2014 Report on Ohio Mineral Industries: An Annual Summary of the State's Economic Geology

with
Directories of Reporting Coal and Industrial Mineral Operators

compiled by
J. D. Stucker

Database design and data retrieval: Joseph G. Wells
Interactive mineral industries map/digital cartography: Dean R. Martin

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY
Thomas J. Serenko, Chief

Columbus 2015



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RECOMMENDED BIBLIOGRAPHIC CITATION

Stucker, J.D., compiler, 2015, 2014 Report on Ohio mineral industries—An annual summary of the state's economic geology: Columbus, Ohio Department of Natural Resources, Division of Geological Survey, 36 p., 8 appendices.

Editing: Charles R. Salmons
Graphic design and layout: Andrew P. Kime

PREFACE

Following the retirement of geologist Mark Wolfe (report compiler since 1998), I have taken on the responsibility of annually compiling and releasing this report. The *2014 Report on Ohio Mineral Industries* features a number of significant changes, related to both its compilation and content. These changes were made in an effort to streamline and simplify the report with the goal of making it more useful and efficient to generate.

Changes to tables include eliminating the table "Ohio coal mine employment, by occupational group and month" in favor of the average annual employment figures included in the report text. The table "Employment at Ohio industrial mineral operations, by county and commodity" also has been excluded this year, and general employment info for each county and commodity are listed separately. Individual industrial mineral operation employment also is no longer included.

The other major change to this year's report is that only operations which sold or produced industrial minerals in 2014 will be included in the appendices and on the *Map of Active Mineral Industry Operations in Ohio* (Map IM-1) at the end of the report. Previously, any active permitted industrial mineral operation had been included in the Ohio Alphabetical Directory of Industrial Mineral Mine Operators regardless of production or disposition status. This change was made so that information could be more easily found; to increase focus on contributing operations; and to create consistency with the coal portions of the report, which include only producing mines.

I would like to thank Mark Wolfe for his years of service and guidance related to compiling this report. Any suggestions or comments on how this report can better serve Ohioans are welcome and appreciated and should be directed to the ODNR Division of Geological Survey.

J. D. Stucker
Geologist

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Ohio Dimension Stone: An Industry Snapshot

INTRODUCTION

Globally, the term *dimension stone* can refer to a variety of lithologies, including limestone, marble, travertine, granite, quartzite, and sandstone. Dimension stone is a moniker that separates ordinary quarried rock from that which is cut and shaped to specific sizes and forms. The distinction between rock being labeled as dimension stone or simply "building stone" lies in whether the final products are sawn and split into geometric shapes or merely crushed and sorted into general categories. Aggregate for road construction or riprap for erosion control also have size and shape specifications that must be met, but they typically are not classified as dimension stone. Dimension stone is often used as building blocks, ashlar veneer wall façades, sills, paver tiles, slabs, steps, benches, or other decorative accents (fig. 1). Rarely is dimension stone used today for structural support purposes; instead, it is used primarily for decoration and added durability. The true value of dimension stone is not derived from its physical properties alone, but rather from the added product value and increased cost that come with finishing and detail.

The widespread use of dimension stone in Ohio began during the mid-eighteenth century when European colonizers began to create permanent settlements, which necessitated sturdier structures, agricultural equipment such as grindstones, and eventually monuments and décor. The Ohio dimension stone industry has historically consisted of western Ohio limestones and eastern Ohio sandstones, with sandstone being the dominant rock type quarried for dimension stone in Ohio today. Throughout the nineteenth century, four Ohio statehouses—in Chillicothe, Zanesville, and Columbus—were constructed out of locally derived sandstone and limestone (Wolfe, 2008). As the population of Ohio grew, so did the demand for dimension stone, thus the number of quarries and quarrying companies increased. Many building blocks were transported via river and eventually via canal and railroad. The Miami & Erie and Ohio & Erie Canal systems and the dimension stone industry mutually benefitted and propagated one another. Dimension stone was not only used in the construction of canal locks and other structures but was transported to customers by means of these waterways (Hannibal, 1998).

Ohio dimension sandstone resources rank as some of the highest quality and heavily quarried in the United States and have maintained their relative popularity for decades. They represent a link to Ohio history, both as a clue to the geologic landscape of the state millions of years ago and as a reminder of the struggles and accomplishments of early Ohioans. As the economy, technology, architectural trends, and public perception have transformed over the past two hundred years, so have dimension stone uses.



FIGURE 1. Completed portion of dentil molding carved from Berea Sandstone at the Cleveland Quarries plant located in Vermillion, Ohio. Block was sawn from quarry and then hand chiseled into the desired form.

THE HISTORY OF OHIO DIMENSION STONE

Some of the earliest stones quarried for dimension stone during the 1800s were Silurian- and Devonian-age limestones. The Devonian-age Columbus and Delaware Limestones were used extensively for home building in central Ohio and especially in the counties bordering Lake Erie. Quarries such as Marblehead near Sandusky provided much of this stone via convenient transportation on Lake Erie (Bownocker, 1915). The Columbus and Delaware Limestones are nearly indistinguishable in northern Ohio and range in color from buff to gray to dark blue. The overall thickness of more than 100 feet in some locations, evenness of beds, and good durability make these units desirable for use as dimension stone. However, their adoption as leading building stones was not consistent with their desirable properties, likely owing to aesthetic reasons or undesirable chert inclusions (Bownocker, 1915). The older Silurian-age Dayton Limestone was used widely throughout Dayton and southwestern Ohio during the early 1800s as well. Its resistance to weathering and laterally continuous bedding made it popular in the region (McDowell, 1983).

Numerous other single-quarry operations and limited local mining of formations also existed throughout the nineteenth and early twentieth centuries. The limestone of the Ordovician-age Richmond Formation, Silurian-age Clinton Formation and Brassfield Limestone, the shales and sandstone of the Mississippian-age Bedford Shale, and more recently the Mississippian-age Buena Vista Sandstone in Scioto County were all used as dimension stone in Ohio (fig. 2). The quarrying of these formations was generally unprofitable in the long term because of impurities present in the rock, lack of extent/thickness, or more suitable replacement formations becoming available. The Devonian-age Berea Sandstone and Pennsylvanian-age Massillon sandstone were historically two of the most profitably mined dimension stones in the state and dominate the present-day Ohio market.

SYSTEM	GROUP	LITHOSTRATIGRAPHIC UNITS
Pennsylvanian	Monongahela	Fishpot limestone Redstone limestone
	Conemaugh	Bellaire sandstone Ames limestone Buffalo sandstone Brush Creek limestone
	Allegheny	Vanport limestone Putnam Hill limestone Newland-Brookville clay/limestone
	Pottsville	Massillon sandstone Sharon conglomerate
Mississippian		Maxville Limestone Logan Formation Black Hand Sandstone Buena Vista Sandstone
Devonian		Berea Sandstone Bedford Shale
	Detroit River	Ten Mile Creek Dolomite Dundee Limestone
		Delaware Limestone Columbus Limestone
Silurian	Salina	Salina Dolomite Tymochtee Dolomite Greenfield Dolomite Peebles Dolomite Cedarville Dolomite Lockport Dolomite Laurel Limestone
		Dayton Limestone Clinton Formation Brassfield Limestone
Ordovician	Cincinnati	Richmond Formation
	Black River	Black River Limestone

FIGURE 2. Stratigraphic column of significant (red) dimension stone producing units quarried in Ohio. Modified from Brant and Delong (1960, table 9), Ohio Division of Geological Survey (1990), and Slucher and others (2006).

The peak production of Ohio dimension stone occurred between the late 1800s and the Great Depression of the 1930s. During this time, Ohio dimension stone production ranked first in the country and exceeded a half million tons (Klein, 1951). Post World War II, the dimension stone industry in Ohio and the United States saw a rebound in sales but never regained its once renowned status. A steady and significant decline of dimension stone sales in Ohio began during the 1950s and continued for the next twenty years (fig. 3). This waning can be attributed to several factors including the popularization of steel and glass structures, the proliferation of concrete in building construction, and increased market competition from domestic and international challengers (May, 1971). The cost of building materials was regularly the driving force behind many of these factors. The Indiana-sourced limestone of the Mississippian-age Salem Formation became highly coveted during the 1970s for its aesthetic appeal, and its popularity grew nationwide, while U.S. import tonnages of dimension stone also began to see significant increases for the first time (fig. 4).

The late 1970s and 1980s exhibited another surge in Ohio dimension stone sales as a result of changing architectural trends, new technologies for producing thinner slabs, and historic restoration/preservation movements (Freeman, 1987; Hannibal, 1992). A similar but smaller sales increase occurred during the 1990s and early 2000s, a time of increased extravagant home building and relative economic fortune; but once again a decline followed concurrent to the housing financial crisis of 2008 and subsequent recession in the United States. Cyclical trends in Ohio dimension stone sales have been present throughout the entire twentieth century and continue today. To some extent, dimension stone can be considered a luxury product; therefore its utilization and sales are more closely tied to economic conditions and disposable income than are other geologic commodities.

THE PRESENT-DAY OHIO DIMENSION STONE INDUSTRY

The Berea Sandstone has been the most extensively quarried and widely used dimension stone in Ohio. Beginning during the early 1800s, the first Berea Sandstone quarries were opened in Cuyahoga County and this unit continues to be mined as dimension stone today. The Berea Sandstone in northern Ohio can be greater than 200 feet thick in some locations and is generally medium to coarse grained and resistant to weathering, which led to its historic use for grindstones (Bownocker, 1915). The planar continuous bedding and blue-gray to light-brown color make it highly desirable as building stone and easily marketable as distinct varieties (fig. 5).

Cleveland Quarries, formerly Cleveland Stone Company and present subsidiary of Industrial Realty Group (IRG), has made a substantial capital investment in its Berea Sandstone quarries and production facilities since being acquired by IRG in 2007. Automated computer-controlled saws for creating three-dimensional design pieces, as well as new quarry saws for removing sandstone blocks from the ground,

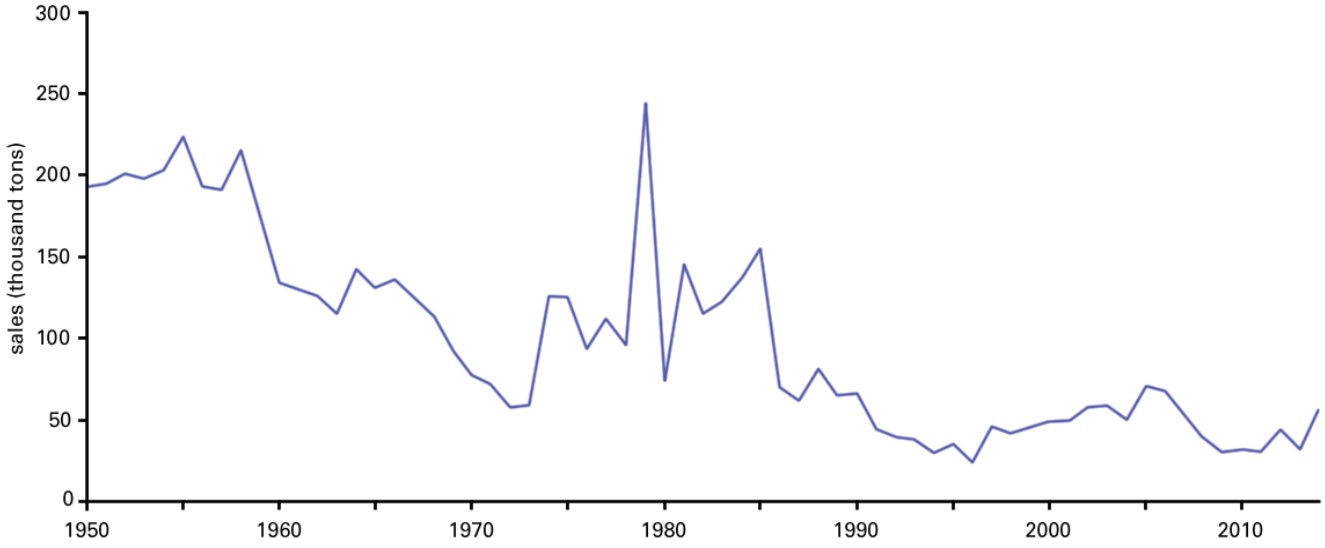


FIGURE 3. Sales of sandstone dimension stone in Ohio. Tons of sales are approximately equal to production tons for each year dating back to 1950..

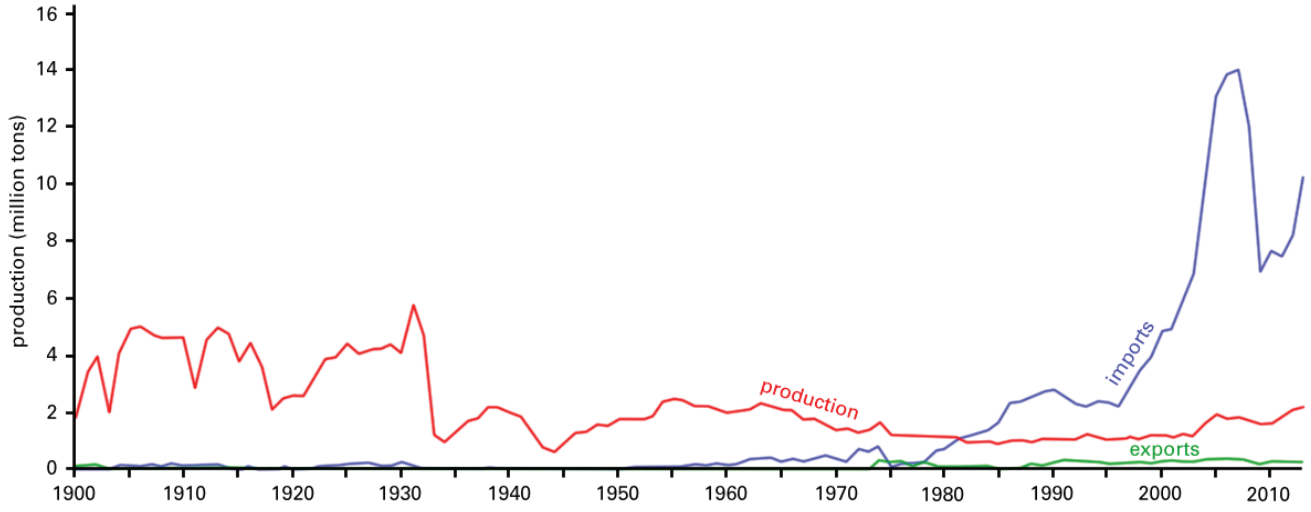


FIGURE 4. Domestic production, imports, and exports of all dimension stone in the United States dating back to 1900 (USGS, 2014).



FIGURE 5. The Cleveland Quarries Birmingham quarry where two distinct colors of Berea Sandstone, known as "Birmingham Buff" and "Amerherst Gray," are produced.



FIGURE 6. Slabs and blocks of Massillon sandstone at The Briar Hill Stone Company plant located in Glenmont, Ohio. Product color is dependent on which particular quarry supplied the parent rock and the geologic or hydrologic conditions at that location.

help Cleveland Quarries meet customer demands and decrease costs by increasing efficiencies. Cleveland Quarries' Birmingham quarry in Erie County is the only remaining active Berea Sandstone quarry in Ohio.

The other sandstone formation currently being mined in Ohio for dimension stone is the Massillon sandstone. Quarrying of the Massillon sandstone began during the mid-nineteenth century in Holmes County and continues to be quarried in both Coshocton and Knox Counties today. The Massillon sandstone continues to support a regional market and is highly marketable because of its variation in color and impurities among quarries. The Massillon sandstone is typically 30 to 60 feet thick, fine grained, sometimes friable, and has few distinct bedding planes (Stout, 1944). Its color ranges from light gray to pink to red to brown or even variegated (fig. 6). Iron banding is present in some quarrying locations and is a desirable feature for some customers (fig. 7).

Beginning in the 1920s, The Briar Hill Stone Company began to grow as one of the major dimension sandstone producers in Ohio, and it is still in operation. Briar Hill operates five quarries spanning Coshocton and Knox Counties producing different quantities and varieties of Massillon sandstone, depending on customer orders, stockpile, and lithologic changes in the rock as quarries are expanded. Briar Hill has managed to maintain many of the traditional techniques and equipment used in the early to mid-twentieth century and adapts them for its business today.

The modern dimension stone business is as much about the appearance and physical characteristics of the stone and its finished products as it is about marketing to the consumer. For example, in the limestone aggregate and dimension stone industries, there are a particular set of well-defined specifications and features that a customer desires, but dimension stone often is also presented with sensationalized names for product lines and inaccurate geologic terminology. The popularization of particular "brands" of stone is not something frequently observed to this degree in other geologic commodity markets. The popular reputation of



FIGURE 7. Iron banding in bench seat made from Massillon sandstone at The Briar Hill Stone Company plant located in Glenmont, Ohio. This particular color is marketed as "Copper Variegated" and is quite popular.

the Indiana Salem Limestone brand, among others, was partly responsible for the decline of dimension limestone production in Ohio.

Modern Production Methods and Finished Products

Modern production methods for Ohio sandstone dimension stone differ depending on the lithologic properties of the rock, conditions of the quarry, and practices of the company. Sandstone is removed from the quarry and then fractionated into smaller pieces with more precise dimensions and details until it reaches the desired final form. A multitude of production techniques are used at other sites and for other lithologies around the world, but the methods used in Ohio are limited to those appropriate for the local sandstone and most suitable for each company.

The initial cutting or breaking of the stone from the quarry is typically achieved by either precision sawing or directional blasting with explosives. Quarry saws can be positioned to remove blocks of specific measurements by cutting blocks in two directions and then taking advantage of natural bedding planes to free them from the quarry floor (fig. 8). Once positioned, these saws can complete cuts automatically. Operations that employ blasting to remove sandstone blocks will first create a series of drill holes oriented in the preferred direction of blast propagation (fig. 9). Large columnar masses of rock can be removed all at once using this method. Natural fractures or crevices in the quarry face help to control rock column width, and diesel-powered loaders break columns into smaller portions for transport.

Regardless of the means used, once rock has been freed from the quarry it must be transported to a plant for processing and finishing; this is accomplished by a combination of hoisting and heavy machinery, such as a forklift or loader. Depending on the quarry depth and accessibility, blocks are lifted onto flatbed trucks or railcars either by hoist or other loading equipment for transport to a production facility (figs. 10, 11). Production plants ideally will be in geographic proximity to their associated quarries to minimize transportation costs, but this is not as much of a necessity for dimension stone as with lower cost-per-ton commodities. Waste rock material that is not suitable as dimension stone can be cleared from the quarry and sold as aggregate or used for reclamation purposes.



FIGURE 8. Quarry saw in operation at the Cleveland Quarries Birmingham quarry near Birmingham, Ohio. Block outlines are first drilled and then sawn and removed along bedding planes.



FIGURE 10. Block of Berea Sandstone being hoisted from the Cleveland Quarries Birmingham quarry near Birmingham, Ohio. This block weighs 9–10 tons, but the hoist can lift blocks up to 15 tons from the quarry floor below.



FIGURE 9. Drill in operation at The Briar Hill Stone Company Quarry #55 in Coshocton County, Ohio. Notched holes are drilled approximately every two feet and low yield explosives blast columns of Massillon sandstone from the highwall. Blocks are then broken and loaded for transport.



FIGURE 11. Block of Berea Sandstone being lifted by forklift for loading onto a flatbed truck at the Cleveland Quarries Birmingham quarry near Birmingham, Ohio.

The most interesting and publically visible aspect of dimension stone production is the finishing process. Multiple slabs of established thicknesses are sawn from larger blocks or boulders using reciprocating gang saws or oscillating wire saws (figs. 12, 13). These slabs are then further split into smaller geometric shapes depending on the final product and finishing method (fig. 14). Preprogrammed saws then trim the sandstone into the desired shapes, and details can be added by hand when necessary (fig. 15). The hand-chiseling of dimension stone is a modern-day art form that requires an inherent talent which takes years to develop; thus hiring capable stone carvers is exceptionally difficult (fig. 16).



FIGURE 12. Gang saw being used to cut a block of Massillon sandstone into slabs at The Briar Hill Stone Company plant located in Glenmont, Ohio. Average sized blocks weigh approximately 10 tons. The Briar Hill Stone Company uses 8 total gang saws with some using flint-based slurry and others using diamond coated blades and water for lubrication.



FIGURE 13. Wire saw in operation at the Cleveland Quarries Vermillion, Ohio, plant. Blocks of Berea Sandstone are held in place and sliced into multiple fixed-dimension slabs for use as patio stone, steps, or accents. Saw wires run in loops and take approximately 3 hours to cut an entire block. The lifetime of each wire is about 1,000 hours before it needs replacement.



FIGURE 14. Verson steel press, typical in the automobile manufacturing industry, which has been modified with blades to break slabs of Massillon sandstone into uniform blocks at The Briar Hill Stone Company plant in Glenmont, Ohio.

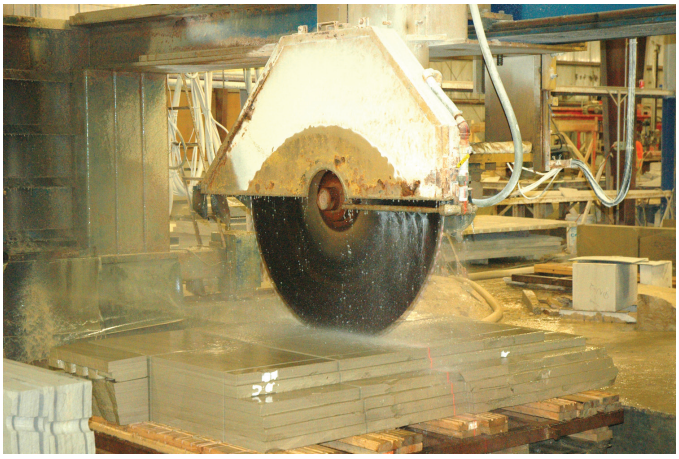


FIGURE 15. Automated bridge saw making step cuts in slabs of Berea Sandstone at the Cleveland Quarries plant in Vermillion, Ohio. Water is used for lubrication and dust control.



FIGURE 16. Stone carver using a pneumatic chisel to add the final details to a piece of dentil molding at the Cleveland Quarries plant in Vermillion, Ohio. Carvers work inside isolated booths so that airflow and light conditions can be controlled.

No matter what production or stone finishing method an operation chooses, it can face numerous problems that are often out of its control. Some of these include unexpected variations in rock color or gradation, fractures, thin bedding, mineral inclusions or banding, and inconsistent textures. Quarrying a single block of dimension stone requires a significant amount of time, so losing viable product to defects or error can become a financial liability.

THE FUTURE OF DIMENSION STONE IN OHIO

In Ohio and nationwide, dimension stone production and imports have been on the rise and this trend could continue so long as the private housing and other construction markets maintain their rebound from the most recent financial crisis. The Ohio sandstone dimension stone industry has the opportunity to take advantage of this growing demand and capitalize on the present shift in architectural trends back to dimension stone. The use of native Ohio stone for construction should be praised and supported both for its economic benefits to the state and historical benefits it will give future generations. Ohio will face ever-increasing competition from international sources of dimension stone because of the economic feasibility of long-distance transport and increased development of production overseas.

The use of dimension stone for historical building preservation is a growing market in Ohio and encourages domestic stone production. Crumbling nineteenth-century historic buildings in need of preservation or restoration often use stone similar in lithology and source location to the original rock. The re-creation or duplication of specific features of historic buildings, as well as rectangular building blocks, can grow into a larger market in Ohio as buildings continue to age and new construction eventually succumbs to time. The legacy of early Ohioans and the dimension stone industry itself are preserved in structures across the state.

More recently, a concentrated education effort has arisen from building stone-affiliated professional organizations and publications towards “eco-friendly building” or “green building” by use of dimension stone. Dimension stone is often disregarded in favor of less-expensive substitutes, such as concrete, steel, glass, or synthetic materials that require significant additional energy or water or produce substantial air pollution. Dimension stone production is the least energy intensive and generates the smallest amount of air and water pollution of all these building materials. It also ranks highly in durability, ease of care, longevity, and recyclability. The justification of choosing dimension stone for a construction project becomes easier when it can be marketed as environmentally friendly as well as aesthetically pleasing.

The possibility of new dimension stone quarries opening in Ohio, while not impossible, is not encouraging. The sandstone of Ohio has been so successful as dimension stone because there are fewer regional competitors, both in terms of companies and geologic deposits, than with limestone. This will make it difficult for a rock type other than sandstone to dominate the Ohio dimension stone market in the future. The low tonnages produced by an average operation would make recouping initial infrastructure or other startup costs difficult. It could be many years before a new company begins to profit, and remaining financially solvent for that time could prove difficult. Many stone design decisions by architects and planners across the region are based partly upon the reputations of particular quarries or companies and the past performances of specific stone formations elsewhere. The reputation of an established company or product line creates an important marketing advantage that is difficult to ignore. It would be especially challenging to convince an architect to choose a new and unproven material when they could choose a less-expensive or better established material.

SUMMARY

The Ohio dimension stone industry has grown and waned over the past few hundred years; but it has endured, and the evidence can be seen all around us. Increased international competition, fluctuating economic conditions, and shifting architectural trends will continue to challenge the industry in the future. The continued and encouraged use of Ohio stone resources will both aid in keeping dimension stone relevant and support geology education for future generations. The important role of Ohio dimension stone is something that should not be overlooked, and hopefully it remains a prominent feature in our society for decades to come.

ACKNOWLEDGMENTS

Thanks to Zach Carpenter, president of Cleveland Quarries, and Jerry Parsons, Plant Manager at The Briar Hill Stone Company, for their time, tours of their plants and quarries, and answers to my many inquiries. I appreciate the unfettered access to their facilities and many photography opportunities. I would also like to thank ODNR Division of Geological Survey publications editor Chuck Salmons and ODNR graphic designer Andrew Kime for their significant contributions to this year’s report.

2014 Ohio Economic Geology in Brief

Reports were filed in 2014 for 114 coal-mining operations, including 3 mines with their own coal-washing facilities. Coal production was reported from 53 individual operations. Reports also were filed for 6 separate coal-washing plants and associated facilities. Of the 564 industrial-mineral-mining operations known to be operating in 2014, 335 operations were reported active. A total of 41 mines reported production of multiple mineral commodities, including coal and/or one or more industrial minerals. There were 715 new wells completed for oil and gas in 2014, of which 699 were productive and 16 were dry.

The total tonnage of coal and industrial minerals produced in Ohio during 2014 was 120,108,818 tons (table 1) or approximately 10.4 tons per capita. The total value[1] of coal was $1,083,238,419 in 2014; the value of oil and gas was $3,142,883,605; and the total value[1] of all industrial minerals was $1,092,252,405 in 2014 (table 1). The combined total value of fuel and nonfuel minerals produced in Ohio during 2014 was $5,318,324,429 or approximately $459 per capita. Reported and estimated total direct employment in the extractive industries of Ohio in 2014 was more than 12,000 people.

[1]Includes reported and estimated values. Some operations reporting sales did not report a value for those sales. A countywide- or statewide-average price per ton was calculated for each industrial-mineral commodity based on sales for which the value was reported. A countywide, average price per ton was calculated for coal based on sales for which the value was reported and method of production. These calculated averages were used to estimate the value of the sales for which the actual values were not reported.

TABLE 1. ***2014 Fuel and nonfuel mineral sales and production in Ohio***

Commodity	Production[1]	Sales[2]	Value[3]	Change in value from 2013 (percent)
Coal	21,975,836 tons	22,043,342 tons	$1,083,238,419	–9.7
Limestone and dolomite	59,428,907 tons	58,670,639 tons	$590,308,784	+15.2
Sand and gravel	30,942,292 tons	30,636,560 tons	$210,229,170	+5.0
Salt	5,443,674 tons	5,911,257 tons	$231,309,675	+87.7
Sandstone and conglomerate	1,294,844 tons	1,243,201 tons	$44,754,588	+6.8
Clay	562,153 tons	535,530 tons	$4,608,810	+14.7
Shale	461,112 tons	457,261 tons	$11,041,378	–5.8
Gas	512,964,465 thousand cubic feet	not available	$1,939,005,678	+229.0
Oil	15,062,912 barrels	not available	$1,203,827,927	+57.1

[1]The production figures for industrial minerals are estimates, as many operators do not know actual production. For those operators that do not report production, production is assumed equal to sales or estimated from ODNR Division of Mineral Resources Management records.

[2]Includes material for captive use.

[3]The FOB value of industrial minerals sold was estimated for mines that failed to report this information and for those producting material for captive use. These estimates were caluclated using a countywide- or statewide-average price per ton calculated on reported FOB values.

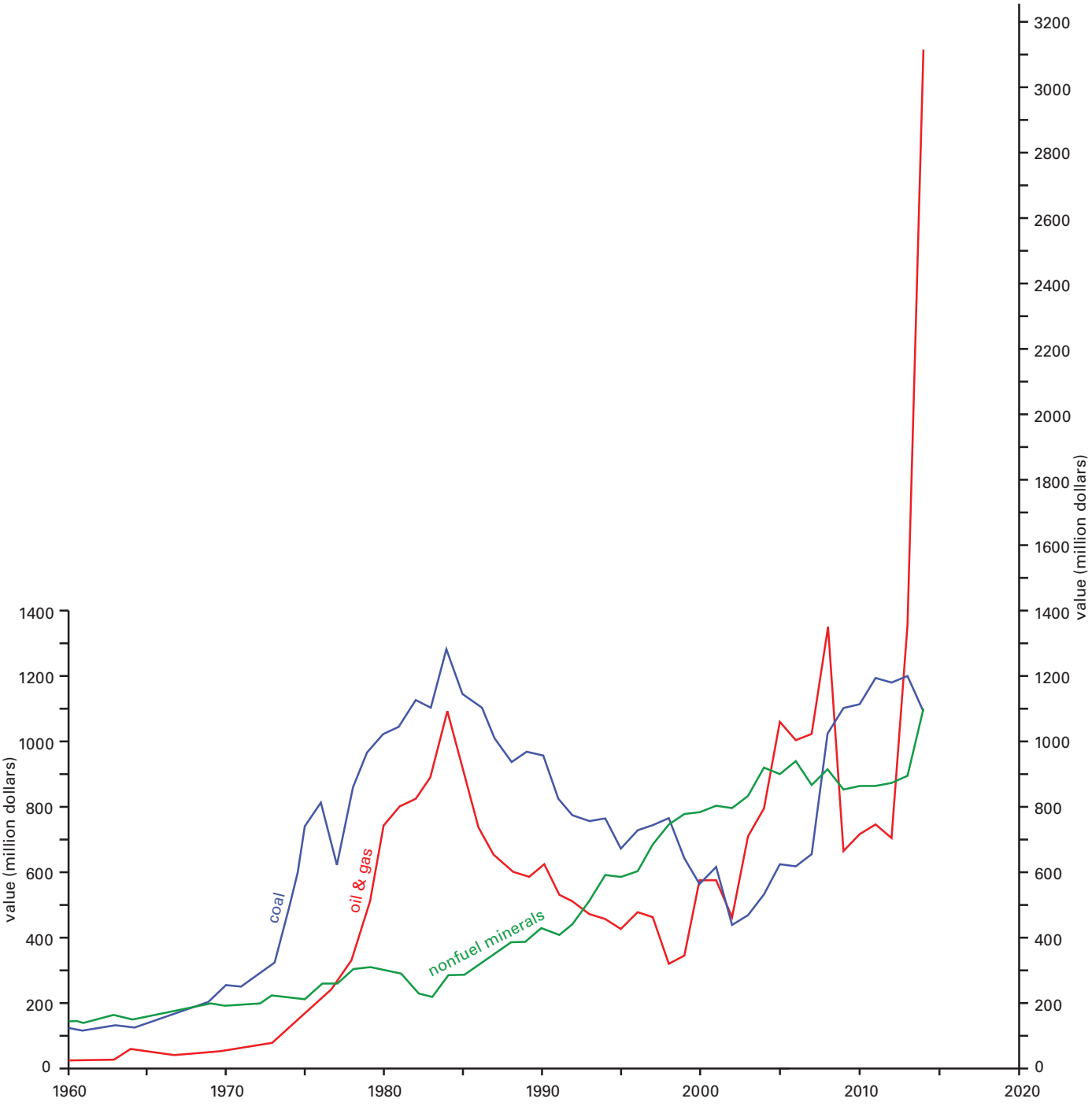


FIGURE 17. Value of coal, nonfuel minerals, and oil and gas in Ohio.

