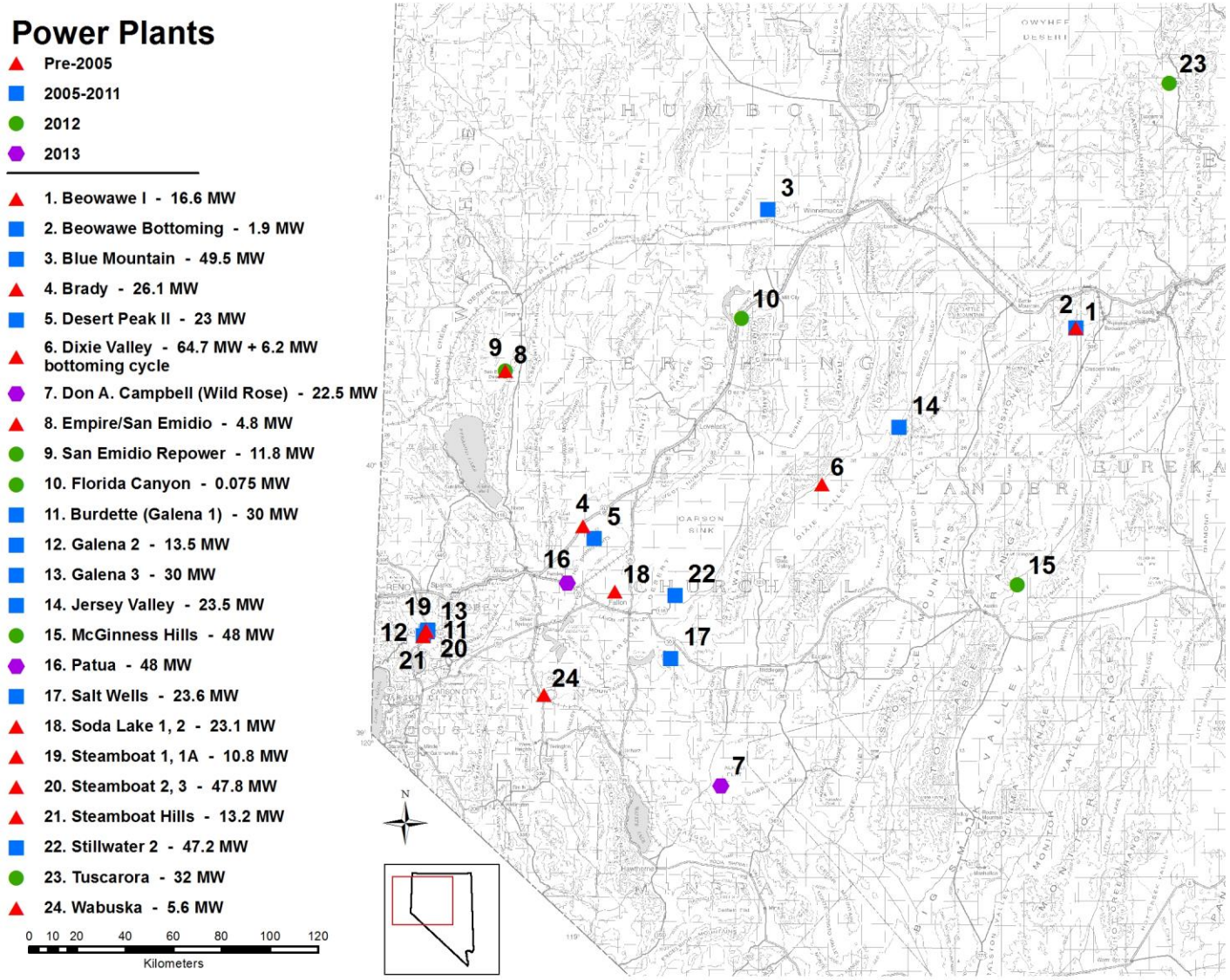

Figure 2. Locations of active geothermal leases in Nevada as of December 2013, highlighting those offered in 2013 in red. 2014 lease is too small to view on a map of this scale.

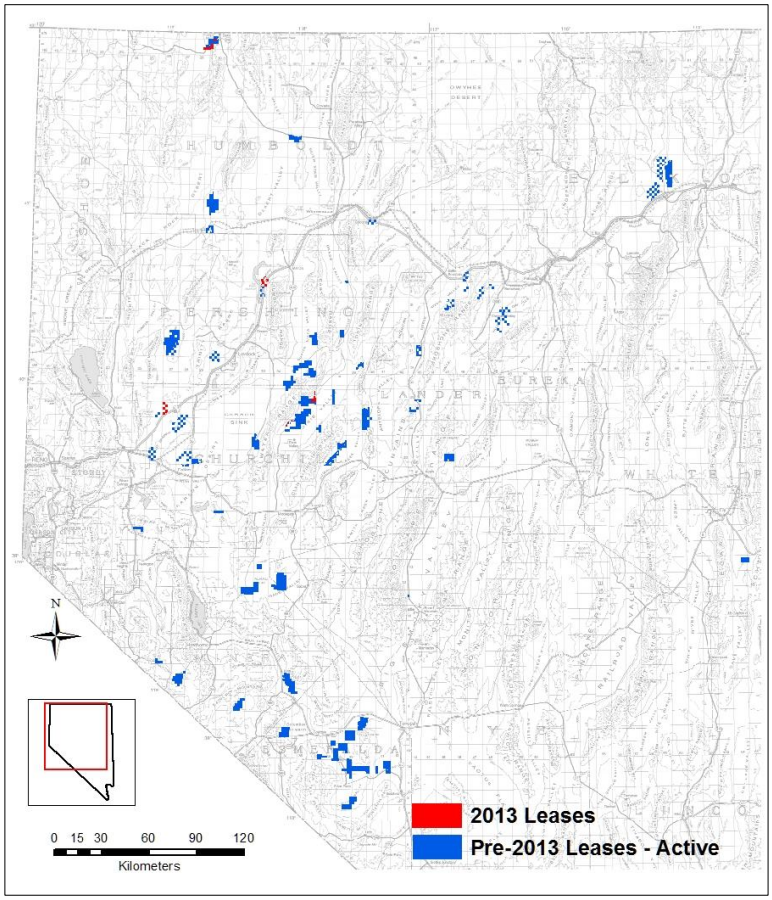

Table 3. 2014 BLM lease sales results from the September 10, 2014 lease sales. Note that the last two entries were not sold.

Location	Company	Township	Range	Sec	Bid/Acre	Acres	Total Bonus Bid
Dixie Hot Springs	ORMAT Nevada Inc	22	35	18	$2.00	40 (16 hectares)	$315
Truckee Range	*Not Sold*	24	25	36	$0.00	3398	$0
Salt Wells	*Not Sold*	17	31	18	$0.00	1914	$0

As can be seen from tables 3 and 4, geothermal leasing activity had declined dramatically by 2011 through 2014, with only minimum-bid offers on a single property in 2014. 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. Geothermal activity in terms of lease sales in Nevada has clearly experienced a precipitous decline in recent years.

Table 4. Geothermal competitive leasing activity in Nevada, 2007–2014.

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	7	10024	5	7056	$28,982	$4.11	70%	71%
2014	3	3,438	1	40	$315	$7.88	1%	33%
Totals:	394	1,138,713	266	761,715	$52,147,554	$70		

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

According to the Geothermal Energy Association, at the end of 2014, 24 projects (compared to 45 projects at the end of 2013) were in various stages of development in Nevada, although GEA did not report estimated MW capacities for most of the sites (Matek, 2015). The five projects for which a capacity was reported indicate approximately 130 MW capacity may be added in Nevada in the next few years.

Plant nameplate capacity reported to the Nevada Division of Minerals by year is shown in table 1 and figures 1 and 3. Price and production data appear in figure 4. Production wells drilled by year are graphed in figure 5, with detail on those wells listed in table 5.

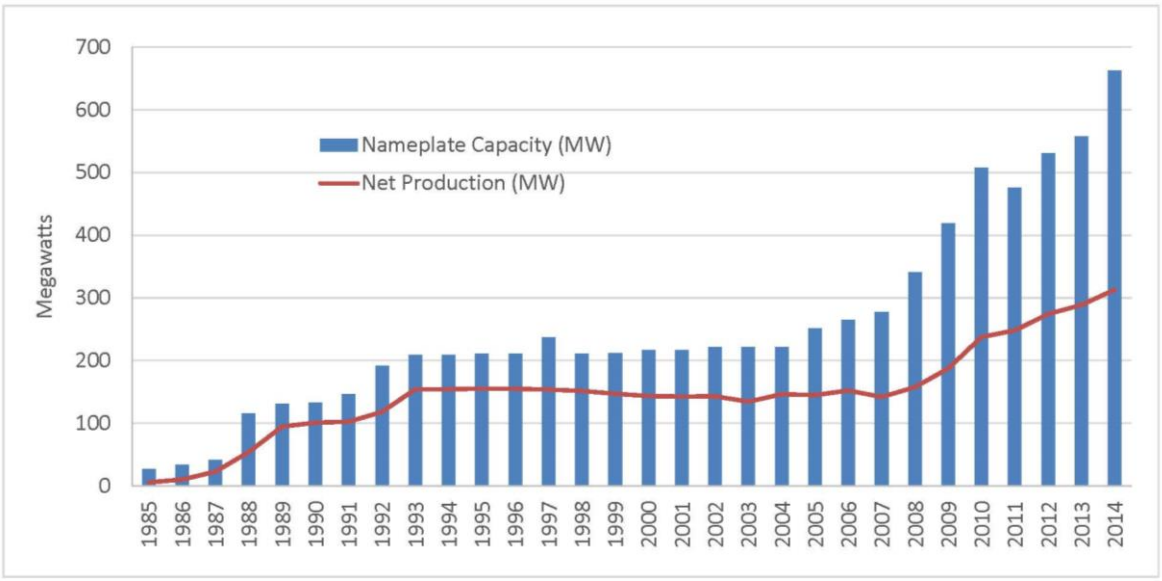

Figure 3. Graph of annual geothermal electric power based on reported nameplate capacity to the Division of Minerals by year from 1985–2014. Average net output is annual sales in megawatt-hours divided by the number of hours in a year (8,760). No commercial geothermal power was produced in Nevada before 1985.

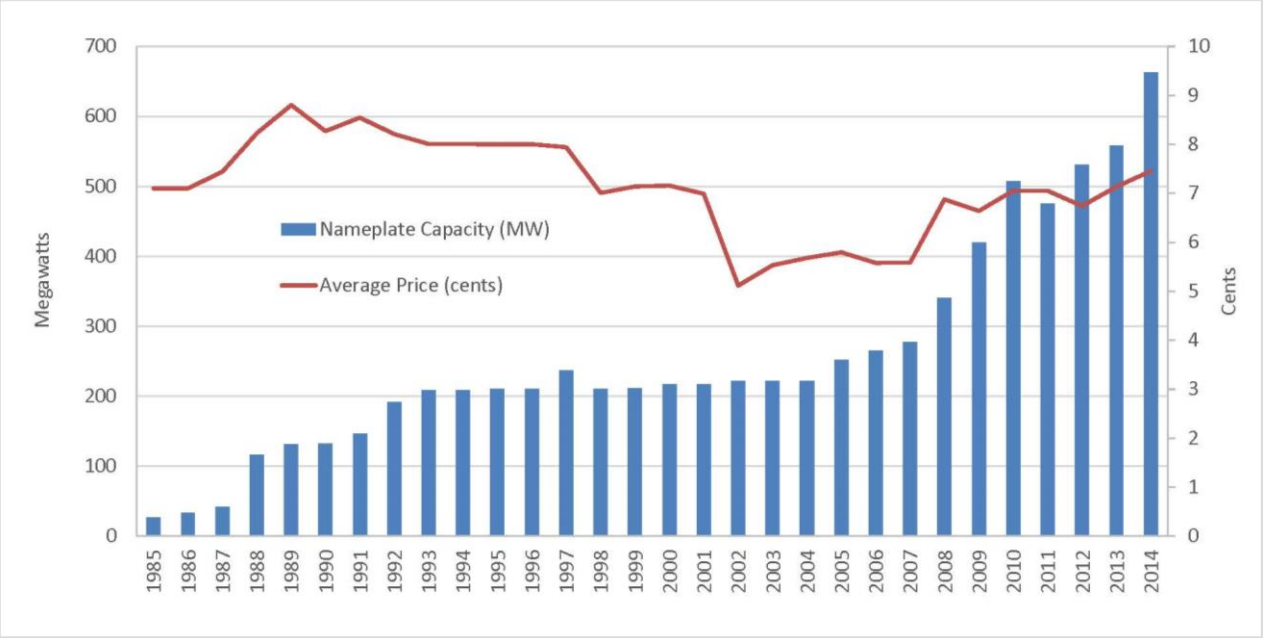

Figure 4. Graph of annual, net geothermal electric power production and average priced-based on gross receipts and reported gross production through 2014. Note that average price is based on the total MWh produced and total receipts. Actual price for any individual power plant may vary and is held confidential by the state Energy Office.

Table 5. Geothermal wells reported as drilled, re-drilled or completed in 2014.

