

Major Mines of Nevada 2021

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.

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By Mike Visher and Lucia Patterson
The Nevada Division of Minerals

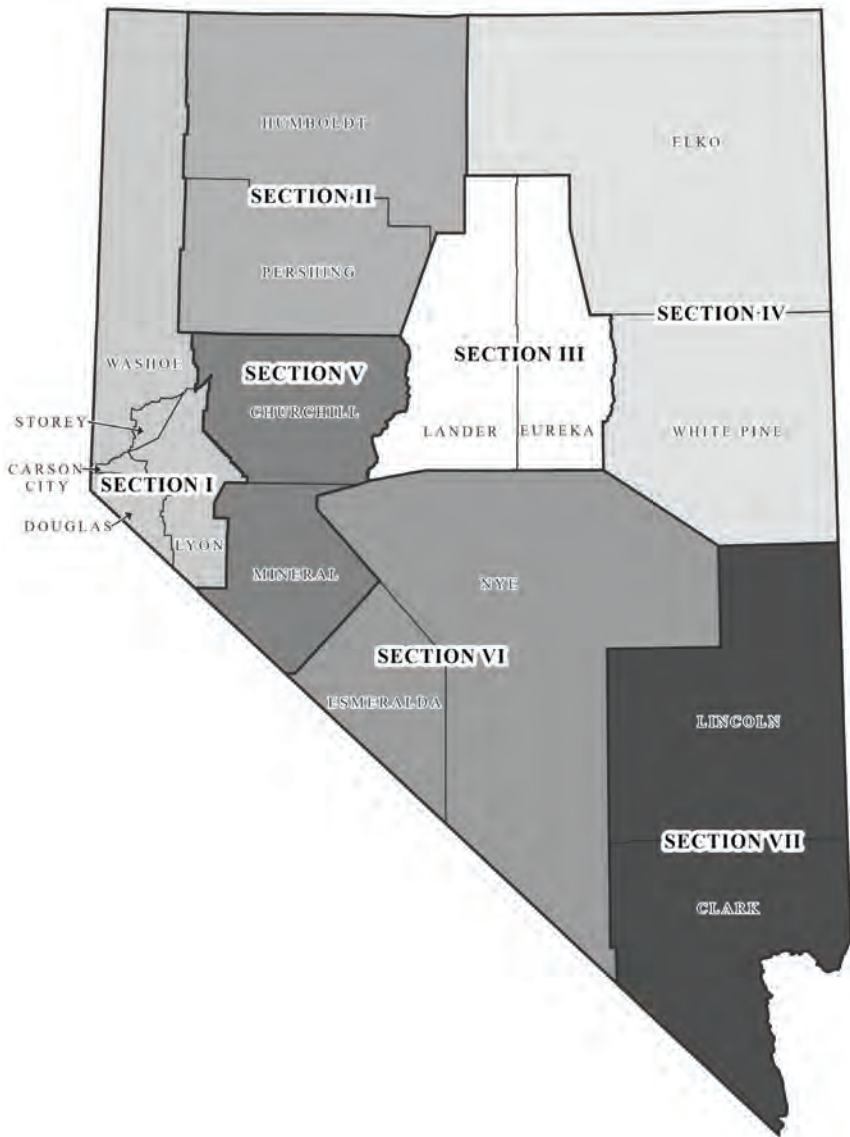
2022

This is the thirty-third of an annual series of summary reports on major mines of Nevada. Aggregate operations are not included. Information on employment and production for the calendar year 2021 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

Company employees: 34

Production:

Gypsum - 294,574 tons
Limestone - 1,644 tons

Ludwig Mine (2)

Operator:

Art Wilson Co.
P.O. Box 20160
Carson City, NV 89721
775-882-0700

Company employees: 1

Production:

No mining occurred in 2021

NCC Fernley Operations (3)

Operator:

Nevada Cement Co.
1290 West Main Street
Fernley, NV 89408
775-575-2281 Fax: 575-4387

Company employees: 110

Contract employees: 30

Production:

Limestone - 48,000 tons

NCC Mustache Mine (4)

Operator:

Nevada Cement Co.
1290 West Main Street
Fernley, NV 89408
775-575-2281 Fax: 575-4387

Company employees: 2

Production:

Pozzolan - 8,000 tons

Pumpkin Hollow (5)

Operator:

Nevada Copper, Inc.
61 East Pursel Ln.
Yerington, NV 89447
775-463-3510

Company employees: 100

Contract employees: 122

Production:

Copper - 3,296,515 pounds

Storey County

Clark Mine (6)

Operator:

US Silica
640 Clark Station Rd.
Sparks, NV 89434
775-824-7600 Fax: 824-7601

Company employees: 69

Contract employees: 5

Production:

Diatomite - 52,836 tons

Washoe County

NCC Flanigan Mine (7)

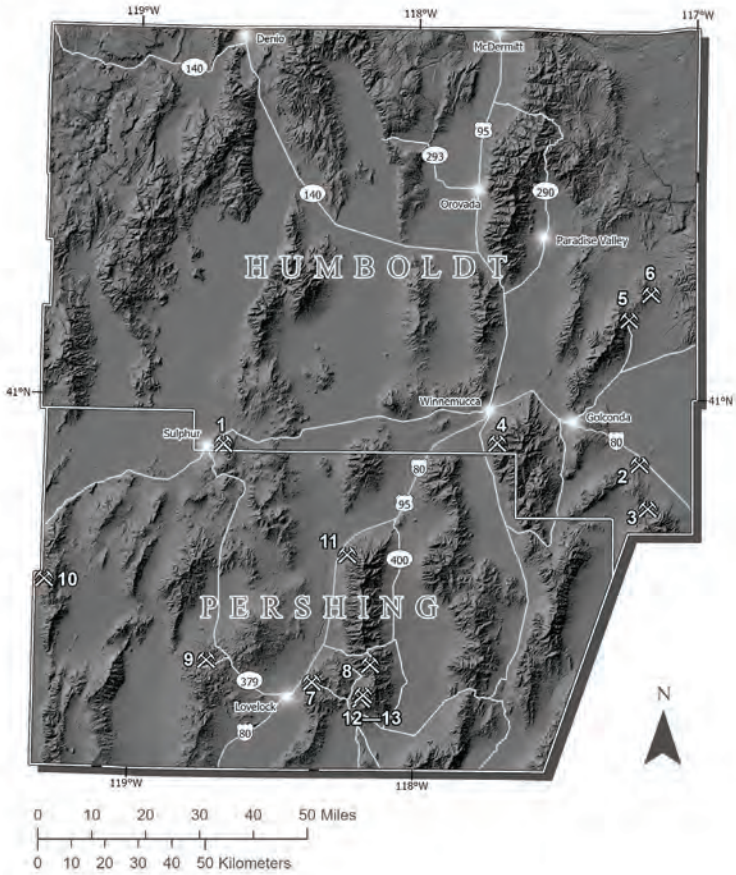
Operator:

Nevada Cement Co.
1290 West Main Street
Fernley, NV 89408
775-575-2281 Fax: 575-4387

Company employees: 4

Production:

Specialty Clay - 8,000 tons



Section II

Humboldt County

Hycroft Mine (1)

Operator:

Hycroft Mining, Corp.
 P.O. Box 3030
 Winnemucca, NV 89446
 775-333-0643

Company employees: 90
 Contract employees: 30

Production:

Gold - 56,045 oz
 Silver - 397,546 oz

Lone Tree Complex (2)

Operator:

i-80 Gold Corp.
 5190 Neil Road, Suite 460
 Reno, NV 89502
 775-525-6450

Company employees: 20
 Contract employees: 2

Production:

Gold - 8,789 oz

Marigold Mine (3)

Operator:

SSR Mining

P.O. Box 160

Valmy, NV 89438

775-502-4800

Company employees: 457

Contract employees: 20

Production:

Gold - 235,282 oz

Silver - 4,285 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 - 39,175 tons

**Turquoise Ridge Underground Mine (5)
& Twin Creeks Open Pit (6)**

Operator:

Nevada Gold Mines, LLC

HC 66 Box 220

Golconda, NV 89414

775-529-5001 Fax: 775-748-3125

Company employees: 812

Contract employees: 289

Production:

Gold - 543,123 oz

Silver - 94,908 oz

Pershing County

Buff/Satin Mine (7)

Operator:

Vanderbilt Minerals, LLC
P.O. Box 6660
Pahrump, NV 89041
775-513-6316

No mining occurred in 2021

Coeur Rochester Mine (8)

Operator:

Coeur Rochester, Inc.
P.O. Box 1057
Lovelock, NV 89419
775-273-7995

Company employees: 327

Contract employees: 244

Production:

Gold - 27,985 oz
Silver - 3,158,017 oz

Colado Mine (9)

Operator:

US Silica
P.O. Box 959
Lovelock, NV 89419
775-824-7600 Fax: 824-7601

Company employees: 35

Contract employees: 2

Production:

Diatomite - 198,202 tons

Empire Gypsum Mine (10)

Operator:

Empire Mining Co., LLC
P.O. Box 157
Gerlach, NV 89412
775-600-4569 Fax: 702-921-9552

Company employees: 60

Contract employees: 15

Production:

Gypsum - 702,026 tons

Florida Canyon Mine (11)

Operator:

Florida Canyon Mining, Inc.
Argonaut Gold
P.O. Box 330
Imlay, NV 89418
775-259-4579

Company employees: 276

Contract employees: 44

Production:

Gold - 51,175 oz
Silver - 27,681 oz

Relief Canyon (12)

Operator:

Gold Acquisition Corp.
P.O. Box 1033
Lovelock, NV 89419
775-273-7019 Fax: 273-7063

Company employees: 15

Production:

Gold - 5,388 oz
Silver - 12,773 oz

Relief Canyon Limestone Quarry (13)

Operator:

Nevada Cement Company
1290 West Main Street
Fernley, NV 89408
775-575-2281 Fax: 575-4387

Company employees: 2

Contract employees: 18

Production:

Limestone - 110,000 tons



*Granite Creek mine,
Humboldt County (i-80 Gold Corp. photo).*



Section III

Eureka County

Betze-Post Mine (1)

Operator:

Nevada Gold Mines, LLC
1655 Mountain City Highway
Elko, NV 89801
775-748-1001

Company employees: 880

Production:

Gold - 377,082 oz
Silver - 28,268 oz

Eastern Nevada Operations (2) (Carlin Operations)

Operator:

Nevada Gold Mines, LLC
1655 Mountain City Highway
Elko, NV 89801
775-748-1001

Company employees: 1,755

Production:

Gold - 755,016 oz
Silver - 7,767 oz

Gold Bar Mine (3)

Operator:

McEwen Mining Nevada, Inc.
2215 N. 5th Street
Elko, NV 89801
775-777-9977

Company employees: 70

Contract employees: 75

Production:

Gold - 43,881 oz

Goldrush (4)

Operator:

Nevada Gold Mines, LLC
HC 66 Box 1250
Crescent Valley, NV 89821
775-468-4400 Fax: 468-4496

Company employees: 154

Contract employees: 30

Production:

Gold - 35,175 oz

Maggie Creek Operation (5)

Operator:

Progressive Contracting, Inc.
P.O. Box 1930
St. George, UT 84771
435-628-6662 Fax: 628-7314
Company employees: 2

Production:

No mining occurred in 2021

Ruby Hill Mine (6)

Operator:

i-80 Gold Corp.
P.O. Box 676
Eureka, NV 89316
775-304-0286

Company employees: 18

Contract employees: 28

Production:

Gold - 8,653 oz
Silver - 3,500 oz

Lander County

Argenta Mine (7)

Operator:

Baker Hughes Oilfield Operations, LLC
P.O. Box 277
Battle Mountain, NV 89820
775-625-8700 Fax: 635-5455

Production:

Not reported

Cortez Hills Underground Mine (8)

Operator:

Nevada Gold Mines, LLC
HC 66 Box 1250
Crescent Valley, NV 89821
775-468-4400 Fax: 468-4496
Company employees: 319
Contract employees: 106

Production:

(underground only, excluding the open-pit)

Gold - 378,777 oz
Silver - 8,841oz

Fire Creek Mine (9)

Operator:

Klondex Gold and Silver Mining Co.
(Hecla Mining Co.)
4000 W. Winnemucca Blvd.
Winnemucca, NV 89445
775-299-2522
Company employees: 6

Production:

Gold - 26,214 oz

Greystone Mine (10)

Operator:

M-I LLC
P.O. Box 370
2 North Second Street
Battle Mountain, NV 89820
775-635-5135

Company employees: 23

Production:

No mining occurred in 2021

Mountain Springs Mine (11)

Operator:

M-I LLC
P.O. Box 370
2 North Second Street
Battle Mountain, NV 89820
775-635-5135

Company employees: 23

Production:

Barite - 46,500 tons

Pipeline Mine (12)

Operator:

Nevada Gold Mines, LLC
HC 66 Box 1250
Crescent Valley, NV 89821
775-468-4400 Fax: 468-4496
Company employees: 983
Contract employees: 709

Production:

(includes the Cortez Hills open pit)

Gold - 451,736 oz
Silver - 112,785 oz

Phoenix Mine (13)

Operator:

Nevada Gold Mines
P.O. Box 1657
Battle Mountain, NV 89820
775-635-6514

Company employees: 450
Contract employees: 383

Production:

Gold - 173,067 oz
Silver - 1,322,700 oz
Copper - 36,736,179 pounds

Slaven Canyon Mine (14)

Operator:

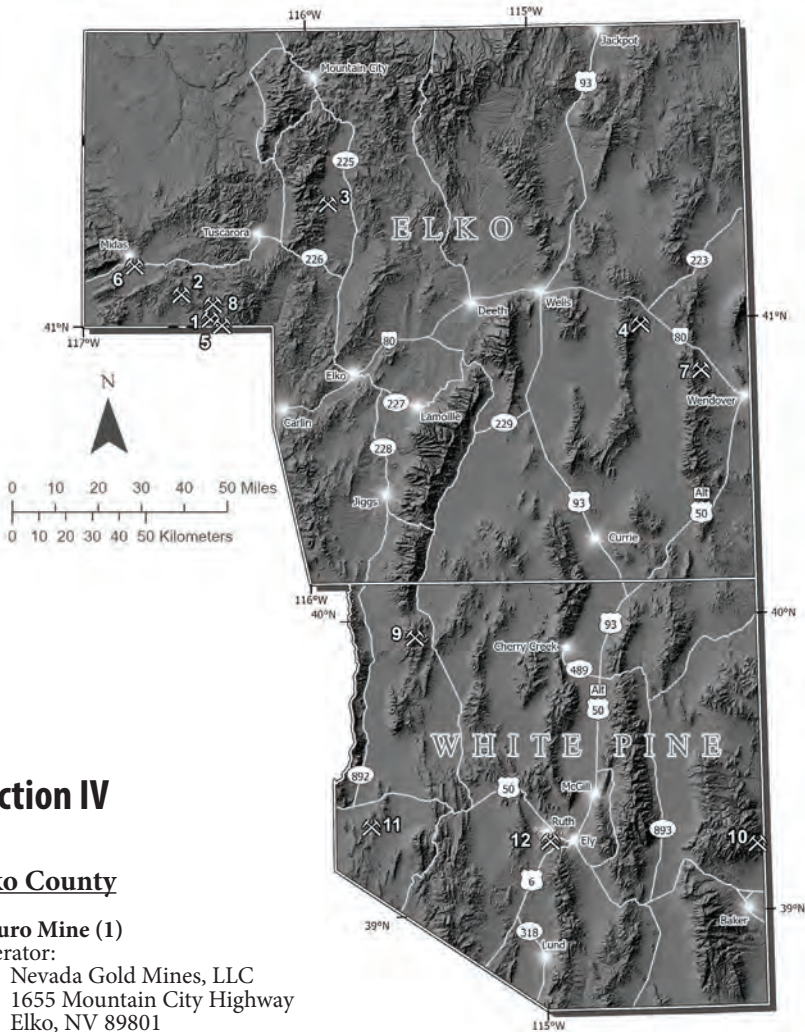
Baker Hughes Oilfield Operations, LLC
P.O. Box 277
Battle Mountain, NV 89820
775-625-8700 Fax: 635-5455

Production:

Not reported



*Bolter at Cove underground gold mine,
Lander County (i-80 Gold Corp. photo).*



Section IV

Elko County

Arturo Mine (1)

Operator:
Nevada Gold Mines, LLC
1655 Mountain City Highway
Elko, NV 89801
775-748-1001

Company employees: 54

Production:

Gold - 53,303 oz

Hollister Mine (2)

Operator:
Klondex Hollister Mine, Inc.
(Hecla Mining Co.)
4000 W. Winnemucca Blvd.
Winnemucca, NV 89445
775-299-2522

Company employees: 23

Contract employees: 6

No mining occurred in 2021

Jerritt Canyon Mine (3)

Operator:
First Majestic Silver
P.O. Box 2778
Elko, NV 89803
775-738-5600 Fax: 551-9810
Company employees: 300
Contract employees: 300

Production:

Gold - 98,303 oz

Silver - 1,809 oz

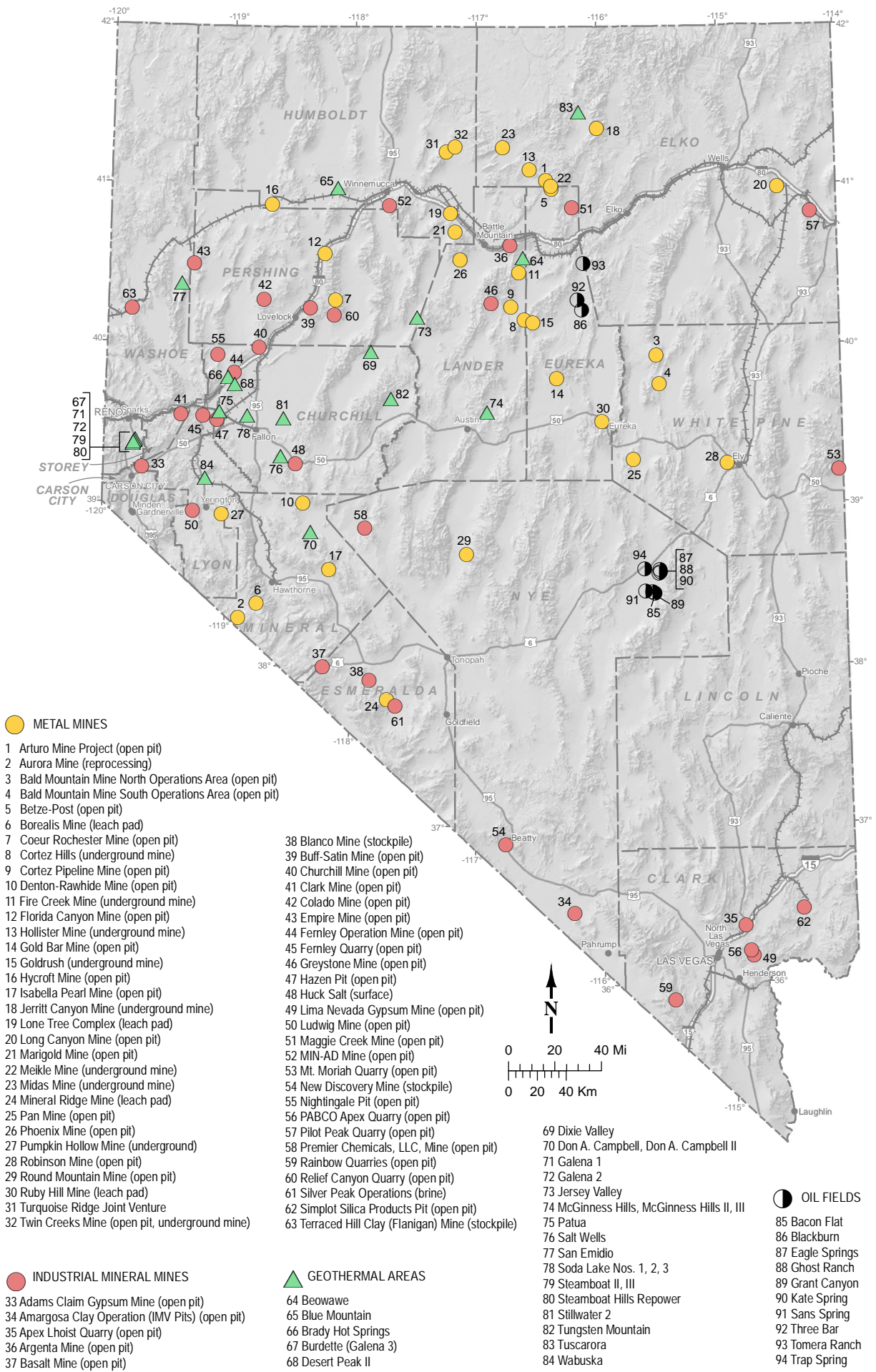
Elko and White Pine continued on page 15
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*Drilling operation at Ruby Hill mine,
Eureka County (i-80 Gold Corp. photo).*