COAL

(See also Appendix A)

Coal was first recognized in Ohio by pioneers in the 1740s and the first map of Ohio coal deposits was made in 1752 (Crowell, 1995). The first recorded coal production occurred in Jefferson County during 1800, and during the 215 years since, nearly 3.9 billion tons of coal have been produced from coal seams in the state, representing a value of over $200 billion in 2014 dollars. Two new surface mines in Belmont and Perry Counties began production during 2014. Throughout 2014, permits for mine expansions were issued for four underground mines and three surface mines, covering a total area of 12,709 acres. Permits also were issued for nine new surface mines with a total area of 2,844 acres.

Ohio coal is used primarily to generate electricity; 70 percent of the state's electricity is produced by burning coal (EIA, 2015). Ohio coal is also used in commercial and industrial applications, while minor amounts are exported.

Production

Coal was produced by 24 companies at 53 mines in 14 Ohio counties during 2014. Production decreased 11.5 percent from 2013 (Wolfe and Stucker, 2014), totaling 21,975,836 tons in 2014 (table 2). In 2014, tonnage from underground production exceeded tonnage from surface production, continuing a trend that began in 1995; 6,581,839 tons (30.0 percent of total production) were produced at 43 surface mines, and 15,393,997 tons (70.0 percent of total production) were produced at 10 underground mines (table 2).

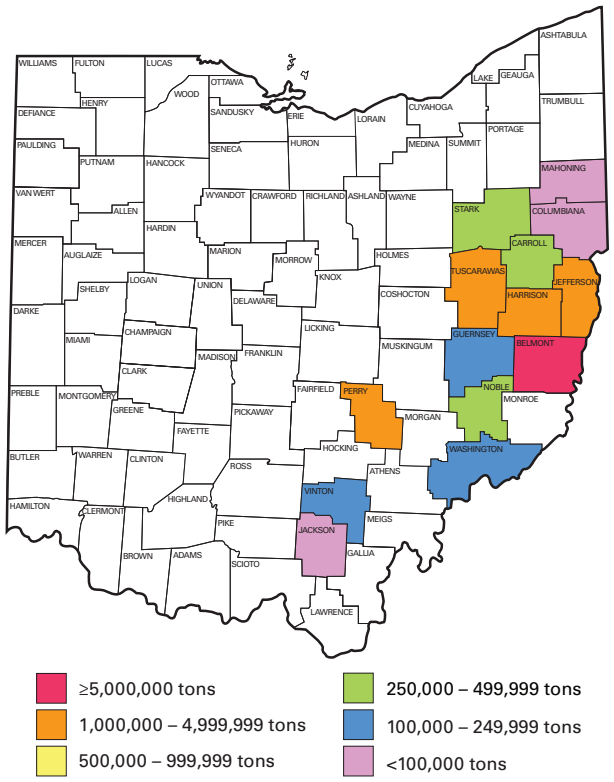


FIGURE 18. Coal production in Ohio in 2014, by county and quantity.

TABLE 2. *2014 Ohio coal production, by county and mining method*

County	All methods (short tons)	Total number of mines	Underground				Surface				
			Number of mines reporting	Production (short tons)			Number of mines reporting	Production (short tons)			
				Total	Longwall	Continuous miner		Total	Strip	Auger	Highwall
Belmont	11,716,274	9	2	11,357,902	10,106,635	1,251,267	7	358,372	284,911	66,284	7,177
Carroll	252,331	1	1	252,331		252,331					
Columbiana	1,562	1					1	1,562	1,562		
Guernsey	239,106	1					1	239,106	238,592	514	
Harrison	3,303,922	7	2	1,235,198		1,235,198	5	2,068,724	2,042,213	26,511	
Jackson	90,151	3					3	90,151	90,151		
Jefferson	1,669,917	6	2	584,113		584,113	4	1,085,804	416,114		669,690
Mahoning	538	1					1	538	538		
Noble	315,840	3					3	315,840	315,840		
Perry	2,363,582	5	2	1,754,669		1,754,669	3	608,913	550,266	58,647	
Stark	397,453	2					2	397,453	285,231		112,222
Tuscarawas	1,279,433	10	1	209,784		209,784	9	1,069,649	789,709	45,712	234,228
Vinton	241,946	3					3	241,946	241,946		
Washington	103,781	1					1	103,781	103,781		
TOTAL[1]	21,975,836	53	10	15,393,997	10,106,635	5,287,362	43	6,581,839	5,360,854	197,668	1,023,317

[1]Any tally inconsistencies are due to rounding of production tonnages.

SYSTEM	GROUP	LITHOSTRATIGRAPHIC UNITS
Permian	Dunkard	Washington (No. 12) coal
Pennsylvanian	Monongahela	Waynesburg (No. 11) coal Uniontown (No. 10) coal Meigs Creek (No. 9) coal Pomeroy (No. 8a, Redstone) coal Pittsburgh (No. 8) coal
	Conemaugh	Ames marine zone Harlem coal Wilgus coal Brush Creek marine zone Mahoning (No. 7a) coal
	Allegheny	Upper Freeport (No. 7) coal Lower Freeport (No. 6a) coal Middle Kittanning (No. 6) coal Lower Kittanning (No. 5) coal Vanport marine zone Clarion (No. 4a) coal Winters coal Newland (No. 4, Brookville) coal
	Pottsville	Upper Mercer (No. 3a) coal Quakertown (No. 2) coal Sharon (No. 1) coal

FIGURE 19. Stratigraphic column of coals mined in Ohio during 2014 (black), other significant coal beds (red), and associated key beds (blue) used for stratigraphic correlation. Modified from Larsen (1991, fig. 2), Collins (1979, fig. 3), and Brant and Delong (1960, table 9).

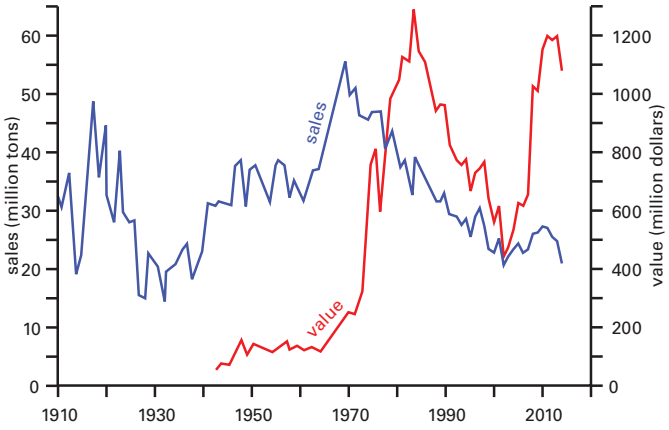


FIGURE 20. Sales and value of coal in Ohio.

TABLE 3. *2014 Ohio coal production and sales, by county, in descending order of production*

County	Production (short tons)	Sales (short tons)
Belmont	11,716,274	11,659,228
Harrison	3,303,922	3,363,788
Perry	2,363,582	2,389,932
Jefferson	1,669,917	1,714,529
Tuscarawas	1,279,433	1,279,433
Stark	397,453	397,453
Noble	315,840	315,840
Vinton	252,331	243,714
Carroll	241,946	237,545
Guernsey	239,106	239,106
Jackson	103,781	103,781
Washington	90,151	86,565
Columbiana	1,562	1,562
Mahoning	538	5,286
Athens	0	5,580
TOTAL	21,975,836	22,043,342

TABLE 4. *2014 Ohio coal production, by production size group and change from 2013*

Production size group	2014		Change from 2013 (short tons)
	Number of mines reporting	Production (short tons)	
1,000,000 tons and over	3	12,621,500	−2,047,945
500,000 to 999,999 tons	4	3,016,537	−1,268,463
250,000 to 499,999 tons	10	3,777,992	+1,515,026
100,000 to 249,999 tons	9	1,616,409	−1,145,749
50,000 to 99,999 tons	10	707,449	+12,145
25,000 to 49,999 tons	2	82,943	+13,737
Less than 25,000 tons	15	153,006	+52,501
TOTAL	53	21,975,836	−2,868,748

TABLE 5. ***2014 Ohio coal production, by county and month***

County[1]	Production (short tons)												
	Total annual	January	February	March	April	May	June	July	August	September	October	November	December
Belmont	11,716,274	1,209,967	786,104	846,860	1,139,747	1,398,031	949,747	834,404	958,898	1,038,497	1,013,319	697,715	842,985
Carroll	252,331	27,863	24,285	24,020	20,742	19,726	19,086	19,512	19,755	19,783	19,464	16,915	21,180
Columbiana	1,562	44	33	11	85	4	1	273	933	38	62	67	11
Guernsey	239,106	25,185	19,778	23,839	18,331	17,148	14,845	21,564	18,674	16,413	19,592	24,726	19,011
Harrison	3,303,922	291,633	282,559	311,129	303,712	260,667	270,921	255,391	274,308	277,098	276,513	239,194	260,797
Jackson	90,151	8,738	7,223	6,903	5,907	6,192	4,530	8,027	9,807	7,245	3,222	10,908	11,449
Jefferson	1,669,917	134,342	136,817	149,118	155,932	151,702	165,543	158,434	157,692	135,048	131,499	91,913	101,877
Mahoning	538								78				460
Noble	315,840	24,379	25,390	28,062	26,450	27,502	29,195	25,322	26,807	26,027	30,360	21,723	24,623
Perry	2,363,582	185,979	194,741	216,316	207,714	200,949	193,503	222,479	201,655	188,441	171,441	143,212	237,152
Stark	397,453	34,647	31,527	42,440	44,141	25,858	35,820	32,018	32,326	23,691	30,801	33,942	30,242
Tuscarawas	1,279,433	112,638	116,628	115,397	108,398	107,006	109,012	102,998	108,463	108,172	101,604	94,256	94,861
Vinton	241,946	24,794	25,620	25,969	27,852	23,467	18,719	17,579	17,864	15,758	16,339	13,914	14,071
Washington	103,781	9,630	7,493	9,906	8,239	8,422	8,068	6,942	8,785	9,063	10,595	8,191	8,447
TOTAL[2]	21,975,836	2,089,839	1,658,198	1,799,970	2,067,250	2,246,674	1,818,990	1,704,943	1,836,045	1,865,274	1,824,811	1,396,676	1,667,166

[1]Production from mines operating in more than one county was evenly split between the counties involved unless a county-specific breakdown was provided by the operator.
[2] Any tally inconsistencies are due to rounding of production tonnages.

Of 26 coal-producing states, Ohio ranked eleventh in 2014. The top five states, in descending order of production, were Wyoming (401.2 million tons), West Virginia (109.0 million tons), Kentucky (75.4 million tons), Pennsylvania (60.8 million tons), and Illinois (59.1 million tons; USDOE, 2015).

The five leading counties for 2014 production in descending order were Belmont, Harrison, Perry, Jefferson, and Tuscarawas Counties (table 3 and fig. 18); these counties produced 92.5 percent of the 2014 total production.

The Pennsylvanian-age Monongahela Group Pittsburgh (No. 8) coal was the most heavily mined seam, followed by the Allegheny Group Middle Kittanning (No. 6), the Allegheny Group Upper Freeport (No. 7), the Monongahela Group Meigs Creek (No. 9), and the Allegheny Group Lower Kittanning (No. 5) seams (see fig. 19 and table 6). Coal produced from these five seams constituted 92.4 percent of the total 2013 production. Since 1816, mining of the Pittsburgh (No. 8) in eastern Ohio has produced more than 1 billion tons of coal (Crowell, 1995), and 2014 is the thirteenth consecutive year that production from the Pittsburgh (No. 8) coal has totaled greater than ten million tons.

In underground mining, 65.7 percent of the coal was produced by longwall mining and 34.3 percent was mined by continuous miner; no coal was produced by conventional mining in 2014. In surface operations, 81.5 percent of the coal was mined by conventional surface methods, 3.0 percent was mined by augering, and 15.5 percent was mined by highwall miner.

Rail was the primary means of coal disposition, carrying 55.6 percent of the total sales. Trucking transported 40.6 percent, and water carried 2.3 percent of the coal sold in 2014. A total of 105,966 tons (0.5 percent) of the coal produced was reported as stored (table 7).

Economic Impact

A total of 22,043,342 tons of coal were sold in 2014; total value[2] was $1,083,238,419 (fig. 20). This was the sixth consecutive year that coal values were greater than $1 billion, which has not happened since the early 1980s.

The average price per ton of all coal sold was $49.14; surface-mined coal averaged $42.00 per ton and underground-mined coal averaged $52.15 (table 8).

The total average annual employment reported in 2014 was 2,783 employees; 2,163 of these were production employees. Production employees worked an average of 198 days producing coal in 2014. The average annual wage earned by all production employees was $70,004 based on those employees for whom wages were reported. The average annual wage for surface-mine production employees was $54,983, and the average annual wage for underground-mine production employees was $76,658. Wages earned by all employees totaled $227,338,432 in 2014 (table 9).

[2]Includes reported and estimated values. See footnote 1, p. 9.

TABLE 6. ***2014 Ohio coal production, by county and seam***

County[1]	Production (short tons)														County[1]
	Total	Tionesta (No. 3b)	Newland (No. 4, Brookville)	Clarion (No. 4a)	Lower Kittanning (No. 5)	Middle Kittanning (No. 6)	Lower Freeport (No. 6a)	Upper Freeport (No. 7)	Mahoning (No. 7a)	Pittsburgh (No. 8)	Pomeroy (No. 8a, Redstone)	Meigs Creek (No. 9)	Waynesburg (No. 11)	Wilgus	
Belmont	11,716,274									11,415,787		300,487			Belmont
Carroll	252,331					252,331									Carroll
Columbiana	1,562							1,562							Columbiana
Guernsey	239,106									222,819		16,287			Guernsey
Harrison	3,303,922						710,721	524,477		1,589,218	354,103	125,403			Harrison
Jackson	90,151		1,254	37,878	37,481	1,398	4,564						7,576		Jackson
Jefferson	1,669,917							244,910	339,203	1,041,809	43,387	608			Jefferson
Mahoning	538		538												Mahoning
Noble	315,840											315,840			Noble
Perry	2,363,582				213,185	1,656,131	3,195	491,071							Perry
Stark	397,453				110,710	259,059	25,889	1,795							Stark
Tuscarawas	1,279,433	6,059	7,214		431,174	735,799		99,187							Tuscarawas
Vinton	241,946		62,536	27,417	67,796	27,409		21,157						35,631	Vinton
Washington	103,781											103,781			Washington
TOTAL[2]	21,975,836		71,542	65,295	860,346	2,932,127	744,369	1,384,159	339,203	14,269,633	397,490	862,406	7,576		TOTAL[2]

[1]Production from mines operating in more than one county was evenly split between the counties involved unless a county specific breakdown was provided by the operator.

[2]Any tally inconsistencies are due to rounding of production tonnages.

TABLE 7. ***2014 Disposition of Ohio coal, by county***

County[1]	Number of mines	Disposition[1] (short tons)						Stored
		Total[2]	Rail	Water	Truck	Conveyor	Unspecified/ other	
Athens	1	5,580	5,580					
Belmont	9	11,659,228	9,332,204		2,327,188			54,238
Carroll	1	243,714				243,714		8,617
Columbiana	1	1,562			1,562			
Guernsey	1	239,106			239,106			
Harrison	7	3,363,788	890,463		2,473,288		37	19,183
Jackson	3	86,565			86,565			7,787
Jefferson	7	1,714,529			1,714,529			1,864
Mahoning	2	5,286			1,827	3,459		4,237
Noble	3	315,840		315,840				
Perry	5	2,389,932	2,106,529		283,403			587
Stark	2	397,453			397,453			
Tuscarawas	10	1,279,433			1,279,433			
Vinton	3	237,545		86,781	150,764			9,453
Washington	1	103,781		103,781				
TOTAL[3]	56	22,043,342	12,334,776	506,402	8,955,118	247,173	37	105,966

[1]Tonnage of coal shipped from mines operating in more than one county was evenly split between the counties involved and type(s) of disposition reported unless county-specific information was provided by the operator.
[2]Does not reflect tonnage stored. Reflects tonnage sold and shipped from mine.
[3]Any tally inconsistencies are due to rounding.

TABLE 8. ***2014 Dollar value of coal at mine, by county and mining method***

County[1]	Total				Underground				Surface			
	No. of mines	Tonnage sold (short tons)	Value at mine[2] (dollars)	Per ton average (dollars)	No. of mines	Tonnage sold (short tons)	Value at mine[1] (dollars)	Per ton average (dollars)	No. of mines	Tonnage sold (short tons)	Value at mine[1] (dollars)	Per ton average (dollars)
Athens	1	5,580	$422,852	$75.78	1	5,580	$422,852	$75.78				
Belmont	9	11,659,228	$556,987,559	$47.77	2	11,300,856	$541,356,179	$47.90	7	358,372	$15,631,380	$43.62
Carroll	1	243,714	$18,805,114	$77.16	1	243,714	$18,805,114	$77.16				
Columbiana	1	1,562	$70,000	$44.81					1	1,562	$70,000	$44.81
Guernsey	1	239,106	$10,668,384	$44.62					1	239,106	$10,668,384	$44.62
Harrison	7	3,363,788	$151,417,803	$45.01	2	1,295,065	$71,798,274	$55.44	5	2,068,723	$79,619,529	$38.49
Jackson	3	86,565	$4,244,792	$49.04					3	86,565	$4,244,792	$49.04
Jefferson	7	1,714,529	$78,987,125	$46.07	3	582,248	$27,704,424	$47.58	4	1,085,803	$48,375,214	$44.55
Mahoning	2	5,286	$433,215	$81.96					2	5,286	$433,215	$81.96
Noble	3	315,840	$9,948,946	$31.50					3	315,840	$9,948,946	$31.50
Perry	5	2,389,932	$162,133,979	$67.84	2	1,781,019	$134,965,620	$75.78	3	608,913	$27,168,359	$44.62
Stark	2	397,453	$17,663,731	$44.44					2	397,453	$17,663,731	$44.44
Tuscarawas	10	1,279,433	$56,812,647	$44.40	1	209,784	$9,000,000	$42.90	9	1,069,649	$47,812,647	$44.70
Vinton	3	237,545	$11,373,186	$47.88					3	237,545	$11,373,186	$47.88
Washington	1	103,781	$3,269,086	$31.50					1	103,781	$3,269,086	$31.50
TOTAL	56	22,043,342	$1,083,238,419	$49.14	12	15,418,266	$804,052,463	$52.15	44	6,578,598	$276,278,469	$42.00

[1]Sales reported from mines operating in more than one county were evenly split between the counties involved unless county-specific information was provided by the operator.
[2]The FOB value of coal sold was estimated for those mines that failed to report this information. These estimates were calculated using a countywide-average price per ton by mining method, based on reported FOB values deemed to be reliable.

TABLE 9. ***2014 Wage and salary payments to Ohio coal mine employees, by county and occupational group***

County[1]	Wage and salary payments (nearest whole dollar)[2,3]			
	All occupations	Underground production employees	Surface production employees	Other
Belmont	$135,506,269	$72,639,332	$3,474,774	$59,392,163
Carroll	$5,728,439	$4,916,655		$811,784
Guernsey	$1,419,777		$1,277,799	$141,978
Harrison	$26,281,166	$13,287,755	$9,590,137	$3,403,274
Jackson	$307,719		$307,719	
Jefferson	$11,377,513	$4,952,989	$4,085,505	$2,339,019
Mahoning	$71,165		$756	$70,409
Noble	$2,218,681		$2,218,681	
Perry	$27,814,056	$17,461,596	$3,891,078	$6,461,382
Stark	$2,297,776		$2,067,998	$229,778
Tuscarawas	$8,554,970	$1,652,267	$5,900,803	$1,001,900
Vinton	$5,154,300		$3,087,167	$2,067,133
Washington	$606,601		$606,601	
TOTAL	$227,338,432	$114,910,594	$36,509,018	$75,918,820

[1]For those operations reporting activity in more than one county, wage and salary payments were evenly split between the counties involved unless county-specific information was provided by the operator.

[2]For those operations reporting only a total wage and salary payment for all workers, an equal pay rate was assumed for all employees. In cases where quarterly employment was reported but wage and salary payments were not, wage and salary payments for that quarter were estimated from reported payments in the other quarters to arrive at the annual figure. For mines reporting employment and no wage and salary payments, wage and salary payments were estimated using a countywide or statewide average.

[3]Any tally inconsistencies are due to rounding.

INDUSTRIAL MINERALS

(See also Appendix B)

Industrial minerals are nonmetallic, nonfuel rocks or minerals that have economic value and are essential to modern society. Industrial minerals have been mined or quarried in Ohio since the establishment of early settlements and include salt, sandstone, conglomerate, clay, shale, limestone, dolomite, gypsum, sand, and gravel. Hundreds of construction, chemical, and industrial products rely on the availability of industrial minerals.

The production of multiple commodities, including coal and/or one or more industrial minerals, is important to successful mine operations in many areas of Ohio. The most common multiple operations are sand and gravel with clay; coal along with clay, shale, or limestone; and limestone with associated clay or shale. The production of sand and gravel along with clay is often located in the glaciated portions of northern and western Ohio, where deposits of sand and gravel can be overlain by clay-rich glacial tills. The Pennsylvanian-age cyclic sedimentation in eastern Ohio includes coals, clays, shales, and limestones in close proximity, allowing for economic recovery of multiple commodities.[3]

Industrial minerals were produced in a total of 79 Ohio counties in 2014 and 320 companies held valid permits for 564 industrial-mineral mining operations. Industrial minerals were reported as produced or sold by 220 companies from 335 active operations. The combined value of all industrial minerals sold in 2014 was $1,092,252,405 (table 10). This is the first year that the combined value of all nonfuel minerals has exceeded one billion dollars.

The total average annual employment reported in 2014 for industrial-mineral operations was 3,694 people (2,338 production employees and 1,356 nonproduction employees; table 11). Total wages for all employees at industrial-mineral operations in 2014 were $202,790,729. The average annual wage, based on those employees for whom wages were reported, was $54,897.

[3]The following links will provide more information on the general bedrock and glacial geology of Ohio:
http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/BedrockGeology/BG-1_8.5x11.pdf
http://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/Glacial/glacial.pdf

TABLE 10. ***2014 Value of Ohio industrial minerals***

Commodity	Sales (tons)	Change from 2013 (tons/percent)	Value[1]	Percent of total value
Limestone and dolomite	58,670,639	+798,799/+1.4	$590,308,784	54.0
Sand and gravel	30,636,560	+944,963/+3.2	$210,229,170	19.3
Salt	5,911,257	+1,520,119/+34.6	$231,309,675	21.2
Sandstone and conglomerate	1,243,201	–65,474/–5.0	$44,754,588	4.1
Clay	535,530	+101,055/+23.3	$4,608,810	0.4
Shale	457,261	–411,921/–47.4	$11,041,378	1.0
Total	97,454,448	+2,887,541/+3.1	$1,092,252,405	100.0

[1]The FOB value of industrial minerals sold was estimated for those mines that failed to report this information and for those producing material for captive use. These estimates were calculated using a countywide- or statewide-average price per ton based on reported FOB values.

TABLE 11. ***2014 Employment at Ohio industrial-mineral operations, by county***

County	Total Employees[1]	Production Employees	Nonproduction Employees
Adams	17	13	4
Allen	22	13	9
Ashland	15	11	4
Ashtabula	21	6	15
Athens	4	3	1
Auglaize	24	15	9
Belmont	160	37	123
Brown	30	18	12
Butler	110	40	70
Carroll	5	4	1
Champaign	14	8	6
Clark	3	1	2
Clermont	34	30	4
Clinton	1	1	0
Columbiana	23	18	5
Coshocton	38	29	9
Crawford	14	14	0
Cuyahoga	195	140	55
Darke	11	9	2
Defiance	7	6	1
Delaware	27	27	0
Erie	90	79	11
Franklin	152	104	48
Fulton	0	0	0
Gallia	1	1	0
Geauga	79	63	16
Greene	156	42	114
Guernsey	29	14	15
Hamilton	104	50	54
Hancock	4	4	0
Hardin	27	16	11
Harrison	1	1	0
Highland	22	15	7
Hocking	53	22	31
Holmes	35	21	14
Huron	1	1	0
Jackson	5	3	2
Knox	68	49	19
Lake	138	101	37
Licking	42	24	18

TABLE 11. ***2014 Employment at Ohio industrial-mineral operations, by county (cont.)***

County	Total Employees[1]	Production Employees	Nonproduction Employees
Logan	59	33	26
Lorain	4	3	1
Lucas	66	38	28
Madison	3	2	1
Mahoning	81	59	22
Marion	12	10	2
Medina	4	3	1
Meigs	21	15	6
Mercer	26	14	12
Miami	32	21	11
Monroe	9	9	0
Montgomery	55	40	15
Morrow	7	7	0
Muskingum	95	63	32
Noble	17	15	2
Ottawa	105	75	30
Paulding	35	25	10
Perry	16	11	5
Pickaway	9	7	2
Pike	15	10	5
Portage	141	87	54
Preble	37	27	10
Putnam	12	9	3
Richland	27	21	6
Ross	19	14	5
Sandusky	244	213	31
Scioto	6	5	1
Seneca	55	6	49
Shelby	18	13	5
Stark	87	68	19
Summit	90	1	89
Tuscarawas	122	76	46
Union	48	30	18
Van Wert	30	22	8
Warren	32	25	7
Washington	31	18	13
Wayne	44	32	12
Wood	80	62	18
Wyandot	118	96	22
TOTAL 79 counties	3,694	2,338	1,356

[1]Any tally inconsistencies are due to computer rounding produced by partial-year employment.

LIMESTONE AND DOLOMITE

(See also Appendix C)

Limestone and dolomite are Ohio's most versatile industrial minerals. Both are used by the construction industry as aggregate, as an essential ingredient in the cement industry, to produce lime, as a flux in the steel and glass industries, as filler in a multitude of products, as an agricultural supplement, in water purification, and as a building stone. Ohio has long been a national leader in the production of lime and construction aggregates.

In 2014, the primary use for crushed and broken limestone and dolomite was road construction/resurfacing. Other major uses for various forms of limestone and dolomite included stone for asphaltic concrete and Portland cement concrete, commercial building construction, and the production of lime. Since 2011, Ohio has seen a significant increase in the railroad transportation of aggregates and other industrial minerals, largely to support the development of hydrocarbons in eastern Ohio.

Production

Limestone and dolomite were reported sold or produced by 50 companies at 102 operations in 53 Ohio counties during 2014 (fig. 21). Reported production totaled 59,428,907 tons. Lime produced from Ohio limestone and dolomite totaled 1,498,058 tons in 2014 and came from four operations in Ottawa, Sandusky, and Seneca Counties (table 13).

Ohio ranks fourth in the production of crushed stone (which includes crushed sandstone) out of 50 producing states. The states leading Ohio in the production of crushed stone, in descending order, are Texas, Pennsylvania, and Missouri (USGS, 2015a).

Devonian- and Silurian-age carbonates located in the western half of Ohio are the primary geologic units producing crushed stone. Pennsylvanian- and Mississippian-age limestones are important sources of aggregate in local markets of eastern Ohio (Stout, 1941; Lamborn, 1951), particularly the Youngstown (Mahoning County) and Zanesville (Muskingum County) areas. The top five geologic units in Ohio producing limestone or dolomite during 2014, in order of largest tonnage (see fig. 22), were:

- Columbus Limestone (Devonian)
- Lockport Dolomite (Silurian)
- Detroit River Group (Devonian)
- Greenfield/Tymochtee Dolomites (Silurian)
- Cedarville Dolomite (Silurian)

Ohio ranks fourth nationally in the production of lime out of 29 producing states and Puerto Rico. The top five states, in descending order of lime production, are Missouri, Kentucky, Alabama, Ohio, and Texas (USGS, 2015b).

Economic Impact

Estimated sales of limestone and dolomite totaled 58,670,639 tons, (+1.4 percent from 2013; fig. 23 and table 12; Wolfe and Stucker, 2014). Wyandot, Ottawa, Franklin, Erie, and Sandusky Counties accounted for 38.7 percent of those sales.

The total value[4] of limestone and dolomite sold in 2014 was $590,308,784 (fig. 23). Average price per ton was $10.06.

An annual average of 1,194 employees worked an average of 191 days to produce limestone and dolomite. Total wages of $98,821,843 were paid to a total of 1,874 employees (1,194 production employees and 680 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $52,733.

[4]Includes reported and estimated values. See footnote 1, p. 9.

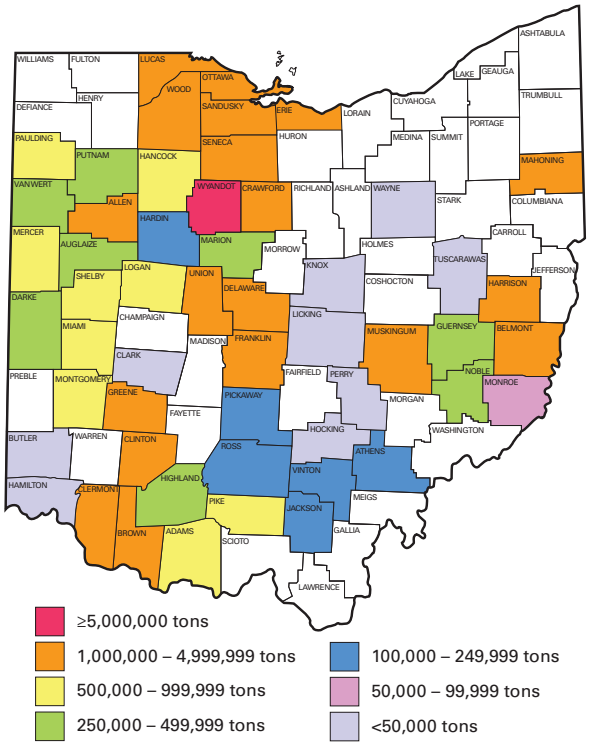


FIGURE 21. Sales of limestone and dolomite in Ohio in 2014, by county and quantity.

