

Major Mines of Nevada 2017

**Mineral Industries in
Nevada's Economy**



University of Nevada, Reno

NEVADA COMMISSION ON MINERAL RESOURCES

Division of Minerals

The seven-member Commission on Mineral Resources is a public body appointed by the Governor that provides advice and recommendations to the Governor and Legislature on matters relating to mineral resources. The Division's mission is to encourage and assist in the responsible exploration for, and the production of, minerals, oil, gas, and geothermal energy which are economically beneficial to the State.

The Division is involved in activities relating to mineral, oil, gas, and geothermal development. Staff compiles annual data on all active mines in Nevada and maintains the State's mine registry. Information concerning mining operations and production is made available to the public through this yearly publication. Educational documents and materials concerning the minerals industry are also produced. The Division often acts as a cooperating agency in federal land use actions at the request of the Governor's office.

The Division is the fluid minerals permitting agency for drilling activities on both public and private lands in Nevada. Staff also monitors production of oil, gas, and geothermal resources to ensure proper management and conservation. Nevada is a member of the Interstate Oil and Gas Compact Commission.

The Division's abandoned mine lands program provides for public safety by identifying and ranking dangerous conditions at mines that are no longer operating, and by securing dangerous orphaned mine openings. The program continually urges the public to recognize and avoid hazardous abandoned mines.

Commission on Mineral Resources

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Nigel Bain (Large-Scale Mining)
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By Rich Perry and Mike Visser

The Nevada Division of Minerals

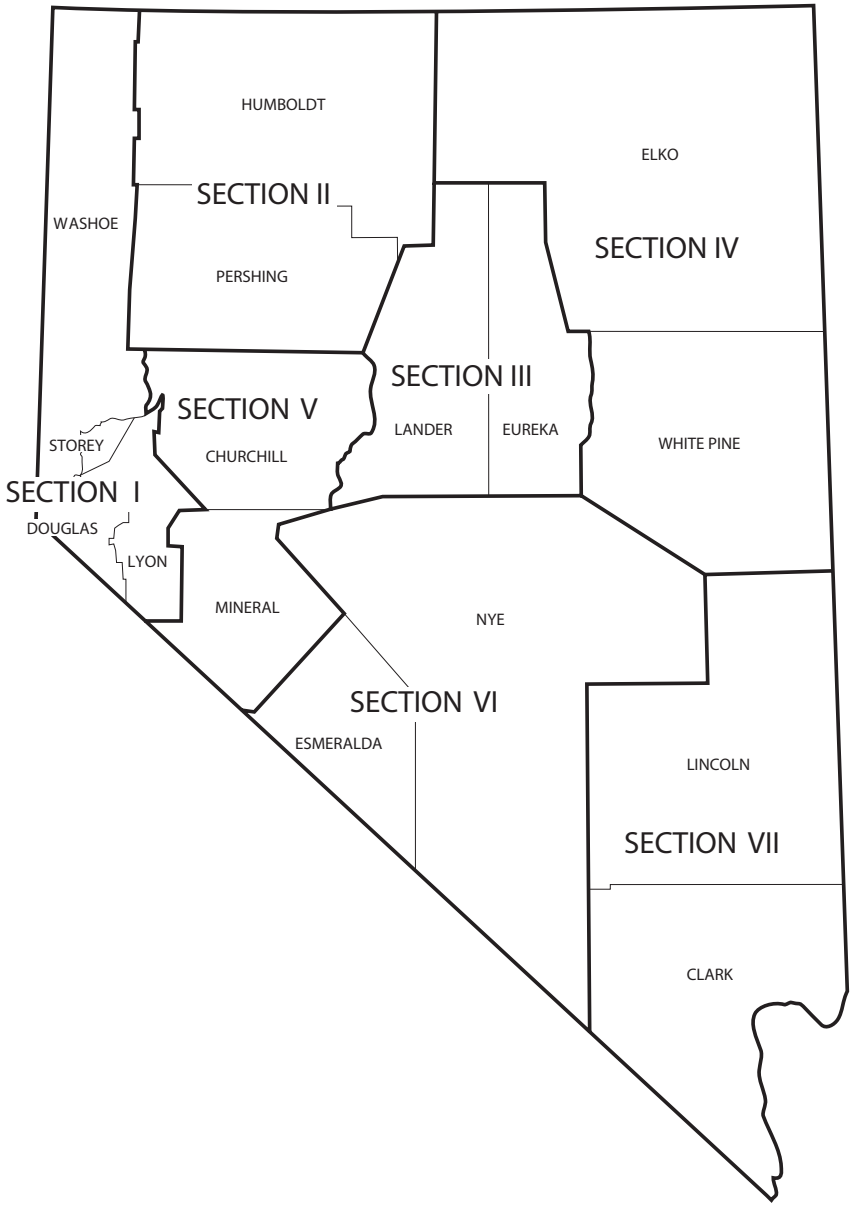
2018

This is the twenty-ninth of an annual series of summary reports on major mines of Nevada. Sand and gravel operations are not included. Information on employment and production for the calendar year 2017 was provided by the individual mine operators. The Nevada Division of Minerals maintains a complete register of Nevada mines. For further information, contact them at 400 W. King, Suite 106, Carson City, Nevada 89703 or call (775) 684-7040, fax (775) 684-7052, or visit their Web site at <http://minerals.nv.gov>.

College of Science
Mackay School of Earth Sciences and Engineering



University of Nevada, Reno



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Section I

Lyon County

Adams Claim Gypsum Mine (1)

Operator:

Art Wilson Co.
P.O. Box 20160
Carson City, NV 89721
775-882-0700 Fax: 882-0790
Company employees: 46

Production:

Gypsum - 388,368 tons
Limestone - 4,924 tons

NCC Fernley Operations (2)

Operator:

Nevada Cement Co.
P.O. Box 840
Fernley, NV 89408
775-575-2281 Fax: 575-4387
Company employees: 120

Production:

Limestone - 94,687 tons

Storey County

Clark Mine (3)

Operator:

EP Minerals, LLC
640 Clark Station Rd.
Sparks, NV 89434
775-824-7700 Fax: 824-7715
Company employees: 4

Production:

Diatomite - 87,112 tons

Washoe County

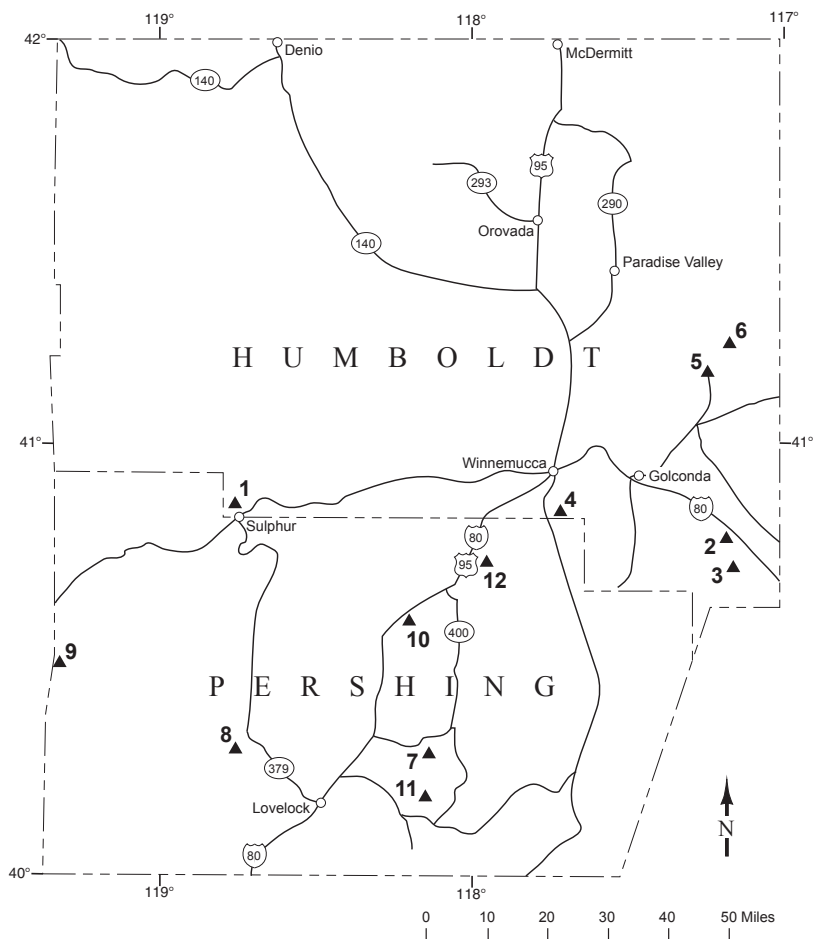
NCC Flanigan Mine (4)

