

2015



ANNUAL REPORT

New Mexico Energy, Minerals & Natural Resources Department





David Martin
Cabinet Secretary

Energy, Minerals & Natural Resources Department

Message from David Martin

2015 was a banner year for the Energy, Minerals & Natural Resources Department. With Governor Martinez, we unveiled New Mexico's first comprehensive energy policy and plan in nearly 25 years – "Seizing our Energy Potential: Creating a more Diverse Economy in New Mexico". This plan will ensure the state will expand its role as an energy leader while continuing to provide income and create jobs across energy industries.

Also in 2015, Governor Martinez signed House Bill 563 which created the Rio Grande Trail Commission. The Commission, led by the Energy, Minerals and Natural Resources Department, will establish the Rio Grande Trail to run the length of the state from Colorado to Texas and is charged with providing visitors with unique recreation opportunities and beautiful views. The Trail will pass through six state parks: Elephant Butte Lake, Caballo Lake, Leasburg Dam, Mesilla Valley Bosque, Percha Dam, and Rio Grande Nature Center State Parks.

While we embark on the trail, or path, forward, we remain dedicated to our mission. Department highlights for 2015 include:

- The Oil Conservation Commission, chaired by the Oil Conservation Division (OCD) Director, amended OCD Rule No. 19.15.34, Produced Water, Drilling Fluids and Liquid Oilfield Waste, which will reduce the oil and gas industry's fresh water consumption by promoting recycling and reusing produced water;
- The Watershed Restoration Initiative was expanded significantly. State Forestry received an additional \$3.5 million from state sources. A further \$5 million of Federal Pittman-Robertson funds were made available to Forestry from the New Mexico Game and Fish Department. These monies funded eight new projects and significantly expanded the scale of three 2014 projects. In total, the 2015 expansion will treat 11,000 additional acres;
- New Mexico State Parks saw an increase in visitation in FY15 and park staff provided safe and fun recreational opportunities for 4.2 million visitors. Even with increased visitation, for the second year in a row, there were no boating-related fatalities in New Mexico due to the efforts of park staff, through enforcement, educational and marketing efforts;
- The Energy Conservation and Management Division enhanced the public buildings energy efficiency program. \$39 million in public building energy improvements have been achieved through Energy Savings Performance Contracting. This finance mechanism, especially useful when project capital funds are unavailable, provides investment in energy conservation through public-private partnerships, guarantees energy savings, and is entirely paid for through energy cost savings. Additionally these projects provide much needed improvements to infrastructure while creating lower monthly energy bills for public buildings;
- The federal Office of Surface Mining Reclamation and Enforcement presented its 2015 National Abandoned Mine Land Reclamation Award to the Mining and Mineral Division's AML Program for its exemplary work at the Lake Valley Project site in Sierra County, where 297 mine openings were safeguarded in several phases of construction. Bat compatible closures were used at 69 of the openings to preserve bat habitat found in the underground mine workings.

We've worked hard this year --it is my pleasure to present our 2015 Annual Report.



Governor
Susana Martinez

Energy, Minerals and Natural Resources Department



*Administratively Attached



Mining & Minerals Division



Mining & Minerals Division

► **MISSION:** The Mining and Minerals Division (MMD) seeks to promote the public trust by ensuring the responsible utilization, conservation, reclamation and safeguarding of land and resources affected by mining. MMD strives to make New Mexico a leader in responsible mine operation and reclamation. By statute, MMD enforces and administers laws and regulations relating to mine safety, coal and non-coal surface mine reclamation and abandoned mine lands reclamation, and annually collects statistical information from operators.

ABANDONED MINE LAND

(AML) PROGRAM - The AML Program works to identify and abate dangerous abandoned mine areas across the state. MMD estimates that more than 15,000 hazardous mine openings remain un-reclaimed throughout New Mexico.

In 2015, the AML Program completed ten construction projects at abandoned mine sites in New Mexico. Five of these were coal-related projects – the Swastika Mine Reseeding and Mulch Maintenance Project (Colfax County), which reseeded and mulched bare areas at a previously reclaimed coal mine area; the Madrid-Jones Ventilation Shaft Closure Project (Santa Fe County), where a shaft was plugged using polyurethane foam; the Madrid Low Impact Stormwater Construction-Drainage Infrastructure Project (Santa Fe County), where a deteriorated mining-era box culvert was relined to protect property in the community from flooding; and the Rogersville Safeguard and Maintenance Project (Santa Fe County) to backfill a coal mine adit and shaft and to remove sediment at two previously installed bat gates.

The AML Program also responded to an emergency subsidence event at an abandoned underground coal mine in the unincorporated community of Allison, just outside of Gallup, where a large



Madrid - Slipline pipe being placed in old box culvert



Madrid - New box culvert inlet below mine waste pilew



Allison Mine sinkhole, August 2015

subsidence hole suddenly opened up in the back yards of two adjacent properties in August 2015. A geotechnical investigation was completed to determine the proximal causes of the event and to recommend further measures to be taken.

At non-coal sites, the Program completed five projects. Four of those were at hard rock sites: the San Pedro Mine Safeguard Project – Phase I, which safeguarded 32 mine openings, including nine bat compatible closures; the Cerrillos Central/Bonanza Creek Project – Phase III, where 70 mine openings were safeguarded, ten of which are bat compatible; the Bradley Group Mine Maintenance Project, to repair a vandalized bat gate and plug a subsidence at previously closed features; and the Cookes Peak West Mine Safeguard Project – Phase I, where three openings were safeguarded with bat compatible closures and one by backfilling. The San Pedro and Cerrillos projects are located in parts of Santa Fe County experiencing increased residential and recreational development and the Bradley and Cookes Peak projects in areas of Luna County with increasing recreational use.



San Pedro - Polyurethane foam closure under construction San Pedro - Completed bat cupola

The other non-coal project site is located at several closely clustered abandoned uranium mines in Poison Canyon outside of Grants. The Grants Uranium Phase III Safeguard and Reclamation Project plugged about 180 uranium prospect boreholes



Cerrillos Phase III - Completed picket fence at mine shaft

and backfilled 14 shafts and 12 subsidence features in Poison Canyon. 17,300 cubic yards of radioactive mine waste was buried at an on-site repository and the disturbed areas graded, seeded and mulched using Bureau of Land Management (BLM) funds.

The AML Program continues to develop projects in areas of New Mexico impacted by historic mining including Silver City, Florida Mountains, Tierra Amarilla, Gallup, Gage, Hansonburg, Lemitar, Madrid, Cookes Peak, and White Signal.



Checking gamma radiation levels at a uranium waste rock removal site in the Grants Phase III project area

The AML Program received national recognition for its exemplary work at the Lake Valley Project site in Sierra County, where 297 mine openings were safeguarded in several phases of construction between 2004 and 2012. Bat compatible closures were used at 69 of the openings to preserve significant bat habitat found in the underground mine workings. Innovative techniques used included toroid tire plugs, where large spent tires from earthmoving equipment are stacked to close openings. The Office of Surface Mining Reclamation and Enforcement presented its 2015 National Abandoned Mine Land Reclamation Award for this project at a ceremony in Santa Fe in September. Additional information on the award may be viewed here: <http://www.emnrd.state.nm.us/MMD/AML/LakeValleyAward.html>.