Area	Company Name	Well Type[1]	Well Number	PRMT #	Location	Permitted Depth (m)	SPUD Date
Churchill County							
Tungsten Mountain	ORNI 43	P	56(45)-22	1357	NE/4 SW/4 S 22, T21N, R38E	1420	5/6/2014
Salt Wells	ENEL SALT WELLS	O	16A-36	1371	NW/4 SW/4 S 36, T17N, R30E	305	11/3/2014
Eureka County							
Crescent Valley	US Geothermal	P	67-3	1373	SW/4 SE/4 S 3 T28N, R49E	1067	12/30/2014
Lander County							
McGinness Hills	ORNI 39 LLC	I	66C-22	1340	NW/4 SE/4 S 22 T20N, R45E	922	6/1/2014
McGinness Hills	ORNI 39 LLC	P	27A-10	1345	SW/4 SW/4 S 10, T20N, R45E	1219	2/26/2014
McGinness Hills	ORNI 39 LLC	P	27B-10	1354	SW/4 SW/4 S 10, T20N, R45E	1219	11/9/2014
McGinness Hills	ORNI 39 LLC	P	27C-10	1372	SW/4 SW/4 S 10, T20N, R45E	1219	12/23/2014
Washoe County							
Moana	WARD CHILTON	D	Chilton Well	1347	NE/4 SW/4 S 26, T19N, R19E	122	1/20/2014
Incline Village	1145 LAKESHORE BLVD	P	Well #1	1353	SE/4 SW/4 S 23, T16N, R18E	91	3/6/2014
Incline Village	1145 LAKESHORE BLVD	I	IW #1	1355	SE/4 SW/4 S 23, T16N, R18E	91	4/8/2014
Incline Village	1145 LAKESHORE BLVD	I	IW #2	1356	SE/4 SW/4 S 23, T16N, R18E	91	5/23/2014
Steamboat	ORMAT NEVADA	I	21-32	1358	NW/4 NW/4 S 32, T18N, R20E	975	7/8/2014
San Emidio	USG NEVADA	O	63-21	1366	SW/4 NE/4 S 21, T29N, R23E	1067	6/27/2014
San Emidio	USG NEVADA	O	83-21	1367	SE/4 NE/4 S 21, T29N, R23E	1067	8/22/2014

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

A comparison of permits and wells drilled by year 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 4 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, including production wells, has continued to decline following 2010 (table 6; figure 5).

Table 6. Geothermal drilling activity, 2007–2014.

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	21	23	8
2014	27	14	6

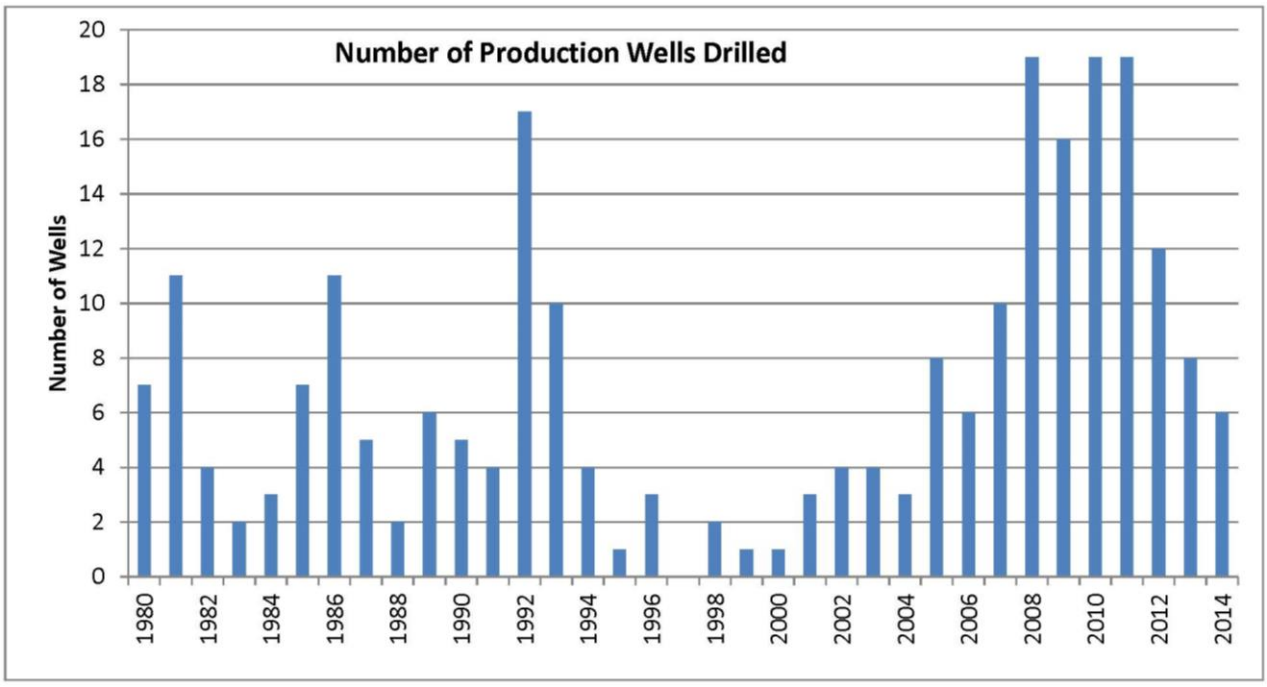

Figure 5. Industrial-class (power-generating) wells drilled in Nevada, 1980–2014 (excludes injection, observation, and temperature gradient wells).

ACTIVITY DURING 2014

Two important summary papers were published in 2014 describing the historical production at both binary (Hanson et al., 2014) and flash plants (Benoit, 2014). These papers describe reservoir performance and changes over the period of operation of several binary and flash plants commissioned in the 1980s and 1990s.

The following sections summarize current activities in 2014 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 were 188°C (370.4°F) at approximately 2,000 feet (610 m) (Niggemann et al., 2009).

The Nevada Geothermal Power Inc. (NGP) Blue Mountain property underwent some financial restructuring in 2012, in part as a result of the revised predicted lower power output and required reinjection strategy needed to meet loan covenants during the remaining 17 year contracted life of the project. GeothermEx revised their previous reservoir simulation model and showed an 8°F/yr (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 held a 100% interest in NGP Blue Mountain I LLC ("NGP 1"), which in turn owned 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 then operated 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. Annual, updated reservoir simulation modeling is now required under the company's loan agreement.

During 2014, Baseload Clean Energy Partners (BCEP), a company owned and operated by AltaRock Energy, conducted negotiations with Blue Mountain Power LLC for the acquisition of the Faulker 1 power plant. BCEP plans to improve the wellfield and power plant and use AltaRock Energy's multi-zone stimulation process to increase the project's power output. Negotiations were ultimately successful, with AltaRock acquiring a 100% interest in the project in June 2015, with power to be sold to NV Energy. AltaRock plans to stimulate some of the existing wells to create permeability to connect them to the existing well field, as well as create new injectors, planning to reverse the declining output experienced in the field in recent years.

BRADYS, CHURCHILL COUNTY – Ormat Nevada

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. No updates on this project were reported for 2014.

COYOTE CANYON, CHURCHILL COUNTY – Terra-Gen Power

Terra-Gen Power (TGP) proposed construction of a 62 megawatt geothermal power plant at Coyote Canyon. Historical drilling results indicate temperatures up to 284°C are present in this lease area (Well 36-14; TD = 3580 m). This property is located on 3,960 acres (1,603 hectares) of Federal and 760 acres (308 hectares) 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 or 2014.

CRESCENT VALLEY, EUREKA COUNTY – U.S. Geothermal

In 2014, US Geothermal drilled one 3,500 foot (1067 m) well permitted as a production well in Section 3 near Hot Springs Point, which is bounded on the northwestern side by faults. All hot springs appear on the northwestern face, along the ~13 km Dry Hills fault trace. Near Hot Springs Point, native sulfur is found along the Dry Hills fault (Keith Papke, personal communication to Larry Garside, 1975), associated with hot springs activity. There are 10 known springs at Hot Springs Point with temperatures between 46 and 58.9°C, apart from one 26.1°C spring on the valley floor. These arise from alluvium and bedrock in a line 2.4 km long (located near the corner of Secs. 1, 2, and 11, T29N, R48E). The sampled springs have Na-K-Ca geothermometer temperatures less than the measured temperature (<30°C). Chalcedony geothermometers, however, indicate temperatures between 79 and 90°C. A 125-m-deep geothermal well drilled by Magma Power Co. in the 1970s encountered subsurface temperatures up to 74°C.

DIXIE HOPE, CHURCHILL COUNTY – Ormat Nevada

The Dixie Hope geothermal area is located in Dixie Valley at T22N, R35E and has been leased by Ormat Nevada. In 2012, Ormat permitted three thermal gradient wells and drilled two of them to approximately 1000 ft (305 m). No additional information is available for this site for 2013 or 2014 activities.

DIXIE VALLEY, CHURCHILL COUNTY – Terra-Gen Power

The 56 MW net (64.7 MW gross) Dixie Valley geothermal power project began operation in 1988, having operated continuously for 26 years as of 2014. During the late 1980's the project was the largest dual flash geothermal power plant in the world and still remains the largest single geothermal turbine in the Basin and Range Province (Benoit, 2015). Although no new drilling occurred in 2014, the power plant is currently supplied by 8 producing wells (about 7 net MW/well), and uses 11 injection wells (Benoit, 2015). Dixie Valley has been the most studied geothermal system in Nevada and perhaps globally. Many technical papers have been written on the resource and a recent compendium of over a decade's worth of work was published by Dr. David Blackwell and many colleagues in 2014 (SMU, 2014). This publication provides the results from multiple researchers over years of work on geology, structure, geophysics, and geochemistry of the system.

EDWARDS CREEK AREA (Tungsten Mountain), CHURCHILL COUNTY - Ormat Nevada

The Edwards Creek project encompasses 4,160 acres (1,683 ha) along 6 miles (9.6 kilometers) of the Clan Alpine Mountains range-front fault in T21N, R38E, Churchill County. Areas of hydrothermal alteration occur along the fault, and boiling water was encountered at shallow depths by 23 mineral exploration wells. Cation and silica geothermometer temperatures from well waters suggest an approximately 175°C (~347°F) reservoir. The Great Basin Center for Geothermal Energy identified a shallow (2 m) thermal anomaly that 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 Nevada 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 Nevada 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). Ormat drilled an additional well slated to be a production well (56(45)-22) in 2014 to a permitted depth of 4,660 ft (1,420 m). No information has been released reporting the temperatures encountered.

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 over 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 (77–116°C/170–240°F) geothermal brine to generate electricity from water flowing into the unit at approximately 150 gpm (568 l/min) 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.

Although the published records for the Green Machine were not complete, records for May 2014 indicate average hourly output of 46 kW (gross) from 124 gpm (469 l/min) of 206°F (97°C) water. Net power available to the mine averaged 34 kW (http://gdr.openei.org/submissions/419).

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 28 to 96°C (82 to 204ºF). In 1962, Magma Power drilled three wells from 300 to 750 ft (91 to 230 m), recording a maximum temperature of 132°C (270ºF). 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 from a resource with drilled temperatures of up to 208°C (Peterson et al., 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) prior to plant commissioning in 2014. No additional wells were drilled at the site in 2014. Various data on these wells, a geologic map, and GIS data have been uploaded as part of DOE project work by Dr. James Faulds (Nevada State Geologist) and colleagues at the Nevada Bureau of Mines and Geology: http://gdr.openei.org/submissions/359

Figure 6. Aerial view of the Patua geothermal power plant in 2014 (photo provided by Nick Hinz).

In May 2014, Leidos Constructors LLC filed a foreclosure notice on the Patua Project and placed a lien of $77,584,010 against the project. Leidos charges in the suit that it constructed the site but was never paid for incurred costs. In spite of this setback, the project generated 136,918 MWh (net) in 2014, which was sold to SMUD.

JERSEY VALLEY, PERSHING COUNTY - Ormat Nevada

The Jersey Valley geothermal area is located at the base of the western flank of the Fish Creek Range at the northern end of Dixie Valley. Early temperature estimates using silica and Na-K-Ca geothermometers suggested reservoir temperatures of 142°C and 182°C, respectively (Mariner et al., 1974). Ormat Nevada began drilling in this area in 2007, after which a 20-year Power Purchase Agreement (PPA) with NV Energy was established. Ormat proceeded to drill three observation wells in 2007, two production wells in 2008, four production wells in 2009, one production well in 2010, and one injection well in 2011. On February 1, 2011, Ormat announced the completion of the new 15 MW-capacity power plant at Jersey Valley (GRC Bulletin 40(2): 2011). Details of the exploration and development of the Jersey Valley property to locate the 165°C resources can be found in Drakos et al. (2011). No new activities are reported for 2014, although Ormat's web site indicates that 10 MW are being produced from this resource (with a plant capacity of 23.5 MW reported by the Nevada Division of Minerals).

McGINNESS HILLS, LANDER COUNTY - Ormat Nevada

Ormat Nevada 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 Nevada 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, provided 30 MW to the NV Energy transmission system since July 2012. Five of the wells drilled have very high flow rates of 2,350 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, bringing the total field production to 48 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). Three new production wells and one injection well drilled in 2014 led to the commissioning of phase 2 of the McGinness Hills project in 2015, providing 48 MW of additional capacity from the resource (www.ormat.com/news/latest-items/mcginness-hills-phase-2-geothermal-power-plant-begins-commercial-operation).