TABLE 12. *2014 Ohio limestone and dolomite sales, by county and use*

County	Tons sold														
	Total all types	Crushed and broken stone										Dimension stone	Stone for portland cement manufacture	Agricultural stone (aglime)	Raw stone for burning
		Total	Riprap	Flux stone	Stone for portland cement concrete	Stone for asphaltic concrete	Road construction/ resurfacing	Commercial building	Railroad ballast	Extenders/ fillers	Unspecified/ other				
Adams	754,030	754,030									754,030				
Allen	1,136,320	1,126,189	7,484		155,162	190,097	108,893	52,712	42,000		569,841			10,131	
Athens	233,214	233,214	14,795				218,419								
Auglaize	458,146	458,087	4,781		197,306	41,000					215,000			59	
Belmont	1,310,371	1,310,371	3,251			556,006	130,241				620,873				
Brown	1,656,389	1,656,389					1,656,389								
Butler	10,703	10,703									10,703				
Clark	2,129	2,129									2,129				
Clermont	1,243,000	1,218,850	6,000		20,000	117,000	225,000	694,850			156,000			24,150	
Clinton	1,261,091	1,236,444	48,898		129,218	301,510	321,089	217,908	55,466		162,355			24,647	
Crawford	1,152,000	1,020,000	9,000		294,000	258,000					459,000			132,000	
Darke	333,736	333,736	12,272		37,576	53,526	110,734	119,628							
Delaware	2,964,000	2,930,000	23,000		905,000	251,000					1,751,000			34,000	
Erie	4,009,177	3,849,736	101,112		1,372,592	287,850	602,536	454,258			1,031,388			159,441	
Franklin	4,111,231	4,103,558	2,544		58,214	112,007	72,619	283,432		3,474	3,571,268			7,673	
Greene	1,457,631	815,600	2,362			40,903	175,844	43,961			552,530		642,031		
Guernsey	276,767	276,767					276,767								
Hamilton	13,648	13,648									13,648				
Hancock	598,000	598,000			33,000	94,000			42,000		429,000				
Hardin	172,958	172,958									172,958				
Harrison	1,916,576	1,916,576	22,039				1,879,844	14,693							
Highland	368,967	355,505	3,141		99,975	31,003	163,037				58,349			13,462	
Hocking	4,011	4,011	150		651		3,005	205							
Jackson	143,678	143,678									143,678				
Knox	7,798	7,798					2,829	4,969							
Licking	1,534	1,534					613	921							
Logan	622,836	622,836	26,565		182,157		18,975	151,797			243,342				
Lucas	1,735,071	1,735,071					1,735,071								
Mahoning	2,431,050	2,431,050	9,819				552,454				1,868,777				
Marion	407,030	403,030	6,030		52,000	60,000					285,000			4,000	
Mercer	521,500	521,500					521,500								
Miami	574,134	570,905	6,078		38,069		375,513	151,245						3,229	
Monroe	66,112	66,112					66,112								
Montgomery	824,245	683,417									683,417		140,828		
Muskingum	1,726,129	1,726,129	1,348				387,312				1,337,469				

Noble	301,733	301,733	2,499				109,309				189,925				
Ottawa	4,652,764	4,378,349	84,384			90,000	446,963	2,954,873			802,129				274,415
Paulding	508,312	508,312					508,312								
Perry	25,508	25,508									25,508				
Pickaway	230,352	230,352	6,500		40,000	40,000	75,000	50,000	5,000		13,852				
Pike	710,072	710,072	30,600		150,000	175,000	175,000	150,000	5,000		24,472				
Putnam	474,520	474,520	1,000		95,130		20,630				357,760				
Ross	247,336	247,336					100,000	100,000			47,336				
Sandusky	3,855,867	1,370,839	10,936		267,089	120,953	350,174	379,495	3,000		239,192			6,107	2,478,921
Seneca	2,157,131	1,486,854	2,681		93,170		3,141			1,125,563	262,299	512		18,267	651,498
Shelby	723,379	723,379	8,006				715,373								
Tuscarawas	17,906	17,906					17,906								
Union	2,008,001	2,008,001					2,008,001								
Van Wert	395,401	395,401			20,000		375,401								
Vinton	165,678	165,678					165,678								
Wayne	3,338	3,338					2,618	720							
Wood	1,610,082	1,609,502	25,122		96,265	287,168	627,563	317,000		32	256,352			580	
Wyandot	6,078,047	5,989,047	66,000	86,000	1,054,200	501,751	162,664	118,701	19,000	50,000	3,930,731			89,000	
TOTAL	58,670,639	53,955,688	548,397	86,000	5,390,774	3,608,774	15,468,529	6,261,368	171,466	1,179,069	21,241,311	512	782,859	526,746	3,404,834

TABLE 13. ***2014 Production of lime from Ohio, by county and use***

County	Total tons[1]	Building (tons)	Chemical and industrial (tons)	Refractory (tons)
Ottawa	124,734	80,273	44,461	
Sandusky	1,081,506		1,081,506	
Seneca	291,818		291,818	
TOTAL	1,498,058	80,273	1,417,785	

[1]Burning produced a 44.0% weight loss.

SYSTEM	GROUP	LITHOSTRATIGRAPHIC UNITS
Pleistocene		Glacial clay
Permian	Dunkard	
Pennsylvanian	Monongahela	Fishpot limestone Redstone limestone
	Conemaugh	Bellaire sandstone Ames limestone Buffalo sandstone Brush Creek limestone
	Allegheny	Lower Kittanning clay Vanport limestone Putnam Hill limestone Clarion shale Newland-Brookville clay/limestone
	Pottsville	Tionesta clay Middle Mercer clay Flint Ridge clay Massillon sandstone Sharon conglomerate
Mississippian		Maxville Limestone Logan Formation Black Hand Sandstone Buena Vista Sandstone
Devonian		Berea Sandstone Bedford Shale Ohio Shale Chagrin Member Ten Mile Creek Dolomite
	Detroit River	Dundee Limestone
		Delaware Limestone Columbus Limestone
Silurian	Salina	Salina Dolomite "Salt beds"
		Tymochtee Dolomite Greenfield Dolomite Peebles Dolomite Cedarville Dolomite Lockport Dolomite Laurel Limestone Dayton Limestone Brassfield Limestone
Ordovician	Cincinnati	
	Black River	Black River Limestone

FIGURE 22. Stratigraphic column of industrial minerals mined in Ohio during 2014. Modified from Slucher and others (2006), Ohio Division of Geological Survey (1990), and Brant and Delong (1960, table 9).

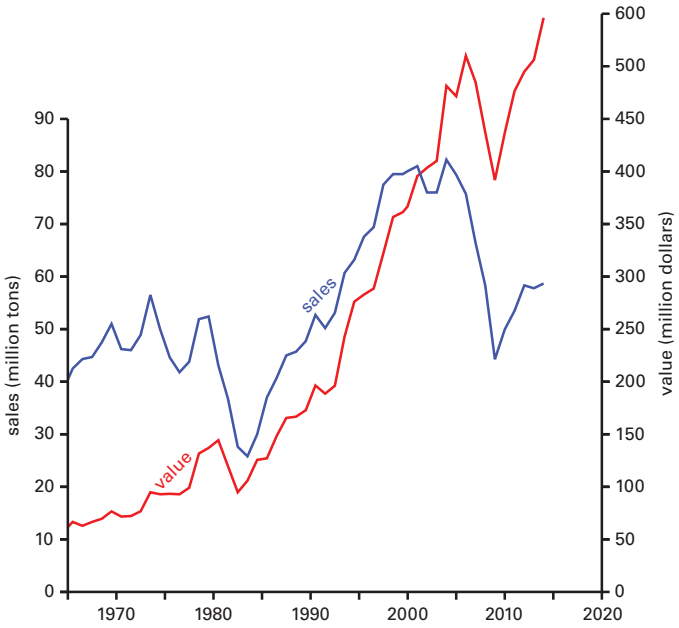


FIGURE 23. Sales and value of limestone and dolomite in Ohio.

SAND AND GRAVEL

(See also Appendix D)

Sand and gravel are common raw materials but can be found as major constituents of asphalt, concrete, mortar, landscaping, roofing shingles, soil additives, and many other products. Sand-and-gravel production increased rapidly in Ohio beginning in the 1950s with the development of improved mining and processing machinery and increased demand from road building (Ohio Division of Geological Survey, 1959). Many depleted sand-and-gravel operations have been redeveloped as parks, residential, or commercial facilities due to their proximity to urban areas.

Commercial and residential building, Portland cement concrete, asphaltic concrete, and road construction/resurfacing were the major uses for Ohio sand and gravel in 2014. An updated overview of the sand-and-gravel industry in Ohio by Hull (2014) was released by the ODNR Division of Geological Survey in August 2014.

Production

Sand and gravel were reported sold or produced by 137 companies at 199 operations in 55 Ohio counties during 2014 (fig. 24). Estimated production of sand and gravel totaled 30,942,292 tons in 2014.

Ohio ranks tenth nationally, out of 50 producing states, in the production of construction sand and gravel. The states leading Ohio, in descending order of production, are Texas, California, Minnesota, Washington, Michigan, Colorado, Arizona, North Dakota, and Wisconsin (USGS, 2015c).

Sand-and-gravel deposits in Ohio primarily are associated with Wisconsinan-age glacial outwash and kame terraces in the valleys and tributaries of the Great Miami, Scioto, and Muskingum Rivers located in the southwestern, central, and eastern portions of the state, respectively. Important sand-and-gravel deposits also are found in glacial kames in northeastern Ohio, particularly south of Cleveland in Portage, Summit, and Stark Counties. Additional sand-and-gravel resources are found in beach ridges associated with ancestral Lake Erie and in alluvium of modern floodplains of the Ohio River and its tributaries.

Economic Impact

Estimated sales of sand and gravel totaled 30,636,560 tons, (+3.2 percent from 2013; fig. 25 and table 15; Wolfe and Stucker, 2014). Sand accounted for 16,654,508 tons of the total sand and gravel sold, and gravel accounted for 13,982,052 tons (table 14). Portage, Stark, Hamilton, Butler, and Franklin Counties led in sales, accounting for 44.0 percent of the total.

The total value[5] of sand and gravel sold in 2014 was $210,229,170 (fig. 25). Average price per ton was $6.86.

An annual average of 878 employees worked an average of 151 days in 2014 to produce sand and gravel. Total wages of $65,977,032 were paid to a total of 1,366 employees (878 production employees and 488 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $48,299.

[5]Includes reported and estimated values. See footnote 1, p. 9.

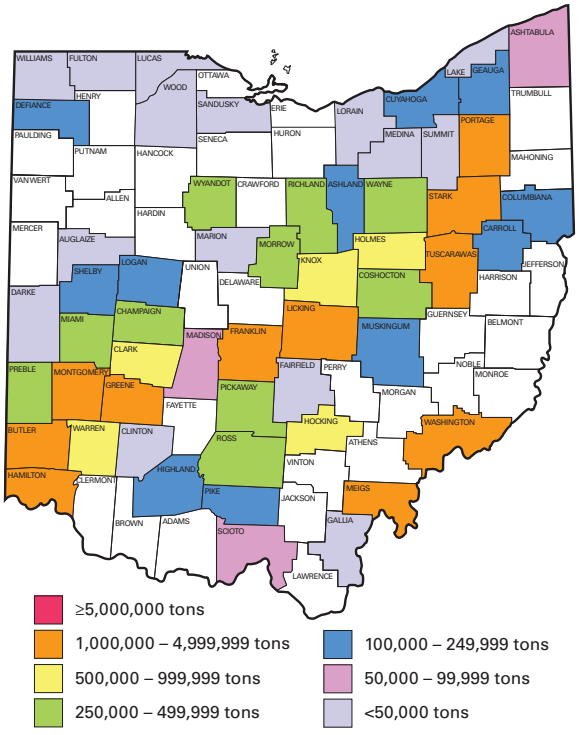


FIGURE 24. Sales of sand and gravel in Ohio in 2014, by county and quantity.

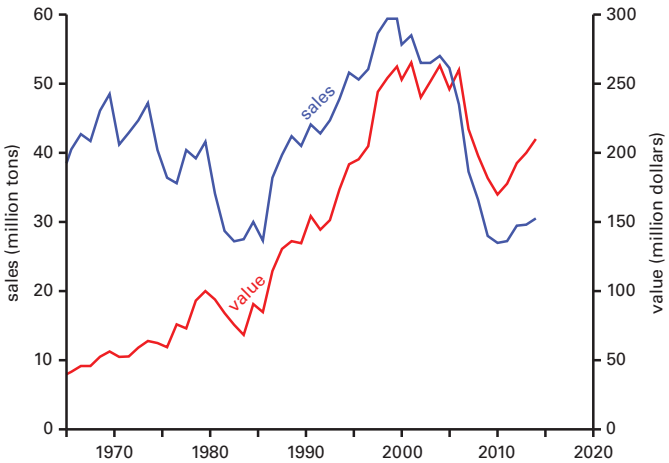


FIGURE 25. Sales and value of sand and gravel in Ohio.

TABLE 14. *2014 Ohio sand and gravel sales, by county and use*

County	Tons sold															
	Total sand and gravel	Total sand	Total gravel	Building		Portland cement concrete		Asphaltic concrete		Road construction/ resurfacing		Filtration		Foundry sand	Industrial sand	Other/unspecified	
				Sand	Gravel	Sand	Gravel	Sand	Gravel	Sand	Gravel	Sand	Gravel			Sand	Gravel
Ashland	248,917	94,867	154,050	28,460	46,215					56,920	92,430					9,487	15,405
Ashtabula	95,667	61,370	34,297	33,456	31,484	18,100						838	2,813			8,976	
Auglaize	7,554	5,965	1,589	5,965	1,589												
Butler	2,291,808	1,127,094	1,164,714	300,608	367,318	189,724	142,620	107,152	109,172	7,500	122,312					522,110	423,292
Carroll	114,008	57,004	57,004					57,004			48,453		8,551				
Champaign	448,052	158,150	289,902		79,525	47,276	42,136	47,277	62,157		43,480					63,597	62,604
Clark	554,091	289,335	264,756	8,300	31,850	100,000	100,000	130,000	75,000	15,000	26,300					36,035	31,606
Clinton	2,500	2,500														2,500	
Columbiana	137,836	66,904	70,932	6,372	1,382					37,845	19,208	2,174	22,184			20,513	28,158
Coshocton	309,199	140,143	169,056	5,980	6,503			67,920	92,150	55,101	65,649					11,142	4,754
Cuyahoga	102,321	102,321														102,321	
Darke	43,969	30,969	13,000	30,969	13,000												
Defiance	154,772	136,660	18,112	7,683	14,819	128,977											3,293
Fairfield	9,902	9,437	465													9,437	465
Franklin	1,989,287	1,021,465	967,822	123,879	318,262	809,206	220,265	84,870	174,132		110,317	10				3,500	144,846
Fulton	7,217	7,217		2,314												4,903	
Gallia	2,931	2,798	133									33	133			2,765	
Geauga	103,970	61,292	42,678	1,656		21,752		34,188			25,641	3,354	14,421			342	2,616
Greene	1,346,488	471,527	874,961	12,400	57,700	204,216	183,176	31,377	81,853		54,846					223,534	497,386
Hamilton	2,739,356	1,428,874	1,310,482	596,775	697,794	129,225	84,114	129,226	84,115		62,726					573,648	381,733
Highland	104,466	64,363	40,103		10,769	60,249			19,290			4,114	888				9,156
Hocking	500,790	377,754	123,036	33,005	15,130	27,161	18,589	107,605	55,184	15,030	1,613					194,953	32,520
Holmes	974,834	434,022	540,812	92,042	164,379	127,796	119,614	61,127	58,616	43,345	73,129	15,015	30,371			94,697	94,703
Knox	743,388	358,119	385,269	540	58,008	168,885	26,968	101,526	26,968		118,208		14,743			87,168	140,374
Lake	4,542	4,542														4,542	
Licking	1,078,421	720,610	357,811	29,303	135,212	271,622	98,767	384,590	71,084	10,000	52,748	95				25,000	
Logan	130,476	54,485	75,991	782		2,942										50,761	75,991
Lorain	5,883	5,883		5,883													
Lucas	1,100	1,100		300												800	
Madison	62,295	20,398	41,897	5,779	41,897			14,619									
Marion	17,388	14,469	2,919	844		13,625							1,572				1,347
Medina	49,913	663	49,250		49,250			663									
Meigs	1,331,248	826,698	504,550			525,598	225,256	144,259	131,284							156,841	148,010
Miami	415,573	208,651	206,922		52,653	33,932						230				174,489	154,269
Montgomery	1,286,027	595,785	690,242	176,365	157,773	60,000	70,000			47	16,268	25,000				334,373	446,201

Morrow	429,000	176,000	253,000	2,000		57,000		28,000								89,000	253,000
Muskingum	187,719	136,905	50,814	4,135	2,481			19,582	11,619	782	1,005					112,406	35,709
Pickaway	286,672	135,062	151,610		25,000	50,000		40,000	35,000	10,000	55,000					35,062	36,610
Pike	248,123	180,604	67,519			1,456					6,619					179,148	60,900
Portage	3,450,300	2,237,225	1,213,075	192,399	226,715	1,038,446	144,540	186,868	330,332	132,637	146,042	9,928	89,620			676,947	275,826
Preble	431,399	177,446	253,953	100,657	238,426					76,729	15,487					60	40
Richland	343,621	170,203	173,418	25,578	100,270			48,521	29,918		9,375					96,104	33,855
Ross	394,427	236,388	158,039	4,284	20,491	16,910	6,258	186,710	84,568	1,141	947					27,343	45,775
Sandusky	2,391	2,391				2,123						268					
Scioto	65,378	50,872	14,506	22,874	10,505	27,916	3,919									82	82
Shelby	212,559	84,627	127,932			76,890	65,620	21	32,752							7,716	29,560
Stark	3,009,026	1,728,687	1,280,339	37,899	209,038	274,009	25,488	346,731	463,127	346,125	277,813					723,923	304,873
Summit	7,376	5,111	2,265	2,672	710											2,439	1,555
Tuscarawas	1,524,901	812,592	712,309	263,868	311,753	147,469	75,609	103,596	65,726	262,918	256,781		2,440			34,741	
Warren	784,636	363,537	421,099	312,056	405,788	5,658		8,487								37,336	15,311
Washington	1,050,064	720,957	329,107	37,752	10,947	318,751	17,307	264,816	296,812		2,209					99,638	1,832
Wayne	453,660	232,342	221,318	12,928	44,173	127,151	5,364	75,658	20,222	14,010	148,340	2,595	3,219				
Williams	1,306	653	653													653	653
Wood	149		149				149										
Wyandot	337,664	239,472	98,192	55,985	63,597	97,189		79,866				929	32,595			5,503	2,000
TOTAL[1]	30,636,560	16,654,508	13,982,052	2,584,747	4,022,406	5,181,254	1,675,759	2,892,259	2,411,081	1,085,130	1,852,946	64,583	223,550			4,846,535	3,796,310

[1]Any tally inconsistencies are due to rounding of production tonnages.

SANDSTONE AND CONGLOMERATE

(See also Appendix E)

Extensive high-quality sandstone and conglomerate deposits are located in central and eastern Ohio, from near Lake Erie to the Ohio River. During the mid-1800s, these geologic resources were developed into a large building-stone industry, glass production, and to support the steel and associated industries. Many prominent buildings in the state use local building stones, including the Ohio Statehouse, Cleveland's Old Stone Church, The Ohio State University's Orton Hall, Cincinnati's City Hall, and numerous other churches, monuments, and historic buildings. Ohio led the nation in sandstone production for many decades; this natural resource continues to support the state's industries today.

Crushed sandstone was used primarily for construction, glass sand, industrial sand, hydraulic fracturing proppant, and aggregate. Dimension stone was used primarily for rough construction purposes.

Production

Sandstone and conglomerate were reported sold and/or produced by 19 companies at 25 operations in 18 Ohio counties during 2014 (fig. 26). Reported production of sandstone and conglomerate was 1,294,844 tons in 2014.

Based on the latest data available from the USGS in 2012, Ohio ranks nineteenth out of 33 producing states nationally in production of all dimension stone. Ohio ranks fourth in the production of sandstone dimension stone. Presently in Ohio, nearly all the dimension stone produced is sandstone. Nationwide, limestone and granite dominate dimension stone production, consisting of over two-thirds of total production. The top five states, in descending order of total dimension-stone production, are Texas, Wisconsin, Massachusetts, Indiana, and Georgia (USGS, 2015d). National standings for crushed stone are included in the "Limestone and Dolomite" section of this report (p. 19).

The Pennsylvanian-age Sharon conglomerate in northeastern Ohio was the most productive sandstone mined for industrial purposes during 2014. The Pennsylvanian-age Massillon sandstone and the Mississippian-age Black Hand Sandstone also were important sources of high-silica sandstone. Historically, the Massillon sandstone and the Devonian-age Berea Sandstone of northern Ohio, as well as the Mississippian-age Buena Vista Sandstone in southern Ohio, were the primary geologic units quarried for building stone (Bownocker, 1915; see also fig. 22).

Economic Impact

Sales of sandstone and conglomerate totaled 1,243,201 tons (–5.0 percent from 2013; fig. 27; Wolfe and Stucker, 2014). Geauga, Mahoning, Pike, Knox, and Lake Counties accounted for 91.2 percent of the total sales. Crushed sandstone and conglomerate accounted for 1,185,031 tons of the total sales (table 15) and dimension stone accounted for 58,170 tons (table 16).

The total value[6] of sandstone and conglomerate sold in 2014 was $44,754,588 (fig. 27). Average price per ton was $32.21 for crushed stone and $113.12 for dimension stone.

An annual average of 175 employees worked an average of 123 days in 2014 to produce sandstone and conglomerate. Total wages of $9,438,695 were paid to a total of 219 employees (175 production employees and 44 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $43,099.

[6]Includes reported and estimated values. See footnote 1, p. 9.

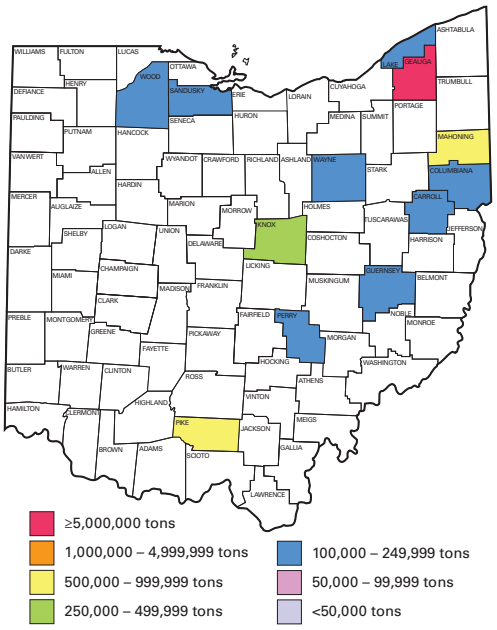


FIGURE 26. Sales of sandstone and conglomerate in Ohio in 2014, by county and quantity.

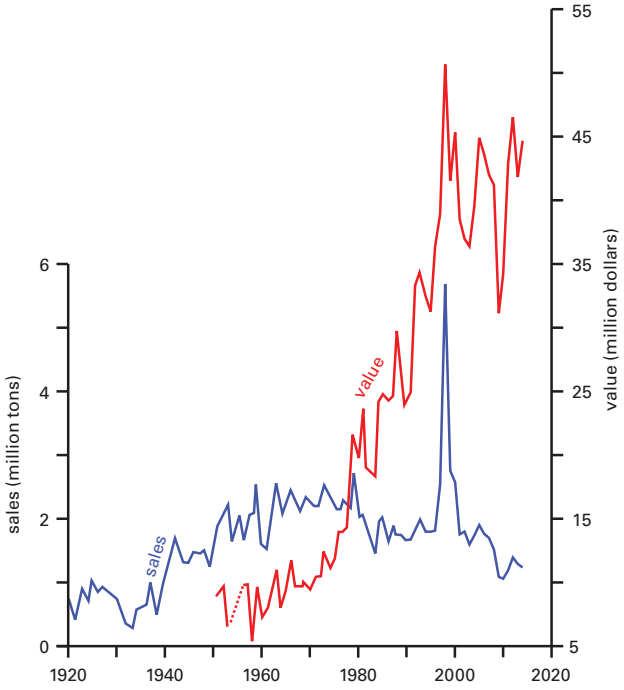


FIGURE 27. Sales and value of sandstone and conglomerate. Value line dashed where data not available.

TABLE 15. *2014 Ohio sales of crushed sandstone and conglomerate, by county and use*

County	Tons sold														
	Total	Foundry sand	Glass sand	Metallurgical pebble	Refractory	Riprap	Aggregate	Silica flour	Polishing/ grinding sand	Fire and furnace sand	Engine sand	Frac sand	Construction	Industrial sand	Other/ unspecified
Carroll	1,221					1,221									
Columbiana	11,632					3,580							1,722		6,330
Geauga	769,157	122,100	177,826	6,326			47,785		3,630			39,674	202,778	23,379	145,659
Guernsey	23,377					23,377									
Knox	97,000		32,000	2,000								34,000	7,000	19,000	3,000
Lake	42,507						27,457						15,050		
Mahoning	123,757						120						123,637		
Perry	3,396				3,396										
Pike	101,393	7,503										372	2,937	5,456	85,125
Sandusky	271						271								
Wayne	1,225												1,225		
Wood	10,095						10,095								
TOTAL	1,185,031	129,603	209,826	8,326	3,396	28,178	85,728		3,630			74,046	354,349	47,835	240,114

TABLE 16. *2014 Ohio sales of dimension sandstone, by county and use*

County	Tons sold									
	Total	Refractory	Rough construction	Rubble	Grindstones	Rough architectural	Finished	Curbing	Flagging	Other/ unspecified
Coshocton	8,994		8,994							
Erie	9,305		1,330	106			7,855		14	
Franklin	6									6
Guernsey	31,277		31,277							
Huron	6,136		6,136							
Knox	175						175			
Lorain	1,994			1,321			617			56
Summit	283		283							
TOTAL	58,170		48,020	1,427			8,647		14	62

CLAY AND SHALE

(See also Appendices F and G)

The ceramics industry in Ohio has a long and dynamic history. Potteries were established by the early 1800s to supply dinnerware, and by the early 1900s, Ohio was producing tremendous amounts of building bricks, sewer pipe, roof and floor tiles, paving bricks, art pottery, and refractory products. Edward Orton, Jr., established the nation's first ceramics engineering program at The Ohio State University in 1894. Ohio is home to the leading producer of unglazed quarry tile in the United States; one of the nation's oldest continually operating tile manufacturers; and a 110-year old roofing tile manufacturer whose products can be seen in 34 states and on nine federal buildings in Washington, D.C. Both the American Ceramic Society and the Edward Orton, Jr. Ceramic Foundation are headquartered in Westerville, Ohio. Ohio clay and shale is still being used to produce important ceramic products, though production tonnages are much less than 100 years ago. General discussions of clay and shale geology in Ohio can be found in Lamborn and others (1938) and Stout and others (1923).

Clay and shale mined in Ohio in 2014 was used largely for captive use in the production of common clay products, such as building bricks; in the construction industry; and to produce lightweight aggregate. Ohio ceramic products are shipped throughout the eastern United States and Canada.

Production

Clay was reported sold and/or produced by 23 companies at 27 operations in 17 Ohio counties during 2014 (fig. 28). Reported production of clay in 2014 was 562,153 tons.

Shale was reported sold and/or produced by 15 companies at 19 operations in 12 Ohio counties during 2014 (fig. 29). Reported production of shale in 2014 was 461,112 tons.

Based on 2012 data, the latest available from USGS, Ohio ranks sixth out of 37 producing states nationally in the production of common clay and shale. The states leading Ohio are Texas, Alabama, North Carolina, Georgia, and Virginia (USGS, 2015e).

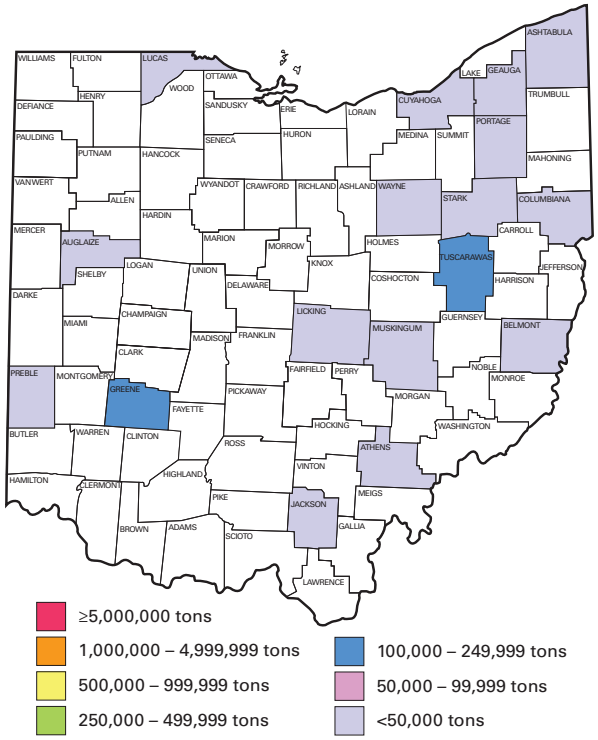


FIGURE 28.—Clay sales in Ohio in 2014, by county and quantity.

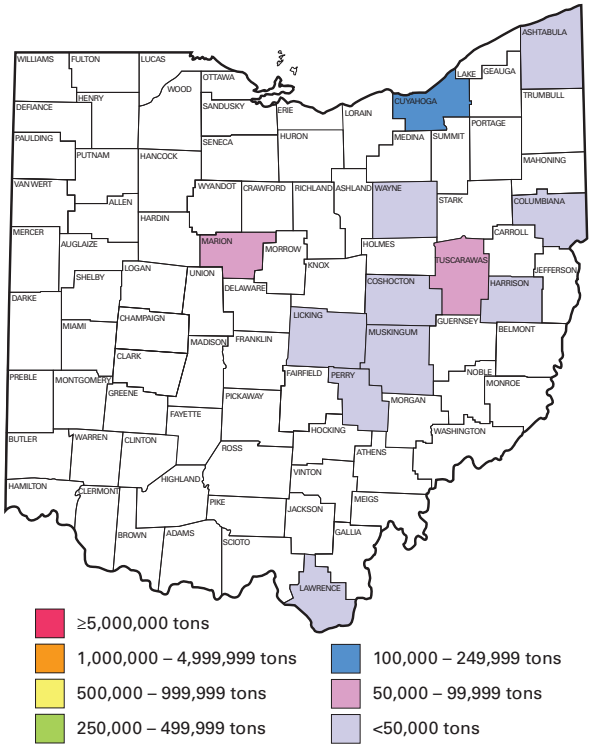


FIGURE 29.—Shale sales in Ohio in 2014, by county and quantity.

Economic Impact

Clay sales (including material for captive use) totaled 535,530 tons (+23.3 percent from 2013; fig. 30; Wolfe and Stucker, 2014); Greene, Tuscarawas, Lucas, Muskingum, and Columbiana Counties accounted for 80.2 percent of the total sales (table 17).

The total value[7] of clay sold (including material for captive use) in 2014 was $4,608,810 (fig. 30). Average price was $8.61 per ton.

An annual average of 46 employees worked mining clay (including multiple commodities) for an average of 116 days in 2014. Total wages of $2,337,900 were paid to a total of 62 employees (46 production employees and 16 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $37,708.

Shale sales (including material for captive use) totaled 457,261 tons (–47.4 percent from 2013; fig. 31; Wolfe and Stucker, 2014); Cuyahoga, Marion, Tuscarawas, Harrison, and Perry Counties accounted for 86.6 percent of the total sales (table 18).

The total value[8] of shale sold (including material for captive use) in 2014 was $11,041,378 (fig. 31). Average price was $24.15 per ton.

An annual average of 26 employees worked mining shale (including multiple commodities) for an average of 114 days in 2014. Total wages of $1,103,740 were paid to a total of 34 employees (26 production employees and 8 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $32,463.

Nearly all the clay and shale produced in Ohio is used to produce value-added products (e.g., building bricks, industrial ceramics, pottery, expanded aggregate, quarry tile); thus the economic impact is much greater than the combined $15.7 million mined value.

[7]Includes reported and estimated values. See footnote 1, p. 9.
[8]Includes reported and estimated values. See footnote 1, p. 9.