Dumping radioactive mine wastes into the Grants Phase III Repository

The BLM Las Cruces District Office received the Mining and Minerals Division 2015 Excellence in Reclamation Award for its efforts to reclaim abandoned mines in the Cerrillos, Lemitar, and Florida Mountains mining districts, and for its ongoing work to inventory abandoned mines throughout New Mexico. Additional information may be viewed here: <http://www.emnrd.state.nm.us/MMD/documents/ExcellenceinReclamationAward.pdf>. BLM remains a strong AML partner, providing funding for abandoned hard rock and uranium mine reclamation that supplements AML's regular annual grants received from the federal Office of Surface Mining, a portion of which is earmarked for work at abandoned coal mining sites.

COAL MINE RECLAMATION PROGRAM -

The Coal Program regulates, inspects and enforces on all coal mines on federal, state and private lands within New Mexico, with the exception of Tribal lands. The program oversees more than 85,000 acres of permitted mine lands and nearly \$500 million in financial assurance.

Evaluation of bond release applications continues to be a significant part of the workload for the Coal Program. Peabody Energy received Phase I bond release on a portion of the Lee Ranch Mine upon successful completion of backfilling and grading of 730 acres of pit reclamation. Applications for partial bond release for 1,056 acres at La Plata Mine, and for full bond release for portions of San Juan Mine totaling 1,193 acres, are also being processed.

Chevron Mining Inc. is requesting a completeness review of an application for partial bond release on 1,504 acres at McKinley Mine; inspection of the reclamation will occur in the spring of 2016.

Transitions in New Mexico coal mine ownership are underway. BHP Billiton has agreed to sell San Juan Coal Company to Westmoreland Coal Company, headquartered in Denver. Peabody Energy has agreed to sell the Lee Ranch and El Segundo surface mines to Bowie Resource Partners of Louisville, Kentucky. Bowie, with coastal loadout facilities in California, hopes to supply New Mexico coal to an overseas market.

These online resources provide more information on the Coal Mine Reclamation Program:

<http://www.emnrd.state.nm.us/MMD/CMRP/cmnp-main.html>, and <http://wwwapps.emnrd.state.nm.us/MMD/CoalMinesQuery/default.aspx>.

MINE REGISTRATION, REPORTING & SAFEGUARDING PROGRAM

- This program provides comprehensive information on mineral resources, mine registration, reclamation and safeguarding efforts, legislation, and other MMD activities related to New Mexico's mineral extraction industry and mineral resources. Decision-makers throughout New Mexico benefit from the valuable information compiled and disseminated through this program. Mining sector information reported by operators for calendar year 2014 is provided in the Mineral Resources section of this report.

To facilitate information dissemination and outreach, the MMD Online Mine Registrations and Permits web application provides data for all New Mexico mines (except coal, which has its own search feature accessible from the same page). Users can search by multiple different parameters, or a multitude of combinations of parameters, including mine name, operator, commodity, location and dates. (By statute, confidential production information is not made public.) All real time query results are exportable to Excel spreadsheets containing as many as 30 fields of information, or to KML (Keyhole Markup Language) to display geographic data in an Earth browser. Additional web applications are linked from the GIS, Maps and Mine Data page including Active Mines

Web Map and a Map Gallery - <http://www.emnrd.state.nm.us/MMD/gismapminedata.html>. Other pages of MMD's website, www.NMMines.com, provide information about abandoned mine safeguarding projects and current and proposed mining operations. Projects can be tracked by status or county, and project documents are downloadable from various pages within the website. Another public outreach component celebrates operators who performed outstanding reclamation in New Mexico. Annually, a nomination period is announced, then MMD staff selects worthy recipients for the Excellence in Reclamation Award which is presented at the New Mexico Mining Association's convention. Read about 2015's award in the Abandoned Mine Land Program section of this report.

MINING ACT RECLAMATION PROGRAM

(MARP) - MARP regulates, inspects and enforces on all hard rock or mineral mines on federal, state and private lands within New Mexico. MARP oversees the reclamation of all exploration and extraction activities conducted at all mines and mills, excluding coal, potash and aggregate mines. MARP has permitted approximately 563 mining and exploration projects encompassing over \$693.6 million in financial assurance. The overall disturbed acreage under permit with MARP is 26,130 acres as of the end of 2014. The total number of acres reclaimed since 1994, when the program was started, is 6,961 acres as of the end of 2014.

Interest in gold mining dropped in 2015 with the closure and bankruptcy of Santa Fe Gold Corp., operator of one of two operating gold mines in the Steeple Rock Mining District in Grant County. The mining of iron, gold, garnet, rare earth elements, and copper in Otero County's Orogrande Mining District continued during 2015 with the ongoing operation of existing mines and implementation of several new exploration projects. Interest in expanding an existing garnet mine in the Orogrande Mining District is developing. Expansion of the existing BOW Mine along with the development of a new mill was proposed in 2015.

In early 2014, the legislature provided for changing the language in the New Mexico Mining Act Rules ("Rules") eliminating the prohibition on more than one financial assurance release per operation per

year, and a petition was subsequently submitted to the New Mexico Mining Commission ("Commission") requesting that rule change. The Commission approved the removal of that language and now there is no cap on the number of financial assurance releases per operation per year, effective July 15, 2015.

In June 2014, Chevron Mining Inc. made the decision to permanently close the Questa Mine in Taos County, a Superfund site. Chevron Mining Inc. initiated reclamation of the Questa Mine in late 2014 with the partial demolition of the mill area and closure of the underground mine. Reclamation and remediation continue in 2015 with further demolition of the mill area, construction of a water treatment plant, removal and disposal of old tailings, and remediation of Eagle Rock Lake. Reclamation will continue for a number of years as plans are approved and then implemented to reclaim the tailings area and the mine/mill area. Three agencies (MMD, New Mexico Environment Department and the Environmental Protection Agency) are working with Chevron to develop reclamation plans and agreements following the federal CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) process.

Permitting of revised closeout plans and expansions at the state's four largest copper mines in Grant County continued in 2015. A number of major permitting actions were initiated in 2015 and more will come in 2016. Even with cutbacks and layoffs, Freeport McMoran is expanding at three of its New Mexico operations. All permitting actions at three of the mines, Little Rock, Chino, and Continental, have to do with expanding the mining operations. As these existing mines expand they must comply with new regulatory standards designed to address new mining impacts.

Also this year, MARP staff continued the review process of two large-scale, Part 6 (New Mining Operations) permit applications – one uranium mine: the Roca Honda, and one copper mine: the Copper Flat Mine. As interest in uranium mining has tapered off, permitting actions related to earlier applications have also tapered off. The Mt. Taylor Mine, an existing uranium mine in Cibola County, has been on standby status since the inception of

the Mining Act in 1993, but recently applied to come off standby. Some of the local non-governmental organizations have opposed any permitting action for the Mt. Taylor Mine, other than reclamation.

These online resources provide more program information: [MARP Annual Report](#) to the New Mexico Mining Commission, the [Pending Permit Activities](#) web page, and queries of [MMD Online](#).