Operator:

Nevada Cement Co.
P.O. Box 840
Fernley, NV 89408
775-575-2281 Fax: 575-4387

Production:

Specialty clays - 13,655 tons



Section II

Humboldt County

Hycroft Mine (1)

Operator:

Hycroft Mining Company
P.O. Box 3030
Winnemucca, NV 89446
775-623-5260 Fax: 201-1045
Company employees: 26
Contract employees: 9

Production:

Gold - 1,866 oz
Silver - 6,067 oz

Lone Tree Complex (2)

Operator:

Newmont Mining Corp.
1655 Mountain City Highway
Elko, NV 89801
775-778-4000 Fax: 778-4360
Company employees: 51
Contract employees: 29

Production:

Gold - 41,784 oz

Marigold Mine (3)

Operator:

SSR Mining
P.O. Box 160
Valmy, NV 89438
775-635-2317 Fax: 635-2551
Company employees: 384
Contract employees: 7

Production:

Gold - 202,239 oz
Silver - 3,216 oz

MIN-AD Mine (4)

Operator:

MIN-AD, Inc.
P.O. Box 39
Winnemucca, NV 89446
775-623-5944 Fax: 623-9028
Company employees: 15

Production:

Dolomite - 47,525 tons (shipped)

Turquoise Ridge Joint Venture (5)

Operator:

Barrick Gold Corporation
2055 Getchell Mine Road
Golconda, NV 89414
775-529-5001 Fax: 748-3125
Company employees: 480
Contract employees: 100

Production:

Gold - 369,000 oz

Twin Creeks Mine (6)

Operator:

Newmont Mining Corp.
1655 Mountain City Highway
Elko, NV 89801
775-778-4000 Fax: 778-4360
Company employees: 470
Contract employees: 227

Production:

Gold - 374,740 oz
Silver - 181,104 oz

Pershing County

Coeur Rochester Mine (7)

Operator:

Coeur Rochester, Inc.
P.O. Box 1057
Lovelock, NV 89419
775-273-7995 Fax: 273-7423
Company employees: 287
Contract employees: 28

Production:

Gold - 51,051 oz
Silver - 4,713,574 oz

Colado Mine (8)

Operator:

EP Minerals, LLC
P.O. Box 959
Lovelock, NV 89419
775-824-7591 Fax: 824-7595
Company employees: 35

Production:

Diatomite - 199,488 tons

Empire Gypsum Mine (9)

Operator:

Empire Mining Co., LLC
P.O. Box 157
Gerlach, NV 89412
775-600-9886 Fax: 702-921-9552
Company employees: 50
Contract employees: 5

Production:

Gypsum - 600,000 tons

Florida Canyon Mine (10)

Operator:

Rye Patch Mining U.S.
P.O. Box 330
Imlay, NV 89418
775-538-7300 Fax: 538-7324
Company employees: 173
Contract employees: 24

Production:

Gold - 28,157 oz
Silver - 21,128 oz

Relief Canyon Limestone Quarry (11)

Operator:

Nevada Cement Company
P.O. Box 840
Fernley, NV 89408
775-575-2281 Fax: 575-4387
Company employees: 6

Production:

Limestone - 46,044 tons

Sunrise Placer Mine (12)

Operator:

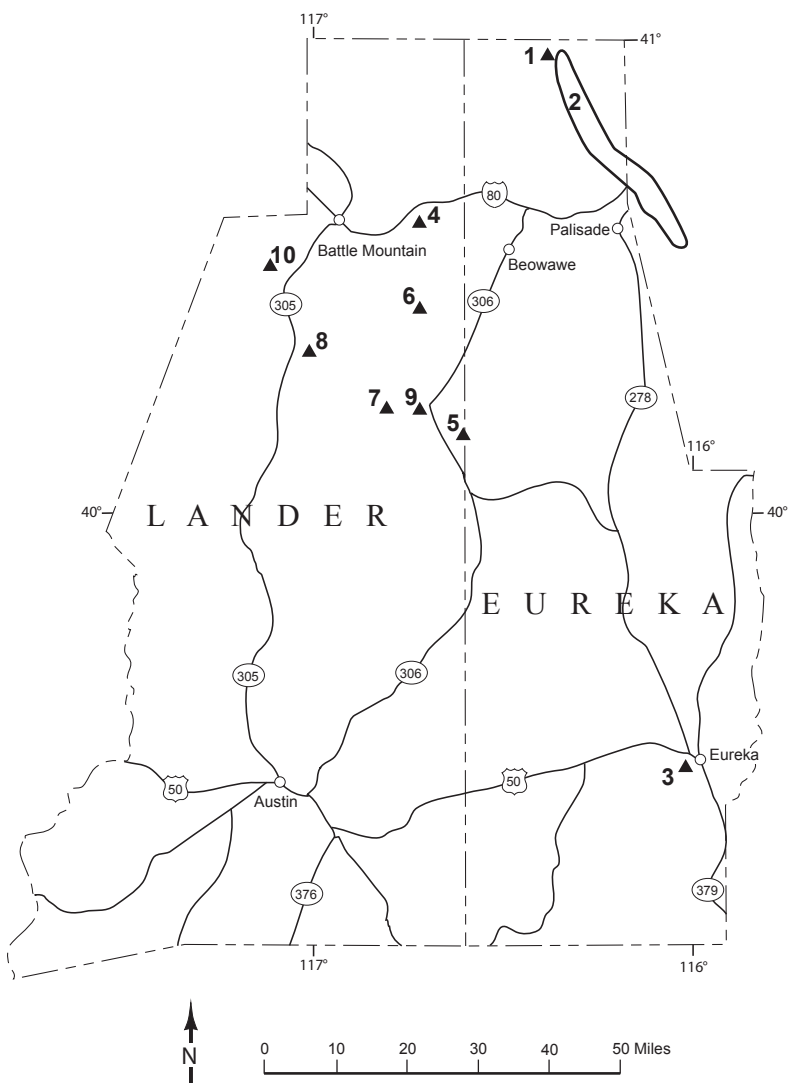
Sunrise Minerals, LLC
7343 S. Alton Wy., Ste. 100
Centennial, CO 80112
775-340-7044 Fax: 623-5043
Company employees: 8

Production:

Gold - 546 oz
Silver - 91 oz



***Jersey Valley geothermal power plant, Pershing County
(Lowell Price photo).***



Section III

Eureka County

Betze-Post Mine (1)

Operator:

Barrick Goldstrike Mines, Inc.

P.O. Box 29

Elko, NV 89803

775-748-1001 Fax: 748-1240

Company employees: 1,123

Production:

Gold - 433,422 oz

Silver - 96,541 oz

Eastern Nevada Operations

(Carlin Operations) (2)

Operator:

Newmont Mining Corp.

1655 Mountain City Highway

Elko, NV 89801

775-778-4000 Fax: 778-4360

Company employees: 2,155

Contract employees: 431

Production:

Gold - 971,613 oz

Silver - 74,594 oz

Ruby Hill Mine (3)

Operator:

Ruby Hill Mining Co.