TABLE 17. ***2014 Ohio clay sales, by county and use***

County	Tons sold[1]								
	Total	Common clay products	Stoneware	Vitrified products	Cement manufacture	Refractories	Construction	Landfill use	Other/ unspecified
Ashtabula	351						351		
Athens	25,000							25,000	
Auglaize	2,161	2,161							
Belmont	2,136							2,136	
Columbiana	25,581	25,581							
Cuyahoga	4,604								4,604
Geauga	3,070	3,070							
Greene	216,021	120,600			95,421				
Jackson	7,991					3,788			4,203
Licking	20,000						14,000		6,000
Lucas	28,800								28,800
Muskingum	27,449							161	27,288
Portage	18,393	981					17,412		
Preble	202						202		
Stark	21,698	17,698					4,000		
Tuscarawas	131,590	195							131,395
Wayne	483						483		
TOTAL	535,530	170,286			95,421	3,788	36,448	27,297	202,290

[1]Any tally inconsistencies are due to rounding of total tons sold.

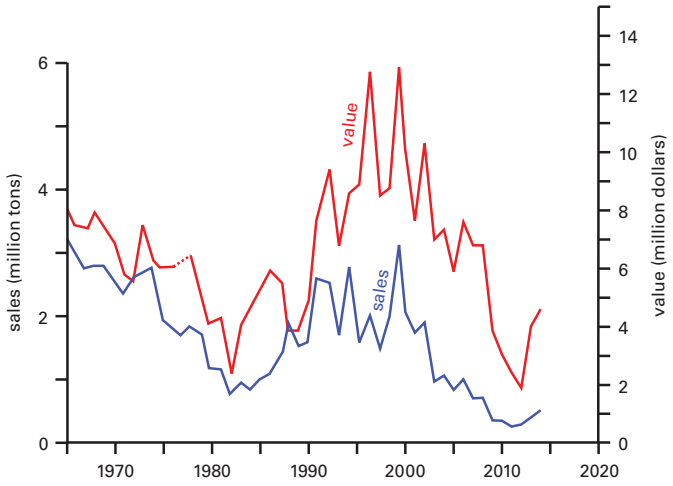


FIGURE 30.—Sales and value of clay in Ohio. Value line dashed where data not available.

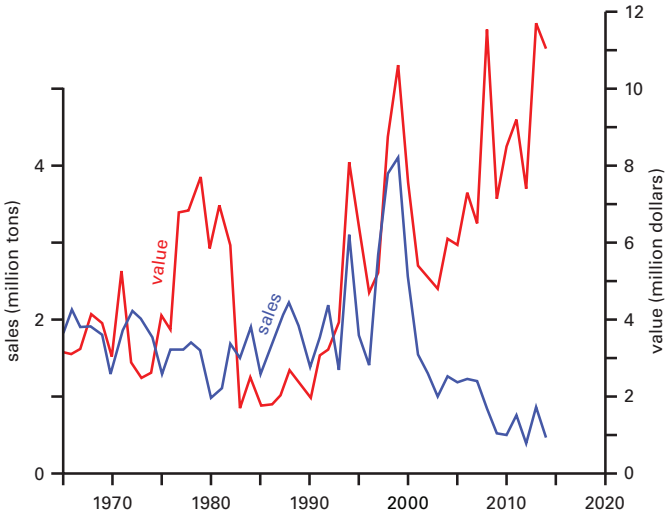


FIGURE 31.—Sales and value of shale in Ohio.

TABLE 18. *2014 Ohio shale sales, by county and use*

County	Tons sold[1]							
	Total	Common clay products	Vitrified products	Cement manufacture	Lightweight aggregate	Construction	Landfill use	Other/ unspecified
Ashtabula	3,219					3,219		
Columbiana	11,471	11,471						
Coshocton	4,902						4,902	
Cuyahoga	176,267				176,267			
Harrison	26,369	26,369						
Lawrence	7,879							7,879
Licking	14,755	14,755						
Marion	97,494	97,494						
Muskingum	8,620	8,620						
Perry	15,876	15,876						
Tuscarawas	80,183	22,786						57,397
Wayne	10,226				7,000	3,226		
TOTAL	457,261	197,371			183,267	6,445	4,902	65,276

[1]Any tally inconsistencies are due to rounding of total tons sold.

SALT

(See also Appendix H)

Salt was one of the first industrial minerals produced in Ohio. It was a valuable commodity to the early settlers and was obtained from natural salt springs. The first State Legislature enacted laws concerning the salt springs in 1803–1804, and wells were drilled in Jackson and Muskingum Counties leading to the first commercial salt production in the state. The most important area for early salt production was in Meigs County, beginning in 1850. By 1903, Ohio was producing 14.7 percent of all the salt in the United States (Bownocker, 1906).

The modern salt industry in Ohio began in 1956 with the construction of the underground salt mine at Fairport Harbor in Lake County. A second large underground operation was constructed in Cleveland, beginning in 1957. The primary use for Ohio salt in 2014 was ice control. Salt also was used as an additive in animal feed, for cattle blocks, and as a commercial and residential water-softening agent.

The 2013–2014 winter in Ohio was particularly harsh and substantial snowfall caused the state's department of transportation to expend a record amount of salt for road de-icing. The increased usage combined with the depletion of stockpiles contributed to the higher production and sales figures for salt in 2014.

Production

Salt was reported produced by 4 companies at 6 operations in 5 Ohio counties during 2014 (fig. 16). Estimated production of salt was 5,443,674 tons in 2014.

The top five salt-producing states nationally, based on 2014 USGS data, are Louisiana, Texas, New York, Ohio, and Kansas (USGS, 2015f).

Both solution-mined and rock salt in Ohio is produced from bedded deposits in the Silurian-age Salina Group. The Salina salt beds are restricted to the subsurface in eastern Ohio. The Salina Group in eastern Ohio is subdivided into seven units, A through G, from lowest to highest. The salt produced in Ohio comes from the F unit, which is further subdivided into four beds. Individual salt beds are less than 100 feet thick and may contain thin interbeds of anhydrite and dolomite. Depth to the F unit varies from 1,900 feet in the Cleveland mine to over 2,000 feet at the Fairport Harbor mine (Clifford, 1973; Tomastik, 2002; see also fig. 22). The primary use for Ohio salt was ice control. Salt also was used as an additive in animal feed, for cattle blocks, and as a commercial and residential water-softening agent.

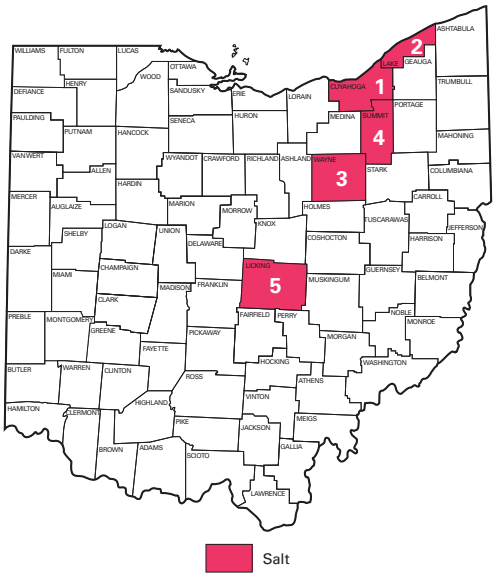


FIGURE 32.—Counties producing salt in Ohio in 2014 and their rankings in sales.

Economic Impact

Estimated total tonnage of salt sold in 2014 was 5,911,257 tons (+34.6 percent from 2013; fig. 33; Wolfe and Stucker, 2014). Rock salt sales totaled 5,232,801 tons from two underground mines, one each in Cuyahoga and Lake Counties. Four brining operations, two in Licking County and one each in Summit and Wayne Counties, sold an estimated total of 7,470 tons of salt in brine and 670,986 tons of evaporated salt.

The total value[9] of the salt sold in 2014 was $231,309,675 (fig. 33). Average price per ton of rock salt was $29.95 and of salt in brine and evaporated salt was $109.87. The average price per ton of all salt sold was $39.13.

An annual average of 245 employees worked to produce salt an average of 301 days in 2014. Total wages of $25,111,519 were paid to a total of 425 employees (245 production employees and 180 nonproduction employees). The average annual wage, based on those employees for whom wages were reported, was $59,086.

[9]Includes reported and estimated values. See footnote 1, p. 9.

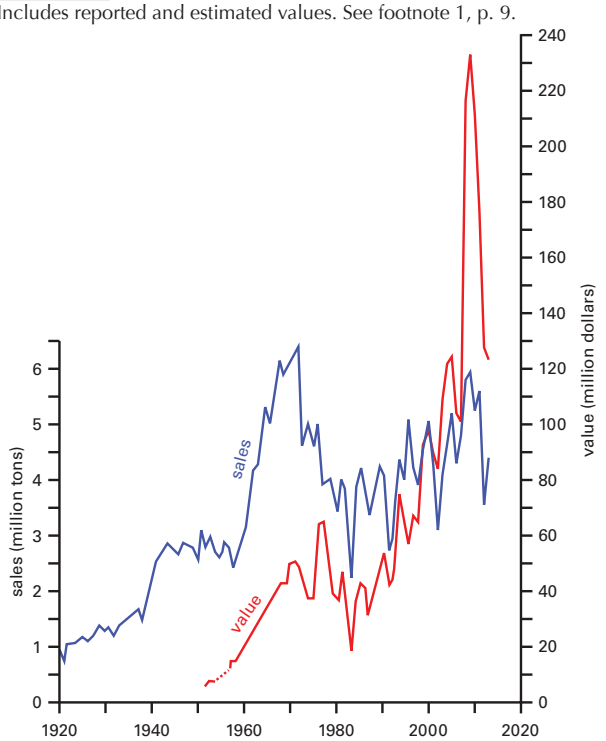


FIGURE 33.—Sales and value of salt in Ohio. Value line dashed where data not available.

GYPSUM

There was no gypsum production or sales reported in 2014. Gypsum has not been produced in Ohio since 2004 (fig. 34). A history of gypsum production in Ohio can be found in Wolfe (2001).

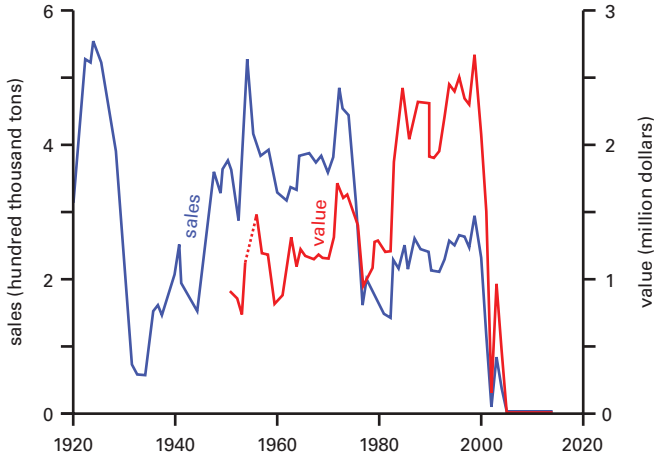


FIGURE 34.—Sales and value of gypsum in Ohio. Value line dashed where data not available.

PEAT

There was no peat production or sales reported in 2014. Peat has not been produced in Ohio since 2012 (fig. 35). Dachnowski (1912) contains information on the origin, formation, and uses of peat in Ohio.

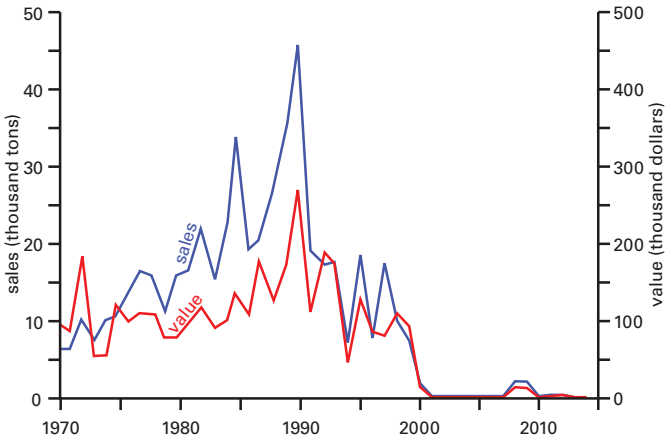


FIGURE 35.—Sales and value of peat in Ohio.

OIL AND GAS

(This information is summarized from DOGRM, in press)

The ODNR Division of Oil & Gas Resources Management (DOGRM) estimates that 715 wells were drilled in 2014, an increase of 72 wells (11.2 percent) from 2013. Wells were drilled in 38 of Ohio's 88 counties, a decrease of three counties from 2013. The top ten counties in number of new wells drilled in 2014 were Harrison, Carroll, Belmont, Guernsey, Monroe, Noble, Stark, Knox, Licking, and Coshocton and Washington (tied for tenth). There were 699 productive wells and 16 dry holes for a completion rate of 98 percent.

The Ordovician-age Utica-Point Pleasant interval was the most actively drilled in 2014 with 73 percent of all wells drilled, followed by the "Clinton" sandstone at 13 percent. The longest lateral leg of a horizontal well was drilled to a length of 22,240 feet into the Utica-Point Pleasant interval.

The total reported crude oil production in Ohio in 2014 was 15,062,912 barrels, an 89.1 percent increase from 2013. Through 2014, Ohio wells have produced 1,169,509,953 barrels. The dollar value of crude oil produced in Ohio in 2014 was $1,203,827,927, an increase of 57.1 percent. Average price per barrel in 2014 was $79.92, a 16.5 percent decrease from the 2013 price.

Natural gas production in Ohio in 2014 was 512,964,465 thousand cubic feet (MCF), a 207.1 percent increase from 2013. This production figure includes an estimated 593,173 MCF of gas used on the lease. Through 2014, Ohio wells cumulatively have produced 9,360,061,164 MCF of natural gas. The dollar value of natural gas produced in Ohio in 2014 was $1,939,005,678, an increase of 229 percent from 2013. The average price per MCF in 2014 was $3.78, an increase of $0.27 per MCF from 2013.

The combined total value of Ohio oil and gas production in 2014 was $3,142,833,605, an increase of 131.8 percent from 2013.

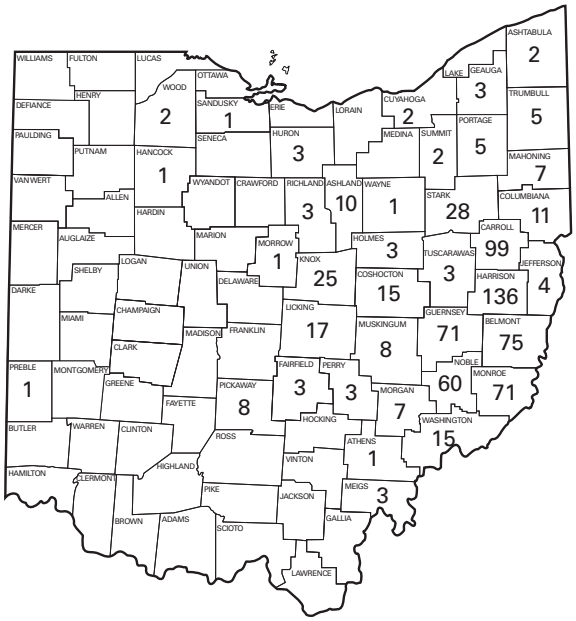


FIGURE 36.—New wells drilled and completed (including dry holes) for oil and gas in Ohio in 2014, by county (from DOGRM, in press).

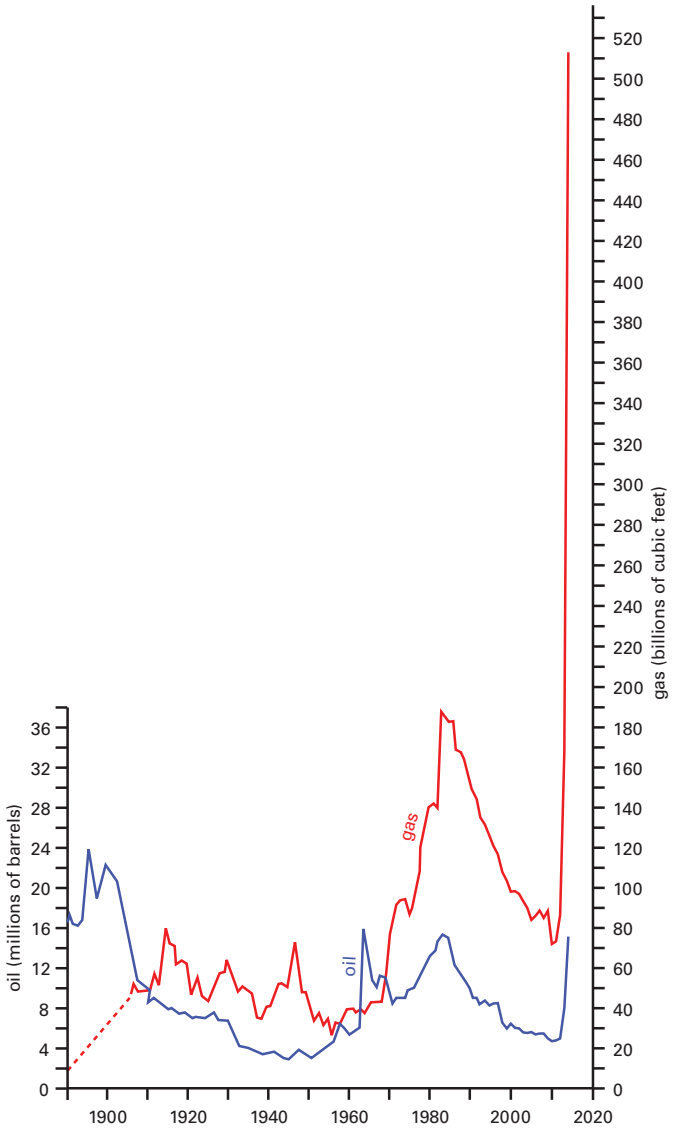


FIGURE 37.—Production of oil and gas in Ohio. Gas line dashed where data not available.

TABLE 19. ***2014 Ohio summary of new oil-and-gas well completions, by county***

County[1]	Development wells		Exploratory wells		Total wells	Percent productive	Drilled footage		
	Productive	Dry	Productive	Dry			Productive	Dry	Total
Ashland	4	1	5	0	10	90	27,422	745	28,167
Ashtabula	2	0	0	0	2	100	9,185	0	9,185
Athens	1	0	0	0	1	100	1,830	0	1,830
Belmont	55	0	20	0	75	100	1,286,947	0	1,286,947
Carroll	97	0	2	0	99	100	1,531,736	0	1,531,736
Columbiana	8	0	3	0	11	100	163,979	0	163,979
Coshocton	14	1	0	0	15	93	42,908	3,175	46,083
Cuyahoga	1	1	0	0	2	50	3,302	3,357	6,659
Fairfield	1	2	0	0	3	33	1,936	7,521	9,457
Geauga	3	0	0	0	3	100	12,794	0	12,794
Guernsey	59	0	12	0	71	100	1,061,966	0	1,061,966
Hancock	0	0	1	0	1	100	1,480	0	1,480
Harrison	121	0	15	0	136	100	2,185,504	0	2,185,504
Holmes	2	0	1	0	3	100	7,332	0	7,332
Huron	3	0	0	0	3	100	10,410	0	10,410
Jefferson	2	0	2	0	4	100	68,872	0	68,872
Knox	21	1	1	2	25	88	65,228	13,853	79,081
Licking	15	2	0	0	17	88	37,363	5,158	42,521
Mahoning	6	0	1	0	7	100	63,308	0	63,308
Meigs	3	0	0	0	3	100	5,702	0	5,702
Monroe	56	0	15	0	71	100	1,104,007	0	1,104,007
Morgan	4	1	2	0	7	86	55,350	6,340	61,690
Morrow	0	1	0	0	1	0	0	3,420	3,420
Muskingum	7	0	0	1	8	88	34,946	5,972	40,918
Noble	54	0	6	0	60	100	930,774	0	930,774
Perry	1	0	2	0	3	100	14,970	0	14,970
Pickaway	8	0	0	0	8	100	20,712	0	20,712
Portage	4	0	1	0	5	100	32,872	0	32,872
Preble	0	0	0	1	1	0	0	1,700	1,700
Richland	3	0	0	0	3	100	14,005	0	14,005
Sandusky	1	0	0	0	1	100	1,657	0	1,657
Stark	27	0	0	1	28	96	161,983	6,950	168,933
Summit	2	0	0	0	2	100	7,903	0	7,903
Trumbull	4	0	1	0	5	100	33,043	0	33,043
Tuscarawas	1	0	2	0	3	100	32,024	0	32,024
Washington	14	0	1	0	15	100	70,751	0	70,751
Wayne	1	0	0	0	1	100	3,422	0	3,422
Wood	0	0	1	1	2	50	1,308	1,205	2,513
TOTAL	605	10	94	6	715	98	9,108,931	59,396	9,168,327

[1]No wells were drilled in these counties in 2014: Adams, Allen, Auglaize, Brown, Butler, Champaign, Clark, Clermont, Clinton, Crawford, Darke, Defiance, Delaware, Erie, Fayette, Franklin, Fulton, Gallia, Greene, Hamilton, Hardin, Henry, Highland, Hocking, Jackson, Lake, Lawrence, Logan, Lorain, Lucas, Madison, Marion, Medina, Mercer, Miami, Montgomery, Ottawa, Paulding, Pike, Putnam, Ross, Scioto, Seneca, Shelby, Union, Van Wert, Vinton, Warren, Williams, and Wyandot.

TABLE 20. ***2014 Ohio summary of new oil-and-gas well completions, by geologic unit***

Producing Zones	Development		Exploratory		Total Wells	Percent Productive	Drilled Footage		
	Productive	Dry	Productive	Dry			Productive	Dry	Total
Pennsylvanian									
(Cow Run)	1	0	0	0	1	100	869	0	869
Upper Mississippian									
(Keener)	1	0	0	0	1	0	1,340	0	1,340
Mississippian									
(1st & 2nd Berea)	25	2	0	0	27	93	32,431	1,385	33,816
Devonian									
(Ohio Shale-Marcellus)	15	0	3	0	18	100	118,699	0	118,699
(Oriskany)	0	0	0	0	0	0	0	0	0
Silurian									
(Clinton-Medina)	90	2	0	0	92	98	379,532	6,532	386,064
Ordovician									
(Utica/Point Pleasant)	442	0	79	0	521	100	8,374,675	0	8,374,675
(Trenton)	1	0	2	1	4	75	4,445	1,205	5,650
(Beekmantown)	5	1	3	0	9	89	49,895	6,340	56,235
Cambrian-Ordovician									
(Rose Run)	7	0	1	2	10	80	55,031	12,922	67,953
Cambrian									
(Trempealeau)	18	5	6	3	32	75	92,014	31,012	123,026
PreCambrian	0	0	0	0	0	0	0	0	0
TOTAL	605	10	94	6	715	98	9,108,931	59,396	9,168,327

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APPENDICES

The following pages include directories containing information, such as production and sales totals, producing geologic units, and company contact details, for coal and industrial mineral operators reporting sales and/or production in 2014. The directories are arranged alphabetically, and specific operator information can be accessed by using the state mine number and commodity produced/sold. The table below provides a listing of Ohio counties and their state mine number abbreviations.

TABLE A-1. ***Ohio counties and their state mine number abbreviations***[1]

County	Abbreviation	County	Abbreviation	County	Abbreviation
Adams	Ads	Hamilton	Hmn	Noble	Ne
Allen	An	Hancock	Hk	Ottawa	Oa
Ashland	Ald	Hardin	Hdn	Paulding	Pg
Ashtabula	Asa	Harrison	Hn	Perry	Py
Athens	As	Henry	Hy	Pickaway	Pky
Auglaize	Ae	Highland	Hd	Pike	Pke
Belmont	Bt	Hocking	Hg	Portage	Pe
Brown	Bn	Holmes	Hs	Preble	Pre
Butler	Br	Huron	Hrn	Putnam	Pm
Carroll	Cl	Jackson	Jkn	Richland	Rd
Champaign	Cpn	Jefferson	Jfn	Ross	Rs
Clark	Ck	Knox	Kx	Sandusky	Sy
Clermont	Ct	Lake	Lke	Scioto	So
Clinton	Cln	Lawrence	Le	Seneca	Sa
Columbiana	Ca	Licking	Lg	Shelby	Shy
Coshocton	Cn	Logan	Lgn	Stark	Sk
Crawford	Cd	Lorain	Ln	Summit	St
Cuyahoga	Cya	Lucas	Ls	Trumbull	Tl
Darke	Dke	Madison	Mdn	Tuscarawas	Ts
Defiance	De	Mahoning	Mg	Union	Un
Delaware	Del	Marion	Mn	Van Wert	Vt
Erie	Ee	Medina	Ma	Vinton	Vn
Fairfield	Fd	Meigs	Ms	Warren	Wan
Fayette	Fe	Mercer	Mr	Washington	Wn
Franklin	Fn	Miami	Mi	Wayne	We
Fulton	Ftn	Monroe	Me	Williams	Ws
Gallia	Ga	Montgomery	My	Wood	Wd
Geauga	Gea	Morgan	Mon	Wyandot	Wt
Greene	Ge	Morrow	Mw		
Guernsey	Gy	Muskingum	Mum		

[1]As used for State of Ohio mine numbers.

2014 COAL COMPANIES WITH SALES AND/OR PRODUCTION

Company	Number of mines	Production (tons)	Sales (tons)
American Energy Corp.	1	6,684,694	6,662,235
American Landfill, Inc.	1	3,383	3,383
Anthony Mining Co., Inc.	1	76,107	76,107
B & N Coal, Inc.	4	419,621	419,621
Belden Brick Co.	2	14,566	14,566
Buckingham Coal Co., Inc.	3	1,754,669	1,786,599
Cedar Heights Clay Co.	1	5,531	5,531
D. & D. Mining Co.	1	0	4,748
East Fairfield Coal Co.	1	538	538
Egypt Valley Stone, LLC	1	20,079	20,079
F. & M. Coal Co.	1	7,198	7,198
Harrison Resources, LLC	1	781,630	781,630
Hopedale Mining, LLC	1	798,120	857,987
Kimble Clay & Limestone Co.	1	327,502	327,502
Ohio American Energy, Inc.	2	23,528	70,006
Ohio Valley Coal Co.	1	4,673,208	4,638,621
Oxford Mining Co., LLC	3	72,004	72,004
Oxford Resource Partners, LP	18	4,480,313	4,480,311
Rosebud Mining Company	3	986,065	986,065
Sands Hill Mining, LLC	2	165,478	157,491
Sidwell Materials, Inc.	1	21,711	21,711
Solomon's Mines, Inc.	1	1,562	1,562
Sterling Mining Co.	2	497,241	486,759
Waterloo Coal Co., Inc.	3	161,088	161,088
TOTAL: 24 companies	56	21,975,836	22,043,342

2014 OHIO DIRECTORY OF PRODUCING COAL MINE OPERATORS

For those mines that have not been assigned a state mine number, a letter designation is used (example: Bt-C).
The designation **(u)** indicates an underground mine.
To convert short tons to metric tons, multiply the given tonnage by 0.907185.

Name, address, telephone number, and president/owner/manager of company	Name of mine	County(ies)	2014 production (tons)	State mine number	Mineral Resources Management permit number
American Energy Corp. 43521 Mayhugh Hill Rd. Twp Rd. 88 Beallsville, OH 43716 (740) 338-3100 Robert E. Murray, pres.	Century Mine (u)	Belmont	6,684,694	Bt-67	D-0425
American Landfill, Inc. 7916 Chapel St. SE Waynesburg, OH 44688 (330) 866-3265 Chad Abell, pres.	American Landfill, Inc.	Stark	3,383	Sk-246	D-1090
Anthony Mining Co., Inc. P.O. Box 1298 Steubenville, OH 43952 (740) 266-8100 Albert Carapelotti, pres.	Carson-Harrah	Harrison	76,107	Hn-766	D-1041
B & N Coal, Inc. P.O. Box 100 Dexter City, OH 45727 (740) 783-3575 Carl Baker, Jr., pres.	Estadt Mine Westfork Mine Whigville III Mantel Mine	Noble Noble Noble Washington	59,687 88,674 167,479 103,781	Ne-BN Ne-BN5 Ne-BN8 Ne-BN7	D-1038 D-2218 D-2332 D-2285
Belden Brick Co. P.O. Box 20910 Canton, OH 44701 (330) 265-2030 Robert F. Belden, pres.	Moomaw Pit Shanesville Pit	Tuscarawas Tuscarawas	10,564 4,002	Ts-1517 Ts-1939	IM-46 IM-47
Buckingham Coal Co., Inc. P.O. Box 400 Corning, OH 43730-0400 (740) 347-4565 Gerald N. Little, pres.	Buckingham Mine No. 7 (u) Buckingham Mine No. 6 (u)	Perry Perry	491,071 1,263,598	Py-B1 Py-B2	D-2223 D-2269
Cedar Heights Clay Co. 50 Portsmouth Rd. P.O. Box 295 Oak Hill, OH 45656-0295 (740) 682-7794 William T. Brown, pres.	Phillips	Jackson	5,531	Jkn-CH3	IM-2035
East Fairfield Coal Co. 10900 South Ave. P.O. Box 217 North Lima, OH 44452-0217 (330) 549-2165 W. Thomas Mackall, pres.	Withers-Petersburg	Mahoning	538	Mg-E	IM-1103
Egypt Valley Stone, LLC P.O. Box 188 Morristown, OH 43759 (740) 782-0042 Richard Petrozzi, pres.	Shugert	Belmont	20,079	Bt-E	IM-2299

2014 OHIO DIRECTORY OF PRODUCING COAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County(ies)	2014 production (tons)	State mine number	Mineral Resources Management permit number
F. & M. Coal Co. 3925 County Rd. 56 Toronto, OH 43964 (740) 544-5203 Edward Fiala, partner	Grabbit Pit	Jefferson	7,198	Jfn-FM1	D-2216
Harrison Resources, LLC P.O. Box 205 Cadiz, OH 43907 (740) 942-4393 Chuck Ungurean, pres.	Sexton 2	Harrison	781,630	Hn-H	D-2289
Hopedale Mining, LLC 86900 Sinfield Rd. P.O. Box 415 Hopedale, OH 43976 (740) 937-2225 Chris Nalton, pres.	Hopedale Mining, LLC (u)	Harrison	798,120	Hn-169	D-0424
Kimble Clay & Limestone Co. 3596 State Route 39 W Dover, OH 44622-9801 (330) 343-1226 Keith B. Kimble, pres.	Kimble Clay & Limestone Co.	Tuscarawas	327,502	Ts-K10	D-2264
Ohio American Energy, Inc. 46226 National Rd. St. Clairsville, OH 43950 (740) 338-3100 Robert E. Murray, pres.	Northstar 2 Mine	Jefferson	23,528	Jfn-04	D-2362
Ohio Valley Coal Co. 46226 National Rd. St. Clairsville, OH 43950 (740) 338-3149 Robert E. Murray, owner	Powhatan No. 6 (u)	Belmont	4,673,208	Bt-68	D-0360
Oxford Mining Co., LLC P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Buttermilk Keener Oxford Mining Company	Belmont Tuscarawas Tuscarawas	4,302 61,782 5,920	Bt-0X9 Ts-0X2 Ts-0X3	D-2419 D-2404 D-2421
Oxford Resource Partners, LP P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Speidel Wheeling Valley Marietta Egypt Valley Bedway-Kaczor King Crum Sandy Ridge Standingstone Mine Picken/Strip #3 Pasco Ellis New Lex-Rambo Pole Cat Road Avondale East Canton Hunt Stillwater Page West Stone Creek Kopka	Belmont Belmont Belmont Belmont Guernsey Harrison Harrison Harrison Jefferson Jefferson Perry Perry Perry Stark Tuscarawas Tuscarawas Tuscarawas Tuscarawas	59,854 174,969 13,207 64,250 239,106 300,719 849,164 61,104 467,455 587,623 217,397 347,703 43,813 394,070 420,860 129,376 39,130 70,513	Bt-0X11 Bt-0X5 Bt-0X6 Bt-0X8 Gy-01 Hn-A1 Hn-02 Hn-V Jfn-06 Jfn-0X Py-01 Py-03 Py-04 Sk-0 Ts-K8 Ts-06 Ts-0X Ts-0X1	D-2416 D-2315 D-2386 D-2398 D-2403 D-2292 D-2277 D-2286 D-2408 D-2369 D-2254 D-2376 D-2423 D-2364 D-2226 D-2325 D-2361 D-2393

2014 OHIO DIRECTORY OF PRODUCING COAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County(ies)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Rosebud Mining Company 301 Market St. Kittanning, PA 16201 (724) 545-6222 J. Clifford Forest, pres.	Vail Mine Bergholz Mine Tusky Mine	Harrison Jefferson Tuscarawas	437,078 339,203 209,784	Hn-R1 Jfn-B1R Ts-TR	D-2355 D-1180 D-2177
Sands Hill Mining, LLC P.O. Box 650 Hamden, OH 45634-0650 (740) 384-4211 David G. Zatezalo, pres.	Sands Hill Rockcamp II Big Rock	Jackson Vinton	74,296 91,182	Jkn-S2 Jkn Vn-S7	D-1087 D-2344
Sidwell Materials, Inc. 4620 Limestone Valley Rd. Zanesville, OH 43701 (740) 849-2422 Jeffrey R. Sidwell, pres.	Uniontown Stone	Belmont	21,711	Bt-S	D-2261
Solomon's Mines, Inc. 7732 Salem-Unity Rd. Salem, OH 44460 (330) 337-0123 Jack Solomon, pres.	Solomon's Mines, Inc.	Columbiana	1,562	Ca-SM	IM-1258
Sterling Mining Co. 10900 South Ave. P.O. Box 217 North Lima, OH 44452 (330) 549-2165 W. Thomas Mackall, pres.	Sterling-Carroll Hollow Deep (u) SMC-Shean Hill (u)	Carroll Jefferson	252,331 244,910	Cl-S1 Jfn-ST2	D-2091 D-2187
Waterloo Coal Co., Inc. P.O. Box 626 Jackson, OH 45640 (740) 286-5633 Denton Bowman, pres.	Layne Dundas-Oreton Waterloo Coal Co.	Jackson Vinton Vinton	10,324 129,607 21,157	Jkn-W2 Vn-191 Vn Vn-W2	D-712 D-0867, D-0957, D-1004 D-2424

2014 OHIO DIRECTORY OF COAL PREPARATION PLANTS AND ASSOCIATED FACILITIES, BY COUNTY

For those mines that have not been assigned a state mine number, a letter designation is used (example: Bt-C).