MINERAL RESOURCES: EMPLOYMENT, PRODUCTION & VALUE - For the third consecutive year, operators reported an all-time high mineral production value – more than \$3.1 billion worth of minerals were extracted from New Mexico mining operations in calendar year 2014, almost ten percent over 2013's total (Table 1 and Figure 1). Operator-reported potash production value increased almost 20 percent from 2013, and copper production value increased 20 percent. These two commodities accounted for the lion's share of the production value increase.



Coal



Copper



Gold



Potash



Uranium

TABLE 1 New Mexico Summary of Commodity Production, Production Value, Employment, Payroll, Revenue and Ranking: 2014

Mineral	Production ¹	Production Rank ²	Production Value \$	Employment ³	Reclamation Employment	Payroll \$ ⁴	Revenue Generated \$ ⁵	
							State	Federal
Coal	21,730,572	12	\$ 757,312,996	1,436	148	\$ 84,557,320	\$ 19,400,137	\$ 8,033,183
Copper	343,292,033	3	\$ 1,071,057,411	1,842	36	\$ 110,877,438	\$ 8,785,019	\$ -
Gold ⁶	8,580	-	\$ 10,858,944	-	-	\$ -	\$ 62,924	\$ -
Industrial Minerals ⁷	1,199,137	-	\$ 77,800,389	472	14	\$ 17,609,605	\$ 1,030,231	\$ 316,161
Aggregates ⁸	11,339,585	-	\$ 93,439,942	830	55	\$ 15,851,577	\$ 3,529,457	\$ -
Other Metals	71,352	-	\$ 982,217	26	-	\$ 1,308,156	\$ 4,429,933	\$ -
Molybdenum	13,183	-	\$ 150,194	431	30	\$ 13,017,482	\$ -	\$ -
Potash	2,130,352	1	\$ 1,093,208,523	1,078	33	\$ 97,754,429	\$ 7,067,326	\$ 10,843,943
Silver	22,617	-	\$ 431,333	-	-	\$ -	\$ 2,912	\$ -
Uranium ⁹	-	-	\$ -	30	8	\$ 597,941	\$ -	\$ -
TOTAL			\$ 3,105,241,950	6,145	324	\$ 341,573,947	\$ 44,307,940	\$19,193,287

Source: Mining and Minerals Division, unless otherwise noted

¹ Production is in short tons for coal, industrial minerals, aggregates, other metals and potash; in pounds for copper and molybdenum; and in troy ounces for gold and silver.

² Production rank, where available, is based on 2014 production value (except coal is based on 2013 coal production value, latest available at publication date) in relation to other U.S. states.

Sources: Metals, potash, industrial minerals and aggregates: Mineral Resources Program, United States Geological Survey ([minerals.er.usgs.gov](#))

Coal: Energy Information Administration, United States Department of Energy ([www.eia.gov/coal](#)); rank is for CY2013, latest available data

³ Employment category includes direct and contract employees.

⁴ Payroll does not include benefits.

⁵ State revenue includes state trust land mineral lease royalties, rentals and bonuses; and severance, resource excise and conservation tax revenues.

Federal revenue includes 50% state share of federal royalties.

Sources: State data: New Mexico Taxation and Revenue Department ([www.state.nm.us/tax](#)), New Mexico State Land Office ([www.nmstatelands.org](#))

Federal data: Office of Natural Resources Revenue ([www.onnr.gov](#))

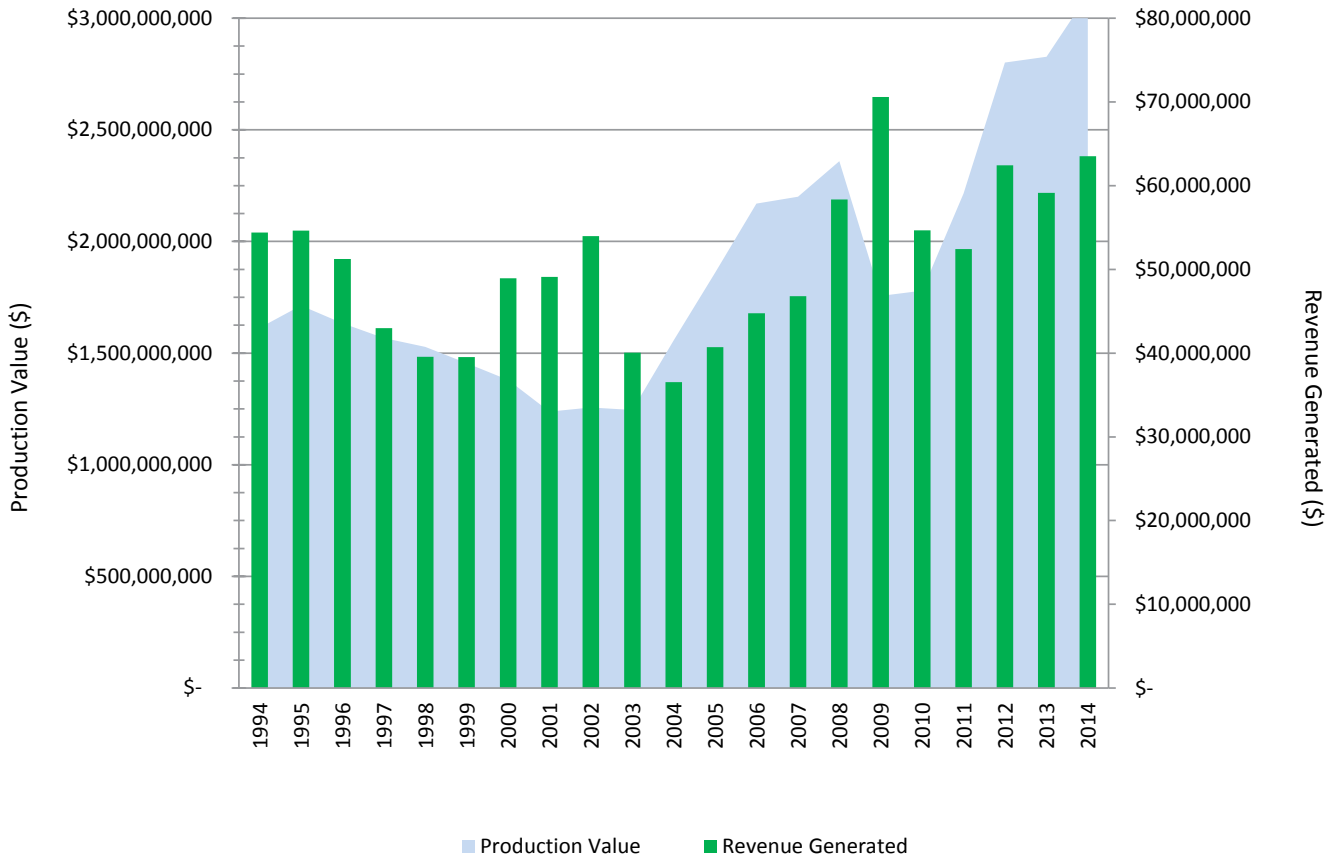
⁶ Gold, silver and molybdenum are by-products of copper production. Employment/payroll for gold/silver included in copper.