This project has sparked considerable interest and led to a number of geologic studies, including publication of a geologic map with cross sections, a slip and dilation tendency analysis, and the construction of a 3D model of the McGinness Hills geothermal area (reported by Dr. James Faulds of the Nevada Bureau of Mines and Geology at http://gdr.openei.org/submissions/363; http://gdr.openei.org/submissions/367; http://gdr.openei.org/submissions/374)

MOANA, WASHOE COUNTY – Domestic Residents, Nevada Geothermal Utility Company, and Peppermill Hotel/Casino

The Moana geothermal system in southwest Reno, NV has been used for decades for domestic and commercial space heating using the low temperature resource, intercepted at relatively shallow depths (≤90°C at <305 m (<1,000 ft)). The Nevada Geothermal Utility operates a district heating system in the Warren and Manzanita Estates, while the Peppermill Casino uses geothermal waters that have allowed the Casino to heat 195,000 m^2 (2.1 M ft^2) of their hotel towers and swimming pools as of 2010, when new wells were brought on-line.

One new domestic well was drilled in the Moana area in 2014 (permitted depth of 400 ft; 122 m), demonstrating the continued vitality of this resource as a direct use of the shallow heat. This well was installed for domestic use for an individual homeowner who installed a downhole heat exchanger to tap the heat from the 200°F (93°C) resource under his property.

One gradient well was drilled east of the Moana geothermal area in 2013 which indicates that the Moana system does not extend to the east as far as the Reno-Tahoe Airport property (Shevenell et al., 2014).

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 also occurred in the Salt Wells/Eightmile Flat area. 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), and drilled an additional observation well in 2014.

Figure 7. Photo of Salt Wells in January 2016 (photo provided by Terry Cynar).

During 2014, Nick Hinz at the Nevada Bureau of Mines and Geology published geologic map data (including faults, contacts, folds, dikes, unit polygons, and attitudes of strata and faults) along with slip and dilation tendency results for Salt Wells, including associated GIS layers. (http://gdr.openei.org/submissions/358)

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.

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 +149°C (300°F) 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 157°C (315°F).

In January, 2012, U.S. Geothermal Inc. announced that the Nevada Public Utility Commission approved a 19.9 megawatt amended power purchase agreement (PPA) with its wholly owned subsidiary, 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 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 (DiPippo and Kitz, 2015).

Commercial operations began in May 2012, and the new San Emidio plant was projected to generate approximately 75,000 MWh of electrical power each year under a 25-year power purchase agreement with Sierra Pacific Power. The new, more efficient TAS unit is producing more than double the power output of the aging unit, while using no additional wells. 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 increased to $91.17 per megawatt-hour.

Drilling for Phase II began in September 2013, with one observation well being completed in 2013. Two additional observation wells were drilled in 2014 to permitted depths of 3,500 ft (1,067 m).

SILVER PEAK, ESMERALDA COUNTY – Rockwood Lithium

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

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

A mild thermal anomaly can be found 3 km SW of Silver Peak at the 24.6ºC 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 74.8ºC (Na-K-Ca; Fournier and Potter, 1979) and 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 Shevenell 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 help install at the site a geothermal power plant, 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. Considerable data were generated by Ram Power and submitted to DOE in 2013, with all information available at http://gdr.openei.org/submissions/268. Well logs,

geochemistry, remote sensing, seismic, resource model, shallow temperature, gravity, and MT surveys were completed and made publicly available in 2014.

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, with no new drilling in 2014.

Figure 8. Stillwater geothermal/solar plant rendering from Wendt et al. (2015).

STEAMBOAT, WASHOE COUNTY – Ormat Nevada

Steamboat geothermal area is the largest area under production in Nevada, under continuous operation since 1986 from multiple binary units and one flash unit (Steamboat Hills). Current capacity of the combined power plants at Steamboat is 134.5 MW. The latest power unit installed at the site was Galena 3 (Burdette) which was commissioned in 2008. Considerable work has been conducted on the site over the years, with one new injection well installed during 2014 southwest of the current binary power plants (T18N, R20E, S32). A 2014 search of posted geothermal data at gdr.openei.org indicates that a considerable volume of data and reports are publicly available for the much studied Steamboat area, including 91 separate data sets and 73 articles.

TUSCARORA, ELKO COUNTY (HOT SULPHUR SPRINGS) – Ormat Nevada

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 228ºC and 167ºC (442ºF and 333ºF) 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 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 (3,028 l/min) with temperatures ranging from 69º to 108ºC (156º to 225ºF). In 2003-2004 Earth Power Resources, which had the lease on the resource rights at that time, discovered a geothermal resource over 166ºC (330ºF) between 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 Nevada 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 could not demonstrate commercial viability, and sold the project to TG Power in 2006. TG Power drilled a moderately successful production hole in 2007, but ran out of money and sold the project to the Energy Investment Fund in 2008. After the passage of Nevada's bill AB522 in 2009, ORMAT became interested in Tuscarora and developed a commercially viable project in 2012 with a capacity of 32 MW. (http://www.elkocountynv.net/meetings/board_of_commissioners/docs/Ormat.pdf).

In March 2014, Dr. James Faulds OF NBMG published various data for this area including a geologic map, slip and dilation tendency and GIS data sets (http://gdr.openei.org/submissions/357).

WILD ROSE (Don A. Campbell), MINERAL COUNTY – Ormat Nevada

Ormat Nevada is developing the blind geothermal project at Wild Rose, located in Gabbs Valley approximately 22 miles (35 km) west of Gabbs in Mineral County, Nevada. This resource is also known as Don Campbell (long time Ormat employee and a pioneer in the exploration, development, and reservoir management of geothermal resources) 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).

Figure 9. View of the Don Campbell geothermal power plant in 2013 (photo provided by Jack Hursh).

Resource development includes a 15-35 MW 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 130°C (267°F) 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 (127°C, 260°F) resource for power generation (Orenstein and Delwiche, 2014). Ormat produced 189,534 MWh of electricity in its first full year of operation in 2014 and 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. Commercial operation of a second 22.5 MW facility is expected in the first quarter of 2016 (www.ormat.com/news/latest-items/ormat-signs-power-purchase-agreement-second-phase-don-campbell-geothermal-plant-ne).

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REFERENCES

Benoit, D., 2015, A Case History of the Dixie Valley Geothermal Field, 1963–2014: Geothermal Resources Council Transactions, v. 39, p. 3–12.

Benoit, D., 2014, The Long-Term Performance of Nevada Geothermal Projects Utilizing Flash Plant Technology. Geothermal Resources Council Transactions, v. 38, p. 977–984.

BLM, 2013, Prior Sales and Results: http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing/prior_sales.html

BLM, 2014, Geothermal Leasing: http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing.html

Dering, G. and Faulds, J., 2012, Structural Controls of the Tuscarora Geothermal Field, Elko County, Nevada: Geothermal Resources Council Transactions, v. 36, p. 41–46.

Department of Taxation (Division of Assessment Standards), 2014, 2013–2014 Net Proceeds of Minerals Bulletin. April 30, 2014, 49 p. http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Net_Proceeds_of_Minerals/

Department of Taxation (Division of Assessment Standards), 2015, 2014–2015 Net Proceeds of Minerals Bulletin. April 30, 2015, 48 p. http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Net_Proceeds_of_Minerals/

DiPippo, R. and Kitz, K., 2015, Geothermal Binary Power Plants at Raft River, San Emidio and Neal Hot Springs: Part 1—Plant Descriptions and Design Performance Comparison: Geothermal Resources Council Transactions, v. 39, p. 833–846.

Drakos, P., Spielman, P., and Bjornsson, G., 2011, Jersey Valley exploration and development: Geothermal Resources Council Transactions, v. 25, p. 751–759.

Fournier, R.O., 1977, Chemical geothermometers and mixing models for geothermal systems: Geothermics v. 5, p. 41–50.

Fournier, R.O., and Potter, II, R.W., 1979, Magnesium correction to the Na-K-Ca chemical geothermometer: Geochim. Cosmochim. Acta v. 43, p. 1543–1550.

Garside, L.J., 1973, Radioactive Mineral Occurrences in Nevada: Nevada Bureau of Mines and Geology Bulletin 81.

Matek, B., 2015, 2015 Annual U.S. & Global Geothermal Power Production Report: Geothermal Energy Association, 21 p. http://geo-energy.org/reports/2015/2015%20Annual%20US%20%20Global%20Geothermal%20Power%20Production%20Report%20Draft%20final.pdf

GEA, 2014, 2014 Annual U.S. & Global Geothermal Power Production Report - April 2014: Geothermal Energy Association, 25 p. http://geo-energy.org/events/2014%20Annual%20US%20&%20Global%20Geothermal%20Power%20Production%20Report%20Final.pdf

Hanson, H., Mines, G., and Wood, R., 2014, Summary of Historical Production for Nevada Binary Facilities: Geothermal Resources Council Transactions, v. 38, p. 1001–1006.

Hinz, N.H., Faulds, J.E., and Coolbaugh, M., 2014, Association of Fault Terminations with Fluid Flow in the Salt Wells Geothermal Field, Nevada, USA: Geothermal Resources Council Transactions, v. 38, p. 3–10.

Jennejohn, D., 2011, Annual U.S. Geothermal Power Production and Development Report, April, 2011: Geothermal Energy Association, 59 p.

Mariner, R.H., Brook, C.A., Reed, M.J., Bliss, J.D., Rapport, A.L., and Lieb, R.J., 1983, Low-Temperature Geothermal Resources in the Western United States, *in* Reed, M.J., editor, Assessment of Low-Temperature Geothermal Resources of the United States-1982: U.S. Geological Survey Circular 892, p. 31–50.

Mariner, R.H., Rapp, J.B., Willey, L.M., and Presser, T.S., 1974, The chemical composition and estimated minimum thermal reservoir temperatures of the principal hot springs of northern and central Nevada: U.S. Geological Survey Open File Report 74-1066, 35 p.

Nordquist, J. and Delwiche, B., 2013, The McGinness Hills Geothermal Project: Geothermal Resources Council Transactions, v. 37, p. 57–64.

NV Energy, 2011, NV Energy portfolio standard annual report; Compliance year 2010, April 1, 2011 (available on the Public Utilities Commission of Nevada website; Docket #11-04001), 328 p. http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2011-4/8199.pdf

Niggemann, K., Samuel, A., Morriss, A.V., and Hernández, R., 2009, Foamed cementing geothermal 13 3/8-in. intermediate casing – NGP #61-22: Geothermal Resources Council Transactions, v. 33, p. 217–222.

Orenstein, R. and Delwiche, B., 2014, The Don A. Campbell Geothermal Project: Geothermal Resources Council Transactions, v. 38, p. 91–97.

Parr, A.J., and Percival, T.J., 1991, Epithermal Gold Mineralization and a Geothermal Resource at Blue Mountain, Humboldt County, Nevada: Geothermal Resources Council Transactions, v. 15, p. 35–39.

Peterson, N., Combs, J., Bjelm, L., Garg, S., Kohl, B., Goranson, C., Merrill, R., van de Kamp, P., Lamb, A., Sadowski, A., and Faulds, J., 2013, Integrated 3D Modeling of Structural Controls and Permeability Distribution in the Patua Geothermal Field, Hazen, NV: Stanford Geothermal Workshop 2013, 11 p.

Reed, M.J., Mariner, R.H., Brook, C.A., and Sorey, M.L., 1983, Selected Data for Low Temperature (Less Than 90 Degrees C) Geothermal Systems in the United States; (Reference Data for USGS Circular 892): U.S. Geological Survey Open-File Report 83 250, 129 p.

Shevenell, L., Johnson, G., and Ryan, K., 2014, Geothermal Assessment of the Reno-Tahoe Airport, Nevada.

Geothermal Resources Council Transactions, v. 38, p. 19–28.

Shevenell, L., Penfield, R., Zehner, R., Johnson, G., and Coolbaugh, M., 2012, National Geothermal Data System Geochemical Data for Exploration. Transactions, Geothermal Resources Council v. 36, p. 773–782.

Shevenell, L., and Zehner, R., 2011, Status of Nevada geothermal resource development—Spring 2011: Geothermal Resources Council Transactions, v. 35, p. 67–72.

Southern Methodist University Geothermal Laboratory, 2014, Dixie Valley Synthesis, Description, synthesis, and interpretation of the thermal regime, geology, geochemistry, and geophysics of the Dixie Valley, Nevada geothermal system, Editors: David D. Blackwell, Richard P. Smith, and Maria C. Richards, 412 p.

Stewart, J.H. and Carlson, J.E., 1976, Geologic map of north-central Nevada, 1:250,000: Nevada Bureau of Mines and Geology Map 50.

Trexler, D.T., Koenig, B.A., Flynn, T., Bruce, J.L., and Ghusn, G., Jr., 1981, Low-to-Moderate Temperature Geothermal Resource Assessment for Nevada; Area Specific Studies, Final Report, June 1, 1980–August 30, 1981: U.S. Department of Energy, DOE/NV/10039 3, 203 p.

Waring, G.A., 1965, Thermal Springs of the United States and Other Countries of the World: U.S. Geological Survey Professional Paper 492, 383 p.

Wendt, D.S., Mines, G.L., Orme, C.J., and Wilson, A.D, 2015, Produced Water Treatment Using Switchable Polarity Solvent Forward Osmosis (SPS FO) Technology: Geothermal Resources Council Transactions, v. 39, p. 672–674.