County	Name, address, telephone number, and president/owner/ manager of company	Name of plant	Township	State mine number	Mining and reclamation permit number	Type of facility
Belmont	Marietta Coal Co. 67705 Friends Church Rd. St. Clairsville, OH 43950 (740) 695-2197 John Nicolozakes, mgr.	Loading Dock	Pultney	Bt-936	D-0216	loading dock, prep plant—jig, flotation, centrifugal dryer, crushers, screens
	Ohio Valley Coal Co. 56854 Pleasant Ridge Rd. Alledonia, OH 43902 (740) 926-1351 John Forelli, pres.	Powhatan #6	Smith, Washington	Bt-68	D-0360	prep plant—jigs, cyclones, centrifuges, thickeners, filters, screens
	Ohio Valley Transloading Co. 56854 Pleasant Ridge Rd. Alledonia, OH 43902 (216) 765-1240 Robert E. Murray, pres.	Harbour Facility	York	Bt-1198		dock
	Oxford Resource Partners, LP P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Bellaire Dock	Pultney	Bt-832	D-0838	loading dock
	Rayle River Coal 67705 Friends Church Rd. St. Clairsville, OH 43950 (740) 695-2197 John Nicolozakes, pres.	Rayle River Terminal	Pultney	Bt-1191		coal transfer facility
Columbiana	Rosebud Mining Company 301 Market St. Kittanning, PA 16201 (724) 545-6222 J. Clifford Forest, pres.	Kensington Preparation Plant	West	Ca-879	D-0806	prep plant—heavy-media washer, cyclone, centrifuges, breaker
Coshocton	Oxford Resource Partners, LP P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Lori Tipple	Franklin	Cn-736	D-0671	tipple
Gallia	Sands Hill Mining, LLC P.O. Box 650 Hamden, OH 45634-0650 (740) 384-4211 David G. Zatezalo, pres.	Sands Hill Coal Co., Inc.	Addison	Ga-183	D-0834	tipple
	Waterloo Coal Co., Inc. P.O. Box 626 Jackson, OH 45640 (740) 682-7787 T. L. Darlington, Jr., pres.	Waterloo Dock #1	Addison	Ga-229	D-0725	dock, tipple
Harrison	Hopedale Mining, LLC P.O. Box 415 Hopedale, OH 43907 (740) 937-2225 David G. Zatezalo, pres.	Hopedale Prep Plant	Green	Hn-169	D-0424	prep plant—heavy-media vessel, heavy-media cyclones, spirals, dryers, thickeners, crushers, screens

2014 OHIO DIRECTORY OF COAL PREPARATION PLANTS AND ASSOCIATED FACILITIES, BY COUNTY (cont.)

County	Name, address, telephone number, and president/owner/ manager of company	Name of plant	Township	State mine number	Mining and reclamation permit number	Type of facility
Mahoning	Thompson Bros. Mining Co. 3379 E. Garfield Rd. New Springfield, OH 44443 (330) 549-3979 Donald Thompson, owner	Thompson Bros. Mining Co.	Springfield	Mg-588	D-0711	tipple
Meigs	Meigs Point Dock, LLC P.O. Box 388 New Haven, WV 25265 (304) 255-7458 David Jude, pres.	Meigs Point Dock	Sutton	Ms-M	D-2323	dock
	Waterloo Coal Co., Inc. P.O. Box 626 Jackson, OH 45640 (740) 682-7787 T. L. Darlington, Jr., pres.	Waterloo Dock #3	Salisbury	Ms-285	D-0698	tipple, dock
Scioto	Norfolk Southern Railroad 914 Hayport Rd. Wheelersburg, OH 45694 (740) 574-8491 Charles G. Howard, asst. to mgr.	NS Wheelersburg Terminal	Porter	So-96		dock
Tuscarawas	Oxford Resource Partners, LP P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Strasburg Wash Plant	Franklin, Lawrence	Ts-1942	D-0287	prep plant—jigs, cyclones, centrifuges, crushers, screens, picking tables
		Slurry Wash Plant	Franklin, Lawrence	Ts-HC	D-0981	prep plant—cyclones
Vinton	Waterloo Coal Co., Inc. P.O. Box 626 Jackson, OH 45640 (740) 682-7787 T. L. Darlington, Jr., pres.	Benedict Tipple	Swan	Vn-145	D-0159	tipple
		Dundas Tipple	Clinton	Vn-178	D-0185	tipple

2014 OHIO DIRECTORY OF PRODUCING COAL MINE OPERATORS, BY COUNTY

NOTE: This directory lists only coal-producing operations and excludes tipples; loading docks; preparation plants; or other active, nonproducing operations that would contribute to employment and wage statistics presented in table 9 (p. 16). For those mines that have not been assigned a state mine number, a letter designation is used (example: Bt-C). There is no correlation between the "Seam: Number" column and the "Production: Tonnage" column. The "Seam: Number" column represents the seam(s) mined at the operation. No production tonnage is listed by seam. Days in production were estimated for those companies not providing this information. To convert short tons to metric tons, multiply the given tonnage by 0.907185.

Seam identification of principal Ohio coals

1	Sharon	4	Newland (Brookville)	6a	Lower Freeport	9	Meigs Creek
2	Quakertown	4a	Clarion	7	Upper Freeport	11	Waynesburg
3	Lower Mercer	5	Lower Kittanning	7a	Mahoning	12	Washington
3a	Upper Mercer	5a	Strasburg	8	Pittsburgh		
3b	Tionesta	6	Middle Kittanning	8a	Pomeroy (Redstone)		

H	Harlem
W	Wilgus
WI	Winters

Type of mine/production

S	Surface
UG	Underground

Name of company	Name of mine	Township	Seam		Type of mine	Production		Days in production in 2014	Disposition		State mine number
			Number	Thickness (inches)		Method	Tonnage		Method	Tonnage	
BELMONT COUNTY—Total production = 11,716,274											
American Energy Corp.	Century Mine	Wayne, Washington	8	58	UG	longwall cont. miner *Total*	5,912,711 771,983 *6,684,694*	357	rail truck *Total*	5,720,954 941,445 *6,662,399*	Bt-67
Egypt Valley Stone, LLC	Shugert	Kirkwood, Union	8	42	S	strip	20,079	23	truck	20,079	Bt-E
Ohio Valley Coal Co.	Powhatan No. 6	Smith	8	60	UG	longwall cont. miner *Total*	4,193,924 479,284 *4,673,208*	330	rail truck *Total*	3,611,250 1,027,371 *4,638,621*	Bt-68
Oxford Mining Co., LLC	Buttermilk	Kirkwood, Union	8, 9	36, 52	S	strip	4,302	21	truck	4,302	Bt-OX9
Oxford Resource Partners, LP	Bedway-Kaczor	Richland, Union, Wheeling	9	42	S	strip auger *Total*	55,476 8,774 *64,250*	22	truck	64,250	Bt-OX8
	Marietta Egypt Valley	Kirkwood	8	42	S	strip auger *Total*	6,725 6,482 *13,207*	21	truck	13,207	Bt-OX6
	Speidel	Warren, Goshen	9	52	S	strip auger highwall *Total*	50,478 2,199 7,177 *59,854*	21	truck	59,854	Bt-OX11
	Wheeling Valley	Wheeling	9	45	S	strip auger *Total*	147,851 27,118 *174,969*	21	truck	174,969	Bt-OX5
Sidwell Materials, Inc.	Uniontown Stone	Wheeling	8	48	S	auger	21,711	18	truck	21,711	Bt-S
CARROLL COUNTY—Total production = 252,331											
Sterling Mining Co.	Sterling-Carroll Hollow Deep	Fox	6	36	UG	cont. miner	252,331	21	conveyor	243,714	CI-S1

COLUMBIANA COUNTY—Total production = 1,562											
Solomon's Mines, Inc.	Solomon's Mines, Inc.	Salem	7		S	strip	1,562		truck	1,562	Ca-SM
GUERNSEY COUNTY—Total production = 239,106											
Oxford Resource Partners, LP	King Crum	Millwood	8, 9	33, 35	S	strip auger *Total*	238,592 514 *239,106*	21	truck	239,106	Gy-O1
HARRISON COUNTY—Total production = 3,303,922											
Anthony Mining Co., Inc.	Carson-Harrah	Green	8, 8a, 9	58, 20, 12	S	strip	76,107	21	truck	76,107	Hn-766
Harrison Resources, LLC	Sexton 2	Athens	8, 8a, 9	54, 22, 41	S	strip auger *Total*	776,259 5,371 *781,630*	25	rail truck *Total*	55,949 725,681 *781,630*	Hn-H
Hopedale Mining, LLC	Hopedale Mining, LLC	Green, German, Archer	6a, 7	60, 48	UG	cont. miner	798,120	355	rail truck other *Total*	834,514 23,436 37 *857,987*	Hn-169
Oxford Resource Partners, LP	Picken/Strip #3	Athens	8	55	S	strip auger *Total*	59,506 1,598 *61,104*	21	truck	61,104	Hn-V
	Sandy Ridge	Archer, Cadiz	8, 8a, 9	54, 16, 30	S	strip auger *Total*	283,575 17,144 *300,719*	21	truck	300,719	Hn-A1
	Standingstone Mine	Cadiz	8, 8a, 9	50, 18 36	S	strip auger *Total*	846,766 2,398 *849,164*	21	truck	849,163	Hn-O2
Rosebud Mining Company	Vail Mine	Freeport	7		UG	cont. miner	437,078	22	truck	437,078	Hn-R1
JACKSON COUNTY—Total production = 90,151											
Cedar Heights Clay Co.	Phillips	Madison			S	strip	5,531		truck	5,531	Jkn-CH3
Sands Hill Mining, LLC	Sands Hill Rockcamp II	Milton	4a 5, 6 6a WI	40 19 8 15, 4	S	strip	74,296	9	truck	70,710	Jkn-S2
Waterloo Coal Co., Inc.	Layne	Madison	4, 5		S	strip	10,324	3	truck	10,324	Jkn-W2

2014 OHIO DIRECTORY OF PRODUCING COAL MINE OPERATORS, BY COUNTY (cont.)

Name of company	Name of mine	Township	Seam		Type of mine	Production		Days in production in 2014	Disposition		State mine number
			Number	Thickness (inches)		Method	Tonnage		Method	Tonnage	
JEFFERSON COUNTY—Total production = 1,669,917											
F. & M. Coal Co.	Grabbit Pit	Smithfield, Green	8, 8a	18 54	S	strip	7,198	23	truck	7,198	Jfn-FM1
Ohio American Energy, Inc.	Northstar 2 Mine	Cross Creek	8		S	strip	23,528	0	truck	23,528	Jfn-04
Oxford Resource Partners, LP	Ellis	Wells	8, 8a 1b	50,	S	strip highwall *Total*	272,747 314,876 *587,623*	22	truck	587,623	Jfn-0X
	Pasco	Wells	8, 8a	52, 17	S	strip highwall *Total*	136,169 331,286 *467,455*	21	truck	467,454	Jfn-06
Rosebud Mining Company	Bergholz Mine	Ross	7a		UG	cont. miner	339,203	21	truck	339,203	Jfn-B1R
Sterling Mining Co.	SMC-Shean Hill	Brush Creek	7	36	UG	cont. miner	244,910	22	truck	243,045	Jfn-ST2
MAHONING COUNTY—Total production = 538											
D. & D. Mining Co.	D. & D. Strip	Springfield			S	cont. miner		0	truck conveyor *Total*	1,289 3,459 *4,748*	Mg-D
East Fairfield Coal Co.	Withers-Petersburg	Springfield	4	36	S	strip	538	1	*truck*	538	Mg-E
NOBLE COUNTY—Total production = 315,840											
B & N Coal, Inc.	Estadt Mine	Stock, Enoch	9	30	S	strip	59,687	21	water	59,687	Ne-BN
	Westfork Mine	Jefferson, Aurelius	9	36	S	strip	88,674	252	water	88,674	Ne-BN5
	Whigville III	Marion	9	40	S	strip	167,479	21	water	167,479	Ne-BN8
PERRY COUNTY—Total production = 2,363,582											
Buckingham Coal Co., Inc.	Buckingham Mine No. 6	Monroe	6	72	UG	cont. miner	491,071	244	rail truck *Total*	1,265,734 15,979 *1,281,713*	Py-B2
	Buckingham Mine No. 7	Monroe	7	60	UG	cont. miner	1,263,598	248	rail truck *Total*	493,092 6,214 *499,306*	Py-B1
Oxford Resource Partners, LP	Avondale	Harrison, Clayton	6	53	S	strip	43,813	21	truck	43,813	Py-04
	New Lex-Rambo	Clayton, Harrison	5, 6	42, 52	S	strip	217,397	22	truck	217,397	Py-01
	Pole Cat Road	Clayton	5, 6, 6a	42, 52 1B	S	strip auger *Total*	289,056 58,647 *347,703*	22	rail	347,703	Py-03

STARK COUNTY—Total production = 397,453											
American Landfill, Inc.	American Landfill, Inc.	Sandy, Osnaburg	5	24	S	strip	3,383		truck	3,383	Sk-246
Oxford Resource Partners, LP	East Canton	Osnaburg	5, 6, 6a, 7	28, 36, 14 22	S	strip highwall *Total*	281,848 112,222 *394,070*	22	truck	394,070	Sk-O
TUSCARAWAS COUNTY—Total production = 1,279,433											
Belden Brick Co.	Moomaw Pit	Sugar Creek	3b, 4	6, 6	S	strip	10,564		truck	10,564	Ts-1517
	Shanesville Pit	Sugar Creek	4, 5	6, 5	S	strip	4,002		truck	4,002	Ts-1939
Kimble Clay & Limestone Co.	Kimble Clay & Limestone Co.	Salem, Clay	5		S	strip	327,502	16	truck	327,502	Ts-K10
Oxford Mining Co., LLC	Keener	York, Jefferson	4a, 6	27, 32	S	strip auger *Total*	49,382 12,400 *61,782*	21	truck	61,782	Ts-OX2
	Oxford Mining Company	Clay	7	29	S	strip	5,920	18	truck	5,920	Ts-OX3
Oxford Resource Partners, LP	Hunt	Washington	6	38	S	strip highwall *Total*	186,632 234,228 *420,860*	21	truck	420,860	Ts-K8
	Stillwater Page	Rush	5, 6, 7	30, 36 28	S	strip auger *Total*	103,681 25,695 *129,376*	21	truck	129,376	Ts-O6
	Stone Creek Kopka	York	5, 6	32, 32	S	strip auger *Total*	67,022 3,491 *70,513*	21	truck	70,513	Ts-OX1
	West	Rush	7	28	S	strip auger *Total*	35,004 4,126 *39,130*	21	truck	39,130	Ts-OX
Rosebud Mining Company	Tusky Mine	Mill	6		UG	cont. miner	209,784	21	truck	209,784	Ts-TR
VINTON COUNTY—Total production = 241,946											
Sands Hill Mining, LLC	Big Rock	Clinton	W, 4a, 5	47, 42, 29	S	strip	91,182	7	water	86,781	Vn-S7
Waterloo Coal Co., Inc.	Dundas-Oreton	Clinton, Vinton	4, 5		S	strip	129,607	20	truck	129,607	Vn-191 Vn
	Waterloo Coal Co.	Vinton	7		S	strip	21,157	9	truck	21,157	Vn-W2
WASHINGTON COUNTY—Total production = 103,781											
B & N Coal, Inc.	Mantel Mine	Salem	9	30	S	strip	103,781	22	water	103,781	Ne-BN7

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS

For those mines that have not been assigned a state mine number, a letter designation is used (example: Ts-A).
If there are no sales or production figures given for an operation, that operation reported no sales or production in 2014.[1]
To convert short tons to metric tons, multiply the given tonnage by 0.907185.

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
A. P. Green Refractories, Inc. 400 Fairway Dr., Bldg. 400 Moon Township, PA 15108 (412) 375-6600 Stephen M. Delo, pres.	Poetker	Jackson	clay	3,788	3,788	Jkn-G	IM-2353
Agg Rok Materials 711 Frank Rd. Columbus, OH 43223 (614) 875-5500 William G. Heffner, pres.	Agg Rok	Franklin	sandstone sand & gravel	6 6,000	6 6,000	Fn-36	IM-302
Alden Excavating 2504 Northampton Rd. Cuyahoga Falls, OH 44223 (330) 928-3249 Connie Ensign, pres.	Alden Excavating	Summit	sand & gravel	2,439	2,439	St-55	IM-589
American Sand & Gravel, Inc. 9500 Forty Corners Rd. NW Massillon, OH 44647 (330) 762-9373 Christopher A. Scala, pres.	Plant #4 Plant #6	Stark Stark	sand & gravel sand & gravel	540,252 10,210	540,252 10,210	Sk-243 Sk-RO	IM-908 IM-2084
Anthony Mining Co., Inc. P.O. Box 1298 Steubenville, OH 43952 (740) 268-8100 Albert Carapellotti, pres.	Carson-Harrah Patton-Mader	Harrison Harrison	limestone limestone	73,465 160	73,465 160	Hn-766 Hn-A	D-1041 IM-2247
Arch Materials, LLC P.O. Box 861 Owensville, OH 45160 (513) 724-7625 Ben L. Rechter, pres.	Batavia Mine	Clermont	limestone	1,243,000	1,243,000	Ct-A	
Ashcraft Sand & Gravel, Inc. 5850 Dry Fork Rd. Cleves, OH 45002 (513) 367-5700 Rick Ashcraft, owner	Ashcraft Sand & Gravel, Inc.	Hamilton	sand & gravel	40,095	40,095	Hmn-54	IM-710
Athens Hocking Reclamation Center Athens Hocking Reclamation Clay Mine 450 Gallagher Ave. P.O. Box 946 Logan, OH 43138 (740) 385-6019 Edward F. Kilbarger, mgr.	Athens-Hocking Clay Mine	Athens	clay	25,000	26,600	As-594	
Atlas Towing Co. P.O. Box 1632 Parkersburg, WV 26101 (304) 428-0341 Christopher V. Criss, pres.	Belpre Bank Run	Washington	sand & gravel	4,161	4,161	Wn-54	IM-383
Ballentine Sand & Gravel, LLC 7854 Cooley Rd. Ravenna, OH 44266 (330) 297-6712 Daniel H. Ballentine, owner	Ballentine Lake	Portage	sand & gravel	74,968	74,968	Pe-BA	IM-1327

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Barrett Paving Materials, Inc. 10400 Haddix Rd. P.O. Box 13671 Fairborn, OH 45324 (937) 424-9104 Marc Zehnder, plant mgr.	Haddix Road Aggregates Plant #341 Hardin Sand & Gravel	Greene Shelby	sand & gravel sand & gravel	555,600 212,559	470,762 245,430	Ck-28 Shy-SC	IM-1100, IM-2120 IM-1018
Barrett Paving Materials, Inc. 4710 Soldiers Home-WC Rd. Miamisburg, OH 45342 (937) 424-9100 Mike Oliver, plant super.	West Carrollton Aggregate Plant	Montgomery	sand & gravel	666,503	450,409	My-19	IM-401, IM-916
Barrett Paving Materials, Inc. Mid-Ohio 1556 Miami River Rd. Sidney, OH 45365 (937) 492-5412 Jim Meckstroth, reg. mgr.	Barrett Paving Materials, Inc., #231 Miami River Quarry Vandemark Quarry #221	Miami Shelby Shelby	limestone limestone limestone	279,130 713,025 10,354	317,248 805,009 0	Mi-BPM Shy-17 Shy-15	IM-1169 IM-389 IM-387
Beaver Excavating, Inc. 2000 Beaver Place Ave. SW P.O. Box 6059 Canton, OH 44706 (330) 478-2151 Aaron Johnson, pres.	Stone Products	Stark	clay sand & gravel	4,000 7,500	4,000 7,500	Sk-BE	IM-1202
Beck Sand & Gravel, Inc. 2820 Webb Rd. Ravenna, OH 44266 (330) 626-3863 Rodney Wenrich, owner	Beck Sand & Gravel, Inc.	Portage	sand & gravel	297,303	297,303	Pe-50	IM-96
Belden Brick Co. P.O. Box 20910 Canton, OH 44701 (330) 852-2424 Robert F. Belden, pres.	Belden Pit Moomaw Pit Plotner Pit Shanesville Pit Wallick Pit	Tuscarawas Tuscarawas Tuscarawas Tuscarawas Tuscarawas	shale clay shale shale clay shale clay	23,709 13,713 4,207 6,775 55,278 22,706 62,404	23,709 13,713 4,207 6,775 55,278 22,706 62,404	Ts-1646 Ts-1517 Ts-B Ts-1939 Ts-1841	IM-44 IM-46 IM-49 IM-47 IM-45
Best Sand Corp. 11830 Ravenna Rd. Chardon, OH 44024 (440) 285-3132 Jennifer Deckard, pres.	Best Sand Corp. Best - Southern Division	Geauga Pike	sandstone sandstone	667,709 54,655	667,709 54,655	Gea-3 Pke-31	IM-89 IM-835
Bluffton Stone Co. P.O. Box 26 Bluffton, OH 45817-0026 (419) 358-6941 Michael J. Gerken, pres.	Bluffton Stone Co.	Allen	limestone	373,320	407,094	An-1	IM-485
Bontrager Excavating Co. 11087 Clevland Ave. NW Uniontown, OH 44685 (330) 499-8775 Harry Gilbert, pres.	Gilbert	Summit	sand & gravel	3,382	6,054	St-B	IM-2303

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Bowerston Shale Co. 1329 Seven Hills Rd. NE P.O. Box 199 Newark, OH 43055 (740) 269-3921 Mark Willard, pres.	Bowerston (Calwell)	Harrison	shale	26,369	26,369	Hn-152	IM-42
Bowerston Shale Co. 1329 Seven Hills Rd. NE Newark, OH 43055 (740) 763-3921 Mark Willard, pres.	Hanover Pit Frazeysburg	Licking Muskingum	shale clay	14,755 11,993	14,755 11,993	Lg-501 Mum-776	IM-257 IM-256
Boyas Excavating, Inc. 11311 Rockside Rd. Cleveland, OH 44125-4247 (216) 524-3620 Michael Boyas, pres.	Boyas Excavating, Inc.	Cuyahoga	clay sand & gravel	4,604 102,321	4,604 102,321	Cya-42	IM-686
Boyd Excavating 9553 County Rd. 28 Zanesfield, OH 43360 (937) 465-3290 Jeff Boyd, owner	Boyd Excavating	Logan	sand & gravel	2,790	2,790	Lgn-B	IM-1309
Briar Hill Stone Co. P.O. Box 157 McDermott, OH 45652 (740) 259-2356 Frank L. Waller, pres.	Quarry #32 Quarry #54 Quarry #55 Quarry #6	Coshocton Coshocton Coshocton Knox	sandstone sandstone sandstone sandstone	1,035 512 7,447 175	1,035 512 7,447 175	Cn-686 Cn-809 Cn-815 Kx-12	IM-504 IM-909 IM-939 IM-445
Briggs Sand & Gravel, Inc. 1905 Blue Knob Rd. Marietta, OH 45750 (740) 373-3363 James A. Briggs, pres.	Briggs Sand & Gravel, Inc.	Washington	sand & gravel	19,678	19,678	Wn-508	IM-57
Brookside Materials, LLC 2850 Rohr Rd. Groveport, OH 43215 (614) 915-5724 Gerald E. Bennett, pres.	Brookside Materials, LLC	Licking	clay sand & gravel	20,000 170,000	20,000 164,000	Lg-B	IM-2273
Buck Run Aggregates, LLC 11640 S. State Line Rd. Petersburg, OH 44454 (330) 426-2151 Shawn Sugar, plant mgr.	Krcich	Columbiana	sand & gravel	22,406	32,522	Ca-351	IM-634
Burwinkel, Richard & Kathy 5915 Dry Ridge Rd. Cincinnati, OH 45252 (513) 385-7131 Richard & Kathy Burwinkel, owners	Burwinkel	Hamilton	sand & gravel	43,797	43,797	Hmn-RB	IM-2333
C. F. Poeppelman, Inc. 4755 N. State Route 721 Bradford, OH 45308 (937) 448-2191 James C. Poeppelman, pres.	C. F. Poeppelman, Inc.	Miami	limestone sand & gravel	295,004 6,915	295,004 6,915	Mi-10	IM-335

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Calvin's Hauling, Inc. 1205 S. Johnson Ave. Bartow, FL 33830 (740) 998-4647 Calvin Cochenour, pres.	Calvin's Hauling, Inc.	Ross	sand & gravel	746	0	Rs-C	IM-2349
Cardinal Aggregates, Inc. 8026 Fremont Pike Perrysburg, OH 43551 (419) 872-4380 Mark Murray, pres.	Cardinal Aggregates, LLC	Wood	limestone	567,644	567,644	Wd-C	IM-2231
Cargill, Incorporated Cargill Deicing Technology 2400 Ships Channel P.O. Box 6920 Cleveland, OH 44101 (216) 357-4600 Richard Maxfield, pres.	Cargill Deicing Technology	Cuyahoga	salt	3,796,824	3,427,121	Cya-30	
Cargill Salt 2065 Manchester Rd. Akron, OH 44314 (330) 848-6912 Dan Pulis, plant mgr.	Cargill Salt	Summit	salt	324,515	340,708	St-9127	
Carl E. Oeder and Sons Sand & Gravel 1000 W. Mason Morrow Millgrove Lebanon, OH 45036 (513) 494-1555 Carl E. Oeder, pres.	Carl E. Oeder and Sons Sand & Gravel	Warren	sand & gravel	494,093	494,093	Wan-41	IM-629
Carmeuse Lime, Inc. 1967 County Rd. 42 Bettsville, OH 44815 (419) 986-2016 Yves Williams, pres.	Millersville Plant Woodviille Plant Maple Grove	Sandusky Sandusky Seneca	limestone limestone sand & gravel limestone	384,490 1,063,865 291 1,917,182	384,490 1,147,895 0 1,917,182	Sy-4 Sy-3 Sa-2	IM-381 IM-282 IM-352
Carter & Carter, Inc. P.O. Box 266 Miamisburg, OH 45343-0266 (937) 859-5414 Charles V. Carter, pres.	Carter & Carter, Inc.	Montgomery	sand & gravel	315	315	My-CW	IM-878
Carter, Joe E. 21399 State Line Rd. Lawrenceburg, IN 47025 (812) 537-3970 Joe E. Carter, owner	Lost Bridge	Hamilton	sand & gravel	1,200	1,200	Hmn-JC	IM-1267
CCR Sand & Gravel, LLC 8215 Seville Rd. Lodi, OH 44254 (330) 948-0168 Ronald M. Condren, pres.	CCR Sand & Gravel, LLC	Medina	sand & gravel	49,913	49,913	Ma-22	IM-425, IM-442, IM-650, IM-651
Cedar Heights Clay Co. P.O. Box 295 Oak Hill, OH 45656-0295 (740) 682-7794 John Midea, pres.	Phillips	Jackson	clay	4,203	31,523	Jkn-CH3	IM-2035

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
CEMEX, Inc. 3250 Linebaugh Rd. Xenia, OH 45385 (937) 878-8393 Bernard P. McCormick, plant mgr.	Miller, Schieder, Batdorf, Stewart G-Tract	Greene Montgomery	clay limestone limestone	95,421 653,553 140,828	95,421 646,231 140,828	Ge-8 My-58	IM-364 IM-330
Central-Allied Enterprises, Inc. P.O. Box 80449 Canton, OH 44708-0449 (330) 477-6751 Gerald S. Orn, pres.	Canton Aggregate Div. Central Sand & Gravel Div. Massillon Washed Gravel Div. Massillon Washed Gravel Div.	Stark Stark Stark Stark	sand & gravel sand & gravel sand & gravel sand & gravel	638,251 6,470 70,769 245	638,251 6,470 70,769 245	Sk-681 Sk-CA1 Sk-MW Sk-607	IM-164 IM-2140 IM-1171 IM-102
Central Ready Mix, LLC P.O. Box 70 Monroe, OH 45050 (513) 402-5001 Todd Dragna, pres.	Germantown Plant #21 Carlisle Plant #27	Montgomery Warren	sand & gravel sand & gravel	75,000 125,000	75,000 125,000	My-41 Wan-7	IM-360 IM-151
Christman Quarries 47278 Swazey Rd. Lewisville, OH 43754 (740) 838-2475 Kathy L. Dimmerling, owner	Christman Quarry	Monroe	limestone	66,112	66,112	Me-C	IM-1088
City Stone, LLC 8063 Southern Blvd. Boardman, OH 44512 (800) 262-9365 Ronald R. Carrocce, pres.	City Stone, LLC	Mahoning	sandstone	123,637	123,637	Mg-62	IM-599
Clinton Stone, LLC P.O. Box 650 Hamden, OH 45634-0650 (740) 384-4211 David G. Zatezalo, pres.	Clinton Stone, LLC	Jackson	limestone	143,678	143,678	Jkn-S2	D-1087
Con-Ag, Inc. 16672 County Rd. 66A N St. Marys, OH 45885 (419) 394-8870 John R. Hirschfeld, pres.	Con-Ag, Inc.	Auglaize	limestone	159,146	159,146	Ae-31	IM-744
Crushers Stone Products, LLC 7000 Columbus Rd. Shreve, OH 44676 (330) 465-6266 Dan Stauffer, Sr., pres.	Crushers Stone Products, LLC	Wayne	shale	10,000	11,000	We-25	IM-1209
Cumberland Limestone, LLC 53681 Spencer Rd. Cumberland, OH 43732 (740) 638-3942 Chris D. Sidwell, pres.	Cumberland Limestone, LLC	Guernsey	limestone	276,767	276,767	Gy-309	IM-1030
Custar Stone Co., Inc. 9072 County Road 424 Napoleon, OH 43545 (419) 533-8831 Brent Gerken, pres.	Custar Stone Co., Inc.	Wood	limestone	378,009	382,451	Wd-5	IM-473