⁷ Category includes brick clay, calcite, dimension stone, gypsum, humate, perlite, Portland cement, pumice, salt, silica, and zeolite.

⁸ Category includes base course, caliche, clay and shale, crushed rock, flagstone, fill dirt, gravel, limestone, red dog, rip-rap, sand, scoria and topsoil.

⁹ Employment/payroll numbers are for licensing/permitting at proposed uranium mines, and reclamation activities/maintenance at closed mines and mills.

FIGURE 1 New Mexico Mineral Production Value and Revenue Generated: 1994-2014



New Mexico remains a leading United States mineral producer with 2014 rankings of first in potash, perlite and zeolite as reported by the U.S. Geological Survey (“USGS”); third in copper, as reported by USGS; and twelfth in coal (2013, latest available information), as reported by the U.S. Energy Information Administration. The principal minerals, in descending order of 2014 production value, were potash, copper and coal. According to USGS, for 2014 (preliminary), New Mexico ranked thirteenth when ranking states by the production value of non-energy minerals, producing 2.40 percent of the total U.S. production value of non-energy minerals (up from 2.07 percent in 2013).

Total 2014 revenues generated by mineral production in New Mexico increased by over seven percent from 2013 levels to \$63.5 million (**Figure 1**). This is the second highest revenue total after 2009’s \$70 million total. State revenue information is provided by the Taxation and Revenue Department and the State Land Office and includes state trust land mineral lease royalties, rentals and bonuses

and associated taxes. Federal revenue information is provided by the Department of Interior’s Office of Natural Resources Revenue and includes a 50 percent state share of federal royalties. In any production year, these revenues only accrue if the lessee is actually mining and producing commodities on federal or state land.

Copper was the largest employer in New Mexico’s mining industry, followed by coal and potash operations (**Figure 2**). Despite an overall employment decrease in 2014, reported industry payroll (excluding benefits) fell off less than one percent from 2013 to just under \$342 million (**Figure 3**). Total mining sector direct and contract employment decreased by 13 percent from 2013 (7,112) to 2014 (6,145): direct employment decreased from 5,806 to 5,055 employees; contract employment decreased from 1,306 workers to 1,090; reclamation employment decreased from 416 workers to 324 (**Figure 4**).

FIGURE 2 Percentage of Production Value, Employment, Payroll and Revenue by Commodity: 2014

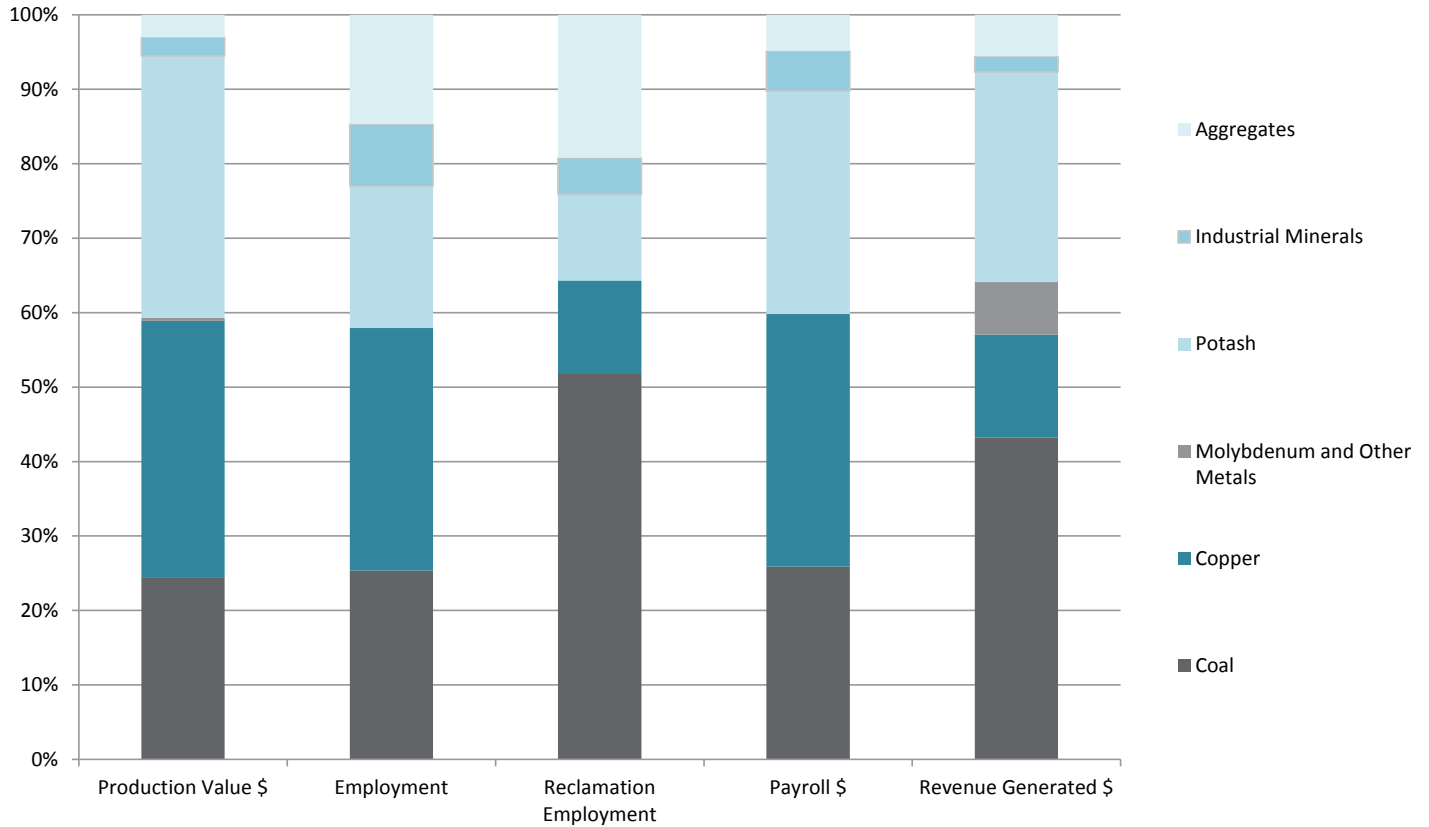


FIGURE 3 New Mexico Mineral Industry Employment, Payroll and Capital Improvements: 1994-2014