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 2014 was 316,426 barrels, which accounted for 0.01% of total domestic production. Production was down 6% from 335,672 barrels in 2013 and was the lowest since 143,101 barrels were produced in 1976 (NBMG Bulletin 104). Production came from 62 actively producing wells in ten fields in Railroad Valley, Nye County, which accounted for 88% of the state's production, eight wells in two fields in Pine Valley, Eureka County, and one well each in two new fields in Elko County. One other minor field was shut in throughout 2014 and four other minor fields are plugged and abandoned. Nevada's oil production ranked 28 out of the 31 oil-producing states (http://www.eia.gov). According to the Division of Minerals, the average per barrel net wellhead price for Nevada crude oil was $85.06 in 2014, which was a decrease of 9% from $93.69 in 2013. The sales volume (or gross yield) decreased 14% to $26,914,233.10 in 2014 from $31,448,896.50 in 2013 (2014–2015 Net Proceeds of Minerals Bulletin).

Production from Nevada's 70 actively producing wells ranged up to 99 barrels of oil per day and up to 3,384 barrels of water per day. The daily averages were 17 barrels of oil and 289 barrels of water per day. Thirty-six wells were strippers (wells producing less than ten barrels of oil per day), and eight 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 2010, and 18 had been shut in since before 2000.

For the fourth year in a row, Grant Canyon No. 10 in Railroad Valley was Nevada's most productive well. In 2014, it averaged 99 barrels of oil and 1,029 barrels of water per day. It went into production in May 2010 after being plugged and abandoned for 17 years. Nevada's second highest volume producer in 2014 was Kate No. 1A. It produced for 305 days and averaged 54 barrels of oil and 493 barrels of water per day. This pushed Nevada's second highest producer in 2013, Munson Ranch 12-43, down to third place in 2014. Munson Ranch 12-43 averaged 48 barrels of oil and one barrel of water per day.

The Bacon Flat Field in Railroad Valley averaged 17 barrels of oil and five barrels of water per day and accounted for less than 2% of Nevada's total oil production. Oil production decreased 3%, and water production increased 8% from 2013. 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 shut in producers.

The Blackburn Field in Pine Valley (fig. 1) produces from the Oligocene Indian Well Formation (tuff and tuffaceous sandstone), Mississippian Chainman Shale (sandstone), and Devonian Nevada Formation (dolomite)

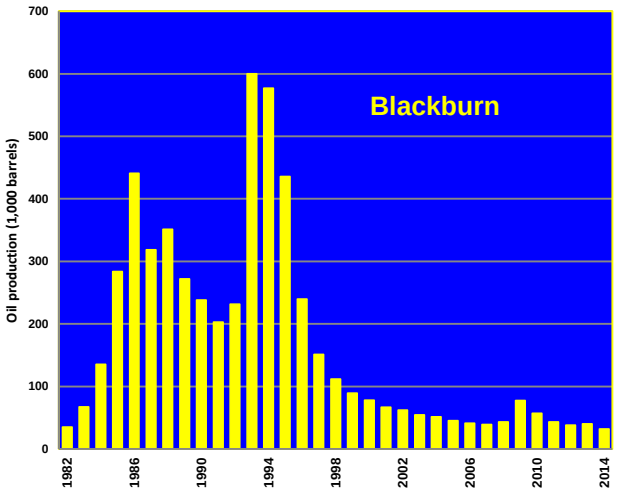

Figure 1. Chart showing oil production from the Blackburn Field in Pine Valley, Eureka County.

between about 6,700 and 6,750 feet. The field had six active wells, which each averaged 221 days of production. For the year, production averaged 88 barrels of oil and 3,063 barrels of water per day, and accounted for 10% of Nevada's total oil production. Oil and water production from the field decreased 20%, and 13% respectively from 2013. Daily oil production per well ranged between 6 and 48 barrels and averaged 24 barrels. Daily water production per well ranged between 37 and 2,085 barrels and averaged 843 barrels. Oil production increased in two wells and decreased in three. The field also had one inactive producer.

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 which averaged 207 days of production each. Spread over the year, production for the field averaged 94 barrels of oil and 1,177 barrels of water per day and accounted for 11% of Nevada's oil production (fig. 2). Oil production decreased 14%, and water

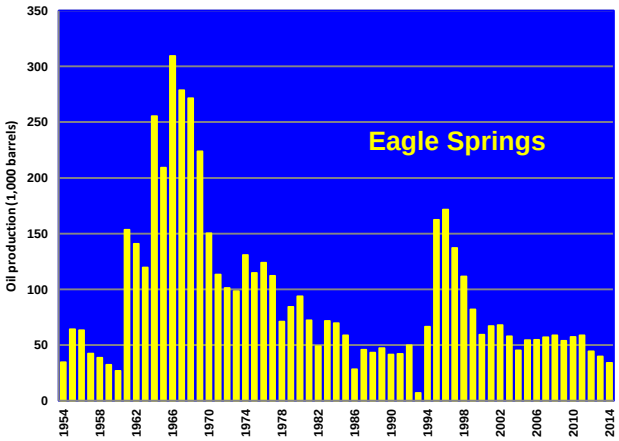

Figure 2. Chart showing oil production from the Eagle Springs Field in Railroad Valley, Nye County.

production increased 13% from 2013. Daily oil production per well ranged between 1 and 24 barrels and averaged 14. Daily water production per well ranged between 3 and 661 barrels and averaged 173. Oil production increased in four wells and decreased in eight. The field also had nine inactive producers.

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 that produced the entire year. The field averaged 43 barrels of oil and 1,472 barrels of water per day and accounted for 5% of Nevada's oil production in 2014. Oil and water production both decreased 10% from 2013. Daily per well oil production ranged between 7 and 23 barrels and averaged 11. Daily per well water production ranged between 308 and 425 barrels and averaged 368. Oil production decreased in all four wells.

The Grant Canyon Field in Railroad Valley also produces from dolomites of the Devonian Guilmette Formation between about 2,160 and 4,300 feet. The field had three active producers that each averaged 361 days of production in 2014. Spread over the year, production for the field averaged 127 barrels of oil and 1,702 barrels of water per day and accounted for 15% of Nevada's oil production (fig. 3). Oil and water production decreased 8% and less than 3%, respectively. Daily oil production per well ranged between 12 and 99 barrels and averaged 43. Daily per well water production ranged between 2 and 1030 barrels and averaged 573. Oil production decreased in all three active producers. The field also had two inactive producers.

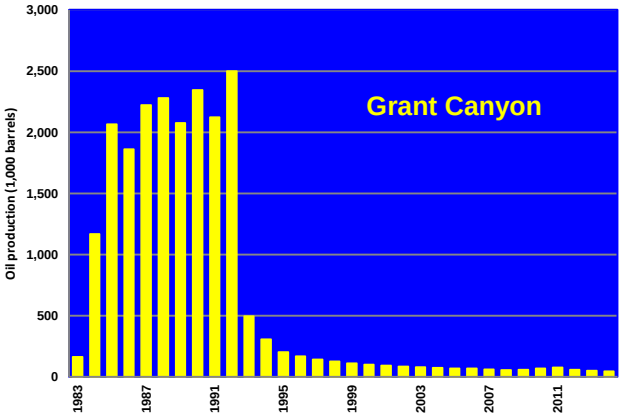

Figure 3. Chart showing oil production from the Grant Canyon Field in Railroad Valley, Nye County.

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. The field had four active producers, which each averaged 269 days of production. Spread over the year, production for the field averaged 79 barrels of oil and 1,010 barrels of water per day, and accounted for 9% of Nevada's total oil production (fig. 4). Oil production decreased 1.6%, and water production increased 9%. Oil production increased in two of the wells. All four active wells also produce natural gas. A total of 3,346 thousand cubic feet of gas were produced in 2014, a 4% decrease from 2013. 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.

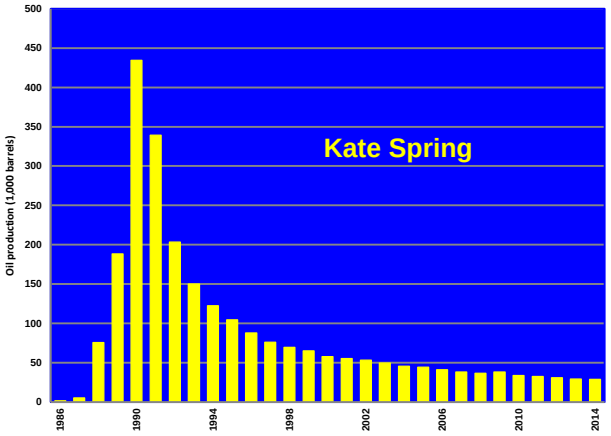

Figure 4. Chart showing oil production from the Kate Spring Field in Railroad Valley, Nye County.

The Sand Dune Field in Railroad Valley produces from Permian and Pennsylvanian limestones between about 5,970 and 6,200 feet. Its only well was active for 322 days and averaged 23 barrels of oil and 44 barrels of water per day and accounted for 2.4% of Nevada's oil production. Oil production increased 190%, and water production decreased 71% from 2013.

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, Its only active well produced for 35 days and averaged 46 barrels of oil per day with no water. It accounted for 0.5% of Nevada's oil production. Production increased 22% from 2013. The field also contains two inactive producers.

In the Tomera Ranch Field in Pine Valley, current 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. Of the two producers, one was active for 301 days in 2014 and averaged a little over 6 barrels per day with no water. The second one came on line in November, and averaged 2.2 barrels of oil and no water over 61 days. Oil production declined 46% from 2013, and the field accounted for 0.6% 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 292 days of production. Spread over the year, production for the field averaged 374 barrels of oil and 6,532 barrels of water per day and accounted for 43% of Nevada's total oil production (fig.5). Daily oil production per well ranged between 1 and 48 barrels and averaged 13 barrels. Daily water production per

well ranged between 0 and 3,384 barrels and averaged 233 barrels. Oil and water production decreased 5%, and 2% respectively from 2013. Oil production increased in 8 wells and decreased in 27. The field also contains seven inactive producers.

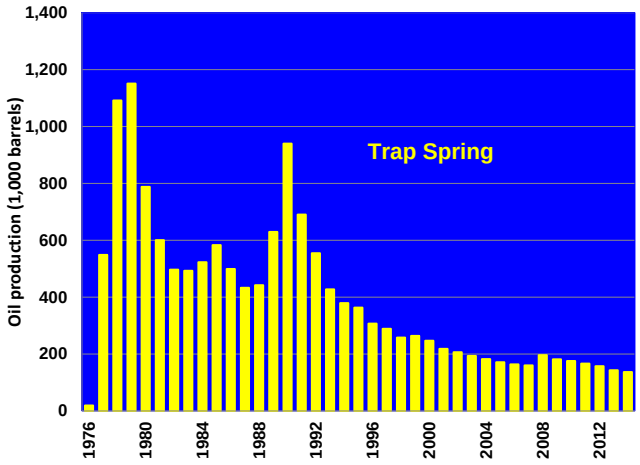

Figure 5. Chart showing oil production from the Trap Spring Field in Railroad Valley, Nye County.

Two minor fields in Railroad Valley produced 267 barrels of oil, a decline of 15% from 2013. The Currant Field's only production well averaged 13 barrels of oil per day and no water for 11 days. It produced from the Eocene Sheep Pass Formation between about 6,850 and 7,080 feet. The Duckwater Creek Field's only production well averaged less than 7 barrels of oil and 52 barrels of water per day for 19 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 all are now plugged and abandoned. Three Bar contained three wells which produced from the Miocene Humboldt Formation, the Oligocene Indian Well Formation, and the Cretaceous Newark Formation between 5,720 and 7,070 feet. Deadman Creek had only one well that produced briefly from the Humboldt Formation between 8,165 and 8,850 feet. Toano Draw had only one well that produced from the Humboldt Formation between 8,250 and 8,950 feet.

Most of Nevada's oil is used to make such products as No. 1 and No. 2 diesel fuel, kerosene, stove oil, and asphalt. Nevada crude oil was transported in batches by trucks to the 8,000-barrel-per-day capacity refinery near Currant in Railroad Valley, which is owned by Foreland Refining Corporation.

Two new fields, Humboldt and Huntington in Elko County, began production in 2014, and these are summarized in the next section.