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
D. & D. Mining Co. 3379 E. Garfield Rd. New Springfield, OH 44443 (330) 549-3127 Donald Thompson, pres.	D. & D. Strip	Mahoning	sandstone	120	0	Mg-D	D-2164
D & K Materials, Inc. 3072 Congress Lake Rd. Mogadore, OH 44260 (330) 678-2411 Kimberly S. Ebie, pres.	D & K Materials, Inc.	Portage	clay sand & gravel	981 111,110	981 111,110	Pe-101	IM-1154
D. M. Mining, Inc. P.O. Box 4288 Ironton, OH 45638 (740) 534-4111 Cheryl Bolender, pres.	Ice Creek Land Co.	Lawrence	shale	7,879	7,879	Le-D	IM-2390
Dennis Topsoil & Landscaping, Inc. 6340 Dorr St. Toledo, OH 43615 (419) 865-5656 Robert T. Dennis, Sr., owner	Dennis Topsoil & Landscaping, Inc.	Lucas	sand & gravel	1,100	1,100	Ls-D1	IM-2407
D.G.M., Inc. 1881 Adams Rd. P.O. Box 207 Beaver, OH 45613 (740) 226-1950 Mark A. Salisbury, pres.	Towpath-Warwick Tow Path Ready Mix	Ross Scioto	sand & gravel sand & gravel	45,058 65,214	45,058 65,214	Rs-D So-DGM	IM-2176 IM-1280
Diamond Stone Quarries P.O. Box 315 McArthur, OH 45651 (740) 596-5226 W. E. Engle, pres.	Diamond Stone	Athens	limestone	233,214	233,214	As-533	IM-17
DiGeronimo Aggregates, LLC 5531 Canal Rd. Valley View, OH 44125 (216) 524-2950 Victor DiGeronimo, Jr., pres.	DiGeronimo Aggregates, LLC	Cuyahoga	shale	176,267	176,267	Cya-19	IM-95
Dingledine Basic Materials, Inc. 2304 Somerville Rd. P.O. Box 262 Somerville, OH 45064 (513) 726-5258 Gerald Dingledine, pres.	Dingledine Basic Materials, Inc.	Butler	sand & gravel	26,236	31,000	Br-50	IM-739
Downard, James E. 1185 Mount Zwingli Rd. Bremen, OH 43107 (740) 569-7849 James E. Downard, owner	Downard Pit	Fairfield	sand & gravel	7,254	7,254	Fd-16	IM-1156
Duff Quarry, Inc. 9042 State Route 117 P.O. Box 305 Huntsville, OH 43324-0305 (937) 686-2488 Ross Duff, pres.	Duff Quarry, Inc. Duff Quarry, Inc.	Logan Logan	limestone sand & gravel	379,494 3,724	379,494 3,724	Lgn-15 Lgn-31	IM-453 IM-454

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
East Fairfield Coal Co. 10900 South Ave. P.O. Box 217 North Lima, OH 44452 (330) 549-2165 W. Thomas Mackall, pres.	Withers-Petersburg	Mahoning	limestone	402,872	399,722	Mg-631	IM-1103
Edgington, David E. P.O. Box 282 Frankfort, OH 45628 (740) 998-5328 David E. Edgington, owner	Edgington Pit	Ross	sand & gravel	3,808	3,808	Rs-E	IM-1168
Egypt Valley Stone, LLC P.O. Box 188 Morristown, OH 43759 (740) 782-0042 Richard Petrozzi, pres.	Shugert	Belmont	limestone	624,124	624,124	Bt-E	IM-2299
Enon Sand & Gravel, LLC 11641 Mosteller Rd. Cincinnati, OH 45241 (513) 771-0820 James P. Jurgensen, pres.	Enon Sand & Gravel, LLC	Clark	sand & gravel	486,450	486,450	Ck-3	IM-463, IM-1359, IM-2026
Envirosafe Services of Ohio, Inc. 876 Otter Creek Rd. Oregon, OH 43616 (419) 698-3500 Douglas E. Roberts, pres.	Johlin Property Clay Mine	Lucas	clay	28,800	28,800	Ls-E	IM-1075, IM-2116
Erie Blacktop, Inc. 4507 Tiffin Ave. P.O. Box 2308 Sandusky, OH 44870 (419) 625-7374 Dean Wikel, pres.	Erie Blacktop Quarry	Erie	limestone	221,889	221,889	Ee-27	IM-608
Ervin Hill Enterprises, Inc. P.O. Box 559 Hillsboro, OH 45133 (937) 393-4120 Mark Edenfield, pres.	Ervin Hill Enterprises, Inc.	Highland	sand & gravel	104,466	104,466	Hd-L	IM-1297
Evans Gravel, Inc. 4229 Round Bottom Rd. Cincinnati, OH 45244 (513) 271-1119 Douglas L. Evans, pres.	Evans Gravel, Inc.	Hamilton	sand & gravel	149,846	143,639	Hmn-E	IM-2181
Feikert Sand & Gravel, Inc. 6871 Twp. Rd. 605 Millersburg, OH 44654 (330) 674-7245 Lynn O. Feikert, pres.	Feikert Sand & Gravel Feikert Sand & Gravel, Inc.	Holmes Holmes	sand & gravel sand & gravel	41,840 307,692	41,840 307,692	Hs-F2 Hs-511	IM-2427 IM-1048, IM-1240
Fleming Construction Co., Inc. dba Scioto S & G P.O. Box 31 Marion, OH 43301-0031 (740) 494-2177 Sonja E. Fleming, pres.	Pit #1 Pit #2	Marion Marion	limestone sand & gravel sand & gravel	30 7,432 9,956	30 7,432 9,956	Mn-16 Mn-19	IM-171 IM-990

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Foureman's Sand & Gravel, Inc. 2791 Wildcat Rd. Greenville, OH 45331 (937) 548-1718 Gary B. Foureman, pres.	Foureman's Sand & Gravel, Inc.	Darke	limestone sand & gravel	12,000 43,969	12,000 43,969	Dke-4	IM-433
George J. Igel & Co., Inc. 2040 Alum Creek Dr. Columbus, OH 43207 (614) 445-8421 John B. Igel, pres.	George J. Igel & Co., Inc.	Pickaway	sand & gravel	0	105	Pky-C	IM-1223
Gerken Materials, Inc. 9072 County Rd. 424 Napoleon, OH 43545 (419) 533-7701 Brent Gerken, pres.	Gerken Materials, Inc.	Wood	limestone	228,134	579,903	Wd-1	IM-548
Glen-Gery Corp. P.O. Box 207 Iberia, OH 43325 (610) 374-4011 Steve Matsick, pres.	Iberia Quarry	Marion	shale	97,494	97,494	Mn-7	IM-309
Graymont Dolime (OH), Inc. P.O. Box 158 Genoa, OH 43430 (419) 855-8336 Stephanie Godin, pres.	Graymont Dolime (OH), Inc.	Ottawa	limestone	621,378	335,695	Oa-1	IM-292
Grimes Excavating 165 Holdren Ln. New Matamoras, OH 45767 (740) 865-3990 Lewis Grimes, owner	Grimes Sand and Gravel	Washington	sand & gravel	10,726	10,726	Wn-1008	IM-1111
Hanson Aggregates, LLC 1136 Morgantown Rd. Russellville, KY 42276 (270) 726-4936 Dan Harrington, v. pres.	Plum Run Quarry Eagle Crushed Stone Dry Fork Sand & Gravel Piketon Sand & Gravel	Adams Brown Hamilton Pike	limestone limestone sand & gravel sand & gravel	754,030 1,656,389 383,325 240,048	639,876 1,655,732 383,533 197,454	Ads-1 Bn-EC Hmn-50 Pke-24	IM-237 IM-1195 IM-205, IM-1139 IM-222
Hanson Aggregates Midwest, Inc. Heidelberg Cement Group 9220 Portland Rd. Castalia, OH 44824 (419) 483-4390 Ron Tipton, v. pres./gen. mgr.	Sandusky Crushed Stone Sylvania Waterville Paulding Bloomville Flat Rock	Erie Lucas Lucas Paulding Seneca Seneca	limestone limestone limestone limestone limestone limestone	2,288,023 725,000 325,769 56,060 239,320 629	2,407,703 705,351 387,067 32,551 224,267 629	Ee-11 Ls-3 Ls-1 Pg-7 Sa-3 Sa-1	IM-263 IM-580 IM-575 IM-349 IM-347
Hanson Aggregates Midwest, Inc. dba Wagner Quarries Co. 4203 Milan Rd. Sandusky, OH 44870 (419) 625-8141 Mike Stanczak, v. pres.	Wagner Quarry	Erie	limestone	1,499,265	1,286,538	Ee-1A	IM-310
Harvest Sand & Gravel, Inc. 522 Perkins Jones Rd. Warren, OH 44483 (330) 372-4408 David A. Grayson, pres.	Eberly	Columbiana	sand & gravel	21,948	21,948	Ca-H2	IM-2174

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Haueter Sand & Gravel, Inc. P.O. Box 206 Chardon, OH 44024 (440) 286-9482 Donald H. Haueter, pres.	Haueter Sand & Gravel, Inc.	Geauga	sand & gravel	103,628	105,240	Gea-29	IM-215
Hocking Valley Concrete, Inc. 35255 Hocking Dr. Logan, OH 43138 (740) 385-2165 Mark Vaughn, v. pres.	Hocking Valley Concrete, Inc.	Hocking	sand & gravel	80,257	89,256	Hg-262	IM-41
Hoffman, William A., Jr. 25043 State Route 104 Circleville, OH 43113 (740) 207-1029 William A. Hoffman, Jr., owner	Hoffman Pit	Pickaway	sand & gravel	1,072	1,072	Pky-H	IM-1039
Holmes Redimix, Inc. 5420 County Rd. 349 Millersburg, OH 44654 (330) 674-0370 Steve Schlabach, pres.	Holmes Redimix, Inc.	Holmes	sand & gravel	189,400	189,400	Hs-82	IM-707
Holmes Supply Corp. 7571 State Route 83 Holmesville, OH 44633 (330) 279-9000 Steve Schlabach, pres.	Holmes Supply Corp. Schlabach	Holmes Holmes	sand & gravel sand & gravel	110,070 203,145	110,070 203,145	Hs-J Hs-H1	IM-1043 IM-2310
IRG Operating, LLC dba Cleveland Quarries 5270 Devon Dr. Vermilion, OH 44089 (440) 963-4008 Zachary Carpenter, pres.	IRG Operating, LLC	Erie	sandstone	9,305	15,744	Ee-21	IM-416
Jaclib Enterprises, Inc. 560 State Route 554 Cheshire, OH 45620 (740) 367-0602 Jason C. Leach, pres.	Cheshire Pit	Gallia	sand & gravel	166	166	Ga-JE	IM-2034
JALIP, Ltd. 16303 Twp. Rd. 124 Harpster, OH 43323 (740) 496-2008 Philip Herring, owner	JALIP, Ltd.	Wyandot	sand & gravel	5,503	5,503	Wt-J	IM-2119
Jaymar, Inc. 8751 N. State Route 7 Cheshire, OH 45620 (740) 992-6637 Jay Hall, Jr., pres.	Plant #4	Meigs	sand & gravel	750,854	750,854	Ms-308	IM-1174
J.J.J. Properties, LLC 5585 Canal Rd. Valley View, OH 44125 (216) 447-0814 John Allega, member	J.J.J. Properties, LLC	Lake	sand & gravel	4,542	4,542	Lke-P	IM-2258

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Joe Simak & Sons Trucking, Inc. 3052 E. Center St. P.O. Box 599 North Kingsville, OH 44068 (440) 224-1992 Joseph E. Simak, pres.	Amboy Pit North Ridge Pit	Ashtabula Ashtabula	sand & gravel sand & gravel shale	2,288 22,618 3,219	2,288 22,618 3,219	Asa-ST Asa-18	IM-1349 IM-949
John L. Garber Materials, Inc. 2745 Gass Rd. - Route 8 Lexington, OH 44904 (419) 884-1567 John L. Garber, pres.	John L. Garber Materials, Inc. John L. Garber Materials, Inc.	Richland Richland	sand & gravel sand & gravel	0 123,948	123,948 0	Rd-G Rd-14	IM-2152 IM-436
Johnson Stone Products, Inc. 4018 Cleveland Rd. E Huron, OH 44839 (440) 315-3699 Terry A. Johnson, pres.	Johnson Stone Products	Lorain	sandstone	1,994	5,981	Ln-J	IM-1300
KCI Sand & Gravel P.O. Box 946 Logan, OH 43138 (740) 385-6019 Edward Kilbarger, pres.	KCI Sand & Gravel	Hocking	limestone sand & gravel	4,011 58,524	4,011 57,524	Hg-HA	IM-1320
Keeney Sand & Stone, Inc. 13320 Girdled Rd. Painesville, OH 44077 (440) 254-4582 Dennis J. Keeney, pres.	Keeney Sand & Stone, Inc.	Lake	sandstone	42,507	42,507	Lke-K	IM-859
King Quarries, Inc. 41820 Parrish Ridge Caldwell, OH 43724 (740) 732-2923 David King, Jr., pres.	King Quarries, Inc.	Noble	limestone	178,748	178,748	Ne-K1	IM-1292
Kirby's Sand & Gravel, Inc. 4876 County Hwy. 43 Upper Sandusky, OH 43351-9155 (419) 927-2260 Minor E. Kirby, owner	Kirby's Sand & Gravel, Inc.	Wyandot	sand & gravel	145,106	145,106	Wt-K	IM-943
Knox County Board of Commissioners 117 E. High St. Mt. Vernon, OH 43050 (740) 397-1590 James L. Henry, county engineer	Apple Valley	Knox	shale	0	2,851	Kx-K	IM-870
L & I Natural Resources, Inc. 10369 Cones Rd. Loveland, OH 45140 (513) 459-7716 Jerry Walker, pres.	L & I Pit & Mill	Warren	sand & gravel	82,980	82,980	Wan-50	IM-1006
L & M Mineral Co. 2010 County Rd. 144 Sugarcreek, OH 44681 (330) 852-3696 John E. Ling, Jr., pres.	Barr Farm Heil Spring Industries Spring	Stark Tuscarawas Tuscarawas Tuscarawas	clay sand & gravel shale sand & gravel clay	17,698 238 22,786 1,834 195	17,698 238 22,786 0 195	Sk-LM Ts-1884 Ts-SI Ts-1982	IM-2270 IM-6 IM-569 IM-621

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Lafarge Marblehead 831 S. Quarry Rd. Marblehead, OH 43440 (419) 798-4486 Jeff Grashel, plant mgr.	Lafarge Marblehead	Ottawa	limestone	2,939,257	3,342,239	Oa-7	IM-440
Lakeside Sand & Gravel Co. 3498 Frost Rd. Mantua, OH 44255 (330) 274-2569 Larry Kotkowski, pres.	Lakeside Sand & Gravel Co. Plant 1 Solak	Portage Portage	sand & gravel sand & gravel	557,274 4,072	557,274 4,072	Pe-LS Pe-A	IM-1293 IM-1362
Latham Limestone, LLC 11641 Mosteller Rd. Cincinnati, OH 45241 (740) 493-2677 Dennis Garrison, pres.	Latham Limestone	Pike	limestone	710,072	710,072	Pke-13	IM-213
Little Miami Sand & Gravel P.O. Box 36 Lebanon, OH 45036 (513) 932-3221 Jillora Summers, pres.	Little Miami Sand & Gravel Plant #1 Little Miami Sand & Gravel Plant #2	Warren Warren	sand & gravel sand & gravel	0 0	750 250	Wan-B Wan-46	IM-679 IM-842
Logan Clay Products Co., The P.O. Box 698 Logan, OH 43138 (740) 385-2184 Richard H. Brandt, pres.	Webb Summit	Perry	shale	15,876	15,876	Py-L	IM-2367
Loxley Aggregates, Inc. 4277 Falls Rd. Lewisburg, OH 45338 (937) 839-5488 Matthew L. Loxley, pres.	Loxley Aggregates, Inc.	Preble	clay sand & gravel	202 660	202 660	Pre-9	IM-1095
LUB, Inc. 4174 East Pike Zanesville, OH 43701 (740) 452-3668 Otto Luburgh, pres.	LUB, Inc.	Muskingum	sand & gravel	6,616	6,616	Mum-LB	IM-2106
M. J. Coates Construction Co., Inc. P.O. Box 41231 Dayton, OH 45441 (937) 886-9546 Martin J. Coates, owner	M. J. Coates Construction Co., Inc.	Greene	sand & gravel	54,846	54,846	Ge-47	IM-751
Marshall Quarry, Inc. 10460 State Route 124 Hillsboro, OH 45133 (937) 466-2855 Troy A. Main, v. pres.	Marshall Quarry, Inc.	Highland	limestone	40,000	9,500	Hd-4	IM-406
Martin Marietta Aggregates 9277 Centre Point Dr., Suite 250 West Chester, OH 45069 (304) 485-7341 Dan Goethel, gen. mgr.	Apple Grove Plant	Meigs	sand & gravel	304,851	369,704	Ms-205	IM-30

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Martin Marietta Aggregates 9277 Centre Pointe Dr., Suite 250 West Chester, OH 45069 (513) 492-5638 Steve Raffensperger, v. pres.	Fairfield Sand & Gravel	Butler	limestone	10,703	0	Br-35	IM-200
			sand & gravel	945,106	1,071,243		
	Ross Sand & Gravel	Butler	sand & gravel	296	0	Br-29	IM-149
	Fairborn Gravel	Clark	limestone	2,129	0	Ck-13	IM-366
			sand & gravel	67,641	8,123		
	Clinton Limestone	Clinton	limestone	113,494	69,921	Cln-W	IM-2160
			sand & gravel	2,500	0		
	Cedarville	Greene	limestone	531,013	491,806	Ge-17	IM-435
			sand & gravel	7,960	316		
	Cook Rd.	Greene	limestone	9,995	0	Ge-MM	IM-2123
			sand & gravel	522,976	512,264		
	Xenia S & G	Greene	sand & gravel	17,272	34,855	Ge-33	IM-379
	E-town Sand & Gravel	Hamilton	limestone	13,648	0	Hmn-71	IM-771
			sand & gravel	376,313	288,791		
	Lynchburg Quarry	Highland	limestone	18,349	0	Hd-M	IM-1170
	Troy Sand & Gravel	Miami	sand & gravel	328,758	286,390	Mi-3	IM-462, IM-658
	Phillipsburg	Montgomery	limestone	683,417	650,408	My-1	IM-374
			sand & gravel	86,706	54,613		
	Franklin Gravel	Warren	sand & gravel	32,424	0	Wan-38	IM-615
Martin Marietta Magnesia Specialties, Inc. 755 Lime Rd. Woodville, OH 43469 (419) 849-4200 Tim Tawney, oper. mgr.	Woodville Quarry	Sandusky	limestone	2,292,472	2,250,201	Sy-1	IM-537
MAR-ZANE Materials, Inc. P.O. Box 1585 Zanesville, OH 43702-1585 (740) 453-0721 Nick Little, pres.	Enterprise Pit	Hocking	sand & gravel	331,103	331,103	Hg-HV	IM-1284
Mason's Sand & Gravel Co. 2385 Rathmell Rd. Obetz, OH 43207 (614) 491-3611 George C. Smith, pres.	Mason's Sand & Gravel Co.	Franklin	sand & gravel	27,371	27,371	Fn-11	IM-234
Massillon Materials, Inc. P.O. Box 499 Dalton, OH 44618 (330) 837-4767 Howard J. Wenger, pres.	Massillon Materials, Inc.	Stark	sand & gravel	472,668	472,668	Sk-M	IM-1031
	MMI Warmington Plant	Stark	sand & gravel	77,360	77,360	Sk-M1	IM-1332
Maysville Materials, LLC 3499 Foxfire Dr. Zanesville, OH 45701 (740) 638-3942 Chris D. Sidwell, pres.	Maysville Materials, LLC	Belmont	clay	2,136	0	Bt-M	IM-2392
			limestone	130,241	0		
	Maysville Materials, LLC	Muskingum	limestone	197,298	197,298	Mum-M	IM-2371
	Smith	Muskingum	clay	161	0	Mum-M1	IM-2372
			limestone	190,014	0		
Mechanicsburg Sand & Gravel, Inc. 5734 State Route 4 Mechanicsburg, OH 43044 (937) 834-2606 James G. Cushman, pres.	Mechanicsburg Sand & Gravel, Inc.	Champaign	sand & gravel	126,201	126,201	Cpn-22	IM-889
The Melvin Stone Co., LLC P.O. Box 158 Sabina, OH 45169 (740) 998-5016 Dennis J. Garrison, pres.	The Melvin Stone Co., LLC	Clinton	limestone	1,147,597	1,147,597	Cln-1	IM-241
	Bowersville	Greene	limestone	263,070	263,070	Ge-M	IM-2052
	Circleville	Pickaway	sand & gravel	243,978	243,978	Pky-R	IM-993
	Williamsport	Pickaway	limestone	230,352	230,352	Pky-4	IM-209
	Plano Road	Ross	limestone	247,336	247,336	Rs-MC1	IM-1298

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

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Mesenburg Bros., Inc. 2366 Wells Rd. Collins, OH 44826 (419) 668-5691 William Mesenburg, pres.	Mesenburg Bros., Inc.	Huron	sandstone	6,136	6,136	Hrn-8	IM-268
Miami View Mining Co., Ltd. 998-B E. Ridge Dr. Lebanon, OH 45036 (513) 932-6481 James P. Jurgensen, managing mbr.	Miami View	Warren	sand & gravel	20,223	20,223	Wan-MV	IM-1329
Mid Ohio Resources 459 State Route 97 W Bellville, OH 44813 (352) 369-8600 Darryl C. Lanker, pres.	Bellville West	Richland	sand & gravel	5,600	0	Rd-M1	IM-2191
Miller's Sand & Gravel, Inc. 10228 State Route 82 Windham, OH 44288 (330) 326-3157 Brian K. Miller, pres.	Miller Sand & Gravel, Inc.	Portage	sand & gravel	700	700	Pe-39	IM-1078
Milton Materials, LLC 7131 W. Fenner Rd. Ludlow Falls, OH 45339 (937) 698-7048 Tom Wagner, pres.	Milton Materials Fenner Pit	Miami	sand & gravel	79,900	96,800	Mi-4	IM-472
Morrow Gravel Co. 11641 Mosteller Rd. Cincinnati, OH 45241 (740) 998-5016 Dennis Garrison, pres.	Urbana Morrow Gravel Co.	Champaign Warren	sand & gravel sand & gravel	321,851 29,916	321,851 29,916	Cpn-1 Wan-M	IM-371 IM-728, IM-1065
Morton International, Inc. Morton Salt Division P.O. Box 428 Grand River, OH 44045-0428 (440) 354-9901 Mark Mitchell, facility mgr.	Fairport Mine	Lake	salt	1,435,977	1,321,904	Lke-6	
Morton International, Inc. Morton Salt Division 151 Industrial St. P.O. Box 337 Rittman, OH 44270-0337 (330) 925-3015 Christian Herrmann, CEO	Morton Salt Well Field 9129	Wayne	salt	353,340	353,340	We-9129	
Muskingum River Gravel Co. P.O. Box 1585 Zanesville, OH 43702-1585 (740) 453-0721 Nick Little, pres.	S & S Aggregate #8 S & S Aggregate #1 S & S Aggregate Plant #7	Hocking Muskingum Ross	sand & gravel sand & gravel sand & gravel	30,906 181,103 123,808	30,906 166,594 76,563	Hg-301 Mum-228 Rs-M	IM-458 IM-421 IM-114

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
National Lime & Stone Co. P.O. Box 120 Findlay, OH 45839-0120 (419) 422-4341 C. Paul Palmer, pres.	Lima Plant	Allen	limestone	763,000	763,000	An-3	IM-484
	Buckland Plant	Auglaize	limestone	299,000	299,000	Ae-10	IM-486
	Bucyrus Plant	Crawford	limestone	1,152,000	1,152,000	Cd-1	IM-404
	Delaware Plant	Delaware	limestone	2,964,000	2,964,000	Del-5	IM-207
	South Columbus	Franklin	sand & gravel	427,000	427,000	Fn-52	IM-191, IM-2193
	Findlay Plant	Hancock	limestone	598,000	598,000	Hk-7	IM-1002
	Marion Plant	Marion	limestone	407,000	407,000	Mn-3	IM-168
	Chesterville Plant	Morrow	sand & gravel	429,000	429,000	Mw-10	IM-258
	Rimer Plant	Putnam	limestone	276,000	276,000	Pm-N	IM-0479
	Delphos Quarry	Van Wert	limestone	80,000	80,000	Vt-1	IM-500
	Carey Plant	Wyandot	limestone	3,824,000	3,824,000	Wt-1	IM-405
	Upper Sandusky Plant	Wyandot	sand & gravel	169,000	169,000	Wt-N	IM-2132
Neer's Sand & Gravel 4859 Twp. Rd. 45 Bellefontaine, OH 43311 (937) 585-6733 Arden J. Neer, Sr., owner	Neer's Sand & Gravel	Logan	sand & gravel	123,962	123,962	Lgn-6	IM-459
Nelson Sand & Gravel, Inc. P.O. Box 466 Kingsville, OH 44048 (440) 224-0198 Thomas H. Nelson, pres.	Nelson Sand & Gravel, Inc.	Ashtabula	sand & gravel	40,530	40,530	Asa-N1	IM-2102
Newark Materials, LLC 2232 Sleepy Hollow Rd. Newark, OH 43055 (740) 652-4565 Carl W. Hains, owner	Newark Materials	Licking	sand & gravel	54,000	69,000	Lg-504	IM-991
Newton Asphalt Paving, Inc. P.O. Box 86 Strasburg, OH 44680 (330) 878-5648 George A. Gessner, pres.	516	Tuscarawas	sand & gravel	83,849	83,849	Ts-2001	IM-1004
Northwest Ohio Property Developments, Ltd. P.O. Box 23242 Toledo, OH 43623 (419) 260-4406 Gene W. Borton, pres.	NOPD, Ltd.	Fulton	sand & gravel	7,217	7,217	Ftn-NW	IM-2138
Ohio Asphaltic Limestone Corp. 8591 Mad River Rd. Hillsboro, OH 45133 (937) 364-2191 Diana M. Jones, pres.	Ohio Asphaltic Limestone Corp.	Highland	limestone	310,618	310,618	Hd-3	IM-253
Ohio Basic Minerals, LLC 15317 Beaver Pike Jackson, OH 45640 (740) 286-0258 Patrick McDonald, pres.	Scioto Mine	Pike	sandstone	46,738	17,152	Pke-0	IM-2370

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

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Olen Corp. 4755 S. High St. Columbus, OH 43207-4028 (614) 491-1515 Kenneth W. Holland, pres.	Columbus Plant #3	Franklin	limestone sand & gravel	539,963 1,528,916	907,163 2,218,779	Fn-58	IM-1023
	Fredericktown Plant #2	Knox	limestone sand & gravel	7,798 360,461	7,798 374,962	Kx-0	IM-2159
	St. Louisville Plant #5	Licking	limestone sand & gravel	1,534 444,521	1,534 380,972	Lg-31	IM-246
	The Olen Corp. - Wooster	Wayne	limestone sand & gravel shale	3,338 348,130 11	3,338 341,802 11	We-11	IM-547
	Upper Sandusky	Wyandot	limestone sand & gravel	481,316 18,055	683,655 18,055	Wt-3	IM-298
Oscar Brugmann Sand & Gravel, Inc. 3828 Dudley Rd. Mantua, OH 44255 (330) 274-8224 Alan R. Brugmann, pres.	Oscar Brugmann Sand & Gravel, Inc.	Portage	sand & gravel	567,201	567,201	Pe-9	IM-119
Oster Sand & Gravel, Inc. 5947 Whipple Ave. NW North Canton, OH 44720-7692 (330) 494-5472 Marlene K. Oster, pres.	Massillon Plant	Stark	sand & gravel	542,735	542,735	Sk-165	IM-192
	Oster Sand & Gravel, Inc. - Bolivar	Tuscarawas	sand & gravel	92,676	92,676	Ts-2036	IM-1155
Ours Sand & Gravel 20444 State Route 7 S Crown City, OH 45623 (740) 256-1378 Donald A. Ours, owner	Ours Sand & Gravel	Gallia	sand & gravel	2,765	2,765	Ga-0	IM-1028
Oxford Resource Partners, LP P.O. Box 427 Coshocton, OH 43812 (740) 622-6302 Charles C. Ungurean, pres.	Pickens	Harrison	limestone	943,611	943,611	Hn-V	D-2282
	Standingstone Mine	Harrison	limestone	899,340	899,340	Hn-02	D-2277
	Strasburg Slurry	Tuscarawas	limestone	17,906	0	Ts-HC	D-0981
Patrick Excavating, Inc. 5839 State Route 5 P.O. Box 387 Ravenna, OH 44266 (330) 296-7706 Tim Patrick, pres.	Patrick	Portage	clay sand & gravel	287 463	287 463	Pe-P	IM-1322
Paul D. Beery Trucking Co. 4770 Cincinnati-Zanesville Rd. NE Lancaster, OH 43130 (740) 653-5061 Paul D. Beery, pres.	Paul D. Beery Trucking Co.	Fairfield	sand & gravel	2,648	2,848	Fd-14	IM-933
Phillips Companies, LLC 620 Phillips Dr. Beavercreek, OH 45435 (937) 426-5461 Dennis K. Phillips, pres.	Phillips Companies, LLC	Greene	clay sand & gravel	120,600 182,900	120,600 194,200	Ge-36	IM-305
	Phillips Sand and Gravel	Montgomery	sand & gravel	238,000	679,000	My-52	IM-348
Phoenix Ashphalt Company, Inc. 3497 University Dr. NE New Philadelphia, OH 44663 (330) 339-4935 James R. Demuth, pres.	Smith Sand & Gravel #1	Carroll	sand & gravel	114,008	114,008	Cl-P1	IM-2354