P.O. Box 676

Eureka, NV 89316

775-401-6435

Company employees: 16

Production:

Gold - 4,463 oz

Silver - 4,263 oz

Lander County

Argenta Mine (4)

Operator:

Baker Hughes, Inc.
P.O. Box 277
Battle Mountain, NV 89820
775-625-8700 Fax: 635-5455
Company employees: 15

Shipped:

Barite - 62,263 tons

Cortez Hills Mine (5)

Operator:

Barrick Cortez, Inc.
HC66 Box 1250
Crescent Valley, NV 89821
775-468-4400 Fax: 468-4496
Company employees: 322
Contract employees: 130

Production:

(underground only, excluding the open-pit)

Gold - 336,063 oz
Silver - 55,284 oz

Fire Creek Mine (6)

Operator:

Klondex Gold and Silver Mining Co.
(Acquired by Hecla Mining Co., July 2018)
6110 Plumas St., Ste. A
Reno, NV 89519
775-284-5757 Fax: 284-5756
Company employees: 84
Contract employees: 39

Production:

Gold - 107,143 oz
Silver - 72,283 oz

Greystone Mine (7)

Operator:

M-I Swaco
P.O. Box 370
Battle Mountain, NV 89820
775-635-5135
Company employees: 56

Shipped:

Barite - 133,000 tons

Mountain Spring Mine (8)

Operator:

M-I Swaco
P.O. Box 370
Battle Mountain, NV 89820
775-635-5135
Company employees: 4

Shipped:

Barite - 146,900 tons

Pipeline Mine (9)

Operator:

Barrick Cortez, Inc.
HC66 Box 1250
Crescent Valley, NV 89821
775-468-4400 Fax: 468-4496
Company employees: 932
Contract employees: 425

Production:

(includes the Cortez Hills open-pit)

Gold - 902,887 oz
Silver - 28,690 oz

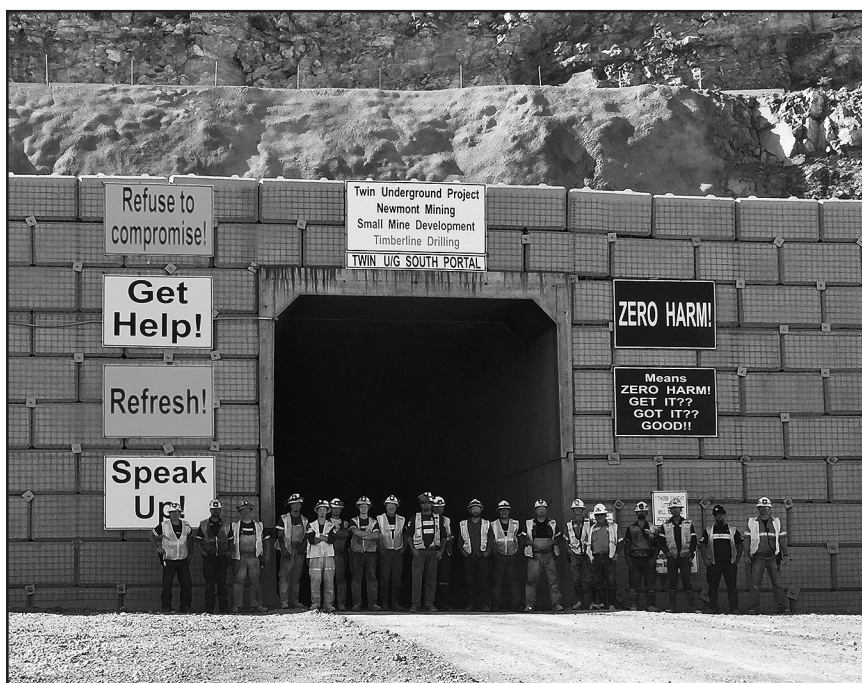
Phoenix Mine (10)

Operator:

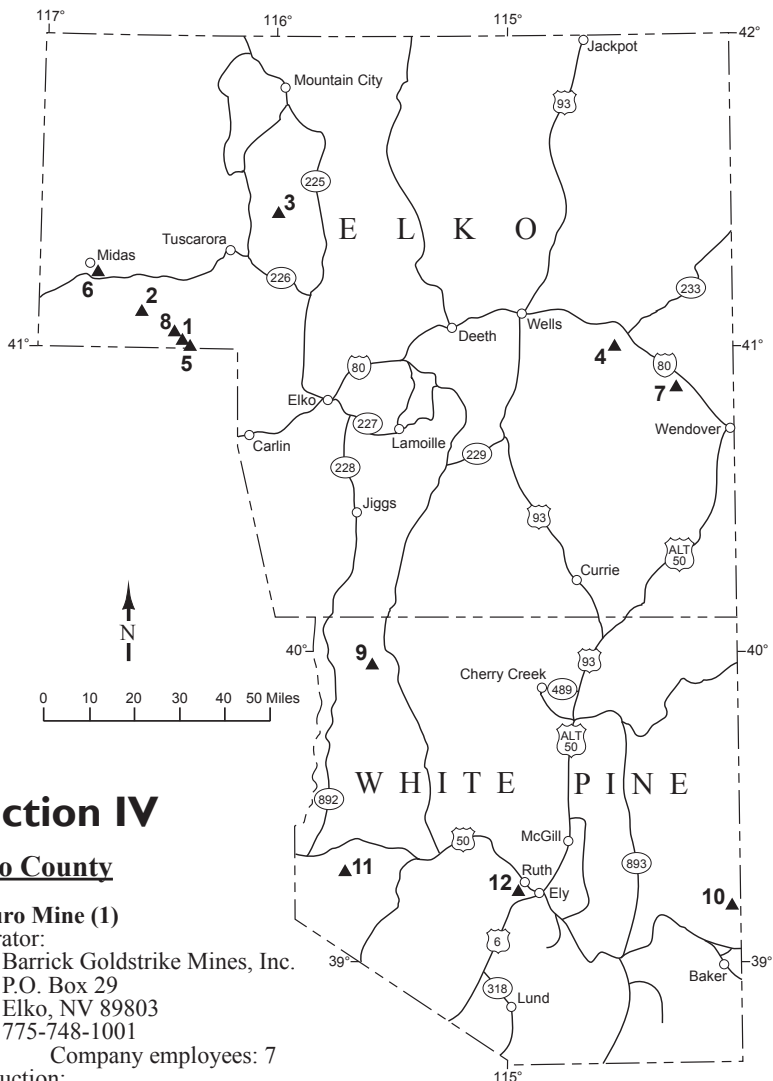
Newmont Mining Corp.
P.O. Box 1657
Battle Mountain, NV 89820
775-635-9000 Fax: 778-4600
Company employees: 471
Contract employees: 133

Production:

Gold - 197,026 oz
Silver - 1,191,630 oz
Copper - 33,178,523 pounds



Employees celebrate the first round of development mining at Newmont's Twin Underground project, Humboldt County (Newmont Mining photo).



Section IV

Elko County

Arturo Mine (1)

Operator:

Barrick Goldstrike Mines, Inc.
P.O. Box 29
Elko, NV 89803
775-748-1001

Company employees: 7

Production:

Gold - 142,810 oz

Hollister Mine (2)

Operator:

Klondex Hollister Mine, Inc.
(Acquired by Hecla Mining Co., July 2018)
6110 Plumas St., Ste. A
Reno, NV 89519

775-284-5757 Fax: 284-5756

Company employees: 87

Contract employees: 28

Production:

Gold - 6,751 oz

Silver - 47,305 oz

Jerritt Canyon Mine (3)

Operator:

Jerritt Canyon Gold, LLC
HC31 Box 78
Elko, NV 89801

775-738-5600 Fax: 758-9233

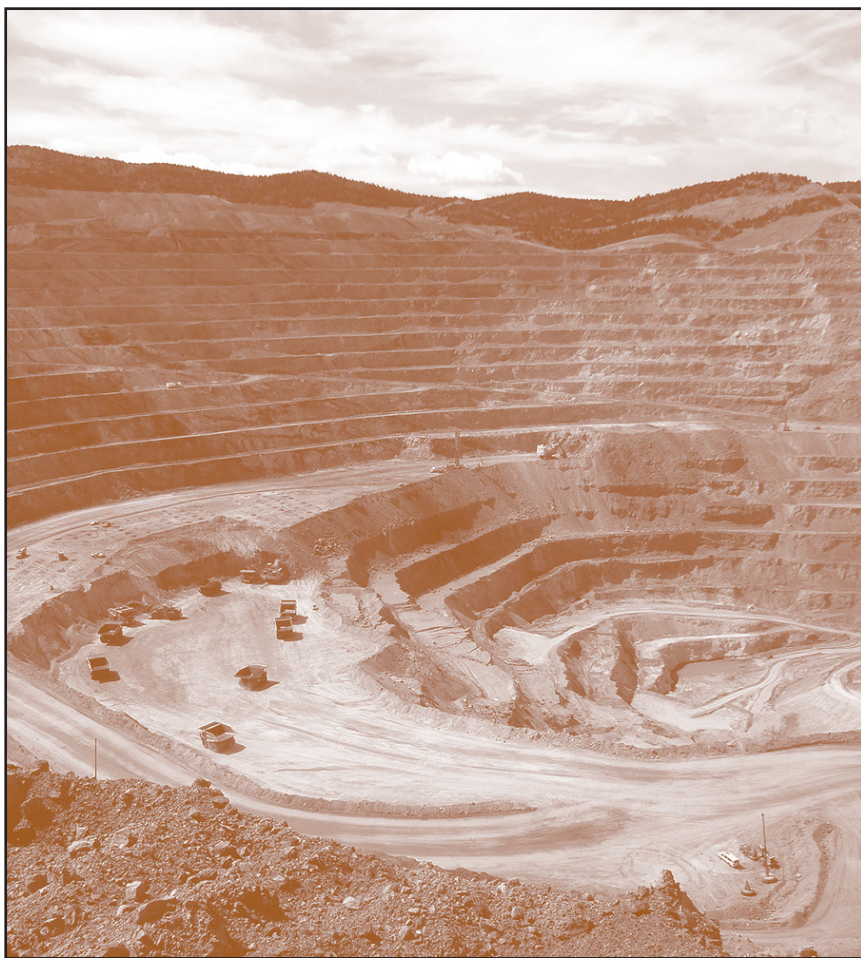
Company employees: 240

Contract employees: 210

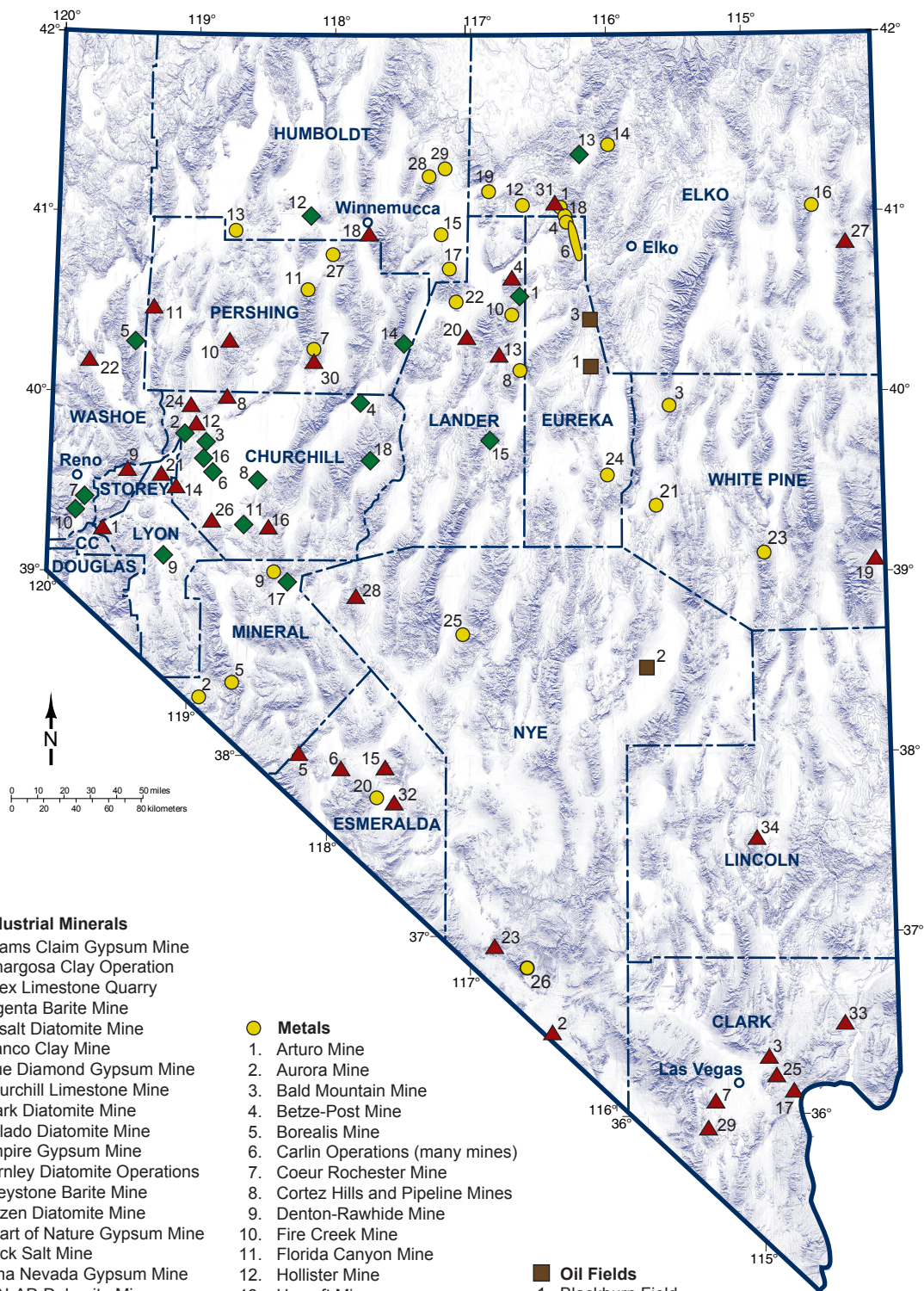
Production:

Gold - 129,439 oz

***Elko and White Pine continued on page 15
after the centerfold***



***Haul trucks being loaded at KGHM's Robinson copper mine,
White Pine County (Rich Perry photo).***



▲ Industrial Minerals

1. Adams Claim Gypsum Mine
2. Amargosa Clay Operation
3. Apex Limestone Quarry
4. Argenta Barite Mine
5. Basalt Diatomite Mine
6. Blanco Clay Mine
7. Blue Diamond Gypsum Mine
8. Churchill Limestone Mine
9. Clark Diatomite Mine
10. Colado Diatomite Mine
11. Empire Gypsum Mine
12. Fernley Diatomite Operations
13. Greystone Barite Mine
14. Hazen Diatomite Mine
15. Heart of Nature Gypsum Mine
16. Huck Salt Mine
17. Lima Nevada Gypsum Mine
18. MIN-AD Dolomite Mine
19. Mt. Moriah Quartzite Quarry
20. Mountain Spring Barite Mine
21. NCC Fernley Limestone Ops.
22. NCC Flanigan Clay Mine
23. New Discovery Mine
24. Nightingale Diatomite Mine
25. PABCO Gypsum
26. Perlite Mine
27. Pilot Peak Limestone Quarry
28. Premier Magnesite
29. Rainbow Quarry
30. Relief Canyon Limestone Mine
31. Rossi Barite Mine
32. Silver Peak Lithium Ops.
33. Simplot Silica Products
34. Tenacity Perlite Mine

● Metals

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

■ Oil Fields

1. Blackburn Field
2. Railroad Valley (Eagle Springs, Trap Spring, Sand Dune, Grant Canyon, Bacon Flat, Kate Spring, Sans Spring, and Ghost Ranch Fields)
3. Tomera Ranch Field

◆ Geothermal Power Plants

- | | |
|---|-----------------------|
| 1. Beowawe | 10. Steamboat Hills |
| 2. Bradys Hot Springs | 11. Salt Wells |
| 3. Desert Peak 2 | 12. Blue Mountain |
| 4. Dixie Valley | 13. Tuscarora |
| 5. San Emidio | 14. Jersey Valley |
| 6. Soda Lake 1 and 2 | 15. McGinness Hills |
| 7. Steamboat I, IA, II, and III, Galena | 16. Patua |
| 8. Stillwater 1 and 2 | 17. Wild Rose |
| 9. Wabuska | 18. Tungsten Mountain |

Major mines, oil fields, and geothermal plants, 2017.