*Clay processing facility Lhoist,
Nye County (Garrett Wake photo).*



Major mines, oil fields, and geothermal areas, 2021.

Section IV (continued)

Long Canyon Mine (4)

Operator:

Nevada Gold Mines, LLC
688 Johnson Ranch Rd.
Oasis, NV 89835
775-748-1001

Company employees: 126
Contract employees: 100

Production:

Gold - 260,924 oz
Silver - 531 oz

Meikle Mine (5)

Operator:

Nevada Gold Mines, LLC
1655 Mountain City Highway
Elko, NV 89801
775-748-1001

Company employees: 502

Production:

Gold - 325,826 oz
Silver - 24,425 oz

Midas Mine (6)

Operator:

Klondex Midas Operations, Inc.
(Hecla Mining Co.)
4000 W. Winnemucca Blvd.
Winnemucca, NV 89445
775-299-2522

Company employees: 8

No mining occurred in 2021

Pilot Peak Quarry (7)

Operator:

Graymont
P.O. Box 2520
West Wendover, NV 89883
775-483-5463

Company employees: 69

Production:

Limestone - 1,192,834 tons

Rossi Mine (8)

Operator:

Halliburton Energy Services
912 Dunphy Ranch Rd.
Battle Mountain, NV 89820
775-401-1725

Company employees: 5
Contract employees: 15

Production

Barite - 414 tons

White Pine County

Bald Mountain Mine North & South Operations (9)

Operator:

KG Mining (Bald Mountain), Inc.
Kinross Gold Corp.
435 Jiggs Hwy., Unit 16
Spring Creek, NV 89815
775-237-7100 Fax: 237-7101

Company employees: 603
Contract employees: 219

Production:

Gold - 202,905 oz
Silver - 141,661 oz

Mt. Moriah Quarry (10)

Operator:

Mt. Moriah Stone
#10 Hatch Rock Road
P.O. Box 70
Baker, NV 89311
435-855-2232 Fax: 855-2332
Company employees: 22

Production:

Quartzite - 5,300 tons

Pan Mine (11)

Operator:

GRP Pan, LLC
(Calibre Mining Corp.)
P.O. Box 150278
Ely, NV 89315
775-386-1900

Company employees: 62
Contract employees: 173

Production:

Gold - 46,783 oz

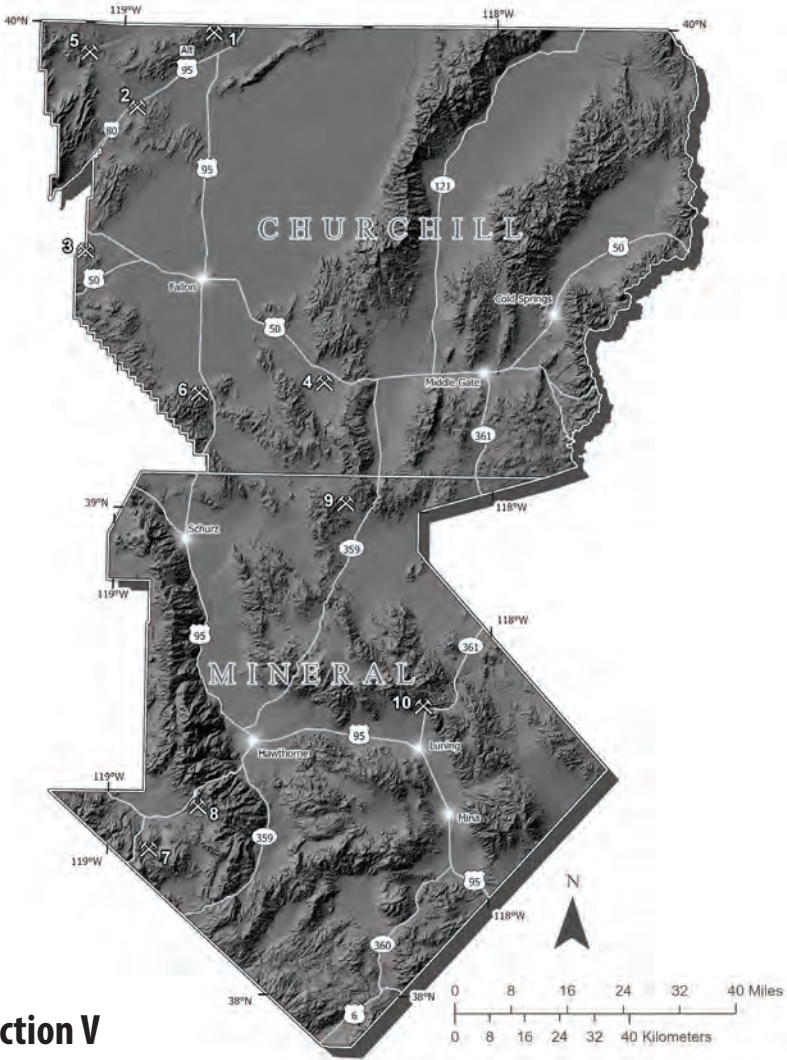
Robinson Mine (12)