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Portage Aggregate & Supply, LLC 10155 Royalton Rd. North Royalton, OH 44133 (330) 297-6800 Anthony J. Farinacci, pres.	Portage Aggregate & Supply, LLC	Portage	sand & gravel	78,932	57,051	Pe-M	IM-1312
Precision Aggregates II, LLC 12205 E. Gypsy Ln. Bowling Green, OH 43402 (419) 352-4681 Randolph G. Schmeltz, pres.	Precision Aggregates III, LLC	Sandusky	limestone sandstone sand & gravel	115,040 271 2,100	115,040 271 2,100	Sy-5-1	IM-0259
	Precision Aggregates II, LLC	Wood	limestone sandstone sand & gravel	179,943 10,095 149	179,943 10,095 149	Wd-14	IM-1157
Premier Silica, LLC 26900 Coshocton Rd. Howard, OH 43028 (740) 599-7773 Denny Bullard, pres.	Millwood Plant Glass Rock Plant	Knox Perry	sandstone sandstone	97,000 3,396	129,050 0	Kx-1 Py-344	IM-269 IM-1014
Putnam Aggregates Company, LLC 7053 Road M Ottawa, OH 45875-9754 (419) 523-6004 Stephen S. Benson, mgr./trustee	Putnam Aggreagtes Company, LLC	Putnam	limestone	198,520	203,534	Pm-2	IM-570
Quality Ready Mix, Inc. 16672 County Rd. 66A N St. Marys, OH 45885 (419) 738-2817 John Hirschfield, pres.	Quality Pit	Auglaize	sand & gravel	7,554	0	Ae-16	IM-595
R. H. Penick Co., Ltd. 1504 Blue Jay Rd. Heath, OH 43056-1767 (740) 323-3040 Suzanne R. Neumeyer, owner	R. H. Penick Co.	Licking	salt	299	299	Lg-45	
R. J. Martin Service & Excavating 1875 Roxanna-New Burlington Rd. Waynesville, OH 45068 (937) 862-4182 Roger J. Martin, pres.	Horseshoe Bend Sand & Gravel, Inc.	Greene	sand & gravel	506	506	Ge-40	IM-923
R. L., Ltd. 5850 Dryfork Rd. Cleves, OH 45002 (513) 367-5700 Rick Ashcraft, pres.	R. L., Ltd.	Hamilton	sand & gravel	200	200	Hmn-67	IM-529
R. W. Sidley, Inc. 436 Casement Ave. Painesville, OH 44077 (440) 298-3232 Robert Buescher, pres.	Sidley-Kingsville Plant	Ashtabula	sand & gravel	30,125	30,125	Asa-15	IM-783
R. W. Sidley, Inc. 7123 Madison Rd. Thompson, OH 44086 (440) 298-3232 Robert Buescher, pres.	Thompson Pit	Geauga	sandstone	101,448	144,000	Gea-1	IM-163

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
RAK, Inc. dba Rainbow Sand & Gravel, Inc. P.O. Box 240 Bristol, OH 44402 (330) 389-3451 Rex King, pres.	Rainbow Sand & Gravel, Inc.	Portage	sand & gravel	15,722	43,280	Pe-64	IM-1017
Razor Lake S. & G., LLC 59894 County Rd. 9 Newcomerstown, OH 43832 (740) 294-1370 Terry L. Jurin, owner	Razor Lake S. & G., LLC	Coshocton	sand & gravel	79,000	79,000	Cn-R	IM-2175
Ridge Township Quarry 16905 Middlepoint Rd. Van Wert, OH 45891 (419) 238-2533 Nancy Agler, office mgr.	Ridge Township Quarry	Van Wert	limestone	129,042	129,042	Vt-7	IM-642
Riverside Sand & Gravel Co., Inc. P.O. Box 324 Tallmadge, OH 44278-0324 (330) 673-2021 Albert H. Acken, Jr., pres.	Riverside Sand & Gravel Co., Inc.	Summit	sandstone	283	0	St-24	IM-239
Rockwell Sand & Gravel, Inc. 1022 State Route 43 Mogadore, OH 44260 (330) 628-3231 Lana Rufener, pres.	Suffield Aggregate, LLC	Portage	sand & gravel	42,004	42,004	Pe-R	IM-2037
Rocky Enterprise 53557 Mud Run Rd. Senecaville, OH 43780 (740) 391-2035 Tim Hall, owner	Rocky Enterprise - Robins Ridge	Guernsey	sandstone	54,654	54,654	Gy-R	IM-2375
Romig Excavating P.O. Box 260 Sherrodsville, OH 44675 (740) 269-1225 James D. Romig, owner	Romig Excavating	Carroll	sandstone	1,221	1,221	Cl-R	IM-2296
Roy M. Roush 11278 Darby Creek Rd. Orient, OH 43146 (614) 877-4792 Roy M. Roush, owner	R Farm S & G	Pickaway	sand & gravel	667	0	Pky-RR	IM-2040
Royalty Enterprises, Inc. P.O. Box 8680 Newark, OH 43058 (740) 323-3333 Clayton King, pres.	King #1	Licking	salt	302	302	Lg-4484	
Rupp Construction, Inc. 18228 Fulton Rd. Marshallville, OH 44645 (330) 855-2781 Gary D. Radabaugh, pres.	Rupp Construction, Inc.	Wayne	sand & gravel	105,530	105,530	We-7	IM-471

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
S & S Aggregate, Inc. P.O. Box 1585 Zanesville, OH 43702-1585 (740) 453-0721 Nick Little, v. pres.	S & S Aggregate #16 S & S Aggregate #14 Twin Lakes - S & S Aggregate #9	Portage Richland Summit	sand & gravel sand & gravel sand & gravel	506,129 214,073 1,555	464,651 212,350 1,365	Pe-15 Rd-5 St-44	IM-104 IM-470 IM-178
Sandkuhl Clay Works, Inc. 05536 Kossuth-Amanda Rd. Spencerville, OH 45887 (419) 657-2905 Ann L. Engh, pres.	Sandkuhl Clay Works, Inc.	Auglaize	clay	2,161	2,161	Ae-7	
Sands Hill Mining, LLC P.O. Box 650 Hamden, OH 45634 Joe Funk, pres.	Big Rock	Vinton	limestone	165,678	165,678	Vn-S7	D-2344
Scassa Asphalt, Inc. 4167 Beaumont Ave. NW Massillon, OH 44647 (330) 830-2039 Ettore Scassa, owner	Roio Sand & Gravel	Stark	sand & gravel	2,000	4,000	Sk-S	IM-2326
Schieve, Guy 52943 State Route 113 Wakeman, OH 44889 (440) 965-8792 Guy Schieve, owner	Schieve Pit	Lorain	sand & gravel	5,883	5,883	Ln-12	IM-731
Sergeant Stone, Inc. P.O. Box 2086 Zanesville, OH 43702 (740) 452-7434	Sergeant Stone	Perry	limestone	25,508	24,508	Py-SS1	IM-2429
Shamrock Materials, Inc. 11641 Mosteller Rd. Cincinnati, OH 45241 (800) 338-2962 Dennis Garrison, pres.	Shamrock Materials Walls Material	Butler Darke	sand & gravel limestone	131,300 321,736	131,300 321,736	Br-52 Dke-1	IM-814 IM-362
Sharon Stone Co. P.O. Box 100 Dexter City, OH 45727 (740) 783-3575 John P. McCort, pres.	Sharon Stone Co. Belpre Sand & Gravel	Noble Washington	limestone sand & gravel	122,985 503,670	122,985 503,670	Ne-S Wn-SS	IM-913 IM-2006
Shelly Materials, Inc. 80 Park Dr. Thornville, OH 43076 (740) 246-6315 Ty Nofziger, pres.	Shelly Materials, Inc., Plant #1305 Columbus Limestone #331 St. Louisville Portland Plant East Fultonham Shelly Materials, Inc. - Chillicothe Ostrander Quarry Reno	Coshocton Franklin Licking Meigs Muskingum Ross Union Washington	sand & gravel limestone sand & gravel sand & gravel limestone sand & gravel limestone sand & gravel	160,070 3,571,268 409,900 275,543 1,323,854 221,007 1,496,741 508,920	160,070 3,571,268 0 419,802 1,323,854 221,007 1,496,741 508,920	Cn-694 Fn-53 Lg-10 Ms-S Mum-106 Rs-27 Un-2 Wn-SM	IM-293 IM-185 IM-217 IM-1326 IM-297 IM-1098 IM-236 IM-2339
Shelly Materials, Inc. P.O. Box 3100 Findlay, OH 45840 (419) 422-8854 Ty Nofziger, pres.	Forest Quarry Belle Center York Center Quarry	Hardin Logan Union	limestone limestone limestone	172,958 243,342 511,260	219,218 234,555 478,911	Hdn-S Lgn-2 Un-1	IM-1034 IM-494 IM-208

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Shelly Materials, Inc. 8920 Canyon Falls Blvd., Suite 120 Twinsburg, OH 44087 (330) 405-4163 Douglas Rauh, pres.	Petersburg Jefferson Materials Shalersville North Massillon Aggregates	Mahoning Portage Portage Stark	limestone sand & gravel sand & gravel sand & gravel	562,273 424,223 562,478 475,920	494,054 332,566 574,013 466,828	Mg-L Pe-63 Pe-La Sk-173	IM-1353 IM-82 IM-1047 IM-879
Sidco Development, Inc. 4620 Limestone Valley Rd. Zanesville, OH 43701 (740) 849-2422 Jeffrey R. Sidwell, pres.	Midvale Sand & Gravel	Tuscarawas	sand & gravel	191,272	191,272	Ts-S2	IM-1356
Sidwell Materials, Inc. 4620 Limestone Valley Rd. Zanesville, OH 43701 (740) 849-2422 Jeffrey R. Sidwell, pres.	Uniontown Stone	Belmont	limestone	556,006	556,605	Bt-N	IM-1283
Small's Sand & Gravel, Inc. P.O. Box 617 Gambier, OH 43022 (740) 427-3677 Michael W. Small, pres.	Small's Sand & Gravel, Inc. Small's Sand & Gravel, Inc. Small's Sand & Gravel, Inc.	Knox Knox Knox	sand & gravel sand & gravel sand & gravel	219,340 348 4,608	219,340 348 4,608	Kx-15 Kx-17 Kx-S	IM-967 IM-968 IM-2000
Sober Sand & Gravel Co. 2898 Tallmadge Rd. Ravenna, OH 44266 (330) 867-0666 Joseph F. Bertolini, pres.	Sober Sand & Gravel Co.	Portage	clay sand & gravel	17,125 207,721	17,125 207,721	Pe-18	IM-193
Soehnlen Bros. Sand & Gravel, Inc. 10449 Soehnlen Rd. NW Beach City, OH 44608 (330) 756-2244 Francis L. Soehnlen, pres.	Soehnlen Bros. Sand & Gravel, Inc.	Tuscarawas	sand & gravel	303,656	303,656	Ts-1826	IM-88
Solomon's Mines, Inc. 7732 Salem-Unity Rd. Salem, OH 44460 (330) 337-0123 Jack Solomon, owner	Solomon's Mines, Inc.	Columbiana	sandstone sand & gravel	8,632 67,231	8,632 67,231	Ca-S	IM-1258
Soltis Sand & Gravel 19102 Nelson Ledges Rd. P.O. Box 452 Garrettsville, OH 44231 (440) 548-5813 James Soltis, owner	Soltis Sand & Gravel	Geauga	clay sand & gravel	3,070 342	3,070 342	Gea-9	IM-132
South Central Sand & Gravel 340 Bailey Chapel Rd. Piketon, OH 45661 (740) 289-2629 James A. Nier, owner	South Central Sand & Gravel	Pike	sand & gravel	8,075	8,075	Pke-30	IM-786
Southern Ohio Aggregates, Inc. 11641 Mosteller Rd. Cincinnati, OH 45241 (513) 771-0820 James P. Jurgensen, pres.	New Miami Plant	Butler	sand & gravel	500	500	Br-S	IM-1053

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Stansley Mineral Resources, Inc. 5679 N. Main St. Sylvania, OH 43560 (419) 843-2813 Jeffrey Stansley, pres.	Stansley Mineral Resources, Inc., Plant 301	Ottawa	limestone	340,000	410,000	Oa-1A	IM-292
State Line Resources, Inc. P.O. Box 419 Negley, OH 44441 (330) 426-9611 James Muse, pres.	State Line Resources, Inc.	Columbiana Columbiana	clay sandstone	25,581 3,000	25,581 3,000	Ca-505	IM-13, IM-936
Stocker Sand & Gravel Co. P.O. Box 176 Gnadenhutten, OH 44629 (740) 254-4635 William E. Stocker, pres.	Stocker Sand & Gravel Co. - Gnaden Stocker Sand & Gravel Co. - Island	Tuscarawas Tuscarawas	sand & gravel sand & gravel	307,980 543,634	307,980 543,634	Ts-69 Ts-125	IM-51 IM-50
Stoneco, Inc. P.O. Box 3100 Findlay, OH 45840 (419) 422-8854 Ty Nofziger, pres.	Maumee Quarry Celina Quarry White Rock Quarry Auglaize Quarry Scott Quarry Portage Quarry Carey Quarry	Lucas Mercer Ottawa Paulding Van Wert Wood Wyandot	limestone limestone limestone limestone limestone limestone limestone	684,302 521,500 752,129 452,252 186,359 256,352 1,772,731	676,775 681,844 747,209 448,200 253,061 329,530 1,856,308	Ls-2 Mr-1 Oa-6 Pg-2 Vt-3 Wd-11 Wt-8	IM-503 IM-592 IM-296 IM-481 IM-495 IM-475 IM-273
Subtropolis Mining 10900 South Ave. P.O. Box 217 North Lima, OH 44452 (330) 549-2165 W. Thomas Mackall, pres.	Kemp Mine	Mahoning	limestone	1,465,905	1,361,540	Mg-EF1	IM-2093
Summitville Tiles, Inc. P.O. Box 173 Summitville, OH 43962 (330) 223-1511 David Johnson, pres.	Summitcrest, Inc. Summitville Tiles, Inc.	Columbiana Columbiana	shale shale	11,310 161	11,310 161	Ca-SU Ca-205	IM-2186 IM-74
Sypniewski, Joseph N. 3780 Mechanicsville Rd. Rock Creek, OH 44084 (440) 563-5644 Joseph N. Sypniewski, owner	Sypniewski	Ashtabula	clay sand & gravel	351 106	351 106	Asa-SY	IM-2222
Thiel Construction Co. P.O. Box 225 Blakeslee, OH 43505 (419) 272-2712 Robert L. Thiel, pres.	Thiel Construction Co.	Williams	sand & gravel	1,306	1,306	Ws-21	IM-1225
Thomas Sand & Gravel 5801 Enterprise Rd. West Alexandria, OH 45381 (937) 787-4677 Estelle Thomas, owner	Howard Thomas	Preble	sand & gravel	100	100	Pre-T	IM-2036
Thompson Mining Co. 12321 Ideal Rd. Byesville, OH 43723 (740) 260-2252 George V. Thompson, pres.	Pleasant Valley Limestone	Muskingum	limestone	14,963	14,963	Mum-907	IM-1200

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Tiger Sand & Gravel, LLC 4141 Southway St. SW Canton, OH 44706 (330) 477-9653 Pete Bitzel, Jr., partner	Tiger Sand & Gravel, LLC	Stark	sand & gravel	164,408	164,408	Sk-T	IM-2279
Tipp Stone Co., Inc. P.O. Box 367 Troy, OH 45373 (937) 890-4051 Michael Eidemiller, pres.	Tipp Stone Co., Inc.	Montgomery	sand & gravel	7,365	7,365	My-61	IM-468
Top Dog Service Company 660 Lunken Park Dr. Cincinnati, OH 45226 (513) 353-2555 Michael P. O'Rourke, pres.	Whitewater Reclamation Company	Hamilton	sand & gravel	900	900	Hmn-G	IM-1270
Triple B of Lakeville, Ltd. 13739 State Route 226 Lakeville, OH 44638 (419) 496-2646 Mitchell W. Bolin, pres.	Lakeville Sand & Gravel, Ltd.	Holmes	sand & gravel	122,687	122,687	Hs-C	IM-1303
Trout Sand & Gravel Co. 347 Gravel Bank Rd. Marietta, OH 45750 (740) 373-7471 Henry C. Trout, Jr., owner	Trout Sand & Gravel Co.	Washington	sand & gravel	2,909	0	Wn-510	IM-25
Tuffco Sand & Gravel, Inc. P.O. Box 399 Marysville, OH 43040 (614) 873-3977 Charles Lewis, pres.	Tuffco Sand & Gravel, Inc.	Madison	sand & gravel	62,295	62,295	Mdn-11	IM-1063
U.S. Aggregates, Inc. 5400 W. 86th St. P.O. Box 68123 Indianapolis, IN 46268 (317) 228-2003 James Fehsenfeld, pres.	U.S. Aggregates - Richmond Plant	Preble	sand & gravel	190,159	132,768	Pre-AAC	IM-779
United Aggregates, Inc. P.O. Box 750 Mt. Vernon, OH 43050 (740) 397-0000 Jeff C. Ellis, pres.	United Aggregates, Inc. United Aggregates, Inc.	Knox Knox	sand & gravel sand & gravel	129,767 28,864	127,496 27,070	Kx-3 Kx-5	IM-300 IM-884, IM-1307
Valley Clay Mining Co. 451 Gordon St. Roseville, OH 43777 (740) 697-2005 Peter Petratsas, pres.	Spring Pit	Muskingum	clay shale	15,295 8,620	15,295 8,620	Mum-904	IM-1127
Walhonding Sand & Gravel 27679 State Route 206 Walhonding, OH 43843 (740) 824-5251 Ezra Helmick, v. pres.	Walhonding Valley Sand & Gravel	Coshocton	sand & gravel shale	37,179 4,902	37,179 4,902	Cn-WL	IM-2127

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Watson Gravel, Inc. 2728 Hamilton-Cleves Rd. P.O. Box 277 Ross, OH 45061 (513) 863-0070 Ronald E. Watson, pres.	Mecco, Inc. Ongais Plant #1 Watson Pit Harrison #2 Minges-Getz	Butler Butler Butler Hamilton Hamilton	sand & gravel sand & gravel sand & gravel sand & gravel sand & gravel	366,569 0 794,499 679,299 236,480	405,572 38,953 794,499 679,299 236,480	Br-15 Br-O Br-47 Hmn-ARH Hmn-64	IM-316 IM-2143 IM-111 IM-1273 IM-137
Weber Sand & Gravel, Inc. 14586 U.S. Route 127 EW Bryan, OH 43506 (419) 636-4238 Thomas G. Weber, pres.	Weber Sand & Gravel, Inc.	Defiance	sand & gravel	154,772	154,772	Ws-11 De	IM-0661
Weidle Sand & Gravel, Inc. 9330 Eckhart Rd. Germantown, OH 45327 (937) 855-2227 D. Scott Weidle, pres.	Weidle Sand & Gravel	Montgomery	sand & gravel	212,138	212,138	My-W1	IM-2203
Welch Sand & Gravel, Inc. 10217 Columbia St. Harrison, OH 45030-9751 (513) 353-3220 Charles H. Welch, pres.	Schlichter Pit East Miami Pit Fernald Pit	Butler Hamilton Hamilton	sand & gravel sand & gravel sand & gravel	27,302 91,152 736,749	27,302 91,152 736,749	Br-38 Hmn-48 Hmn-42	IM-218 IM-220 IM-823
Westfall Aggregate & Materials, Inc. 6790 Brooks-Miller Rd. Circleville, OH 43113 (740) 477-8600 Kevin R. Steward, pres.	Hill Road Pit	Pickaway	sand & gravel	40,955	40,955	Pky-WA	IM-2217
William Albert, Inc. 1300 Cassingham Hollow Rd. Coshocton, OH 43812 (740) 622-3045 William Albert, pres.	William Albert, Inc., Pit 2	Coshocton	sand & gravel	32,950	36,699	Cn-WA	IM-2036
Willowbrook Sand & Gravel, LLC 39130 Brookfield St. P.O. Box 304 Lisbon, OH 44432 (330) 424-0742 Ray Perrino, owner	Willowbrook Sand & Gravel	Columbiana	sand & gravel	26,251	26,251	Ca-993	IM-1180
Wysong Gravel Co. P.O. Box 5 Lewisburg, OH 45338 (937) 456-4539 John D. Wysong, pres.	Wysong Gravel Co. - West Alexandria Plant Wysong Gravel Co.	Preble Preble	sand & gravel sand & gravel	162,733 77,747	162,520 77,534	Pre-6 Pre-4	IM-478 IM-477
Xenia Sand & Gravel, Inc. 610 Dayton-Xenia Rd. Xenia, OH 45385 (937) 372-2978 Scott A. Filson, pres.	Xenia Sand & Gravel, Inc.	Greene	sand & gravel	4,428	4,428	Ge-10	IM-518
Young's Sand & Gravel Co. P.O. Box 117 Loudonville, OH 44842 (419) 994-3040 Myron Oswalt, owner	Sprang & Youngs Spreng	Ashland Ashland	sand & gravel sand & gravel	8,364 240,553	8,364 240,553	Ald-7 Ald-Y	IM-392 IM-1216

2014 OHIO DIRECTORY OF INDUSTRIAL-MINERAL MINE OPERATORS (cont.)

Name, address, telephone number, and president/owner/manager of company	Name of mine	County	Commodity	2014 sales (tons)	2014 production (tons)	State mine number	Mineral Resources Management permit number
Youngs Sand and Gravel 987 Hiles Rd. Lucasville, OH 45648 (740) 259-3029 Douglas N. Young, pres.	Young	Scioto	sand & gravel	164	0	So-Y	IM-2380
Zollinger Sand & Gravel Co. 11899 Easton Rd. Rittman, OH 44270 (330) 855-2464 Carl Zollinger, pres.	Zollinger Sand & Gravel Co.	Wayne	clay sandstone shale	483 1,225 215	483 1,225 215	We-15	IM-398

[1]Commodity sales and production were estimated using quarterly data submitted to the Mines Safety and Health Administration for active operations that failed to report.

2014 LIMESTONE/DOLOMITE COMPANIES WITH SALES OR PRODUCTION

Company	Number of operations	Sales (tons)	Production (tons)
Anthony Mining Co., Inc.	2	73,625	73,625
Arch Materials, LLC	1	1,243,000	1,243,000
Barrett Paving Materials, Inc.	3	1,002,509	1,122,257
Bluffton Stone Co.	1	373,320	407,094
C. F. Poeppelman, Inc.	1	295,004	295,004
Cardinal Aggregates, Inc.	1	567,644	567,644
Carmeuse Lime, Inc.	3	3,365,537	3,449,567
CEMEX, Inc.	2	794,381	787,059
Christman Quarries	1	66,112	66,112
Clinton Stone, LLC	1	143,678	143,678
Con-Ag, Inc.	1	159,146	159,146
Cumberland Limestone, LLC	1	276,767	276,767
Custar Stone Co., Inc.	1	378,009	382,451
Diamond Stone Quarries	1	233,214	233,214
Duff Quarry, Inc.	1	379,494	379,494
East Fairfield Coal Co.	1	402,872	399,722
Egypt Valley Stone, LLC	1	624,124	624,124
Erie Blacktop, Inc.	1	221,889	221,889
Fleming Construction Co., Inc.	1	30	30
Foureman's Sand & Gravel, Inc.	1	12,000	12,000
Gerken Materials, Inc.	1	228,134	579,903
Graymont Dolime (OH), Inc.	1	621,378	335,695
Hanson Aggregates, LLC	2	2,410,419	2,295,608
Hanson Aggregates Midwest, Inc.	7	5,134,066	5,044,106
KCI Sand & Gravel	1	4,011	4,011
King Quarries, Inc.	1	178,748	178,748
Lafarge Marblehead	1	2,939,257	3,342,239
Latham Limestone, LLC	1	710,072	710,072
Marshall Quarry, Inc.	1	40,000	9,500
Martin Marietta Aggregates	8	1,382,748	1,212,135
Martin Marietta Magnesia Specialties, Inc.	1	2,292,472	2,250,201
Maysville Materials, LLC	3	517,553	197,298
The Melvin Stone Co., LLC	4	1,888,355	1,888,355
National Lime & Stone Co.	9	10,363,000	10,363,000
Ohio Asphaltic Limestone Corp.	1	310,618	310,618
Olen Corp.	5	1,033,949	1,603,488
Oxford Resource Partners, LP	3	1,860,857	1,842,951
Precision Aggregates II, LLC	2	294,983	294,983
Putnam Aggregates Company, LLC	1	198,520	203,534
Ridge Township Quarry	1	129,042	129,042
Sands Hill Mining, LLC	1	165,678	165,678
Sergeant Stone Inc.	1	25,508	24,508
Shamrock Materials, Inc.	1	321,736	321,736
Sharon Stone Co.	1	122,985	122,985
Shelly Materials, Inc.	7	7,881,696	7,818,601
Sidwell Materials, Inc.	1	556,006	556,605
Stansley Mineral Resources, Inc.	1	340,000	410,000
Stoneco, Inc.	7	4,625,625	4,992,927
Subtropolis Mining	1	1,465,905	1,361,540
Thompson Mining Co.	1	14,963	14,963
TOTAL: 50 companies	102	58,670,639	59,428,907

2014 OHIO DIRECTORY OF LIMESTONE/DOLOMITE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

For those mines for which a state mine number has not been assigned, a letter designation is used (example: Cn-A).

County	Name of operator	Name of mine or quarry	Township	Geological unit (age)[1]	Type and principal use	State mine number
Adams	Hanson Aggregates, LLC	Plum Run Quarry	Meigs	Peebles, Greenfield, and Tymochtee Dolomites (Silurian)	Crushed stone—unspecified	Ads-1
Allen	Bluffton Stone Co.	Bluffton Stone Co.	Richland	Tymochtee Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, commercial building, aglime	An-1
	National Lime & Stone Co.	Lima Plant	Bath	Greenfield Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, railroad ballast, asphalt, aglime	An-3
Athens	Diamond Stone Quarries	Diamond Stone	Lee	Brush Creek limestone (Pennsylvanian)	Crushed stone—riprap, road construction/resurfacing	As-533
Auglaize	Con-Ag, Inc.	Con-Ag, Inc.	Noble	Cedarville Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, aglime	Ae-31
	National Lime & Stone Co.	Buckland Plant	Moulton	Unidentified limestone (Silurian)	Crushed stone—Portland cement concrete, asphalt	Ae-10
Belmont	Egypt Valley Stone, LLC	Shugert	Kirkwood, Union	Fishpot limestone (Pennsylvanian)	Crushed stone—riprap	Bt-E
	Maysville Materials, LLC	Maysville Materials, LLC		Unidentified limestone	Crushed stone—road construction/resurfacing	Bt-M
	Sidwell Materials, Inc.	Uniontown Stone	Wheeling	Fishpot limestone (Pennsylvanian)	Crushed stone—asphalt	Bt-N
Brown	Hanson Aggregates, LLC	Eagle Crushed Stone	Eagle	Brassfield Limestone (Silurian)	Crushed stone—unspecified	Bn-EC
Butler	Martin Marietta Aggregates	Fairfield Sand & Gravel	Fairfield, Ross	Unidentified limestone (Ordovician)	Crushed stone—unspecified	Br-35
Clark	Martin Marietta Aggregates	Fairborn Gravel	Bethel	Unidentified limestone (Silurian)	Crushed stone—unspecified	Ck-13
Clermont	Arch Materials, LLC	Batavia Mine	Jackson	Black River Group (Ordovician)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, commercial building, aglime, unspecified	Ct-A
Clinton	Martin Marietta Aggregates	Clinton Limestone	Wilson	Cedarville Dolomite (Silurian)	Crushed stone—unspecifiedl	Cln-W
	The Melvin Stone Co., LLC	The Melvin Stone Co., LLC	Richland	Cedarville Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, railroad ballast, asphalt, commercial building, unspecified, aglime	Cln-1
Crawford	National Lime & Stone Co.	Bucyrus Plant	Holmes	Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap, Portland cement concrete, asphalt, aglime	Cd-1
Darke	Foureman's Sand & Gravel, Inc.	Foureman's Sand & Gravel, Inc.	Greenville	Unidentified (Silurian)	Crushed stone—riprap	Dke-4
	Shamrock Materials, Inc.	Walls Material	Butler	Cedarville Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, commercial building	Dke-1
Delaware	National Lime & Stone Co.	Delaware Plant	Scioto	Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap, Portland cement concrete, asphalt, aglime	Del-5
Erie	Erie Blacktop, Inc.	Erie Blacktop Quarry	Margaretta	Unidentified limestone	Crushed stone—Portland cement concrete, road construction/ resurfacing, asphalt	Ee-27
	Hanson Aggregates Midwest, Inc.	Sandusky Crushed Stone	Groton	Columbus and Delaware Limestones, Detroit River Group (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, aglime	Ee-11
		Wagner Quarry	Perkins	Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, commercial building	Ee-1A

Franklin	Olen Corp.	Columbus Plant #3	Hamilton	Columbus Limestone (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, commercial building extenders/fillers, aglime	Fn-58
	Shelly Materials, Inc.	Columbus Limestone #331	Franklin, Jackson, Marion	Columbus Limestone (Devonian)	Crushed stone—unspecified	Fn-53
Greene	CEMEX, Inc.	Miller, Schieder, Batdorf, Stewart	Bath	Brassfield Formation (Silurian)	Crushed stone—unspecified, Portland cement	Ge-8
	Martin Marietta Aggregates	Cedarville	Cedarville	Cedarville Dolomite (Silurian)	Crushed stone—unspecified	Ge-17
		Cook Rd.	Spring Valley	Unidentified limestone	Crushed stone—unspecified	Ge-MM
	The Melvin Stone Co., LLC	Bowersville	Jefferson	Cedarville Dolomite (Silurian)	Crushed stone—riprap, road construction/ resurfacing, asphalt, commercial building	Ge-M
Guernsey	Cumberland Limestone, LLC	Cumberland Limestone, LLC	Spencer	Fishpot limestone (Pennsylvanian)	Crushed stone—road construction/resurfacing	Gy-309
Hamilton	Martin Marietta Aggregates	E-town Sand & Gravel	Whitewater	Unidentified limestone	Crushed stone—unspecified	Hmn-71
Hancock	National Lime & Stone Co.	Findlay Plant	Liberty	Greenfield and Salina Dolomites (Silurian)	Crushed stone—Portland cement concrete, railroad ballast, asphalt	Hk-7
Hardin	Shelly Materials, Inc.	Forest Quarry	Jackson	Tymochtee Dolomite (Silurian)	Crushed stone—unspecified	Hdn-S
Harrison	Anthony Mining Co., Inc.	Carson-Harrah	Green	Redstone limestone (Pennsylvanian)	Crushed stone—riprap, road construction/resurfacing, commercial building	Hn-766
		Patton-Mader	German	Ames limestone (Pennsylvanian)	Crushed stone—road construction/resurfacing	Hn-A
	Oxford Resource Partners, LP	Pickens	Athens	Unidentified limestone	Crushed stone—road construction/resurfacing	Hn-V
		Standingstone Mine	Cadiz	Unidentified limestone	Crushed stone—road construction/resurfacing	Hn-02
Highland	Marshall Quarry, Inc.	Marshall Quarry, Inc.	Marshall	Peebles Dolomite (Silurian)	Crushed stone—unspecified	Hd-4
	Martin Marietta Aggregates	Lynchburg Quarry	Union	Brassfield Limestone (Silurian)	Crushed stone—unspecified	Hd-M
	Ohio Asphaltic Limestone Corp.	Ohio Asphaltic Limestone Corp.	Union	Peebles Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, aglime	Hd-3
Hocking	KCI Sand & Gravel	KCI Sand & Gravel	Green	Unidentified limestone	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, commercial building	Hg-HA
Jackson	Clinton Stone, LLC	Clinton Stone, LLC	Milton	Vanport limestone (Pennsylvanian)	Crushed stone—unspecified	Jkn-S2
Knox	Olen Corp.	Fredericktown Plant #2	Morris	Unidentified limestone	Crushed stone—road construction/resurfacing, commercial building	Kx-O
Licking	Olen Corp.	St. Louisville Plant #5	Washington	Unidentified limestone	Crushed stone—road construction/resurfacing, commercial building	Lg-31
Logan	Duff Quarry, Inc.	Duff Quarry, Inc.	Richland	Tymochtee Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, commercial building	Lgn-15
	Shelly Materials, Inc.	Belle Center	McArthur, Richland	Lockport and Tymochtee Dolomites (Silurian)	Crushed stone—unspecified	Lgn-2
Lucas	Hanson Aggregates Midwest, Inc.	Sylvania	Sylvania	Detroit River Group (Devonian)	Crushed stone—unspecified	Ls-3
		Waterville	Waterville	Greenfield Dolomite (Silurian)	Crushed stone—unspecified	Ls-1
	Stoneco, Inc.	Maumee Quarry	Waynesfield	Tymochtee Dolomite (Silurian)	Crushed stone—unspecified	Ls-2
Mahoning	East Fairfield Coal Co.	Withers-Petersburg	Springfield	Vanport limestone (Pennsylvanian)	Crushed stone—unspecified	Mg-631
	Shelly Materials, Inc.	Petersburg	Springfield	Vanport limestone (Pennsylvanian)	Crushed stone—riprap, road construction/resurfacing	Mg-L
	Subtropolis Mining	Kemp Mine	Springfield	Vanport limestone (Pennsylvanian)	Crushed stone—unspecified	Mg-EF1