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

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

Field (year discovered)	1954-2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Eagle Springs (1954) (Railroad Valley)	5,158,512	54,708	56,992	58,683	53,851	57,394	58,900	44,422	39,819	34,217	5,617,498
Trap Spring (1976) (Railroad Valley)	13,960,781	163,299	159,821	196,089	181,320	175,352	166,415	156,991	143,909	136,651	15,440,628
Currant (1979) (Railroad Valley)	1,496	0	81	108	111	109	119	159	194	143	2,520
Bacon Flat (1981) (Railroad Valley)	991,520	8,112	8,301	7,968	7,764	7,427	6,358	5,690	6,447	6,223	1,055,810
Blackburn (1982) (Pine Valley)	5,137,029	41,491	39,477	43,600	77,730	57,260	43,198	38,004	40,392	32,217	5,550,398
Grant Canyon (1983) (Railroad Valley)	20,858,159	70,158	62,236	56,247	60,036	68,927	77,683	58,897	50,517	46,263	21,409,123
Kate Spring (1986) (Railroad Valley)	2,204,978	41,124	38,411	36,863	38,347	33,824	32,719	30,833	29,402	28,934	2,515,435
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	11,705	3,757	2,016	50,244
North Willow Creek (1988) (Pine Valley)	47,278	2,552	1,256	56	0	0	0	0	0	0	51,142
Three Bar (1990) (Pine Valley)	23,837	0	0	0	0	0	0	0	0	0	23,837
Duckwater Creek (1990) (Railroad Valley)	18,176	122	150	120	120	118	115	117	119	124	19,281
Sans Spring (1993) (Railroad Valley)	261,825	3,265	2,971	2,407	1,419	1,494	1,404	1,498	1,318	1,604	279,205
Ghost Ranch (1996) (Railroad Valley)	468,910	30,255	26,070	23,615	24,011	21,630	18,605	17,022	17,231	15,564	662,913
Deadman Creek (1996) (Elko County)	367	0	0	0	0	0	0	0	0	0	367
Sand Dune (1998) (Railroad Valley)	105,550	10,618	10,562	10,467	9,883	3,687	2,483	2,656	2,567	7,467	165,940
Toano Draw (2007) (Elko County)			1,916	48	0	0	0	0	0	0	1,964
Humboldt (2014) (Elko County)										2,756	2,756
Huntington (2014) (Elko County)										2,248	2,248
Total	49,271,270	425,704	408,244	436,271	454,592	427,222	407,999	367,994	335,672	316,426	52,851,394
Change from previous year		-5%	-4%	7%	4%	-6%	-4%	-10%	-9%	-6%	

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

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

Field (year discovered)	1994-2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Eagle Springs (1954) (Railroad Valley)	4,550,424	501,462	804,428	842,435	699,950	699,147	644,703	361,101	375,711	429,749	9,909,110
Trap Spring (1976) (Railroad Valley)	29,877,623	2,298,300	2,371,513	2,356,016	2,307,911	2,289,505	2,450,742	2,460,099	2,429,108	2,382,353	51,223,170
Currant (1979) (Railroad Valley)	0	0	0	0	0	2	0	0	0	0	2
Bacon Flat (1981) (Railroad Valley)	371,572	4,899	2,153	10,204	33,664	5,331	1,810	1,765	1,685	1,825	434,908
Blackburn (1982) (Pine Valley)	22,653,758	1,537,556	1,582,937	1,558,039	1,588,194	1,623,338	1,334,105	1,418,780	1,284,774	1,117,893	35,699,374
Grant Canyon (1983) (Railroad Valley)	4,243,960	506,854	442,826	638,822	624,493	709,918	644,303	640,311	637,840	621,172	9,710,499
Kate Spring (1986) (Railroad Valley)	5,756,558	416,752	437,983	416,983	520,099	494,605	450,155	426,896	337,981	368,722	9,626,734
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)	3,900	83	0	0	0	0	0	773	360	0	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)	66,636	855	1,350	1,080	1,080	1,080	1,080	1,080	1,080	990	76,311
Sans Spring (1993) (Railroad Valley)	3,481,979	261,500	244,756	217,288	0	0	0	0	0	0	4,205,523
Ghost Ranch (1996) (Railroad Valley)	1,912,335	641,022	690,599	711,865	496,553	529,423	514,379	479,013	600,429	537,388	7,113,006
Deadman Creek (1996) (Elko County)	0	0	0	0	0	0	0	0	0	0	0
Sand Dune (1998) (Railroad Valley)	262,659	27,043	31,044	32,684	29,998	37,399	50,857	55,225	49,525	14,308	590,742
Toano Draw (2007) (Elko County)			25,614	3,507	0	0	0	0	0	0	29,121
Humboldt (2014) (Elko County)										0	0
Huntington (2014) (Elko County)										0	0
Total	73,693,243	6,196,326	6,635,203	6,788,923	6,301,942	6,389,748	6,092,134	5,845,043	5,718,493	5,474,400	129,135,455
Change from previous year		-3%	7%	2%	-7%	1%	-4%	-4%	-2%	-4%	

NEW PRODUCERS

Two new producers were completed in 2014, and one that was completed in 2013 began production in 2014. Andromeda Oil LLC completed Tomera Ranch 33-1B (Permit 962) in the Tomera Ranch Field in Pine Valley in November 2014. The well produced 134 barrels of oil before being shut-in at year's end.

Noble Energy Inc. drilled one new producer and began production from a well completed in 2013. M2C-M2-21B (Permit 942) was completed in 2013 to 11,689 feet on land owned by Dorsey Land LLC, in what is referred to as the Humboldt Field. The well was shut in through May 2014, and began production June. The well produced 2,756 barrels of oil before being shut-in again in December. The oil zone was not reported, but a sundry notice dated January 16, 2014, noted the casing would be perforated between 7,906 feet and 8,210 feet and then hydraulically fractured. This interval is within the Elko Formation and consists of mostly dark gray to black shale, interbedded with some gray to gray-green claystone and light gray tuff and minor limestone, sandstone, and coal. K1L-1V (Permit 960) was completed in November 2014 on BLM lease NVN-078690 in what is referred to as the Huntington Field. The well produced 2,248 barrels of oil before being shut in, in December. This well was also hydraulically fractured.

EXPLORATION

Twelve wells were permitted for oil and gas in 2014, down from fifteen in 2013. Five wells were spudded. Drilling was completed on four of these wells, as well as two others that were spudded in 2013. Of these seven wells, two were completed as producers, two were shut in, two were plugged and abandoned, and one was still being drilled at year's end (being plugged and abandoned in April 2015). One well that was spudded late in 2012 and completed in 2013 was shut-in, in 2014. The twelve wells completed in 2014 totaled 39,606 feet, up 12% from 35,499 feet drilled in 2013 (fig. 6). Based on reports filed with the state for 2014, two drill rigs operated in the state during January and February; none operated from March through August; three operated during September and October; and one operated during the November and December. Five wells were hydraulically fractured in Nevada in 2014. These are listed in the table of hydraulically fractured wells.

In 2014, 1,470 oil leases covering 2,923,540 acres were in effect on public lands in Nevada. This represents

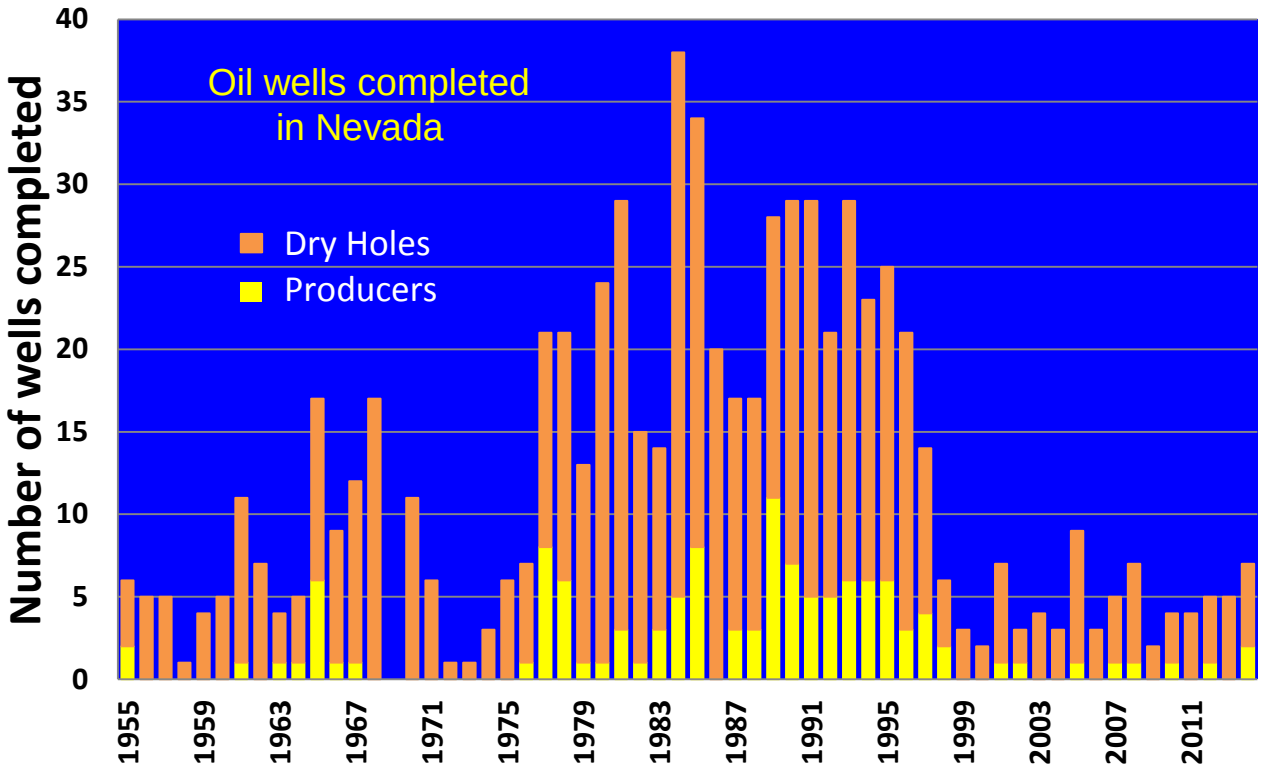

Figure 6. Chart showing number of wells completed and how many were producers in Nevada, 1955–2014.

Federal oil and gas leases in effect for 2013 and 2014

	NUMBER OF LEASES[1]						ACREAGE[1]					
	Competitive		Noncompetitive		Simultaneous[2]		Competitive		Noncompetitive		Simultaneous[2]	
County	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014	2013	2014
Carson City	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	2	2	1	0	0	0	5,100	5,100	640	0	0	0
Clark	0	0	1	0	0	0	0	0	480	0	0	0
Douglas	0	0	0	0	0	0	0	0	0	0	0	0
Elko	197	171	161	121	0	0	324,400	273,297	316,199	248,430	0	0
Esmeralda	16	10	5	6	0	0	30,571	21,694	9,276	12,451	0	0
Eureka	110	89	78	32	0	0	192,650	159,990	208,049	71,058	0	0
Humboldt	0	0	0	0	0	0	0	0	0	0	0	0
Lander	0	1	0	0	0	0	0	204.11	0	0	0	0
Lincoln	57	53	93	75	0	0	111,085	100,145	299,983	244,254	0	0
Lyon	0	0	0	0	0	0	0	0	0	0	0	0
Mineral	2	0	3	2	0	0	4,149	0	6,511	3,952	0	0
Nye	290	298	209	191	20	20	411,112	445,294	488,929	477,376	7,998	7,998
Pershing	0	7	1	1	0	0	0	13,430	960	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	177	105	371	285	0	0	302,548	179,594	839,152	658,422	0	0
Total	851	736	923	714	20	20	1,381,615	1,198,748	2,170,179	1,716,903	7,998	7,998

[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 2014

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								
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.	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	JAN 14	9,100	Shut in
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
Noble Energy, Inc.	MR S25G-S25-33A	955	NW/4, SE/4, S25, T38N, R60E	JUN 14	OCT 14	NOV 14	11,136	Shut in
Noble Energy, Inc.	MR S25G-S25-22B	956	SW/4, NE/4, S25, T38N, R60E	JUN 14			*14,380	Not Drilled
Noble Energy, Inc.	MR S12J-S12-23A	957	NW/4, SE/4, S12, T38N, R60E	JUN 14			*14,062	Not Drilled
Noble Energy, Inc.	MR S12J-S12-33B	958	NW/4, SE/4, S12, T38N, R60E	JUN 14			*14,000	Not Drilled
Noble Energy, Inc.	K1L-2D	959	SW/4, SW/4, S1, T29N, R55E	JUL 14			*12,000	Not Drilled
Noble Energy, Inc.	K1L-1V	960	SW/4, SW/4, S1, T29N, R55E	JUL 14	SEP 14	OCT 14	9,693	Producer
Noble Energy, Inc.	K2J-2D	961	NW/4, SE/4, S2, T29N, R55E	JUL 14			*12,000	Not Drilled
Noble Energy, Inc.	K2J-1V	963	NE/4, NE/4, S2, T29N, R55E	JUL 14			*10,015	Not Drilled
Noble Energy, Inc.	G18C-1V	964	NE/4, NW/4, S18, T30N, R56E	JUL 14			*11,762	Not Drilled
Noble Energy, Inc.	G20L-1V	965	NW/4, SW/4, S20, T30N, R56E	JUL 14			*10,869	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
Andromeda Oil, LLC	Tomera Ranch 33-1B	962	SW/4, SW/4, S33, T31N, R52E	AUG 14	SEP 14	OCT 14	1,206	Producer
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	SEP 05	2,120	P&A
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.	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
Makoil Inc.	Portuguese Mountain No. 14A-12	928	SE/4, SW/4, S12, T10N, R56E	JUN 12	JAN 13	SEP 14	5,511	P&A
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
Western General, Inc.	Tom Spring 4-34	952	SW/4, SE/4, S4, T8N, R57E	SEP 13			*9,870	Not Drilled
True Oil, LLC	DY Federal 13-31	954	NW/4, SW/4, S31, T7N, R57E	JAN 14			*6,200	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	SEP 14		*9,350	Drilling
Tetuan Resources Corp.	Mariagnes 32-30	953	SW/4, NE/4, S30, T15N, R57E	SEP 13	FEB 14	FEB 14	2,960	P&A

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

decreases of 18% each in the number of leases and acreage.