Operator:

KGHM International, Ltd.
P.O. Box 382
Ruth, NV 89319
775-289-7000 Fax: 289-7349
Company employees: 620
Contract employees: 95

Production:

Copper - 123,700,000 pounds
Gold - 41,050 oz
Molybdenite - 240,000 pounds



Section V

Churchill County

Churchill Limestone Quarry (1)

Operator:

Nevada Cement Co.
 1290 West Main Street
 Fernley, NV 89408
 775-575-2281

Company employees: 3
 Contract employees: 18

Production:

Limestone - 531,099 tons

Fernley Diatomite Operations (2)

Operator:

US Silica
 9785 Gateway Drive
 Reno, NV 89521
 775-824-7600 Fax: 824-7601
 Company employees: 40

Production:

Diatomite - 55,888 tons

Mineral County

Hazen Mine (3)

Operator:

US Silica
640 Clark Station Rd.
Sparks, NV 89434
775-824-7600 Fax: 824-7601
Company employees: 0

No mining occurred in 2021

Huck Salt (4)

Operator:

Huck Salt Company
2900 Phritzie Ln.
Fallon, NV 89406
775-423-2055 Fax: 423-0467
Company employees: 12

Shipped:

Salt - 16,495 tons

Nightingale Mine (5)

Operator:

Imerys of California, Inc.
100 Front Street
Fernley, NV 89408
775-404-6267 Fax: 575-1470
Company employees: 15
Contract employees: 3

No mining occurred in 2021

Perlite Mine (6)

Operator:

US Silica
P.O. Box 959
Lovellock, NV 89419
775-824-7600 Fax: 824-7601
Company employees: 0

No mining occurred in 2021

Aurora Mine (7)

Operator:

Klondex Aurora Mine, Inc.
(Hecla Mining Co.)
4000 W. Winnemucca Blvd.
Winnemucca, NV 89445
775-299-2522

Company employees: 0

No mining occurred in 2021

Borealis Mine (8)

Operator:

Borealis Mining Company, LLC
P.O. Box 549
Hawthorne, NV 89415
775-299-5123

Company employees: 26

Contract employees: 15

Production:

Gold - 3,936 oz

Silver - 6,473oz

Denton-Rawhide Mine (9)

Operator:

Rawhide Mining, LLC
P.O. Box 2070
Fallon, NV 89407
775-945-1015

Company employees: 137

Contract employees: 12

Production:

Gold - 23,209 oz

Silver - 126,510 oz

Isabella Pearl (10)

Operator:

Fortitude Gold Corp.
P.O. Box 247
Mina, NV 89422
775-300-1592

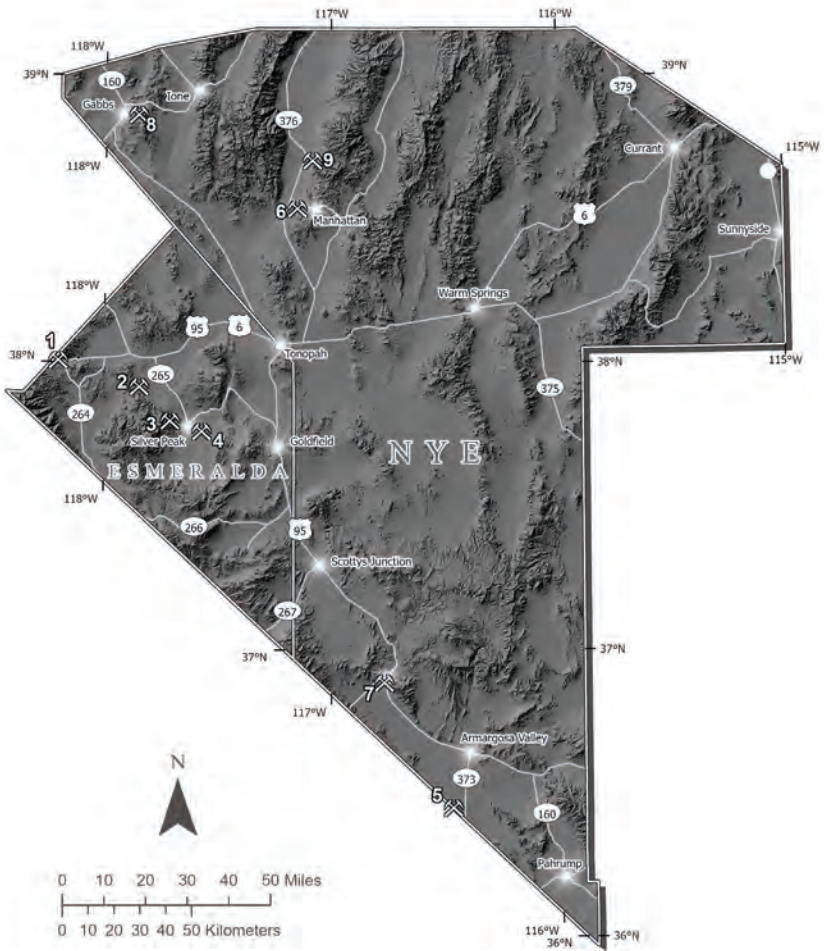
Company employees: 54

Contract employees: 85

Production:

Gold - 46,459 oz

Silver - 44,551 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
 Contract employees: 3

Production:

Diatomite - 4,774 tons

Blanco Mine (2)

Operator:

Vanderbilt Minerals, Inc.
 P.O. Box 6660
 Pahrump, NV 89041
 775-513-6316

Company employees: 1

Production:

Specialty clays - No mining
 occurred in 2021

Mineral Ridge Mine (3)

Operator:

Mineral Ridge Gold, LLC
1910 Idaho St., Ste. 102-550
Elko, NV 89801
775-753-4778 Fax: 775-753-4780
Company employees: 20

Production:

Gold - 1,827 oz
Silver - 1,154 oz

Silver Peak Lithium Operations (4)

Operator:

Albemarle U.S., Inc.
P.O. Box 98
Silver Peak, NV 89047
775-937-2222 Fax: 937-2317
Company employees: 70
Contract employees: 15

Shipped:

Lithium compounds - 12,963,995 lbs

Nye County

Amargosa Clay Operation (5)

Operator:

Lhoist North America
P.O. Box 86
Amargosa Valley, NV 89020
775-372-5341
Company employees: 41

Production:

Specialty clays - 112,454 tons

Manhattan Gulch (6)

Operator:

Manhattan Gulch, LLC
2060-D E Ave De Los Arboles #510
Thousands Oaks, CA 91362
775-298-8120

No mining occurred in 2021

New Discovery Mine (7)

Operator:

Vanderbilt Minerals, LLC
P.O. Box 6660
Pahrump, NV 89041
775-513-6316

Production:

Specialty clays - No mining
occurred in 2021

Premier Magnesia (8)

Operator:

Premier Magnesia, LLC
P.O. Box 177
Gabbs, NV 89409
775-285-2601 Fax: 285-4021
Company employees: 109
Contract employees: 10

Shipped:

Magnesium compounds - 129,252 tons

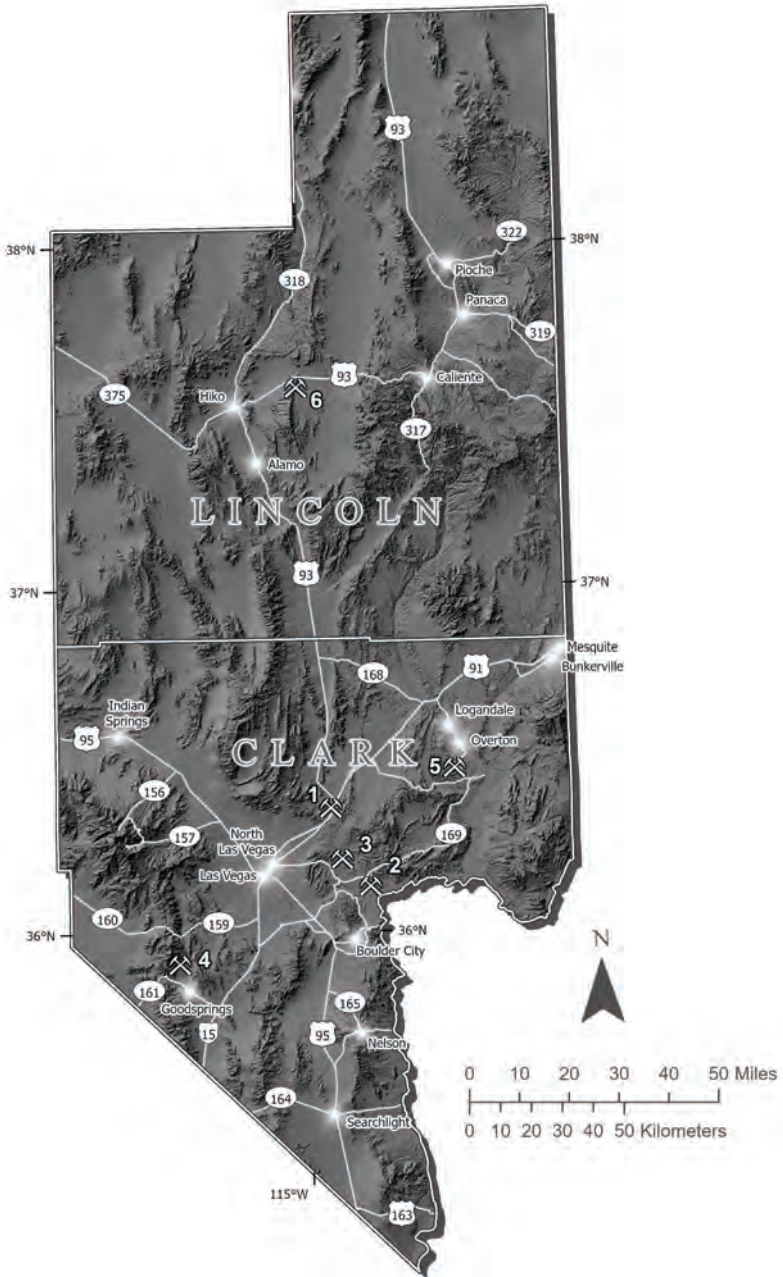
Round Mountain Mine (9)

Operator:

Round Mountain Gold Corp.
P.O. Box 480
Round Mountain, NV 89045
775-377-2366 Fax: 377-3224
Company employees: 872
Contract employees: 128

Production:

Gold - 247,662 oz
Silver - 666,411 oz



Section VII

Clark County

Apex Quarry (1)

Operator:

Lhoist North America
12101 N. Las Vegas Blvd.
Las Vegas, NV 89165
702-643-7702

Company employees: 101

Contract employees: 1

Production:

Limestone - 1,058,000 tons
Dolomite - 300,000 tons

Lima Nevada Gypsum Mine (2)

Operator:

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

Company employees: 10

Production:

Gypsum - 149,440 tons

PABCO Gypsum Mine (3)

Operator:

Pacific Coast Building Products, Inc.
8000 E. Lake Mead Blvd.
Las Vegas, NV 89115
702-407-3700 Fax: 643-6249

Company employees: 20

Contract employees: 3

Production:

Gypsum - 1,392,558 tons

Rainbow Quarry (4)

Operator:

Las Vegas Rock, Inc.
P.O. Box 19118
2 Jean Prison Rd.
Jean, NV 89019

702-791-7625 Fax: 896-4533

Company employees: 10

Contract employees: 4

Aggregate production only, no dimension
stone mined in 2021

Simplot Silica Products (5)

Operator:

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

Company employees: 33

Shipped:

Silica sand - 657,796 tons

Lincoln County

Tenacity Perlite Mine (6)

Operator:

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

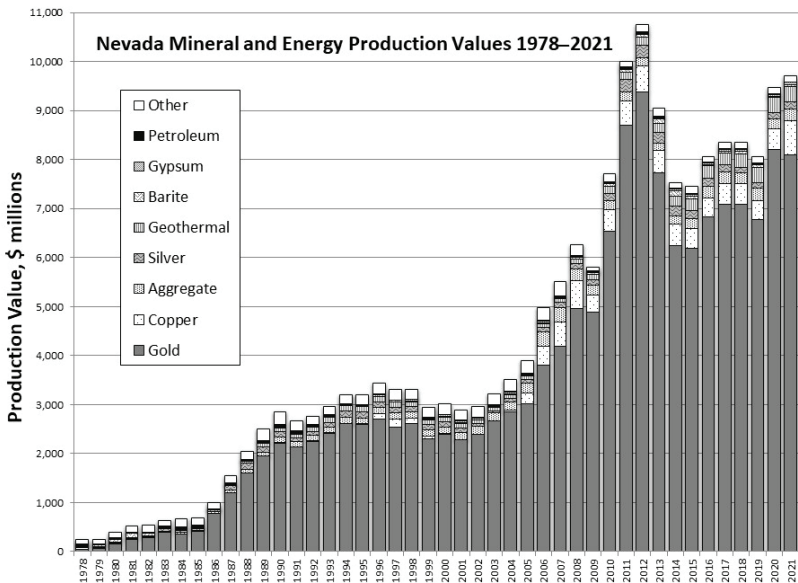
Company employees: 15

Production:

Perlite - 3,728 tons

Summary of 2021 Production

Gold	4,502,365	ounces
Silver	6,218,415	ounces
Barite (mined)	46,914	tons
Copper	163,732,694	pounds
Diatomite	311,700	tons
Dolomite	339,175	tons
Gypsum	2,538,598	tons
Limestone	2,941,577	tons
Lithium compounds (shipped)	12,963,995	pounds
Magnesium compounds (shipped)	129,252	tons
Molybdenite	240,000	pounds
Perlite	3,728	tons
Pozzolan	8,000	tons
Quartzite	5,300	tons
Salt (shipped)	16,495	tons
Silica sand (shipped)	657,796	tons
Specialty clays	46,548	tons



Economic Impacts of Mining in Nevada—2021

Nevada’s mining industry recorded approximately \$9.7 billion in total value of all commodities in 2021, representing a 2.8% increase from the \$9.4 billion dollar value recorded in 2020. Nearly 89% of the value was driven by gold and silver, which contributed over \$8 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 2021 were \$1,798.61 and \$25.04, per troy ounce, respectively. Nevada led the nation in 2021 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, dolomite, geothermal energy, gypsum, lapidary and gemstones, 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 4,502,365 troy ounces in 2021 compared to 4,632,690 troy ounces in 2020, a decrease of 2.8%. According to the U.S. Geological Survey, Nevada remains the nation’s top gold producer with about 74% (133 metric tons) of the U.S. total (180 metric tons) and would rank 5th in world gold production behind China (370), Australia (330), Russia (300), and Canada (170). A summary of 2021 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 15,024 people in 2021. The average yearly pay for mineral industry employees during this time was \$103,000, the third highest average private employment sector in the state, behind Company Management and Utilities. Mining employment remains an important factor in the economic diversity of Nevada.

Table 1. Summary of 2021 Nevada Mineral Commodity Production

Commodity	Production Amount	Unit	YOY Change (%)	YOY Value (\$)	YOY Value Change (%)
Gold	4,502,365	ounces	-2.8%	\$8,097,998,713	-1.2%
Silver	6,218,415	ounces	1.5%	\$155,709,112	23.7%
Barite (shipped)	283,779	tons	70.8%	\$27,288,230	14.4%
Copper	163,732,694	pounds	6.1%	\$687,677,315	59.2%
Diatomite	311,700	tons	-25.8%	\$51,282,304	0.8%
Dolomite	39,175	tons	5.7%	\$3,917,743	-9.9%
Gypsum	2,538,598	tons	5%	\$49,643,160	20%
Limestone	3,241,577	tons	0.6%	\$32,570,285	-6.1%
Lithium compounds (shipped)	12,963,995	pounds	87.8%	\$41,691,698	46.1%
Magnesium compounds (shipped)	129,252	tons	4.2%	\$8,057,512	-6.1%
Molybdenite	240,000	pounds	-43.7%	\$1,992,000	-48.5%
Perlite	3,728	tons	37.3%	\$767,906	14.9%
Salt (shipped)	16,495	tons	9.7%	\$560,830	9.7%
Silica sand (shipped)	657,796	tons	15.4%	\$18,173,927	26.9%
Specialty clays	120,454	tons	-75.7%	\$11,839,493	6.2%
Geothermal energy (sold)	3,971,982	megawatt hours	0.3%	\$318,747,661	1.5%
Oil (sold)	288,342	barrels	32%	\$15,219,762	107.6%
Aggregates	29,400,000	tons	19%	\$235,000,000	19.3%
Total Value				\$9,758,137,650	

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, recreation opportunities, or other natural resource uses. To ensure that reclamation is completed, mine operators are required to post reclamation bonds with government agencies prior to commencement of operations. The bonds are released only after the mined area is stabilized and all the reclamation requirements have been met. According to the Nevada Division of Environmental Protection, approximately \$3.4 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 while addressing environmental concerns. In 2021, one operator received the Nevada Excellence in Mine Reclamation Awards for their exemplary efforts. NOV Inc. received an award for Innovative Reclamation and Closure for their work at the Big Ledge Barite Mine, West Waste Rock Facility, in Elko County. Information on the award and past award winners can be found at <https://minerals.nv.gov/Programs/Mining/MiningExcMineRec/>.

Gold Reserves

Gold reserves are defined as that portion of a gold deposit known to be economically feasible for extraction. The amount of stated reserves changes with commodity prices and operating costs or when new reserves are added through exploration. Extensive gold resources 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 or the application of gross

Table 2. 2021 Nevada Metal Production, by Producer

Operator	Gold (ozs)	Silver (ozs)	Copper (lbs)	Moly (lbs)
Nevada Gold Mines	3,354,029	1,600,225	36,736,179	
Kinross	450,567	808,072		
SSR Mining	235,282	4,285		
First Majestic Silver	98,303	1,809		
Hycroft Mining	56,045	397,546		
Florida Canyon Mining (Argonaut Gold)	51,175	27,681		
Fortitude Gold	46,459	44,551		
Calibre Gold	45,783	NR		
McEwen Mining	43,881	NR		
KGHM International	41,050	NR	123,700,000	240,000
Coeur	27,985	3,158,017		
Rawhide Mining	23,209	126,510		
i-80 Gold	17,442	3,500		
Gold Aquisition Corp.	5,388	12,773		
Borealis Mining	3,936	6,473		
Mineral Ridge Gold	1,827	1,154		
Nevada Copper	NR	NR	3,296,515	
Geo-Nevada	3	4		
Klondex (Hecla)	0	26,214		
Totals	4,502,364	6,218,814	163,732,694	240,000

royalties levied on production can have the same effect as a lowering of the gold price, thereby reducing reserves. For the larger operating mines, the publicly reported reserves for the year ending 2021 totaled approximately 56 million ounces of gold. Assuming similar economic conditions without any reserve replacement, current reserves are sufficient to sustain gold production near current levels in Nevada for about ten years (table 3).