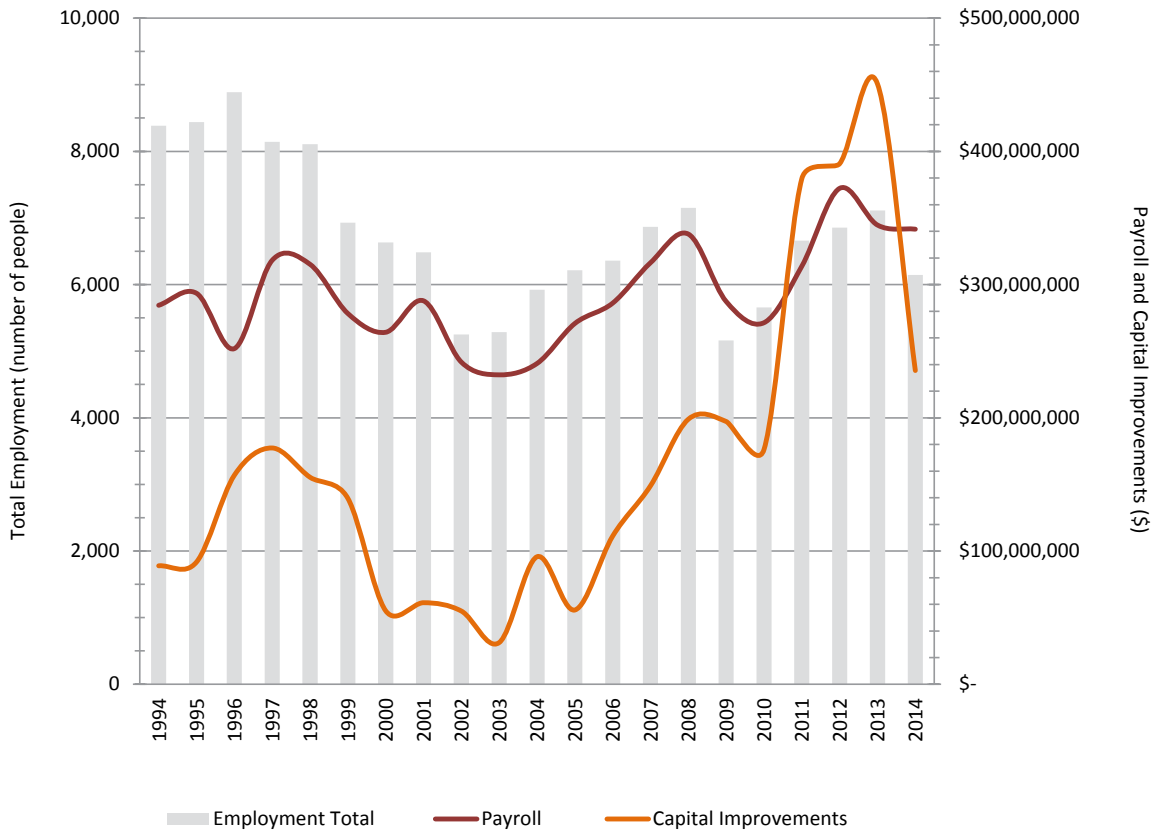
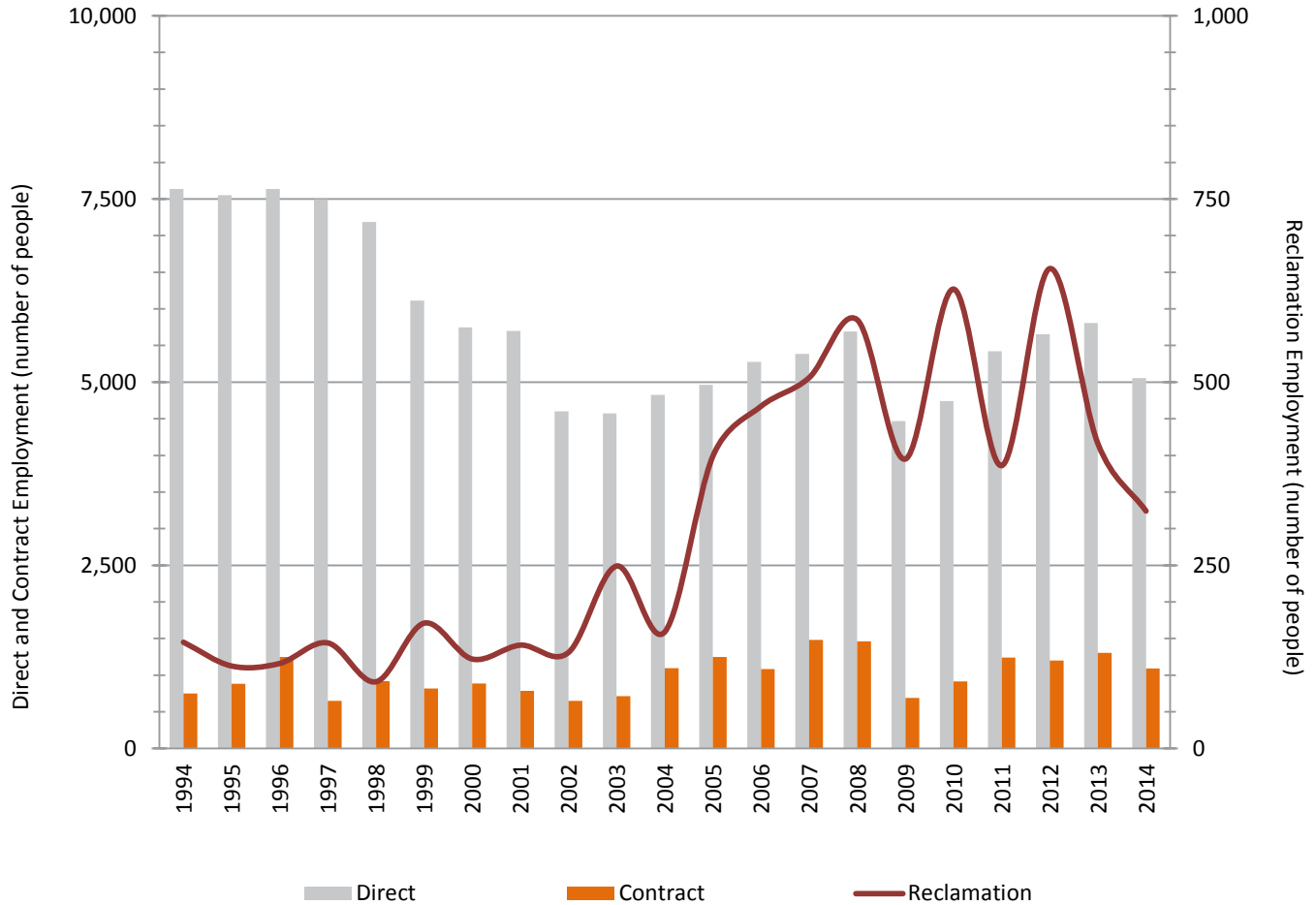