***Sedimentary layering at EP Minerals' Clark diatomite mine,
Storey County (Courtney Brailo photo).***

Section IV (continued)

Long Canyon Mine (4)

Operator:

Newmont USA, Ltd.
1655 Mountain City Highway
Elko, NV 89801
775-778-4000

Company employees: 244

Production:

Gold - 174,462 oz

Meikle Mine (5)

Operator:

Barrick Goldstrike Mines, Inc.
P.O. Box 29
Elko, NV 89803
775-748-1001 Fax: 748-1240

Company employees: 584

Production:

Gold - 332,315 oz

Silver - 20,632 oz

Midas Mine (6)

Operator:

Klondex Midas Operations, Inc.
(Acquired by Hecla Mining, Co., July 2018)
6110 Plumas St., Ste. A
Reno, NV 89519

775-284-5757 Fax: 284-5756

Company employees: 121

Contract employees: 47

Production:

Gold - 34,343 oz

Silver - 780,316 oz

Pilot Peak Quarry (7)

Operator:

Graymont
P.O. Box 2520
West Wendover, NV 89883
775-483-5463 Fax: 801-262-3942

Company employees: 69

Production:

Limestone - 1,465,164 tons

Rossi Mine (8)

Operator:

Halliburton Energy Solutions
912 Dunphy Ranch Rd.
Battle Mountain, NV 89820
720-593-7115

Company employees: 5

No mine production in 2017

White Pine County

Bald Mountain Mine (9)

Operator:

KG Mining (Bald Mountain), Inc.
435 Jiggs Hwy., Unit 16
Spring Creek, NV 89815

775-237-7100 Fax: 237-7101

Company employees: 550

Contract employees: 200

Production:

Gold - 281,597 oz

Silver - 82,271 oz

Mt. Moriah Quarry (10)

Operator:

Mt. Moriah Stone Quarries
#10 Hatch Rock Rd.
Baker, NV 89311

435-855-2232 Fax: 855-2332

Company employees: 40

Production:

Quartzite - 4,966 tons

Pan Mine (11)

Operator:

Fiore Gold (US), Inc.
P.O. Box 150278
Ely, NV 89315

775-396-1901

Company employees: 42

Contract employees: 63

Production:

Gold - 15,652 oz

Robinson Mine (12)

Operator:

KGHM International, Ltd.
P.O. Box 382
Ruth, NV 89319

775-289-7000 Fax: 289-7349

Company employees: 579

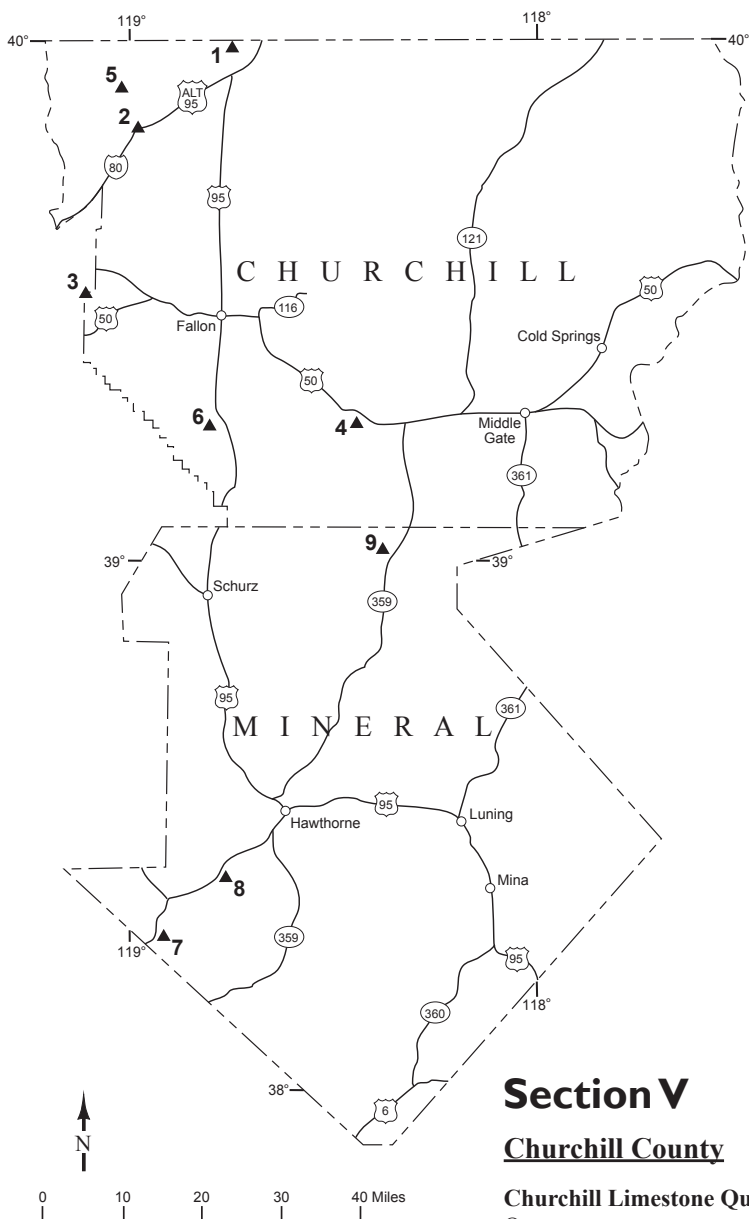
Contract employees: 25

Production:

Copper - 112,633,428 pounds

Gold - 37,897 oz

Molybdenite - 652,763 pounds



Section V

Churchill County

Churchill Limestone Quarry (1)
Operator:

Nevada Cement Co.

P.O. Box 840

Fernley, NV 89408

775-575-2281 Fax: 575-4387

Company employees: 6

Production:

Limestone - 376,628 tons

Fernley Diatomite Operations (2)

Operator:

EP Minerals, LLC
P.O. Box 860
Fernley, NV 89408
775-423-6668 Fax: 423-6411
Company employees: 35

Production:

Diatomite - 31,221 tons

Hazen Mine (3)

Operator:

EP Minerals, LLC
640 Clark Station Rd.
Sparks, NV 89434
775-824-7700 Fax: 824-7715
Company employees: 2
Contract employees: 4

Production:

Diatomite - 9,363 tons

Huck Salt (4)

Operator:

Huck Salt Company
2900 Phritzie Ln.
Fallon, NV 89406
775-423-2055 Fax: 423-0467
Company employees: 9

Shipped:

Salt - 24,855 tons

Nightingale Mine (5)

Operator:

Imerys Filtration Minerals, Inc.
100 Front Street
Fernley, NV 89408
775-575-2536 Fax: 575-1570
Company employees: 15
Contract employees: 6

Production:

Diatomite - 28,300 tons

Perlite Mine (6)

Operator:

EP Minerals, LLC
640 Clark Station
Sparks, NV 89434
775-824-7700 Fax: 824-7715
Company employees: 2

Production:

Perlite - 10,754 tons

Aurora Mine (7)

Operator:

Klondex Aurora Mine, Inc.
(Acquired by Hecla Mining Co., July 2018)
6110 Plumas St., Ste. A
Reno, NV 89519
775-284-5757 Fax: 284-5756
Company employees: 12
Contract employees: 9

Production:

Gold - 922 oz
Silver - 4,854 oz

Mineral County**Borealis Mine (8)**

Operator:

Borealis Mining Company, LLC
P.O. Box 549
Hawthorne, NV 89415
775-826-7567
Company employees: 6

Production:

Gold - 300 oz
Silver - 508 oz

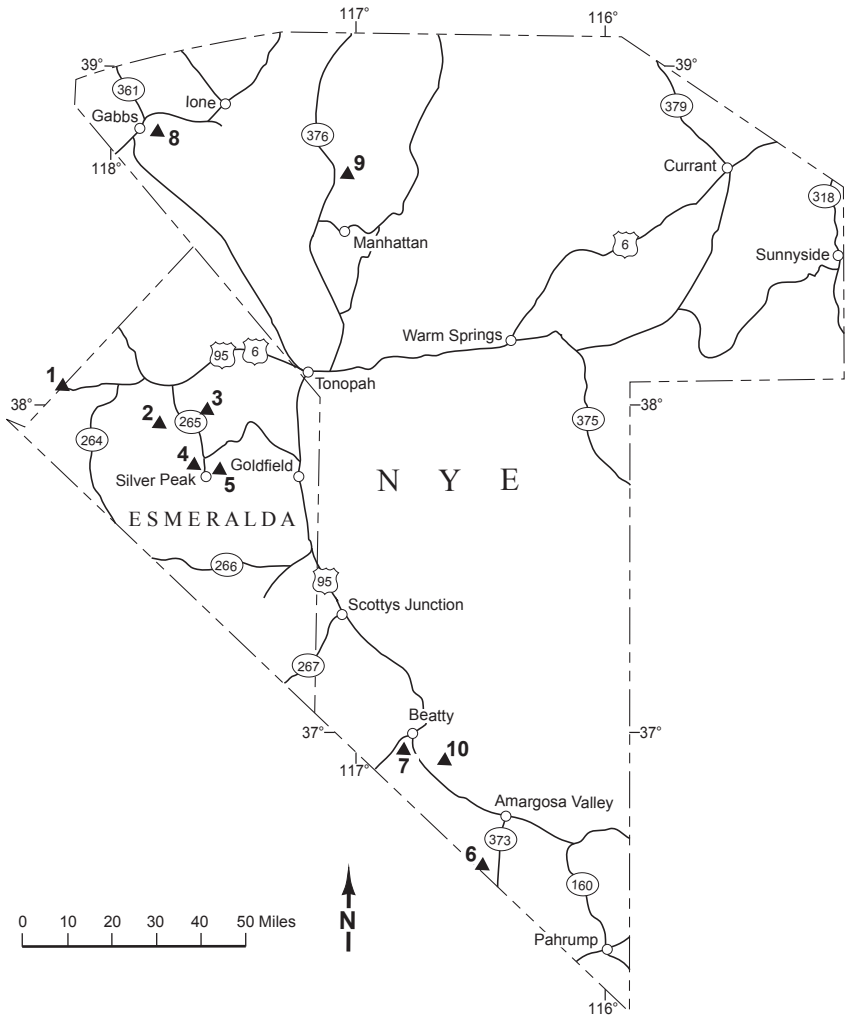
Denton-Rawhide Mine (9)

Operator:

Rawhide Mining, LLC
P.O. Box 2070
Fallon, NV 89407
775-945-1015 Fax: 945-1213
Company employees: 56
Contract employees: 2

Production:

Gold - 18,379 oz
Silver - 213,481 oz



Section VI

Esmeralda County

Basalt Diatomite Mine (1)

Operator:

Grefco Minerals, Inc.
P.O. Box 278
Dyer, NV 89010
775-573-2422

Company employees: 15

Production:

Diatomite - 2,422 tons

Blanco Mine (2)

Operator:

Vanderbilt Minerals, Inc.
P.O. Box 6660
Pahrump, NV 89041
775-537-6976 Fax: 537-6879

Company employees: 4

Production:

Specialty Clays - 4,243 tons

Heart of Nature (3)

Operator:

Heart of Nature, LLC
3055 Saint Rose Parkway #778203
Henderson, NV 89052
702-462-6690

Company employees: 1

Contract employees: 4

Production:

Gypsum/sulfur soil amendment
- 15,039 tons

Mineral Ridge Mine (4)

Operator:

Mineral Ridge Gold, LLC
1515 7th St.
Elko, NV 89801
702-799-9273 Fax: 775-753-4780

Company employees: 60

Contract employees: 20

Production:

Gold - 19,045 oz

Silver - 10,203 oz

Silver Peak Lithium Operations (5)

Operator:

Rockwood Lithium, Inc.
P.O. Box 98
Silver Peak, NV 89047
775-937-2222 Fax: 937-2317

Company employees: 70

Contract employees: 10

Shipped:

Lithium compounds - 10,233,342 lbs

Nye County**Amargosa Clay Operation (6)**

Operator:

Lhoist North America
P.O. Box 86
Amargosa Valley, NV 89020
775-372-5341 Fax: 372-5320

Company employees: 29

Contract employees: 4

Production:

Specialty clays - 24,571 tons

New Discovery Mine (7)

Operator:

Vanderbilt Minerals, LLC
P.O. Box 6660
Pahrump, NV 89041
775-537-6976 Fax: 537-6879

Company employees: 4

Production:

Specialty clays - 2,200 tons

Premier Magnesia (8)

Operator:

Premier Magnesia, LLC
P.O. Box 177
Gabbs, NV 89409
775-285-2601 Fax: 285-4021

Company employees: 104

Contract employees: 10

Shipped:

Magnesium compounds - 112,139 tons

Smoky Valley Common Operation (9)

Operator:

Round Mountain Gold Corp.
P.O. Box 480
Round Mountain, NV 89045
775-377-2366 Fax: 377-3224

Company employees: 764

Contract employees: 236

Production:

Gold - 425,324 oz

Silver - 868,402 oz

Sterling Mine (10)

Operator:

Northern Empire Resources
(Acquired by Couer Mining, August 2018)
P.O. Box 549

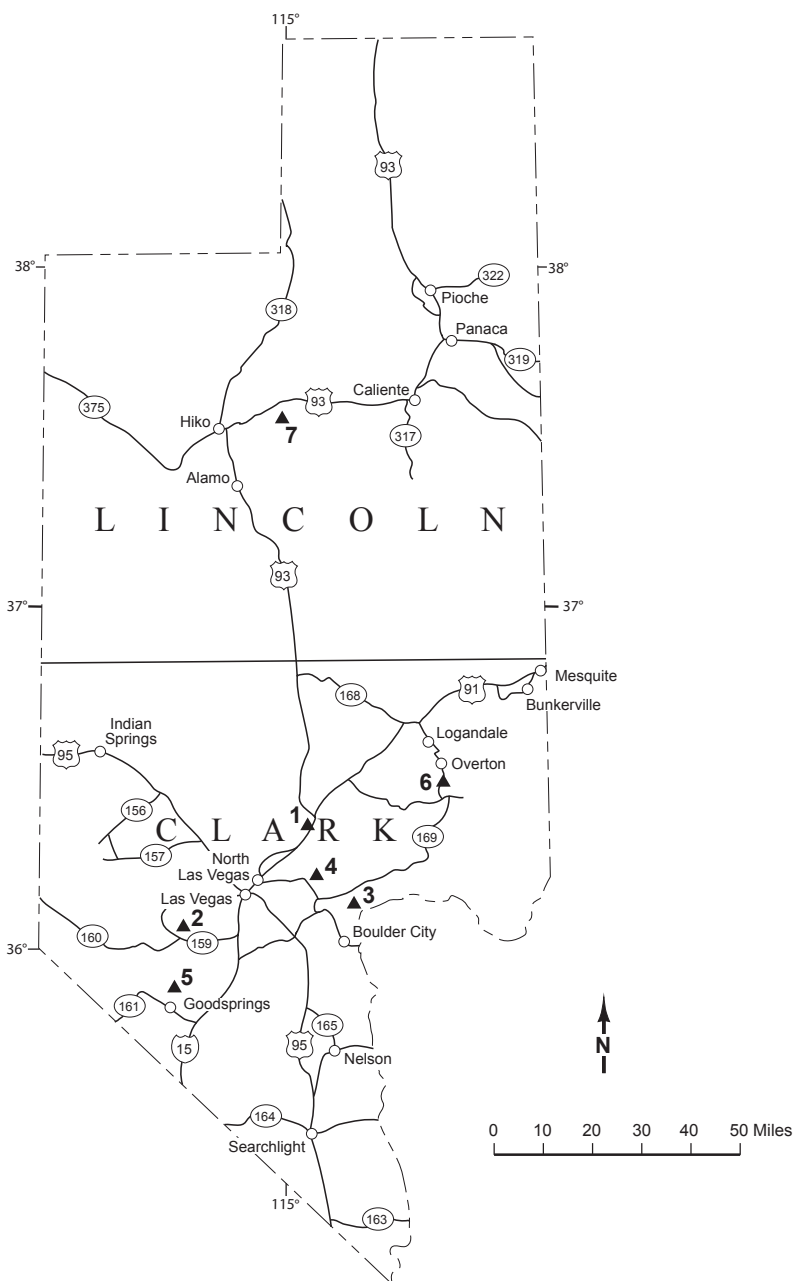
Beatty, NV 89003

866-608-4381 Fax: 775-981-9044

Company employees: 5

Production:

Gold - 265 oz



Section VII

Clark County

Apex Quarry (1)

Operator:

Lhoist North America
12101 N. Las Vegas Blvd.
North Las Vegas, NV 89165
702-643-7702 Fax: 643-9517
Company employees: 120
Contract employees: 2

Production:

Limestone - 1,254,000 tons
Dolomite - 268,000 tons

Blue Diamond Hill Mine (2)

Operator:

Gypsum Resource Materials, LLC
P.O. Box 147
Blue Diamond, NV 89004
702-830-3378 Fax: 441-7148
Company employees: 82
Contract employees: 4

Production:

Gypsum - 980,520 tons

Lima Nevada Gypsum Mine (3)

Operator:

H. Lima Nevada, LLC
704 E. Yosemite
Manteca, CA 95336
209-239-6787 Fax: 239-6778
Company employees: 10

Production:

Gypsum - 50,000 tons

PABCO Gypsum Mine (4)

Operator:

Pacific Coast Building Products, Inc.
P.O. Box 364329
North Las Vegas, NV 89036
702-407-3700 Fax: 643-6249
Company employees: 18
Contract employees: 1

Production:

Gypsum - 1,461,632 tons

Rainbow Quarry (5)

Operator:

Las Vegas Rock, Inc.
P.O. Box 19118
2 Jean Prison Rd.
Jean, NV 89019
702-791-7625 Fax: 896-4533
Company employees: 20

Production:

Meta-quartzite - 2,305 tons

Simplot Silica Products (6)

Operator:

J.R. Simplot Company
P.O. Box 308
Overton, NV 89040
702-397-2667 Fax: 397-2798
Company employees: 37

Shipped:

Silica sand - 727,088 tons

Lincoln County

Tenacity Perlite Mine (7)

Operator:

Wilkin Mining & Trucking, Inc.
HC 34 Box 199
Caliente, NV 89008
775-728-4463

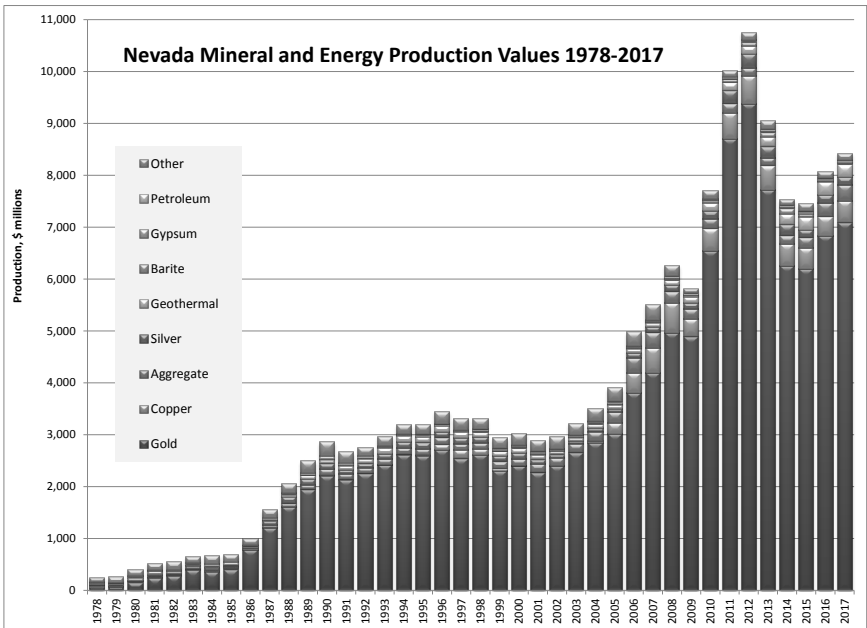
Company employees: 5

Production:

Perlite - 2,530 tons

Summary of 2017 production

Gold	5,641,538	ounces
Silver	8,477,388	ounces
Barite (shipped)	391,402	tons
Copper	145,811,951	pounds
Diatomite	277,043	tons
Dolomite	315,525	tons
Gypsum	3,484,350	tons
Limestone	3,241,447	tons
Lithium compounds (shipped)	10,233,342	pounds
Magnesium compounds (shipped)	112,139	tons
Molybdenite	652,763	pounds
Perlite	11,977	tons
Salt (shipped)	24,855	tons
Silica sand (shipped)	727,088	tons
Specialty clay	44,669	tons



Economic Impacts of Mining in Nevada—2017

Nevada's mining industry recorded approximately \$8.47 billion in total value of all commodities in 2017, representing a 4.1% increase from the \$8.14 billion value in 2016. Nearly 86% of the value was driven by gold and silver, which contributed over \$7.2 billion, based on the actual gross proceeds reported to the Nevada Department of Taxation. According to Kitco Metals Inc. (www.kitco.com), the average prices for gold and silver in 2017 were \$1,257.12 and \$17.04 per troy ounce, respectively. Nevada led the nation in 2017 in the production of gold, barite, lithium compounds and magnesium compounds. Nevada produced a wide variety of other mineral and energy commodities such as clays, copper, diatomite, dolomite, geothermal energy, gypsum, lapidary and gem stones, limestone, molybdenite, oil, perlite, salt, silica sand, silver, and specialty aggregates. A summary of commodity production amounts, value, and year over year percentage changes can be seen in table 1.

Production Highlights

Nevada's gold production was 5,641,538 troy ounces in 2017 compared to 5,467,646 troy ounces in 2016, an increase of 3.2%. According to the USGS, Nevada remains the nation's top gold producer with about 71% (175 metric tons) of the U.S. total (245 metric tons) and would rank 5th in world gold production behind China (400), Australia (300), Russia (255), and Canada (176). A summary of 2017 metal production, ranked by producer, is shown in table 2.

Employment

According to the Nevada Department of Employment, Training, and Rehabilitation, the Nevada minerals industry, including support activities and oil and gas extraction, directly employed an average of 14,387 people in 2017. The average pay for mineral industry employees during this time was \$95,121 per year, the second highest average of any employment sector in the state. Mining employment has remained an important factor in Nevada.

Table 1. Summary of 2017 Nevada Mineral Commodity Production

Commodity	Production Amount	Unit	YOY Change (%)	Value (\$)	YOY Value Change (%)
Gold	5,641,538	ounces	3.2%	\$7,092,090,251	3.7%
Silver	8,477,388	ounces	-4.6%	\$144,492,840	-5.1%
Barite (shipped)	391,402	tons	70.1%	\$31,500,532	43.0%
Copper	145,811,951	pounds	-9.0%	\$415,564,060	12.1%
Diatomite	277,043	tons	5.5%	\$48,441,888	9.6%
Dolomite	315,525	tons	-2.5%	\$4,419,714	5.4%
Gypsum	3,484,350	tons	6.4%	\$42,745,295	14.8%
Limestone	3,241,447	tons	0.8%	\$35,161,445	2.0%
Lithium compounds (shipped)	10,233,342	pounds	9.6%	\$39,621,926	70.4%
Magnesium compounds (shipped)	112,139	tons	1.9%	\$7,900,419	15.0%
Molybdenite	652,763	pounds	-20.7%	\$5,329,614	-1.8%
Perlite	11,977	tons	-39.8%	\$831,699	-38.8%
Salt (shipped)	24,855	tons	30.1%	\$548,054	-10.4%
Silica sand (shipped)	727,088	tons	-3.7%	\$19,846,588	-2.8%
Specialty clays	44,669	tons	-54.8%	\$11,246,239	40.3%
Geothermal energy (sold)	3,323,882	megawatt hours	-0.6%	\$242,362,149	-6.1%
Oil (sold)	280,970	barrels	0.9%	\$12,889,724	24.7%
Aggregates	40,100,000	tons	6.1%	\$313,000,000	5.0%
			Total Value	\$8,467,992,437	

Permitting and Reclamation

Before mining can begin, plans of operation must be submitted and permits obtained from federal and state agencies to ensure that resources such as wildlife, air, and water are protected. Nevada and federal laws and regulations require that lands disturbed by mining activities be rehabilitated so they can be used for other activities once mining is completed. This process, called reclamation, returns mined areas to other productive practices such as livestock grazing, wildlife habitat enhancement, recreation opportunities, or other natural resource uses. To ensure that reclamation is completed, mine operators are required to post reclamation bonds that are held by government agencies. The bonds are released only after the mined area is stabilized and the reclamation goals have been met. According to the Nevada Division of Environmental Protection, approximately \$2.78 billion in reclamation bonds and other financial assurance are currently posted. Mine operators are proud of their efforts and are constantly seeking ways to enhance their reclamation technology.