Exploration

Exploration for new deposits is an ongoing effort by both the existing operating companies and many others who do not yet 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 are closely tied to economic conditions and commodity prices. 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 2021, using 2019 and projected 2020 data. This informative report, which can be downloaded at <http://pubs.nbmg.unr.edu/NV-exploration-survey-2020-p/es2020.htm>, revealed that precious metals exploration accounted for 63 percent (\$164 million) of \$261 million total exploration spending, down significantly from \$461 million total spent in 2018. Two large companies accounted for nearly 40 percent of the total spending. Approximately 599 people were directly employed by companies doing exploration activities in Nevada in 2019, down from 784 in 2018. Exploration for base metals accounted for 21 percent (\$55 million) and exploration for lithium and other energy metals continues to be significant at 16 percent (\$42 million).

Table 3. Nevada Mine Reserves (Proven and Probable) Reported for End of Year 2021

Company	Mine	Gold (ozs)	Silver (ozs)	Copper (lbs)
Argonaut Gold	Florida Canyon	921,000		
Coeur	Rochester	1,080,000	161,245,000	
Calibre	Pan	190,000		
Gold Aquisition	Relief Canyon	584,000	1,577,000	
Fortitude Gold	Isabella Pearl	109,700	954,100	
Hecla	Fire Creek	61,000	128,000	
Hecla	Hollister	51,000	217,000	
Hecla	Midas	33,000	444,000	
KGHM	Robinson	263,000		716,000,000
Kinross	Bald Mountain	798,000		
Kinross	Round Mountain	3,037,000	1,146,000	
McEwen	Gold Bar	302,000		
Nevada Copper	Pumpkin Hollow	419,000	14,544	6,503,000
NV Gold Mines	Carlin Operations (Includes Goldstrike & Arturo)	19,512,195		
NV Gold Mines	Cortez & Goldrush	9,756,098		
NV Gold Mines	Long Canyon	357,724		
NV Gold Mines	Phoenix	2,926,829	34,146,341	845,528,455
NV Gold Mines	Turquoise Ridge & Twin Creeks	12,520,325		
SSR	Marigold	3,410,000		
	Totals	56,331,871	199,871,885	1,568,031,455

Oil and Geothermal Activity

Economic activity from oil and gas exploration and production is relatively minor when compared to mining but is 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. According to the U.S. Energy Information Administration, the price for a barrel of West Texas Intermediate crude in 2021 ranged from a monthly average low of \$52.01 to a high of \$81.48 and averaged \$67.99 for the year, versus \$39.23 in 2020. Nevada's oil production in 2021 increased by 3.2% from 218,372 barrels (42 gallons per barrel) in 2020 to 288,342 barrels sold, worth approximately \$15.2 million. This increase was largely due to increased oil prices and the easing of pandemic-based restrictions resulting in increased travel. Table 4 summarizes the number

of producing wells and the number of barrels sold by operator and oil field in 2021.

Nevada is rich in geothermal resources and is second only to California in the production of geothermal energy. For 2021, Nevada had 26 plants at 17 geothermal fields that sold approximately 4 million megawatt hours of electricity, worth approximately \$319 million (table 5). According to the U.S. Energy Information Association, this is sufficient to power approximately 377,000 residential homes in Nevada 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.

Table 4. Nevada Oil Production in 2021

Operator	Producing Field	# of Producing Wells	Total Barrels Sold
Makoil	Trap Spring	43	164,668
Grant Canyon	Grant Canyon	4	34,909
Kirkwood	Eagle Springs	19	31,969
Grant Canyon	Blackburn	8	20,087
Western General	Kate Spring	6	13,696
Grant Canyon	Bacon Flat	2	8,326
Grant Canyon	Three Bar	2	7,204
Kirkwood	Ghost Ranch	3	5,821
Grant Canyon	Sans Spring	3	796
Tomera Oil Fields	Tomera Ranch	2	391
Makoil	Ghost Ranch	1	271
Kirkwood	Sand Dune	1	204
Totals		94	288,342

Table 5. Nevada Geothermal Production in 2021 by Company

Company (including all subsidiaries)	Total Output (Sales) MWh	% of Total
Ormat Nevada Inc.	3,293,926	83%
Cyrq Energy	494,849	12.5%
Enel North America Inc.	157,658	4%
Homestretch Energy/Whitegrass No. 1 LLC	25,549	0.6%
Total		3,971,982

Conclusion

Nevada's mineral industry continues to be a major economic force in the state. Nevada is a major natural resource producer and has significant mineral and energy resources. Given a stable price and regulatory environment, this situation should continue for many years to come. Major factors affecting the stability of the minerals industry are potential future withdrawals of resource-rich federal lands from mineral entry and leasing, and significant changes to taxation on mineral production.

As exploration for critical minerals takes a front seat, Nevada is a prime location to explore. Of the 50 critical minerals published in the Federal Register on February 24, 2022, 33 minerals have known occurrences or deposits in Nevada. With its rich mineral endowment and stable regulatory environment, Nevada ranked as the 3rd best mining jurisdiction in the world based on the Investment Attractiveness Index in the Fraser Institute's 2021 annual survey.

Data

The Nevada Division of Minerals and the Nevada Bureau of Mines and geology continuously strive to provide data for the mineral, oil-gas, and geothermal exploration and mining community. The websites listed below have been developed to provide spatial data for Nevada explorers and beyond.

Nevada Division of Minerals
Open Data Site

<https://data-ndom.opendata.arcgis.com/>

Nevada Bureau of Mines and Geology
Open Data Site

<https://data-nbmg.opendata.arcgis.com/>

C.L.A.I.M.S.
miningclaim.org



Patua solar and geothermal field,
Churchill County (Cortney Luxford photo).

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The Nevada Bureau of Mines and Geology

The Nevada Bureau of Mines and Geology (NBMG) is a research and public service unit of the University of Nevada, Reno (UNR) and is the state geological survey, applying its expertise across the entire state. NBMG is part of the Mackay School of Earth Sciences and Engineering within the College of Science at UNR.

NBMG scientists conduct research and publish reports on mineral resources, engineering geology, environmental geology, hydrogeology, geologic hazards, and geologic mapping. Individuals interested in Nevada geology are encouraged to visit, call, write NBMG, or visit our website.

<http://www.nbmг.unr.edu>

Most NBMG scientists (Director and research faculty), cartographic, and administrative staff are located on the **University of Nevada campus**, 775-794-6691.

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