FIGURE 4 New Mexico Mineral Industry Employment: 1994-2014

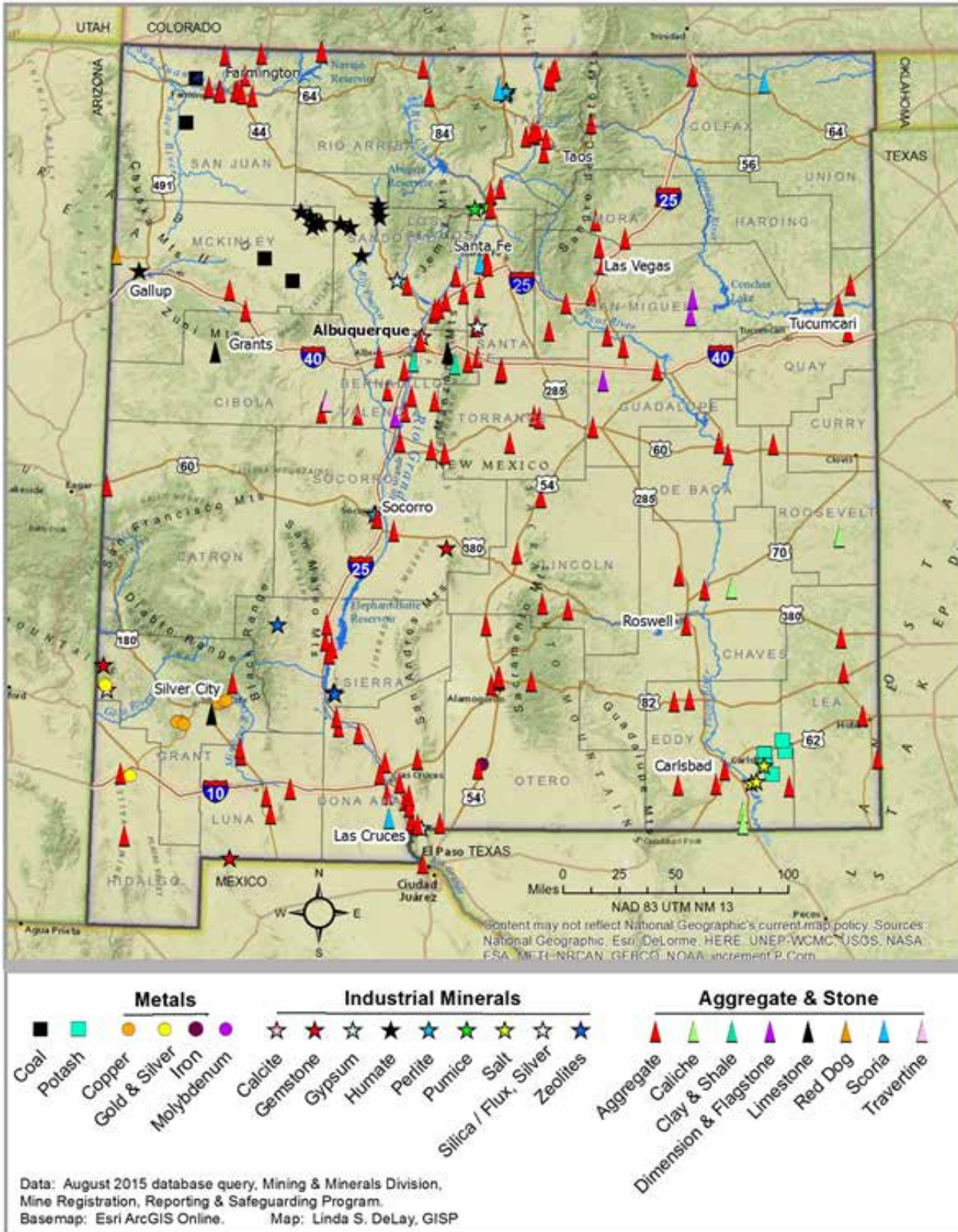


Capital improvement expenditures reported by operators dropped off significantly from 2013’s high of \$450 million due largely to the completion of projects in potash and copper country. New Mexico mining companies reported investments of just over \$235 million in capital improvements and equipment in 2014 (**Figure 3**) – still the fourth highest annual amount reported.

Registered active mining operations in New Mexico in 2014 numbered 226: four coal mines; eight potash operations (includes mines, refineries and compaction plants); 11 metal mine, mill and SX/EW operations; 33 industrial mineral mines and mills; and 170 stone and aggregate operations (**Figure 5** – any discrepancies are due to map data run date).

Figure 5

Active Mines in New Mexico, December 2014



Figures 6 through 10 provide multi-year production amounts and dollar values for coal, copper, potash, aggregate (base course, caliche, clay and shale, crushed rock, flagstone, fill dirt, gravel, limestone, red dog, rip-rap, sand, scoria and topsoil), and industrial minerals (brick clay, calcite, dimension stone, gypsum, humate, perlite, Portland cement, pumice, salt, silica, and zeolite), respectively.