Noble Energy Inc. of Houston, TX, presently owns the Wilson Project, which contains leases covering 372,000 contiguous acres between Elko and Wells, 66% of which are on private property. The Wilson Project consists of three areas—Humboldt (east of Elko), Huntington (southwest of Elko), and Marys River (northeast of Elko). The company had spent $23,000,000 on the project through the end of 2014 and another $3,000,000 through the end of the first quarter of 2015. Noble drilled four wells in 2013 and 2014 (see Producers above) and permitted 10 more wells in 2014. In addition to the producers, the company also completed M10C-M10-11B (Permit 946) to 9,100 feet in early 2014 on land owned by Dorsey Land LLC, about 1.7 miles south west its producer M2C-M2-21B (Permit 942). The well did not produce and was shut in. However, a sundry notice dated February 11, 2014, noted the casing would be perforated between 8,620 feet and 8,889 feet, and the well was hydraulically fractured. This interval is within the Elko Formation. Also, drilling of MR S25G-S25-33A (Permit 955) with a proposed total depth of 14,312 feet was underway at year's end. The project area also includes Wexpro Co. Jiggs 10-1 (Permit 263) completed in 1980 to 10,950 feet. The well initially flowed 93,000 cubic feet of gas per day and 558 barrels of oil was recovered from volcanic rocks between 9,060 feet and 9,440 feet in the Elko Formation. The well was plugged and abandoned due to the lack of a nearby pipeline for the gas. The BLM issued an environmental assessment for Huntington Valley Oil and Gas Exploration project proposed by Noble. 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. At year's end, the company was analyzing the results from existing wells, but planned no new drilling through 2015. The company also had a three-well obligation remaining (*Environmental Assessment Huntington Valley Oil and Gas Exploration Project*, DOI-BLM-E200-NV-2014-0003-EA BLM, May 2014; IHS Drilling Wire, Four Corners Edition/Section I, 7/9/2014,

11/5/2014; IHS Drilling Wire, Southeastern Edition/Section I, 11/6/2014; Noble Energy Inc. Form 10-K, 2/19/2015; Noble Energy Inc. Form 10-Q, 5/5/2015; Noble Energy website http://www.nobleenergyinc.com).

On July 17, 2014, the Nevada State Office of the Bureau of Land Management (NSO-BLM) held an oil and gas lease sale on 102 parcels covering 174,021 acres in Esmeralda, Lander, and Nye Counties. For the competitive sales, the bids (all for the $2 per acre minimum) totaled $76,164 on 27 parcels covering 38,071 acres. All but one parcel were bid on by American General Energy Exploration Corp. of Austin, TX, with the highest amount being $5,120 paid each for Parcel 134 (NV-14-07-134) covering all of sections 20, 21, 28, and 29, T12N and R44E and Parcel 138 (NV-14-07-138) covering all of sections 12 through 15, T14N, R44E, both being in Nye County. For the non-competitive sales, the offers made totaled $21,116 for nine parcels covering 11,677 acres. American General Energy Exploration Corp. and Liberty Petroleum of New York City, NY made the offers. The nine parcels were 98 (NV-14-07-098), 140 through 145 (NV-14-07-140 through 145), 163 (NV-14-07-163), and 165 (NV-14-07-165), consisting of portions of T9N, R53E; T14N, R43E; and T14N, R44E. (NSO-BLM Oil and Gas Lease List, April 14, 2013; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, July 17, 2014).

On September 9, 2014, the NSO-BLM held an oil and gas lease sale on 44 parcels covering 144,450 acres in Elko County. Two bids were accepted in the competitive sales for a total of $5,929. Diabase David bid $7 per acre for Parcel 4 (NV-14-03-004) covering 336.33 acres in portions of sections 19 and 20, T31N, R55E and $2 per acre for Parcel 18 (NV-14-03-018) covering 1,680 acres in portions of sections 19 and 20, T27N, R58E. Twelve offers were accepted in the non-competitive sales for a total of $40,717. American General Energy Exploration Corp. made offers on all 12 parcels consisting of 23,877 acres; Parcel 79 (NV-14-03-079), 154 (NV-14-03-154), 155 (NV-14-03-144), 193 through 202 (NV-14-03-193-202); and 206 (NV-14-03-206), consisting of portions of T30N, R61E; T28N, R64E; and T29N, R65E; and T30N, R65E. (NSO-BLM Oil and Gas Lease List, June 5, 2014; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, September 9, 2014).

On December 9, 2014, the NSO-BLM held an oil and gas lease sale on 100 parcels covering 194,361 acres in Lincoln County. One bid was accepted in the competitive sales for $948. Kirkwood Oil and Gas LLC bid the $2 per acre minimum for Parcel 9 (NV-14-12-009) covering 473.22 acres in portions of sections section 32, T10N, R57E. One offer was accepted in the non-competitive sales. Liberty Petroleum Corp. paid $4,615.50 in rental and filing fees for Parcel 185 (NV-14-12-185) consisting of 2,537 acres covering all of sections 5 through 9, T8N, R70E. (NSO-BLM Oil and Gas Lease List, September 8, 2014; NSO-BLM Oil and Gas Competitive Lease Sale Results Summary, December 9, 2014).

TRANSFERS

No transfers occurred in 2014.

OTHER DEVELOPMENTS

The BLM under direction from Secretary of the Interior Sally Jewell was preparing the final set of rules (released 3/20/2015 and to take effect after 90 days) covering hydraulic fracturing (fracking) on public and tribal lands. The main components of the rules include: 1) the protection of groundwater supplies by requiring validation of well integrity and strong cement barriers between the wellbore and water zones through which the wellbore passes; 2) requiring companies to publicly disclose chemicals used in hydraulic fracturing to the BLM through the website FracFocus within 30 days of completing fracturing operations; 3) higher standards for interim storage of recovered waste fluids from hydraulic fracturing to mitigate risks to air, water and wildlife; and 4) lowering the risk of cross-well contamination with chemicals and fluids used in the fracturing operation, requiring companies to submit more detailed information on the geology, depth, and location of preexisting wells so the BLM can better evaluate and manage site characteristics. The rules will also allow states and tribes to request variances from the provisions if they are equal or more protective than regulations in place. For instance, New York State went on to ban fracking. Oil industry groups do not support the new rules, and the American Petroleum Institute states that they will impose new costs and delays on energy development without improving state and federal regulations. The 395-page final draft entitled "Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands" can be viewed at http://www.blm.gov/pgdata/etc/medialib/blm/wo/Communications_Directorate/public_affairs/news_release_attachments.Par.6134.File.tmp/HF-Final-Agency-Draft.pdf (BLM Press Releases, 3/20/2015; HIS Drilling Wire, Four Corners Edition, Section 1, 3/25/2015; N.Y. Officially Bans Fracking With Release of Seven-Year Study, Bloomberg News, 6/29/2015).

The 2013 Nevada Legislature tasked the Nevada Division of Minerals and Nevada Division of Environmental Protection to jointly develop hydraulic fracturing regulations, and the Commission on Mineral Resources to adopt and implement the regulations. 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

Partial list of Nevada oil wells that have been hydraulically fractured

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

Permit	Company	Well Name	Year Completed	Perfs (gross)	Fluid	Proppant	Date Fracked	Present Status	Formation
203	Northwest Exploration Co.	Trap Spring No. 13	1977	4976'-5078'	10,122 gal lease oil	55,000 lbs. 8/12 sand	6/21/1977	WD	Garrett Ranch Volcanics
189	Northwest Exploration Co.	Trap Spring No. 4	1977	4018'-4389'	53,000 gal. oil	37,000 lbs. 8/12 sand	8/19/1977	P&A	Garrett Ranch Volcanics
196	Northwest Exploration Co.	Trap Spring No. 8	1977	4408'-4575'	72,300 gal. lease oil	100,000 lbs. 10/20 sand	9/11/1977	Producer	Tertiary volcanic rock
233	Northwest Exploration Co.	Trap Spring No. 20	1978	3932'-3987'	62,000 gal. lease oil	75,000 lbs. 10/20 sand	8/4/1978	WD	Pritchards Station Volcanics
196	Northwest Exploration Co.	Trap Spring No. 8	1979	4408'-4575'	1,795 gal. lease oil	100,000 lbs. 10/20, 8/12, 4/8 sand	6/23/1979	Producer	Tertiary volcanic rock
263	Wexpro Co.	Jiggs 10-1	1980	10,060'-10,080'	Hy-gel	1.5 ppg 100 mesh sand	3/6/1980	P&A	Paleozoic rock
324	Amoco Production Co.	Blackburn No. 3	1982	6274'-6345'	Jellied lease crude	30,000 lbs. 20/40 sand	1982	Shut in	Indian Well Formation
342	Sun Exploration and Production Co.	Southern Pacific No. 3-13	1983	8386'-8432'	53,090 gal. diesel; 1500 SCF CO_2	53,620 lbs. 20/40 sand	1/28/1983	P&A	Humboldt Formation
350	Amoco Production Co.	Blackburn No. 10	1983	5660'-5870'	87,500 gallons foamed oil	120,000 lbs. 20/40 sand	9/22/1983	Producer	Indian Well Formation
210	MAPCO Oil and Gas Co.	Trap Spring No. 17	1985	3570'-3610'	10,000 gal. foam	12/20 sand	1985	P&A	Horse Camp Volcanics
856	DY Exploration	Toano Draw 15-19	2005	8800'-8950'	75,000 gal. gel; 6,400 gal. slickwater	115,000 lbs. 20/40 PR6000 sand	8/30/2005	P&A	Humboldt Formation
856	DY Exploration	Toano Draw 15-19	2006	8800'-8950'	61,967 gal. water, solvents, gels, and other additives	30,900 lbs. 20/40 PR6000 sand	6/1/2006	P&A	Humboldt Formation
942	Noble Energy, Inc.	M2C-M2-21B	2014	7906'-8210'	250,057 gal. water; 2% by mass solvents, gels, and other additives	9% by mass PRC Sand; 0.7% by mass Premium white sand	3/17-24/2014	Shut in	Elko Formation
946	Noble Energy, Inc.	M10C-M10-11B	2014	8620'-8889'	343,919 gal. water; 2.5% by mass solvents, gels, and other additives	10% by mass PRC Sand; 0.6% by mass Premium white sand	6/3-4/2014	Shut in	Elko Formation
458	Grant Canyon Oil and Gas	Blackburn No. 16	1985	6959'-7012'	209,600 gal. water; 2.4% by mass solvents, gels, and other additives	12% by mass Premium white sand; 2.4% by mass PRC Sand	6/5/2014	Producer	Nevada Formation
928	Makoil, Inc.	Portuguese Mtn. 14A-2	2014	N/A	29,949 gal. water; 14% by mass solvents, gels, and other additives	32% by mass Premium white sand	11/23/2014	P&A	N/A
960	Noble Energy, Inc.	K1L-1V	2014	N/A	300,537 gal. water; 0.3% by mass solvents, gels, and other additives	7% by mass Premium white sand; 1.5% by mass SSA-2	12/5/2014	Producer	N/A

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

concerning hydraulic fracturing activities in the state (NRS 465; NRS 522). Proposed rules making extensive changes to the Nevada Administrative Code Chapters 522 and 534A were issued in February. After extensive reviews, comments, and revisions, the final rules were approved October 24, 2014.

Hydrocarbons, mostly gas, are moved into or across Nevada mostly by pipelines. The BLM issued a final supplemental environmental impact statement and record of decision concerning the Ruby Pipeline. The 678-mile long 42-inch diameter pipeline, owned by El Paso Pipeline Partners, was built and went into operation in 2011 to move gas from Opal, Wyoming, to Malin, Oregon. It crosses 350 miles through northern Nevada. The Center for Biological Diversity and other groups sued the BLM in the Ninth Circuit Court of Appeals on various grounds, most of which the court denied. However, the court found that the original final environmental impact statement did not provide sufficient data about how much acreage sagebrush steppe used to occupy and what percentage was destroyed. The court ordered the Federal Wildlife Service (FWS) to study this and the BLM to revamp the 2010 record of decision involving the pipeline's right-of-way accordingly. The new FWS study noted the impact on the sagebrush steppe vegetation and habitat was minimal, and the BLM issued a new record of decision to reissue the pipeline's right-of-way (Final Supplemental Environmental Impact Statement DOI-BLM-NV-0000-2013-0001-EIS, Ruby Pipeline Project, November 2013; Record of Decision Ruby Pipeline Project Decision to Reissue Right-of-Way Grant, 11/13/2013).

On June 24, 2014, the Paiute Pipeline Company filed an application for its proposed Elko Area Expansion Project with the Federal Energy Regulatory Commission (FERC). FERC then prepared and issued an environmental assessment for the project. The project involves the company constructing and operating a 35-mile long, 8-inch diameter natural gas pipeline from the Ruby Pipeline Wieland Flat Compressor Station across Federal land to the company's existing lateral near Elko. The purpose of the pipeline is to provide 21,994 dekatherms per day to meet the growth requirements of Elko area shippers served by the company's transmission system. The project will require the BLM signing a Decision Record approving a right-of-way across Federal land (BLM, News Release No. Elko 2015-026, 7/6/2015; FERC Docket No. CP14-509-000, Order Issuing Certificate, 5/14/2014; 2015 Elko Area Project Expansion Environmental Assessment, 1/2015; 2015 Elko Area Project Expansion website, http://www.paiutepipeline. com/elko/).