Gold Reserves

Gold reserves are defined as that portion of a gold ore deposit known to be economically feasible for extraction. The amount of reserves is always in a state of flux, due to some reserves being lost to production, additions of new reserves through new discoveries, and changing economic conditions. The price of gold and the cost of production are the main factors in determining whether a reserve is really a reserve or just a sub-economic resource. Extensive gold resources, not currently economic, are known to exist at or near many mining operations in Nevada. An increase in the gold price with all else being equal would mean many companies would be able to reclassify their resources into a reserve category. An increase in the cost of regulatory compliance has the same effect as a lowering of the gold price, thus increasingly complex and expensive regulations can reduce reserves. For the larger operating mines, the publicly reported reserves for the year ending 2017 totaled approximately 60 million ounces of gold. Assuming similar economic conditions without any reserve replacement, current reserves

Table 2. 2017 Nevada Metal Production, by Producer

Operator	Gold (ozs)	Silver (ozs)	Copper (lbs)	Moly (lbs)
Barrick	2,424,247	201,147		
Newmont	1,851,875	1,448,264	33,178,523	
Kinross	706,921	950,673		
SSR Mining	202,239	3,216		
Klondex	149,159	904,758		
Jerritt Canyon Gold	129,439	NR		
Coeur Rochester	51,051	4,713,574		
KGHM International	37,897	NR	112,633,428	652,763
Florida Canyon Mining	28,157	21,128		
Mineral Ridge Gold	19,045	10,203		
Rawhide Mining	18,379	213,481		
GRP Pan	15,652	NR		
Ruby Hill Mining	4,463	4,263		
Hycroft	1,866	6,067		
Sunrise Minerals	546	91		
Borealis Mining	300	508		
Sterling Gold Mining	265	NR		
New Gold Nevada	23	2		
Geo-Nevada	14	13		
Totals	5,641,538	8,477,388	145,811,951	652,763

are sufficient to sustain gold production near current levels in Nevada for about ten years, (table 3).

Exploration

Exploration for new deposits, particularly gold, is an ongoing effort by both the operating companies and many others who do not operate mines in the state. Exploration geologists, drillers, assayers, and others who support exploration activities represent a significant positive economic impact, particularly in Nevada's rural areas. Exploration activity and funding, like gold reserves, are closely tied to economic conditions and commodity prices. In order to quantify the level of exploration activity and the factors responsible for those levels, the Division contracted with the Nevada Bureau of Mines and Geology, who released the results of the biennial exploration survey in early 2017, using 2015 and 2016 data. This informative report, which can be downloaded at <http://pubs.nbmng.unr.edu/NV-exploration-survey-2016-p/es2016.htm>, revealed that gold exploration accounted for 86 percent

(\$278 million) of \$325 million total exploration spending, down slightly from \$348 million in 2015. Two large companies accounted for 38 percent of the total spending. Approximately 808 people were directly employed by companies doing exploration activities in Nevada in 2016, up from 745 in 2015. Interestingly, exploration for lithium was second in total exploration spending at \$20.9M in 2016, followed closely by exploration for geothermal energy at \$16.6M.

Oil and Geothermal Activity

Economic activity from oil and gas exploration and production is relatively minor when compared to mining, but are locally important to the economy of east-central Nevada. In oil field terms, Nevada is considered a frontier state, meaning its potential is yet to be realized. Exploration activity and production were both negatively impacted by the price of crude in 2017. According to the U.S. Energy Information Administration, the price for a barrel of West Texas Intermediate crude in 2017 ranged from a monthly

Table 3. Nevada Mine Reserves (Proven and Probable) Reported for End of Year 2017

Company	Mine	Gold (ozs)	Silver (ozs)	Copper (lbs)
Newmont	Carlin Operations	14,830,000		
Newmont	Phoenix	4,030,000		1,330,000,000
Newmont	Twin Creeks	3,410,000		
Newmont	Turquoise Ridge (25%)	1,980,000		
Newmont	Long Canyon	1,070,000		
Barrick	Goldstrike (OP and UG)	8,419,000		
Barrick	Cortez	10,086,000		
Barrick	Goldrush	1,481,000		
Barrick	Turquoise Ridge (75%)	5,878,000		
Barrick	South Arturo (60%)	365,000		
Coeur	Rochester	757,000	117,623,000	
Kinross	Round Mountain	2,884,000	1,371,000	
Kinross	Bald Mountain	1,698,000		
SSR	Marigold	3,000,000		
Klondex	Midas	140,000	2,475,000	
Klondex	Fire Creek	226,000	220,000	
Klondex	Hollister	110,000	624,000	
KGHM	Robinson			565,400,000
Totals		60,364,000	122,313,000	1,895,400,000

average low of \$42.48 to a high of \$60.46 and averaged \$50.80 for the year, versus \$43.29 in 2016. Nevada's oil production in 2017 increased slightly from 276,328 barrels (42 gallons per barrel) in 2016 to 280,970 barrels sold, worth approximately \$12.9 million. Table 4 summarizes the number of barrels sold and wells by operator and field in 2017.

Nevada is rich in geothermal resources and is second only to California in the production of geothermal energy. For 2017, Nevada had 25 plants at 17 fields that sold approximately 3.3 million megawatt hours of electricity worth approximately \$242 million, (table 5). According to the U.S. Energy Information Association, this is enough to power about 262,000 Nevada residential homes for a year. Geothermal heat is

also used for a variety of commercial, domestic and public applications in Nevada. Schools in Elko County, a casino in Washoe County and homes in Lincoln and Washoe counties are examples of public and private facilities using this renewable energy resource.

Conclusion

Nevada's mineral industry continued to be a major economic force in the state with a total value of over \$8 billion in 2017. Given a stable price and regulatory environment this situation should continue for many years to come. Nevada is a major natural resource producer and has significant mineral and energy resources that can provide opportunities for economic development well into the future.

Table 4. Nevada Oil Production in 2017

Operator	Producing Field	# of Producing Wells	Total Barrels Sold
Makoil	Trap Spring	25	125,473
Grant Canyon	Blackburn	6	40,762
Grant Canyon	Grant Canyon	3	38,658
Kirkwood	Eagle Springs	11	26,634
Western General	Kate Spring	3	18,209
Kirkwood	Ghost Ranch	3	9,275
Makoil	Kate Spring	1	5,590
Grant Canyon	Bacon Flat	1	5,416
Makoil	Ghost Ranch	1	5,044
Western General	Taylor Fed (Kate Spring)	2	3,104
Grant Canyon	Sans Spring	1	1,678
Tomera Oil Fields	Tomera Ranch	2	854
Noble Energy	Huntington	1	163
Kirkwood	Sand Dune	1	110
Totals		61	280,970

Table 5. Nevada Geothermal Production in 2017 by Company

Company	Total Output (Sales) MWh	% of Total
Ormat Nevada Inc.	2,044,365	61.5%
Terra-Gen Dixie Valley LLC	475,833	14.3%
NGP Blue Mountain 1 LLC	229,622	6.9%
Enel North America Inc.	224,767	6.8%
Patua Project LLC (Cyrq as of 7/17)	111,135	3.3%
Beowawe Power LLC	98,166	3.0%
USG Nevada LLC	66,591	2.0%
Cyrq Energy	64,100	1.9%
Homestretch Energy	9,303	0.3%
Total	3,323,882	



***Eagle Springs oil well, Railroad Valley, Nye County
(Lowell Price photo).***



***Terra-Gen geothermal plant, Dixie Valley, Churchill County
(Lowell Price photo).***

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Suggested Citation:

Perry, R., and Visser, M., 2018, Major mines of Nevada 2017—mineral industries in Nevada's economy [online version]: Nevada Bureau of Mines and Geology Special Publication P-29, 28 p.

The Nevada Bureau of Mines and Geology

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