FIGURE 6 New Mexico Coal Production and Value: 1994-2014

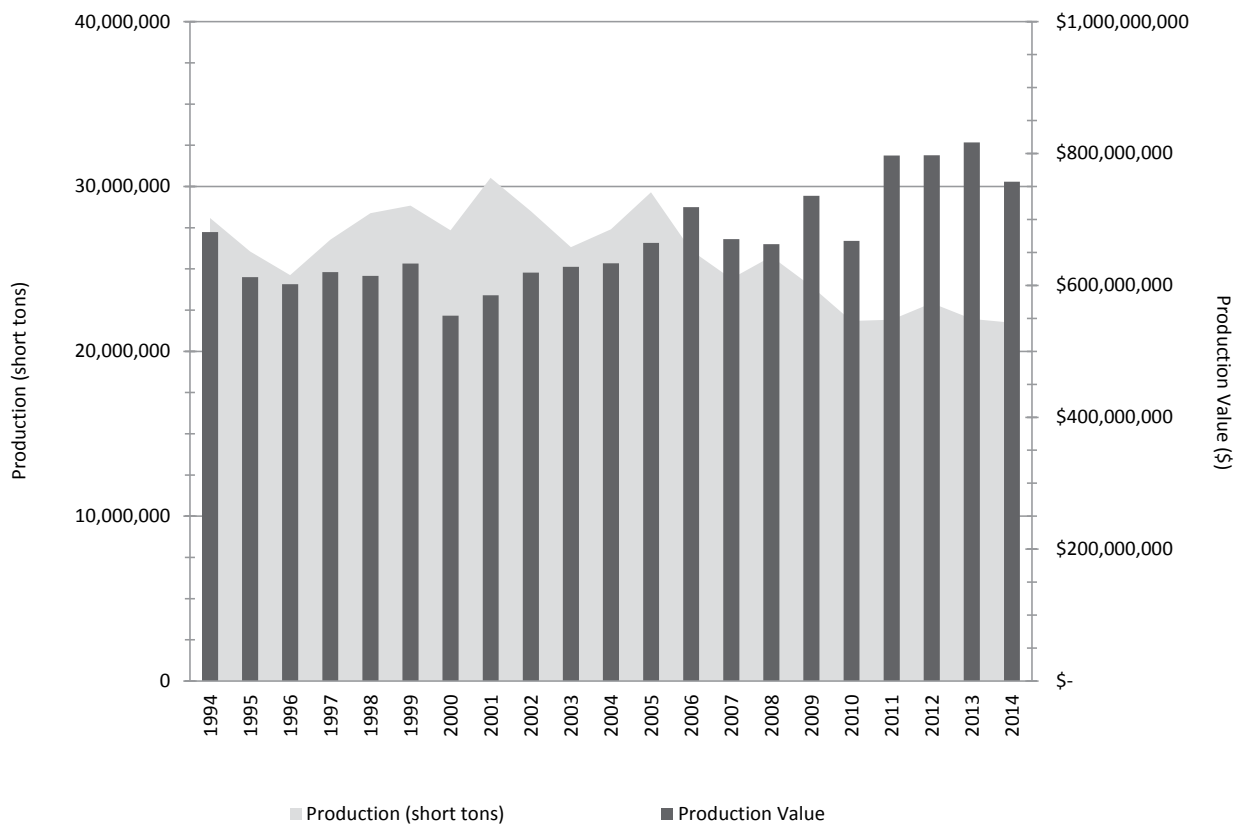


FIGURE 7 New Mexico Copper Production and Value: 1994-2014

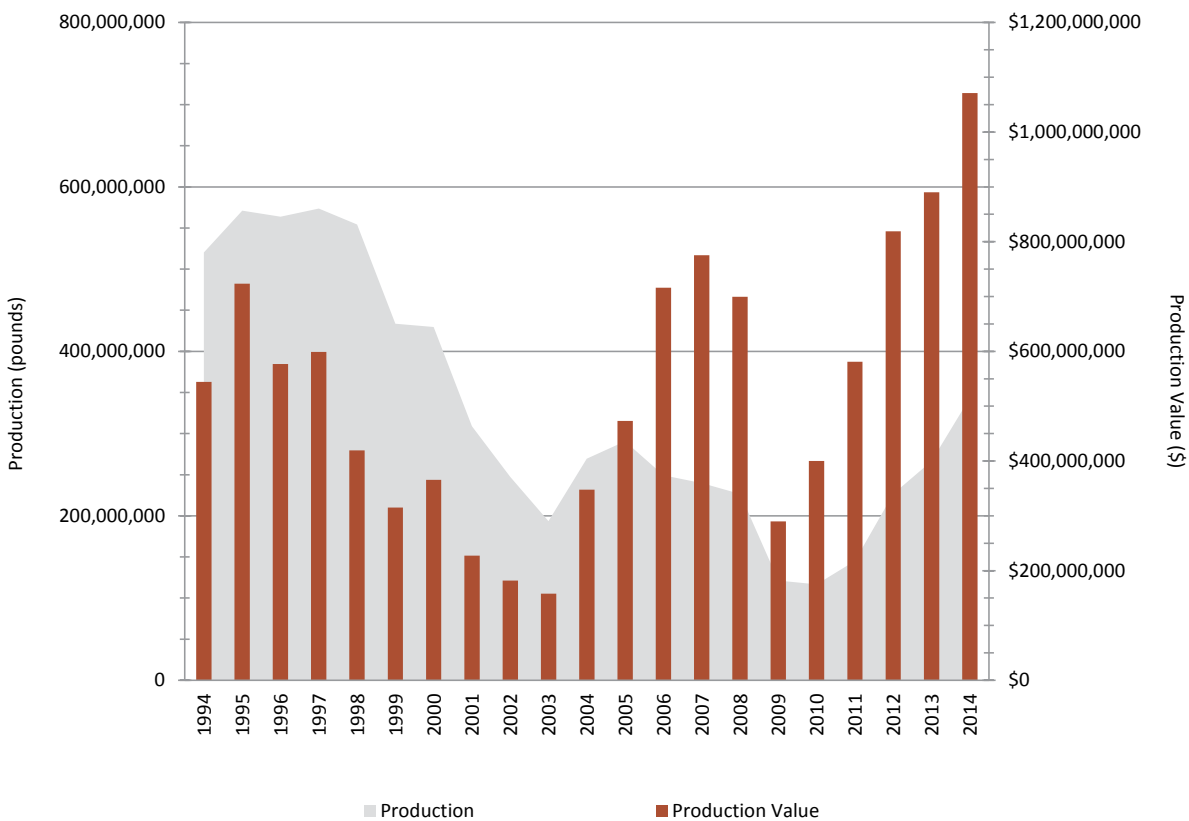


FIGURE 8 New Mexico Potash Production and Value: 1994-2014

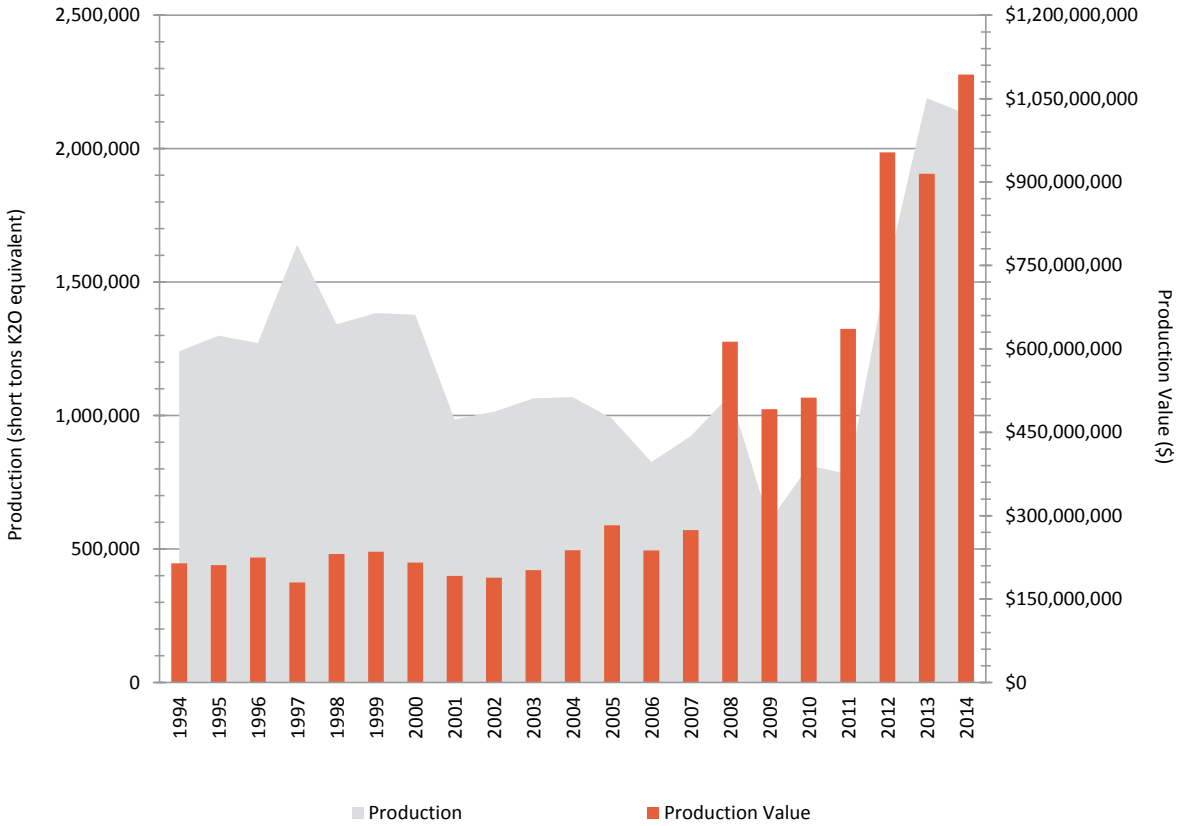


FIGURE 9 New Mexico Aggregate Production and Value: 1994-2014

Aggregate includes base course, caliche, clay and shale, crushed rock, flagstone, fill dirt, gravel, limestone, red dog, rip-rap, sand, scoria and topsoil