In 2013, the Prospector Pipeline Company filed for a permit with the Public Utilities Commission of Nevada for pipeline construction as part of the Eureka Pipeline Project. In 2014, The BLM issued an environmental assessment, a finding of no significant impact, and a record of decision authorizing the project's right-of-way. The company proposed to construct and operate an 18-mile long, 12-inch diameter natural gas pipeline from the North Elko Pipeline Goldstrike Meter Station across Federal land to the Leeville and Gold Quarry Mines owned by Newmont Mining Corp. The pipeline would eliminate the need of the current seasonal propane usage and would improve energy efficiency, reduce emissions, enhance safety, and provide substantial operational cost savings to the mines involved (Eureka Pipeline Project Environmental Assessment DOI-BLM-NV-N020-2014-0002-EA, February 2014; Finding of No Significant Impact, 4/16/2014; Record of Decision, 4/16/2014).

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 19,040,000 barrels per day, up 0.4% from 18,960,000 barrels per day in 2013, but still down 7% from the all-time high of 20,800,000 barrels per day in 2005. Domestic crude oil production averaged 8,710,000 barrels per day, up 17% from 7,470,000 barrels per day in 2013. The annual production is the highest since 1985, when production was 8,970,000 barrels per day, and the first time since 1970 that production has increased six years in a row. Imported crude oil averaged 7,340,000 barrels per day, down 5% from 7,730,000 barrels per day in 2013, and down 27% from the all-time high of 10,130,000 barrels per day in 2005. Imported crude oil accounted for 46% of the total, down from 51% in 2013. The average price of domestic oil decreased 9% in 2014 to $87.39 per barrel from an average of $95.99 per barrel in 2013.

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	Justin Rammell	4055 South 700 East No. 203 Salt Lake City, UT 84107 Phone: 801-432-0632
Frontier Exploration Company FX Energy, Inc.	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 Steve Barnes	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
Noble Energy, Inc.	Humboldt Huntington	Chandler Newhall	1625 Broadway, Suite 2200 Denver, CO 80202 Phone: 303-228-4119 Website: http://www.nobleenergyinc.com
Western General	Kate Spring	Richard 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

Status of Nevada oil and gas production wells in 2014

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	4,831	59,781		352
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	3,478	34,670		276
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	9,332	5,043		286
Eagle Springs Unit No. 15-35	21	07/55	Prod; SI 1995-2002	NW/4, SW/4, S35, T9N, R57E	111	1,625		31
Eagle Springs Unit No. 35-35	17	03/55	Prod	NE/4, SW/4, S35, T9N, R57E	1,552	25,076		357
Eagle Springs Unit No. 43-36	83	08/65	Prod	NE/4, SE/4, S36, T9N, R57E	55	137		48
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	3,042	75,983		324
Eagle Springs Unit No. 74-35	71	04/64	Prod; SI 1998-2001	SE/4, NE/4, S35, T9N, R57E	6	43		1
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	8,622	10,960		355
Eagle Springs/Plains Petroleum No. 24-36	737	11/94	SI 2013	SW/4, NW/4, S36, T9N, R57E	5	26		6
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	2,178	182,968		277
Eagle Springs/Plains Petroleum No. 83-35	754	07/95	Prod	SE/4, NE/4, S35, T9N, R57E	1,005	33,437		166
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	2,568	2,166		362
Munson Ranch No. 13-45	547	08/89	Prod	NW/4, SW/4, S13, T9N, R56E	492	296		24
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	1,211	2,130		365
Munson Ranch No. 14-49	550	08/89	Prod; SI 2010-2013	NE/4, SE/4, S14, T9N, R56E	1,060	1,486		365
Munson Ranch No. 14-49X	562	02/90	SI 2013	NE/4, SE/4, S14, T9N, R56E	0	0		0
Trap Spring No. 14-42	523	10/88	Prod	SE/4, NE/4, S14, T9N, R56E	1,405	3,862		360
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	24	0		1
Munson Ranch No. 12-14	688	05/95	Prod	SW/4, SW/4, S12, T9N, R56E	452	566		45
Munson Ranch No. 12-23	596	11/90	SI 1998	NE/4, SW/4, S12, T9N, R56E	0	0		0
Munson Ranch No. 12-24	432	04/85	Prod	SE/4, SW/4, S12, T9N, R56E	3,763	3,847		360
Munson Ranch No. 12-32	559	12/89	Prod	SW/4, NE/4, S12, T9N, R56E	5,026	33,772		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	2,828	2,884		365
Munson Ranch No. 12-43	880	03/08	Prod	NE/4, SE/4, S12, T9N, R56E	17,647	367		365
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	2,723	25,053		365
Munson Ranch No. 13-14	623	09/91	Prod; SI 2001-2006	SW/4, SW/4, S13, T9N, R56E	4,361	118,690		365
Munson Ranch No. 13-21X	640	05/92	Prod	NE/4, NW/4, S13, T9N, R56E	3,021	17,495		365
Munson Ranch No. 13-24	218	08/79	Prod	SE/4, SW/4, S13, T9N, R56E	443	194		48
Munson Ranch No. 13-31	382	07/84	Prod	NW/4, NE/4, S13, T9N, R56E	3,485	21,887		365
Munson Ranch No. 13-32	373	08/84	Prod	SW/4, NE/4, S13, T9N, R56E	5,436	46,776		365
Munson Ranch No. 13-33	211	11/78	Prod	NW/4, SE/4, S13, T9N, R56E	1,704	3,232		365
Munson Ranch No. 13-41X	448	09/85	Prod	NE/4, NE/4, S13, T9N, R56E	9,882	85,044		365
Munson Ranch No. 13-42	222	11/78	Prod	SE/4, NE/4, S13, T9N, R56E	1,008	74,767		365
Munson Ranch No. 14-23	313	08/81	Prod	NE/4, SW/4, S14, T9N, R56E	363	3,746		365
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	4,796	76,261		365
Munson Ranch No. 14-34	287	11/80	Prod	SW/4, SE/4, S14, T9N, R56E	243	3,886		140
Munson Ranch No. 14-34X	522	08/88	Prod	SW/4, SE/4, S14, T9N, R56E	1,912	11,996		361
Munson Ranch No. 14-41	538	07/89	Prod	NE/4, NE/4, S14, T9N, R56E	5,816	59,710		365
Munson Ranch No. 14-44	528	08/89	Prod	SE/4, SE/4, S14, T9N, R56E	3,112	116,636		342
Trap Spring No. 2	185	02/77	Prod	SE/4, SW/4, S27, T9N, R56E	8,423	3,344		364
Trap Spring No. 3	188	04/77	Prod	NW/4, NE/4, S34, T9N, R56E	8,229	1,228,492		363
Trap Spring No. 8	196	09/77	Prod	SE/4, SW/4, S23, T9N, R56E	166	198		164
Trap Spring No. 9	197	09/78	Prod	NW/4, NW/4, S26, T9N, R56E	14,472	199,340		364
Trap Spring No. 16	232	09/78	Prod	NW/4, SE/4, S23, T9N, R56E	3,513	221,612		364
Trap Spring No. 19	219	12/77	Prod	SE/4, NW/4, S23, T9N, R56E	16,432	12,545		364
Trap Spring No. 23-41	574	06/90	Prod	NE/4, NE/4, S23, T9N, R56E	613	73		361
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	24	0		6
CURRANT (Nye Co., 1979)								
Makoil, Inc.								
Currant No. 1	241	10/78	Prod; SI 2005-2007	SE/4, SW/4, S26, T10N, R57E	143	0		11
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	6,223	1,825		365

Status of Nevada oil and gas production wells in 2014 – 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	4,507	9,697		261
Blackburn No. 14	442	07/85	Prod; SI 2001-2008	NE/4, SE/4, S7, T27N, R52E	15,926	40,496		334
Blackburn No. 16	458	12/85	Prod; SI 2009-2013	SE/4, NE/4, S7, T27N, R52E	2,413	32,366		201
Blackburn No. 18	660	11/92	Prod	NE/4, SE/4, S7, T27N, R52E	8,588	734,158		352
Blackburn No. 19	724	06/94	Prod	NW/4, SW/4, S8, T27N, R52E	500	230,931		133
Blackburn No. 21	802	09/97	Prod	NE/4, SE/4, S7, T27N, R52E	283	70,245		45
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	4,405	592		362
Grant Canyon No. 10	706	07/11	Prod; PA 1993-2010	NW/4, NW/4, S21, T7N, R57E	35,729	371,780		361
Grant Canyon No. 22-21	705	01/94	Prod	SE/4, NW/4, S21, T7N, R57E	6,129	248,800		361
KATE SPRING (Nye Co., 1986)								
Makoil, Inc.								
Kate Spring No. 12-2	544	08/89	Prod	NW/4, NW/4, S2, T8N, R57E	5,913	97,208	1,132	365
Western General, Inc.								
Kate Spring No. 1	436	01/86	Prod	W/2, SW/4, S2, T8N, R57E	3,600	33,000	287	60
Kate Spring No. 1A	560	12/89	Prod	NW/4, SW/4, S2, T8N, R57E	16,490	150,508	1,600	305
Kate Spring No. 1C	592	09/91	SI 1997	SW/4, SW/4, S2, T8N, R57E	0	0		0
Taylor Federal No. 1	497	10/87	Prod	NE/4, SE/4, S3, T8N, R57E	2,931	88,006	327	343
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	1,882	0		301
Tomera Ranch No. 33-1B	962	11/14	Prod	SW/4, SW/4, S33, T31N, R52E	134	0		61
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 2013	NE/4, SW/4, S27, T29N, R52E	0	0		0
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	124	990		19
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	1,604	0		35
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	5,567	118,485		364
Kirkwood Oil and Gas, LLC								
Ghost Ranch Springs No. 38-35	793	01/97	Prod	SE/4, SW/4, S35, T9N, R57E	2,753	155,271		365
Ghost Ranch Springs No. 47-35	799	03/97	Prod	SE/4, SW/4, S35, T9N, R57E	4,721	112,469		365
Ghost Ranch Springs No. 48-35	779	07/96	Prod	SE/4, SW/4, S35, T9N, R57E	2,523	151,163		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	7,467	14,308		322
TOANO DRAW (Elko Co., 2007)								
Toano Draw No. 15-19	856	12/06	PA 2008	NW/4, SW/4, S19, T39N, R66E				
HUMBOLDT (Elko Co., 2013)								
Noble Energy, Inc.								
M2C-M2-21B	942	10/13	Prod	NE/4, NW/4, S2, T34N, R58E	2,756	0		146
HUNTINGTON (Elko Co., 2014)								
Noble Energy, Inc.								
K1L-1V	960	11/14	Prod	SW/4, SW/4, S1, T29N, R55E	2,248	0		51

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	3	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							
Brady's Mine	EP Minerals, LLC	S29, T23N, R27E	diatomite	OP, ML	shipping	2	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
Fernley Operations	EP Minerals, LLC	S28, 32, T23N, R27E	diatomite	OP, ML	mining calcining classification drying grinding	35	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	6 (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 (Mine and plant combined)	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	25/3	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com
Apex Quarry	Las Vegas Paving Corp.	S14, 22, 23, 26, 27, 34, 35, T18S, R64E	aggregate sand	OP, ML	stockpile	5	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	140/15 (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