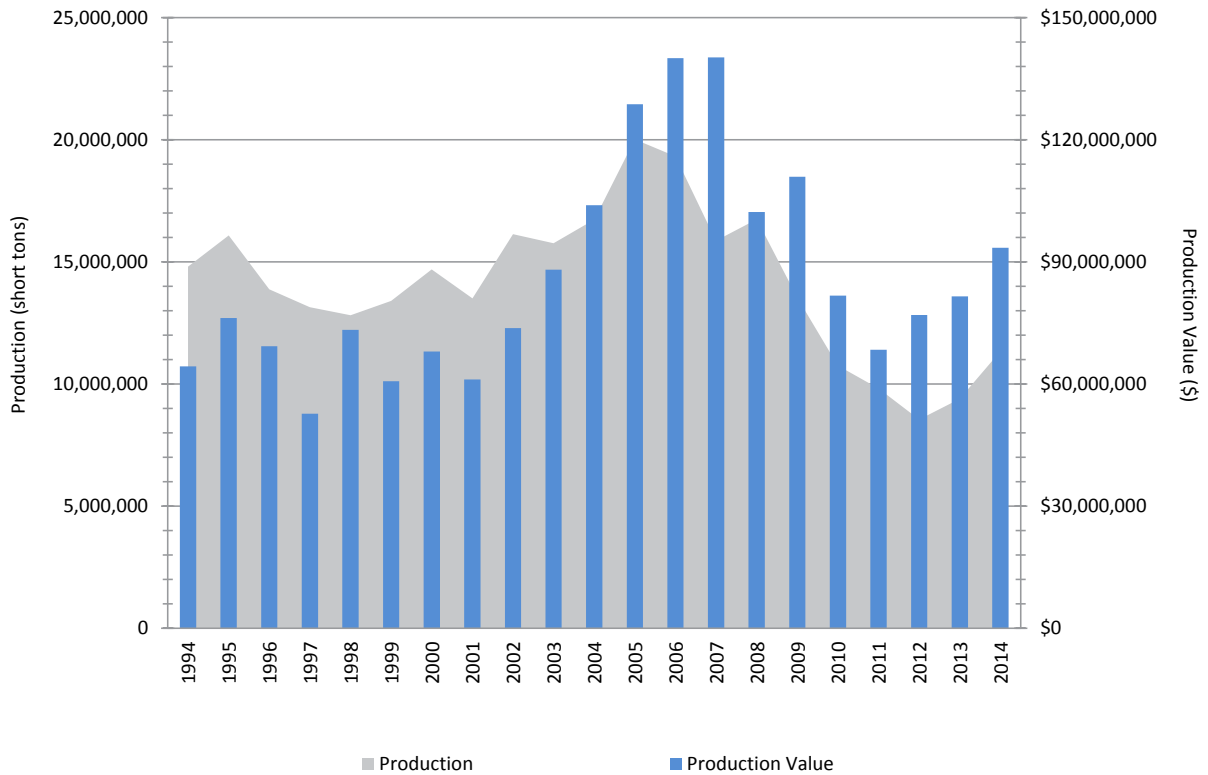
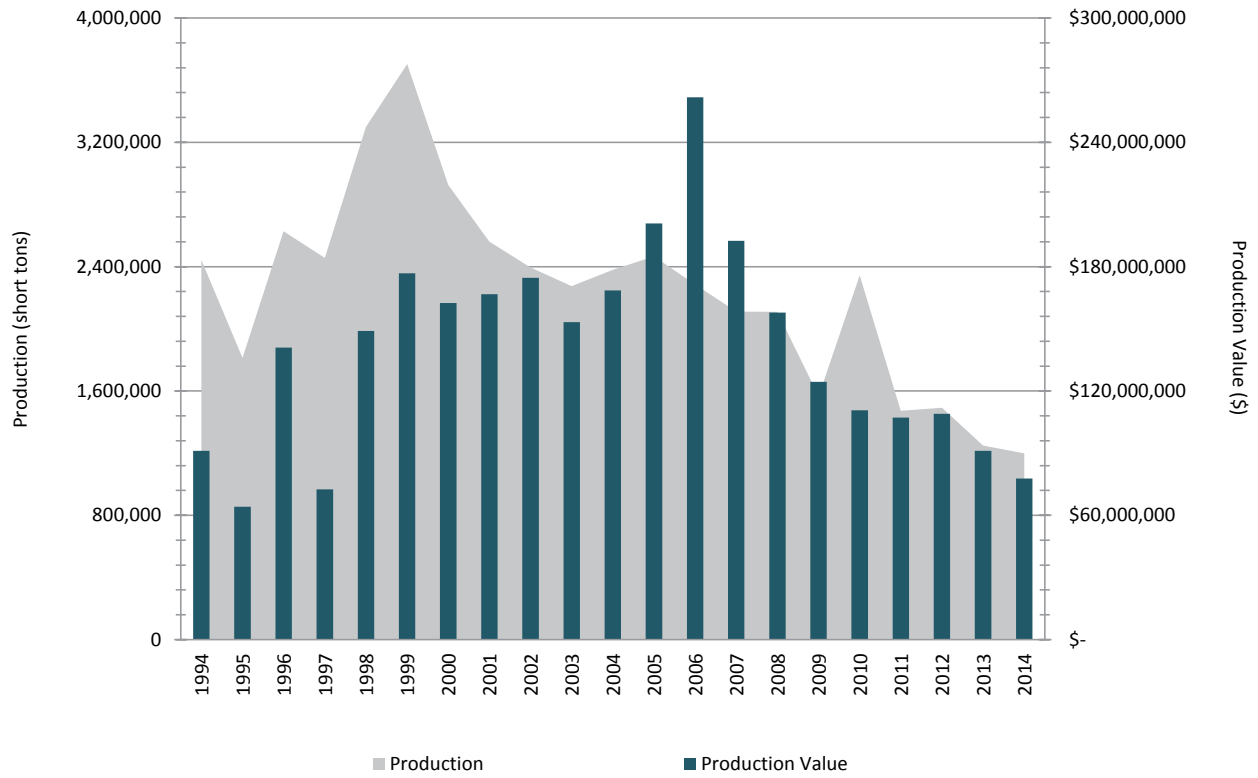


FIGURE 10 New Mexico Industrial Mineral Production and Value: 1994-2014

Industrial minerals include brick clay, calcite, dimension stone, gypsum, humate, perlite, Portland cement, pumice, salt, silica, and zeolite



Energy, Minerals & Natural Resources Department

Data and Statistics: Collected and published pursuant to the authority of the New Mexico Energy, Minerals and Natural Resources Department:
NMSA 1978, Sections:

69-5-7 (1933, as amended through 2007)
69-11-1 (1933, as amended through 1989)
69-11-2 (1933, as amended through 1989)
69-11-3 (1933, as amended through 1989)
69-25A-10 (1979)
69-26-1 (1933, as amended through 1989)
69-26-2 (1933, as amended through 1989)
69-26-3 (1933, as amended through 1989)
70-2-12 (1978, as amended through 2004)

For more information on the Energy, Minerals & Natural Resources Department visit:
www.emnrd.state.nm.us

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