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
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	43/18	8912 Spanish Ridge Ave., Suite No. 200 Las Vegas, NV 89148 Phone: 702-334-4669 FAX: 702-586-3527 Web: http://www.bdhgypsum.com
Blue Diamond Pit	Martin-Harris Construction	S26, T22S, R60E	sand gravel	OP, ML	mining crushing screening	N/A	3030 South Highland Dr. Las Vegas, NV 89109 Phone: 702-585-5257 FAX: 702-474-8257 Web: http://www.martinharris.com
Boulder Ranch Quarry	Quarry 187, LLC	S15, 22, T23S, R63E	sand gravel	OP, ML	mining crushing screening	23	250 Pilot Rd., Suite No. 160 Las Vegas, NV 89120 Phone: 702-597-1010 FAX: 702-597-3406 Web:http://www.impactsandandgravel.com
El Dorado Quarry	Portable Aggregate Producers, LLC	S14, T23S, R63E	sand gravel	OP, ML	mining crushing screening	11	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	140/15 (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	Boulder Sand and Gravel, Inc.	S36, T19S, 59E	sand gravel	OP, ML	mining gravity	3	410 West Hacienda Ave., Suite 100 Las Vegas, NV 89118 Phone: 702-294-1156 FAX: 702-294-0676
Lone Mountain	Las Vegas Paving Corp.	S35, 36, T19S, R59E; S2, T20S, R60E	sand gravel	OP, ML	mining crushing screening	6	4420 South Decatur Blvd. Las Vegas, NV 89103 Phone: 702-251-5800 FAX: 702-251-1968 Web: http://www.lasvegaspaving.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
Lone Mountain	Mel Clark, Inc.	S36, T19S, R59E	sand gravel	OP, ML	mining	4	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	23	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
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
Modoc Mine	Kalamazoo Materials, Inc.	S24, T28S, R60E	landscape rock	OP, ML	mining screening	2	6975 North Oracle Rd. Tucson, AZ 85704 Phone: 520-575-9601 FAX: 520-575-9604 Web: http://wwwkalamazoomaterials.com
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	160/4	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	8/1	4880 Donovan Way North Las Vegas, NV 89081 Phone: 702-399-5939 FAX: 702-399-8353
Rainbow Quarries	Las Vegas Rock, Inc.	S34, T25S, R58E	gravel stone	OP, ML	mining crushing sawing	11	2 Prison Rd. P.O. Box 19118 Jean, NV 89019 Phone: 702-791-7625 FAX: 702-874-1881 Web: http://www.vegasrock.com
Sierra Ready Mix Quarry	Sierra Ready Mix, LLC	S6, 7, T25S, R60E	sand gravel	OP, ML	mining crushing screening	6	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	43	P.O. Box 308 Overton, NV 89040 Phone: 702-397-2667 FAX: 702-397-2798 Web: http://www.simplot.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
CLARK COUNTY (continued)							
Sloan Quarry and Mill	Aggregate Industries	S13, T23S, R60E	sand gravel	OP, OS, ML	mining crushing screening	35	3101 East Craig Rd. North Las Vegas, NV 89030 Phone: 702-649-6250 FAX: 702-642-2213 Web: http://www.aggregate-us.com
South Jean Pit	Service Rock Products	S21, 28 T25S, R60E	sand gravel	OP	mining	7	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	3	9127 West Russell Rd., Suite 210 Las Vegas, NV 891148 Phone: 702-876-5090 FAX: 702-876-3977 Web: http://www.wcilv.com
Westside Sand and	Rice Construction	S1, T20S, R59E	sand gravel	OP, ML	mining crushing screening	3	1440 Athol Ave. Henderson, NV 89011 Phone: 702-565-5551
DOUGLAS COUNTY							
Bing Materials Pit and Mill	Bing Materials Co.	S16, T12N, R20E	sand gravel	OP, ML	mining crushing	11	P.O. Box 487 Minden, NV 89423
ELKO COUNTY							
Big Ledge Mine	National Oilwell Varco	S26, T42N, R61E	barite	OP, ML	mining gravity jigging	40/4 (Mine and plants combined)	247 Bluffs Ave. Elko, NV 89801 Phone: 775-738-7171 FAX: 775-738-7196 Web: http://www.nov.com
Dry Creek Jig Plant	National Oilwell Varco	15, T42N, R62E	barite	ML	milling gravity jigging	40/4 (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	10	P.O. Box 1630 Elko, NV 89803 Phone: 775-738-5381 FAX: 775-738-6311
Emigrant Mine	Canyon Construction Co.	S1, T31N, R53E	waste rock	OP, ML	mining crushing screening	3	P.O. Box 2030 Elko, NV 89803 Phone: 775-738-2210 FAX: 775-753-8049 Web: http://www.canyonconstructionco.com
Emigrant Mine and Mill	Newmont Mining Corp.	S2, T31N, R53E; S26, 35 T32N, R53E	gold	OP, ML	mining milling	141	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	Carlin Resources, LLC	S4, 5, T37N, R48E; S32, T38N, R48E	gold silver	UG	mining crushing milling	10/12 (Mine and mill combined)	905 Railroad, Suite 101 Elko, NV 89801 Phone: 775-623-5760 FAX: 775-623-5759
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	264/175	HC31 Box 78 Elko, NV 89801 Phone: 775-738-5600 FAX: 775-758-9233 Web: http://www.yukon-nevadagold.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
ELKO COUNTY (continued)							
Meikle Mine	Barrick Goldstrike Mines, Inc.	S12, 13, T36N, R50E	gold silver	UG, ML	mining milling roasting	630	P.O. Box 29 Elko, NV 89803 Phone: 775-748-1001 FAX: 775-748-1240 Web: http://www.barrick.com
Midas Mine	Klondex Mines, Ltd.	S21, 22, 27, 28, 33, 34; T39N, R46E	gold silver	UG, ML	mining milling	198/55	1250 Lamoille Highway, Suite 312 Elko, NV 89801 Phone: 775-738-6070 FAX: 775-738-5070 Web: http://www.klondexmines.com
Osino Grinding Plant	National Oilwell Varco	S10, T35N, R56E	barite	ML	milling gravity jigging	40/4 (Mine and plants combined)	247 Bluffs Ave. Elko, NV 89801 Phone: 775-738-7171 FAX: 775-738-7196 Web: http://www.nov.com
Pilot Peak Quarry and Plant	Graymont Western US., Inc.	S14, 15, 22, 23, 26, T34N, R68E	limestone	OP, ML	mining calcining rotary kiln	55	P.O. Box 2520 West Wendover, NV 89883 Phone: 775-483-5463 FAX: 775-483-5149 Web: http://www.graymont.com
Rossi Mine	BAROID/Halliburton Energy Services, Inc.	S14-16, 21-23, 26-28, 34-35, T37N, R49E	barite	OP, ML	mining	20/65 (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
ESMERALDA COUNTY							
Basalt Plant	Grefco Minerals, Inc.	S29, T2N, R34E	diatomite	OP, ML	mining drying milling	15	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	5	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	92/20	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	72/10	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	1079	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	2495/538 (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 North - Post and adjacent mines	Newmont Mining Corp.	S19, T36N, R50E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2495/538 (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	2495/538 (Combined Newmont Carlin Trend Operations)	1655 Mountain Hwy. Elko, NV 89801 Phone: 775-778-4000 FAX: 775-778-4751 Web: http://www.newmont.com
Carlin South - Gold Quarry and adjacent mines	Newmont Mining Corp.	S3, T33N, R51E	gold	OP, HL, ML	mining bioleaching heap leach milling roasting	2495/538 (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	20/65 (Mine and plant combined)	912 Dunphy Ranch Rd. Battle Mountain, NV 89820 Phone: 775-468-0515 FAX: 775-468-2060 Web: http://www.halliburton.com
Nevada Barth Iron Mine and Mill	Saga Exploration Co.	S7, T31N, R51E	iron	OP, ML	screening	4	2339 Dickerson Rd. Reno, NV 89503 Phone: 775-322-9994
Ruby Hill Mine	Homestake Mining Co. of California	S9-11, 14, 15, T19N, R53E	gold silver	OP, CIL, CIP, HL, ML	heap leach milling	26/2	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	470/84	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	53/65	P.O. Box 388 Valmy, NV 89438-0388 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
Marigold Mine	Silver Standard Resources, Inc.	S8, 9, 18-20; T33N, R43E	gold silver	OP, HL, ML	mining heap leach milling	355/16	P.O. Box 160 Valmy, NV 89438 Phone: 775-635-2317 FAX: 775-635-2551 Web: http://ir.silverstandard.com
MIN-AD Mine	MIN-AD, Inc.	S28, T35N, R38E	dolomite	OP, ML	mining grinding	16	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	4/14	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

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
HUMBOLDT COUNTY (continued)							
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	453/120	2055 Getchell Mine Rd. Golconda, NV 89414-9702 Phone: 775-529-5001 FAX: 775-529-0753 Web: http://www..barrick.com
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	511/279	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	5	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	23/14 (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	23/14 (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	33	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	997/485 (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	269/72	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	55/33	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	67/1	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)							
Mountain Springs Mine	M-I Swaco	S8, 9, T28N, R44E	barite	OP, ML	stockpile	N/A	P.O. Box 370 2 North Second Street Battle Mountain, NV 89820 Phone: 775-635-5135 FAX: 775-635-2645 Web: http://www.slb.com/services/miswaco.aspx
Phoenix Mine	Newmont Mining Corp.	S22, 27, 33, 34, T31N, R43E	gold silver	OP, HL, ML	mining heap leach	494/330	P.O. Box 1657 Battle Mountain, NV 89820 Phone: 775-635-6423 FAX: 775-635-6460 Web: http://www.newmont.com
Pipeline Mine	Barrick Cortez, Inc.	S31, T28N, R47E	gold silver	OP, HL, ML	mining heap leach milling	997/485 (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
Slaven Mine	Baker Hughes Oilfield Operations, Inc.	S13, T30N, R46E	barite	OP	mining	2/4	P.O. Box 277 Battle Mountain, NV 89820 Phone: 775-635-5441 FAX: 775-635-5455 Web: http://www.bakerhughes.com
LINCOLN COUNTY							
Tenacity Perlite Mill	Wilkin Mining and Trucking Co., Inc.	S5 T4S, R67E	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
Tenacity Perlite Mine	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	82	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	15/5	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	6	11998 East Interstate 80 Sparks, NV 89434 Phone: 775-348-1898 FAX: 775-348-7920 Web: http://3dconcrete.com
East Walker Clay Mine	Precious Minerals Mining and Refining Corp.	S20, 21, 28, 30, T7N, R27E	clay	OP	mining	N/A	P. O. Box 270 Fairview Village, PA 19409 Phone: 484-991-8586 Web: http://www.pmmrcorp.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
Mustache Mine	Nevada Cement Co.	S25-28, 33, 34, T20N, R24E	pozzolan	OP, ML	mining crushing	6 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web:http://www.eaglematerials.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
LYON COUNTY (continued)							
Nevada Cement Mine	Nevada Cement Co.	S3-6, 9, T19N, R25E; S31-33, T20N, R25E	limestone	OP	mining	6 (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	111	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	40/1	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	62/30	P.O. Box 2070 Fallon, NV 89407 Phone: 775-945-1015 FAX: 775-945-1213
Esmeralda Mill	Carlin Resources, LLC	S2-4, 7-11, 15-20, 29-32, T5N, R28E	gold silver	OP, HL	milling	10/12 (Mine and mill combined)	905 Railroad, Suite 101 Elko, NV 89801 Phone: 775-623-5760 FAX: 775-623-5759
Lucky Boy Quarry	James Hardie Building Products Inc.	S34, T7N, R29E	quartzite	OP	mining	1/1	3000 Waltham Way McCarran, NV 89434 Phone: 775-355-3036 FAX: 775-355-3099 Web: http://www.jameshardie.com
NYE COUNTY							
Ash Meadows Plant	Saint Cloud Mining Co.	S25, T18S, R50E	unaltered ash zeolite	ML	crushing screening packaging	8/2	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	3	4745 Mitchell St. North Las Vegas, NV 89081 Phone: 702-651-1550 FAX: 702-651-1551 Web: http://www.abmnv.com
IMV Pits and Plant	Lhoist North America of Arizona	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: 775-372-5320 Web: http://www.imvnevada.com
Manhattan Gulch Mine	A.U. Mines, Inc.	S21, T8N, R43E	gold silver	PL	mining gravity	35/1	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

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
NYE COUNTY (continued)							
Premier Chemicals Mine	Premier Chemicals, LLC	S22, 23, 25-27, 34-36, T12N, R36E	magnesite	OP, ML	mining calcining sizing	96/12	P.O. Box 177 Gabbs, NV 89409 Phone: 775-285-2601 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	32	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	5	2281 East Postal Dr. P. O. Box 38 Pahrump, NV 89048 Phone: 775-727-5900 FAX: 775-727-6010
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	295/44	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	4	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	58	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	147/59 (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
Gypsum Mountain Mine	Silver State Minerals, LLC	S27, T27N, R32E	gypsum	OP, ML	mining crushing milling	3	2A Sunshine Lane Reno, NV 89502 Phone: 775-359-9900 FAX: 775-359-9904

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
PERSHING COUNTY (continued)							
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
Relief Canyon Quarry	Nevada Cement Co.	S13-16, 21-24, T27N, R34E	limestone	OP, ML	mining crushing	6 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web:http://www.eaglematerials.com
Standard Mine	Florida Canyon Mining, Inc.	S1, 12, T30N, R33E; S35, T31N, R33E	gold silver	OP, HL, ML	heap leach	147/59 (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	58	640 Clark Station Rd. Sparks, NV 89434 Phone: 775-824-7700 FAX: 775-824-7633 Web: http://www.epminerals.com
Clark Mine	EP Minerals, LLC	S27, 33, 34, T20N, R23E	diatomite	OP	mining	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	114/15	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
Trico Pit	Gopher Construction Co.	S33, T20N, R22E	aggregate	OP, ML	mining crushing	11	1625 East Newlands Dr. P. O. Box 801 Fernley, NV 89408 Phone: 775-575-4333 FAX: 775-575-1137
WASHOE COUNTY							
Donovan Pit	R.T. Donovan	S24, T21N, R20E	decomposed granite	OP	mining	10	11600 Pyramid Way Sparks, NV 89441 Phone: 775-843-5352 FAX: 775-425-0815 Web: http://www.rtdonovan.com
Flanigan (Terraced Hill) Mine	Nevada Cement Co.	S13, 14, T27N, R19E	clay	OP, ML	mining milling	6 (Nevada Cement pits combined)	P.O. Box 840 Fernley, NV 89408 Phone: 775-575-2281 FAX: 775-575-4387 Web:http://www.eaglematerials.com

Directory of Mining and Milling Operations (continued)

Mine/Mill Name	Operator	Location	Commodity	Type	Process/ Activity	Company/ Contract Employees	Address
WASHOE COUNTY (continued)							
Golden Valley Pit	A and K Earthmovers	S11, 12, T19N, R20E	aggregate	OP, ML	mining screening	3	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	23	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	15	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	10	3025 Mill St. Reno, NV 89502 Phone: 775-329-8842 FAX: 775-329-3593
Tracy Pit	BJ Rees's Enterprise	S27, 20N, 22E	sand gravel	OP, ML	mining crushing screening	8	1045 South Hoytsville Road Coalville, UT 84017-9741 Phone: 801-359-9781
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	446/13	P.O. Box 2706 Elko, NV 89803 Phone: 775-237-7100 FAX: 775-237-7101 Web: http://www.barrick.com
Mount Moriah Quarry	Mount Moriah Stone Quarries, LLC	S22, 23, 26, 27, 33-36, T16N, R70E	building stone landscape rock	OP	mining	33	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	605/1	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 2012 (P-24)
- 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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