2014 OHIO DIRECTORY OF LIMESTONE/DOLOMITE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY (cont.)

County	Name of operator	Name of mine or quarry	Township	Geological unit (age)[1]	Type and principal use	State mine number
Marion	Fleming Construction Co., Inc. National Lime & Stone Co.	Pit #1 Marion Plant	Prospect Grand Prairie, Marion	Unidentified limestone Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap Crushed stone—riprap, Portland cement concrete, asphalt, aglime	Mn-16 Mn-3
Mercer	Stoneco, Inc.	Celina Quarry	Jefferson	Lockport Dolomite (Silurian)	Crushed stone—unspecified	Mr-1
Miami	Barrett Paving Materials, Inc. C. F. Poeppelman, Inc.	Barrett Paving Materials, Inc., #231 C. F. Poeppelman, Inc.	Union Newberry	Brassfield Formation (Silurian) Cedarville Dolomite (Silurian)	Crushed stone—riprap, road construction/resurfacing Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, commercial building, aglime	Mi-BPM Mi-10
Monroe	Christman Quarries	Christman Quarry	Franklin, Seneca	Fishpot limestone (Pennsylvanian)	Crushed stone—road construction/resurfacing	Me-C
Montgomery	CEMEX, Inc. Martin Marietta Aggregates	G-Tract Phillipsburg	Wayne Clay	Brassfield Formation (Silurian) Cedarville Dolomite (Silurian)	Crushed stone—Portland cement Crushed stone—unspecified	My-58 My-1
Muskingum	Maysville Materials, LLC Shelly Materials, Inc. Thompson Mining Co.	Maysville Matrerials, LLC Smith East Fultonham Pleasant Valley Limestone	Newton Newton Newton Hopewell	Maxville Limestone (Mississippian) Maxville Limestone (Mississippian) Maxville Limestone (Mississippian) Maxville Limestone (Mississippian)	Crushed stone—road construction/resurfacing Crushed stone—road construction/resurfacing Crushed stone—unspecified Crushed stone—riprap	Mum-M Mum-M1 Mum-106 Mum-907
Noble	King Quarries, Inc. Sharon Stone Co.	King Quarries, Inc. Sharon Stone Co.	Olive Noble	Fishpot limestone (Pennsylvanian) Fishpot limestone (Pennsylvanian)	Crushed stone—unspecified Crushed stone—riprap, road construction/resurfacing	Ne-K1 Ne-S
Ottawa	Graymont Dolime (OH), Inc. Lafarge Marblehead Stansley Mineral Resources, Inc. Stoneco, Inc.	Graymont Dolime (OH), Inc. Lafarge Marblehead Stansley Mineral Resources, Inc., Plant 301 White Rock Quarry	Clay Danbury Clay Allen	Lockport Dolomite (Silurian) Columbus Limestone (Devonian) Lockport Dolomite (Silurian) Lockport Dolomite (Silurian)	Crushed stone—road construction/resurfacing Crushed stone—riprap, commercial building Crushed stone—unspecified, road construction/resurfacing, asphalt, commercial building Crushed stone—unspecified	Oa-1 Oa-7 Oa-1A Oa-6
Paulding	Hanson Aggregates Midwest, Inc. Stoneco, Inc.	Paulding Auglaize Quarry	Crane Auglaize	Ten Mile Creek Dolomite (Devonian) Detroit River Group and Dundee Limestone (Devonian)	Crushed stone—unspecified Crushed stone—unspecified	Pg-7 Pg-2
Perry	Sergeant Stone, Inc.	Sergeant Stone	Bearfield, Deerfield	Unidentified limestone	Crushed stone—unspecified	Py-SS1
Pickaway	The Melvin Stone Co., LLC	Williamsport	Perry	Columbus Limestone (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, railroad ballast, asphalt, commercial building, unspecified	Pky-4
Pike	Latham Limestone, LLC	Latham Limestone	Mifflin	Greenfield Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, railroad ballast, asphalt, commercial building, unspecified	Pke-13
Preble	Wysong Stone Co.	Wysong Stone Co.	Twin	Brassfield Limestone (Silurian)	Crushed stone—riprap, road construction/resurfacing	Pre-5
Putnam	National Lime & Stone Co. Putnam Aggregates Company, LLC	Rimer Plant Putnam Aggreagtes Company, LLC	Sugar Creek Pleasant, Riley	Greenfield Dolomite (Silurian) Greenfield Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete Crushed stone—Portland cement concrete, road construction/resurfacing, unspecified	Pm-N Pm-2
Ross	The Melvin Stone Co., LLC	Plano Road	Concord	Salina Dolomite (Silurian)	Crushed stone—road construction/resurfacing, commercial building, unspecified	Rs-MC1

Sandusky	Carmeuse Lime, Inc.	Millersville Plant	Jackson	Lockport Dolomite (Silurian)	Crushed stone—unspecified	Sy-4
		Woodville Plant	Woodville	Lockport & Salina Dolomites (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, railroad ballast, commercial building, asphalt, aglime	Sy-3
	Martin Marietta Magnesia Specialties, Inc.	Woodville Quarry	Woodville	Lockport Dolomite (Silurian)	Crushed stone—unspecified	Sy-1
	Precision Aggregates II, LLC	Precision Aggregates III, LLC	Sandusky	Lockport Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing	Sy-5-1
Seneca	Carmeuse Lime, Inc.	Maple Grove	Liberty	Lockport Dolomite (Silurian)	Crushed stone—extenders/fillers, unspecified	Sa-2
	Hanson Aggregates Midwest, Inc.	Bloomville	Bloom	Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, extenders/fillers, unspecified, aglime	Sa-3
		Flat Rock	Thompson	Columbus and Delaware Limestones (Devonian)	Crushed stone—riprap, dimension stone	Sa-1
Shelby	Barrett Paving Materials, Inc.	Miami River Quarry	Orange	Lockport Dolomite (Silurian)	Crushed stone—riprap, road construction/resurfacing	Shy-17
		Vandemark Quarry #221	Clinton	Lockport Dolomite (Silurian)	Crushed stone—road construction/resurfacing	Shy-15
Tuscarawas	Oxford Resource Partners, LP	Strasburg Slurry	Franklin, Lawrence	Unidentified limestone	Crushed stone—road construction/resurfacing	Ts-HC
Union	Shelly Materials, Inc.	Ostrander Quarry	Mill Creek	Columbus Limestone (Devonian)	Crushed stone—unspecified	Un-2
		York Center Quarry	York	Salina Dolomite (Silurian)	Crushed stone—unspecified	Un-1
Van Wert	National Lime & Stone Co.	Delphos Quarry	Washington	Tymochtee Dolomite (Silurian)	Crushed stone—Portland cement concrete	Vt-1
	Ridge Township Quarry	Ridge Township Quarry	Ridge	Tymochtee Dolomite (Silurian)	Crushed stone—unspecified	Vt-7
	Stoneco, Inc.	Scott Quarry	Union	Salina Dolomite (Silurian)	Crushed stone—unspecified	Vt-3
Vinton	Sands Hill Mining, LLC	Big Rock	Clinton	Unidentified limestone	Crushed stone—unspecified	Vn-S7
Wayne	Olen Corp.	The Olen Corp. - Wooster	Franklin, Wooster	Pleistocene glacial deposit	Crushed stone—road construction/resurfacing, commercial building	We-11
Wood	Cardinal Aggregates, Inc.	Cardinal Aggregates, LLC	Perrysburg	Lockport Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/ resurfacing, asphalt, commercial building	Wd-C
	Custar Stone Co., Inc.	Custar Stone Co., Inc.	Milton	Detroit River Group (Devonian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt	Wd-5
	Gerken Materials, Inc.	Gerken Materials, Inc.	Perry	Lockport and Salina Dolomites (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing, asphalt, extenders/fillers, aglime	Wd-1
	Precision Aggregates II, LLC	Precision Aggregates II, LLC	Portage	Lockport Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, road construction/resurfacing	Wd-14
	Stoneco, Inc.	Portage Quarry	Portage	Greenfield and Lockport Dolomites (Silurian)	Crushed stone—unspecified	Wd-11
Wyandot	National Lime & Stone Co.	Carey Plant	Crawford	Lockport Dolomite (Silurian)	Crushed stone—riprap, Portland cement concrete, aglime, railroad ballast, flux, asphalt, extenders/fillers, unspecified	Wt-1
	Olen Corp.	Upper Sandusky	Pitt	Salina Group (Silurian), Tymochtee Dolomite (Silurian)	Crushed stone—Portland cement concrete, road construction/ resurfacing, asphalt, commercial building	Wt-3
	Stoneco, Inc.	Carey Quarry	Crawford	Greenfield and Lockport Dolomites (Silurian)	Crushed stone—unspecified	Wt-8

[1] Refer to figure 22 (p. 22).

2014 SAND AND GRAVEL COMPANIES WITH SALES OR PRODUCTION

Company	Number of operations	Sales (tons)	Production (tons)
Agg Rok Materials	1	6,000	6,000
Alden Excavating	1	2,439	2,439
American Sand & Gravel, Inc.	2	550,462	550,462
Ashcraft Sand & Gravel, Inc.	1	40,095	40,095
Atlas Towing Co.	1	4,161	4,161
Ballentine Sand & Gravel, LLC	1	74,968	74,968
Barrett Paving Materials, Inc.	3	1,434,662	1,166,601
Beaver Excavating, Inc.	1	7,500	7,500
Beck Sand & Gravel, Inc.	1	297,303	297,303
Bontrager Excavating Co.	1	3,382	6,054
Boyas Excavating, Inc.	1	102,321	102,321
Boyd Excavating	1	2,790	2,790
Briggs Sand & Gravel, Inc.	1	19,678	19,678
Brookside Materials, LLC	1	170,000	164,000
Buck Run Aggregates, LLC	1	22,406	32,522
Burwinkel, Richard & Kathy	1	43,797	43,797
C. F. Poeppelman, Inc.	1	6,915	6,915
Calvin's Hauling, Inc.	1	746	0
Carl E. Oeder and Sons Sand & Gravel	1	494,093	494,093
Carmeuse Lime, Inc.	1	291	0
Carter & Carter, Inc.	1	315	315
Carter, Joe E.	1	1,200	1,200
CCR Sand & Gravel, LLC	1	49,913	49,913
Central-Allied Enterprises, Inc.	4	715,735	715,735
Central Ready Mix, LLC	2	200,000	200,000
D & K Materials, Inc.	1	111,110	111,110
Dennis Topsoil & Landscaping, Inc.	1	1,100	1,100
D.G.M., Inc.	2	110,272	110,272
Dingledine Basic Materials, Inc.	1	26,236	31,000
Downard, James E.	1	7,254	7,254
Duff Quarry, Inc.	1	3,724	3,724
Edgington, David E.	1	3,808	3,808
Enon Sand & Gravel, LLC	1	486,450	486,450
Ervin Hill Enterprises, Inc.	1	104,466	104,466
Evans Gravel, Inc.	1	149,846	143,639
Feikert Sand & Gravel, Inc.	2	349,532	349,532
Fleming Construction Co., Inc.	2	17,388	17,388
Foureman's Sand & Gravel, Inc.	1	43,969	43,969
George J. Igel & Co., Inc.	1	0	105
Grimes Excavating	1	10,726	10,726
Hanson Aggregates, LLC	2	623,373	580,987
Harvest Sand & Gravel, Inc.	1	21,948	21,948
Haueter Sand & Gravel, Inc.	1	103,628	105,240
Hocking Valley Concrete, Inc.	1	80,257	89,256
Hoffman, William A., Jr.	1	1,072	1,072
Holmes Redimix, Inc.	1	189,400	189,400
Holmes Supply Corp.	2	313,215	313,215
Jaclib Enterprises, Inc.	1	166	166
JALIP, Ltd.	1	5,503	5,503
Jaymar, Inc.	1	750,854	750,854
J.J.J. Properties, LLC	1	4,542	4,542
Joe Simak & Sons Trucking, Inc.	2	24,906	24,906
John L. Garber Materials, Inc.	2	123,948	123,948
KCI Sand & Gravel	1	58,524	57,524
Kirby's Sand & Gravel, Inc.	1	145,106	145,106
L & I Natural Resources, Inc.	1	82,980	82,980
L & M Mineral Co.	2	2,072	238
Lakeside Sand & Gravel Co.	2	561,346	561,346
Little Miami Sand & Gravel	2	0	1,000
Loxley Aggregates, Inc.	1	660	660
LUB, Inc.	1	6,616	6,616
M. J. Coates Construction Co., Inc.	1	54,846	54,846
Martin Marietta Aggregates	12	2,692,803	2,626,299
MAR-ZANE Materials, Inc.	1	331,103	331,103
Mason's Sand & Gravel Co.	1	27,371	27,371
Massillon Materials, Inc.	2	550,028	550,028
Mechanicsburg Sand & Gravel, Inc.	1	126,201	126,201
The Melvin Stone Co., LLC	1	243,978	243,978
Miami View Mining Co., Ltd.	1	20,223	20,223
Mid Ohio Resources	1	5,600	0
Miller's Sand & Gravel, Inc.	1	700	700
Milton Materials, LLC	1	79,900	96,800
Morrow Gravel Co.	2	351,767	351,767
Muskingum River Gravel Co.	3	335,817	274,063
National Lime & Stone Co.	3	1,025,000	1,025,000
Neer's Sand & Gravel	1	123,962	123,962
Nelson Sand & Gravel, Inc.	1	40,530	40,530
Newark Materials, LLC	1	54,000	69,000
Newton Asphalt Paving, Inc.	1	83,849	83,849
Northwest Ohio Property Developments, Ltd.	1	7,217	7,217
Olen Corp.	5	2,700,083	3,334,570
Oscar Brugmann Sand & Gravel, Inc.	1	567,201	567,201
Oster Sand & Gravel, Inc.	2	635,411	635,411
Ours Sand & Gravel	1	2,765	2,765
Patrick Excavating, Inc.	1	463	463
Paul D. Beery Trucking Co.	1	2,648	2,848
Phillips Companies, LLC	2	420,900	873,200
Phoenix Ashphalt Company, Inc.	1	114,008	114,008
Portage Aggregate & Supply, LLC	1	78,932	57,051
Precision Aggregates II, LLC	2	2,249	2,249
Quality Ready Mix, Inc.	1	7,554	0
R. J. Martin Service & Excavating	1	506	506
R. L., Ltd.	1	200	200
R. W. Sidley, Inc.	1	30,125	30,125
RAK, Inc.	1	15,722	43,280
Razor Lake S. & G., LLC	1	79,000	79,000
Rockwell Sand & Gravel, Inc.	1	42,004	42,004
Roush, Roy M.	1	667	0
Rupp Construction, Inc.	1	105,530	105,530
S & S Aggregate, Inc.	3	721,757	678,366

2014 SAND AND GRAVEL COMPANIES WITH SALES OR PRODUCTION (cont.)

Company	Number of operations	Sales (tons)	Production (tons)
Scassa Asphalt, Inc.	1	2,000	4,000
Schieve, Guy	1	5,883	5,883
Shamrock Materials, Inc.	1	131,300	131,300
Sharon Stone Co.	1	503,670	503,670
Shelly Materials, Inc.	8	3,038,061	2,683,206
Sidco Development, Inc.	1	191,272	191,272
Small's Sand & Gravel, Inc.	3	224,296	224,296
Sober Sand & Gravel Co.	1	207,721	207,721
Soehnlen Bros. Sand & Gravel, Inc.	1	303,656	303,656
Solomon's Mines, Inc.	1	67,231	67,231
Soltis Sand & Gravel	1	342	342
South Central Sand & Gravel	1	8,075	8,075
Southern Ohio Aggregates, Inc.	1	500	500
Stocker Sand & Gravel Co.	2	851,614	851,614
Sypniewski, Joseph N.	1	106	106
Thiel Construction Co.	1	1,306	1,306
Thomas Sand & Gravel	1	100	100
Tiger Sand & Gravel, LLC	1	164,408	164,408
Tipp Stone Co., Inc.	1	7,365	7,365
Top Dog Service Company	1	900	900
Triple B of Lakeville, Ltd.	1	122,687	122,687
Trout Sand & Gravel Co.	1	2,909	0
Tuffco Sand & Gravel, Inc.	1	62,295	62,295
U.S. Aggregates, Inc.	1	190,159	132,768
United Aggregates, Inc.	2	158,631	154,566
Walhonding Sand & Gravel	1	37,179	37,179
Watson Gravel, Inc.	5	2,076,847	2,154,803
Weber Sand & Gravel, Inc.	1	154,772	154,772
Weidle Sand & Gravel, Inc.	1	212,138	212,138
Welch Sand & Gravel, Inc.	3	855,203	855,203
Westfall Aggregate & Materials, Inc.	1	40,955	40,955
William Albert, Inc.	1	32,950	36,699
Willowbrook Sand & Gravel, LLC	1	26,251	26,251
Wysong Gravel Co.	2	240,480	240,054
Xenia Sand & Gravel, Inc.	1	4,428	4,428
Young's Sand & Gravel Co.	2	248,917	248,917
Youngs Sand and Gravel	1	164	0
TOTAL: 137 companies	199	30,636,560	30,942,292

2014 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

For those mines for which a state mine number has not been assigned, a letter designation is used (example: Ald-G).

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Ashland	Young's Sand & Gravel Co.	Sprang & Youngs	Green	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Ald-7
		Spreng	Green	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Ald-Y
Ashtabula	Joe Simak & Sons Trucking, Inc.	Amboy Pit	Kingsville	Sand—building, asphaltic concrete, fill, ice grits, pipe bedding	Asa-ST
		North Ridge Pit	Kingsville	Gravel—building, filtration	Asa-18
	Nelson Sand & Gravel, Inc.	Nelson Sand & Gravel, Inc.	Kingsville	Sand—building Gravel—building	Asa-N1
	R. W. Sidley, Inc.	Sidley-Kingsville Plant	Kingsville	Sand—building, Portland cement concrete Gravel—unspecified	Asa-15
	Joseph N. Sypniewski	Sypniewski	Trumbull	Gravel—unspecified	Asa-SY
Auglaize	Quality Ready Mix, Inc.	Quality Pit	Pusheta	Sand—building, Portland cement concrete Gravel—building, Portland cement concrete	Ae-16
Butler	Dingledine Basic Materials, Inc.	Dingledine Basic Materials, Inc.	Milford	Sand—building Gravel—building	Br-50
	Martin Marietta Aggregates	Fairfield Sand & Gravel	Fairfield, Ross	Sand—unspecified Gravel—unspecified	Br-35
		Ross Sand & Gravel	Fairfield, Ross	Gravel—unspecified	Br-29
	Shamrock Materials, Inc.	Shamrock Materials	Madison	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Br-52
	Southern Ohio Aggregates, Inc.	New Miami Plant	St. Clair	Sand—unspecified	Br-S
	Watson Gravel, Inc.	Mecco, Inc.	Lemon	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Br-15
		Ongais Plant #1	Madison	Sand—unspecified Gravel—unspecified	Br-0
		Watson Pit	Fairfield, Ross	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Br-47
	Welch Sand & Gravel, Inc.	Schlichter Pit	Fairfield	Sand—building Gravel—building	Br-38
Carroll	Phoenix Ashphalt Company, Inc.	Smith Sand & Gravel #1	Rose, Sandy	Sand—unspecified Gravel—unspecified	Cl-P1
Champaign	Mechanicsburg Sand & Gravel, Inc.	Mechanicsburg Sand & Gravel, Inc.	Union	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Cpn-22
	Morrow Gravel Co.	Urbana	Urbana	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, asphaltic concrete, road construction/resurfacing	Cpn-1
Clark	Enon Sand & Gravel, LLC	Enon Sand & Gravel, LLC	Bethel, Mad River	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Ck-3
	Martin Marietta Aggregates	Fairborn Gravel	Bethel	Sand—unspecified Gravel—unspecified	Ck-13

2014 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY (cont.)

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Clinton	Martin Marietta Aggregates	Clinton Limestone	Wilson	Sand—unspecified	Cln-W
Columbiana	Buck Run Aggregates, LLC	Krcich	Middleton	Sand—unspecified	Ca-351
	Harvest Sand & Gravel, Inc.	Eberly	Salem	Sand—asphaltic concrete, fill Gravel—fill	Ca-H2
	Solomon's Mines, Inc.	Solomon's Mines, Inc.	Salem	Sand—road construction/resurfacing, fill, bedding Gravel—building, road construction/resurfacing, filtration	Ca-S
	Willowbrook Sand & Gravel, LLC	Willowbrook Sand & Gravel	Elk Run	Sand—unspecified Gravel—unspecified	Ca-993
Coshocton	Razor Lake S. & G., LLC	Razor Lake S. & G., LLC	Oxford	Sand—unspecified	Cn-R
	Shelly Materials, Inc.	Shelly Materials, Inc., Plant #1305	Bethlehem	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Cn-694
	Walhonding Sand & Gravel	Walhonding Valley Sand & Gravel	New Castle	Sand—fill Gravel—road construction/resurfacing	Cn-WL
	William Albert, Inc.	William Albert, Inc., Pit 2	Lafayette	Sand—building, fill Gravel—building, road construction/resurfacing	Cn-WA
Cuyahoga	Boyas Excavating, Inc.	Boyas Excavating, Inc.	Independence	Sand—fill	Cya-42
Darke	Foureman's Sand & Gravel, Inc.	Foureman's Sand & Gravel, Inc.	Greenville	Sand—unspecified Gravel—unspecified	Dke-4
Defiance	Weber Sand & Gravel, Inc.	Weber Sand & Gravel, Inc.	Milford	Sand—building, Portland cement concrete Gravel—building, decorative	Ws-11 De
Fairfield	James E. Downard	Downard Pit	Rush Creek	Sand—granular backfill	Fd-16
	Paul D. Beery Trucking Co.	Paul D. Beery Trucking Co.	Berne	Sand—unspecified Gravel—unspecified	Fd-14
Franklin	Agg Rok Materials	Agg Rok	Franklin	Sand—bank run Gravel—bank run	Fn-36
	Mason's Sand & Gravel Co.	Mason's Sand & Gravel Co.	Hamilton	Sand—building Gravel—building	Fn-11
	National Lime & Stone Co.	South Columbus	Hamilton	Sand—Portland cement concrete Gravel—Portland cement concrete, road construction/resurfacing	Fn-52
	Olen Corp.	Columbus Plant #3	Hamilton	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Fn-58
Fulton	Northwest Ohio Property Developments, Ltd.	NOPD, Ltd.	Dover	Sand—unspecified	Ftn-NW
Gallia	Jaclib Enterprises, Inc.	Cheshire Pit	Cheshire	Sand—fill Gravel—filtration	Ga-JE
	Ours Sand & Gravel	Ours Sand & Gravel	Ohio	Sand—unspecified	Ga-O
Geauga	Haueter Sand & Gravel, Inc.	Haueter Sand & Gravel, Inc.	Burton, Newbury	Sand—unspecified Gravel—unspecified	Gea-29
	Soltis Sand & Gravel	Soltis Sand & Gravel	Parkman	Sand—fill	Gea-9

Greene	Barrett Paving Materials, Inc.	Haddix Road Aggregates Plant #341	Mad River	Sand—Portland cement concrete, asphaltic concrete Gravel—Portland cement concrete, asphaltic concrete	Ck-28
	M. J. Coates Construction Co., Inc.	M. J. Coates Construction Co., Inc.	Spring Valley	Sand—road construction/resurfacing Gravel—road construction/resurfacing	Ge-47
	Martin Marietta Aggregates	Cedarville	Cedarville	Sand—unspecified Gravel—unspecified	Ge-17
		Cook Rd.	Spring Valley	Sand—unspecified Gravel—unspecified	Ge-MM
		Xenia S & G	Beavercreek, Xenia	Sand—unspecified Gravel—unspecified	Ge-33
	Phillips Companies, LLC	Phillips Companies, LLC	Beavercreek	Sand—building, Portland cement concrete, road construction/resurfacing, fill Gravel—building, Portland cement concrete, road construction/resurfacing	Ge-36
	R. J. Martin Service & Excavating	Horseshoe Bend Sand & Gravel, Inc.	Spring Valley	Gravel—pit run	Ge-40
	Xenia Sand & Gravel, Inc.	Xenia Sand & Gravel, Inc.	Xenia	Sand—building Gravel—building	Ge-10
Hamilton	Ashcraft Sand & Gravel, Inc.	Ashcraft Sand & Gravel, Inc.	Whitewater	Sand—building Gravel—building	Hmn-54
	Burwinkel, Richard & Kathy	Burwinkel	Crosby	Sand—building Gravel—building	Hmn-RB
	Carter, Joe E.	Lost Bridge	Whitewater	Sand—unspecified Gravel—unspecified	Hmn-JC
	Evans Gravel, Inc.	Evans Gravel, Inc.	Anderson	Sand—asphaltic concrete Gravel—asphaltic concrete	Hmn-E
	Hanson Aggregates, LLC	Dry Fork Sand & Gravel	Harrison, Whitewater	Sand—unspecified Gravel—unspecified	Hmn-50
	Martin Marietta Aggregates	E-town Sand & Gravel	Whitewater	Sand—unspecified Gravel—unspecified	Hmn-71
	R. L., Ltd.	R. L., Ltd.	Crosby	Sand—building	Hmn-67
	Top Dog Service Company	Whitewater Reclamation Company	Whitewater	Gravel—unspecified	Hmn-G
	Watson Gravel, Inc.	Harrison #2	Whitewater	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Hmn-ARH
		Minges-Getz	Miami	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Hmn-64
	Welch Sand & Gravel, Inc.	East Miami Pit	Colerain	Sand—building Gravel—building	Hmn-48
		Fernald Pit	Crosby	Sand—building Gravel—building	Hmn-42
Highland	Ervin Hill Enterprises, Inc.	Ervin Hill Enterprises, Inc.	New Market	Sand—Portland cement concrete, fill Gravel—building, asphaltic concrete, road construction/resurfacing, filtration	Hd-L
Hocking	Hocking Valley Concrete, Inc.	Hocking Valley Concrete, Inc.	Green	Gravel—building	Hg-262
	KCI Sand & Gravel	KCI Sand & Gravel	Green	Sand—Portland cement concrete, road construction/resurfacing, fill Gravel—building, Portland cement concrete, road construction/resurfacing, filtration	Hg-HA
	MAR-ZANE Materials, Inc.	Enterprise Pit	Falls	Sand—asphaltic concrete Gravel—asphaltic concrete	Hg-HV
	Muskingum River Gravel Co.	S & S Aggregate #8	Green, Starr	Sand—asphaltic concrete, road construction/resurfacing	Hg-301

2014 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY (cont.)

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Holmes	Feikert Sand & Gravel, Inc.	Feikert Sand & Gravel	Prairie	Sand—building	Hs-F2
		Feikert Sand & Gravel, Inc.	Salt Creek	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Hs-511
	Holmes Redimix, Inc.	Holmes Redimix, Inc.	Hardy	Sand—unspecified Gravel—unspecified	Hs-82
	Holmes Supply Corp.	Holmes Supply Corp.	Prairie	Sand—building, Portland cement concrete, asphaltic concrete, fill Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing, filtration	Hs-J
		Schlabach	Killbuck	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Hs-H1
	Triple B of Lakeville, Ltd.	Lakeville Sand & Gravel, Ltd.	Washington	Sand—unspecified	Hs-C
Knox	Olen Corp.	Fredericktown Plant #2	Morris	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Kx-O
	Small's Sand & Gravel, Inc.	Small's Sand & Gravel, Inc.	Harrison	Sand—unspecified Gravel—unspecified	Kx-15
		Small's Sand & Gravel, Inc.	Harrison	Gravel—unspecified	Kx-17
		Small's Sand & Gravel, Inc.	Howard	Sand—building Gravel—building	Kx-S
	United Aggregates, Inc.	United Aggregates, Inc.	Clinton	Sand—Portland cement concrete Gravel—building, road construction/resurfacing, filtration	Kx-3
		United Aggregates, Inc.	Union	Sand—Portland cement concrete Gravel—building, road construction/resurfacing, filtration	Kx-5
Lake	J.J.J. Properties, LLC	J.J.J. Properties, LLC	Painesville	Sand—backfill material	Lke-P
Licking	Brookside Materials, LLC	Brookside Materials, LLC	St. Albans	Sand—building Gravel—building, road construction/resurfacing	Lg-B
	Newark Materials, LLC	Newark Materials	Madison	Sand—Portland cement concrete Gravel—building	Lg-504
	Olen Corp.	St. Louisville Plant #5	Washington	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Lg-31
	Shelly Materials, Inc.	St. Louisville	Newton	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Lg-10
Logan	Boyd Excavating	Boyd Excavating	Monroe	Gravel—building	Lgn-B
	Duff Quarry, Inc.	Duff Sand Co.	Washington	Sand—building, Portland cement concrete	Lgn-31
	Neer's Sand & Gravel	Neer's Sand & Gravel	Union	Sand—unspecified Gravel—unspecified	Lgn-6
Lorain	Guy Schieve	Schieve Pit	Henrietta	Gravel—unspecified	Ln-12
Lucas	Dennis Topsoil & Landscaping, Inc.	Dennis Topsoil & Landscaping, Inc.	Adams	Gravel—unspecified	Ls-D1
Madison	Tuffco Sand & Gravel, Inc.	Tuffco Sand & Gravel, Inc.	Darby	Sand—building, road construction/resurfacing Gravel—building	Mdn-11

Marion	Fleming Construction Co., Inc.	Pit #1	Prospect	Sand—building, Portland cement concrete, fill Gravel—filtration, decorative	Mn-16
		Pit #2	Prospect	Sand—Portland cement concrete	Mn-19
Medina	CCR Sand & Gravel, LLC	CCR Sand & Gravel, LLC	Harrisville, Westfield	Sand—building Gravel—building	Ma-22
Meigs	Jaymar, Inc.	Plant #4	Olive	Sand—unspecified Gravel—unspecified	Ms-308
	Martin Marietta Aggregates	Apple Grove Plant	Letart	Sand—unspecified Gravel—unspecified	Ms-205
	Shelly Materials, Inc.	Portland Plant	Lebanon	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Ms-S
Miami	C. F. Poeppelman, Inc.	C. F. Poeppelman, Inc.	Newberry	Sand—unspecified	Mi-10
	Martin Marietta Aggregates	Troy Sand & Gravel	Concord	Sand—unspecified Gravel—unspecified	Mi-3
	Milton Materials, LLC	Milton Materials Fenner Pit	Newton	Sand—Portland cement concrete Gravel—building	Mi-4
Montgomery	Barrett Paving Materials, Inc.	West Carrollton Aggregate Plant	Jefferson, Miami	Sand—unspecified Gravel—unspecified	My-19
	Carter & Carter, Inc.	Carter & Carter, Inc.	Miami	Gravel—unspecified	My-CW
	Central Ready Mix, LLC	Germantown Plant #21	German	Sand—building Gravel—building	My-41
	Martin Marietta Aggregates	Phillipsburg	Clay	Sand—unspecified	My-1
	Phillips Companies, LLC	Phillips Sand and Gravel	Butler, Union	Sand—building, Portland cement concrete, industrial sand Gravel—building, Portland cement concrete	My-52
	Tipp Stone Co., Inc.	Tipp Stone Co., Inc.	Butler	Gravel—fill	My-61
	Weidle Sand & Gravel, Inc.	Weidle Sand & Gravel	German	Sand—building Gravel—building	My-W1
Morrow	National Lime & Stone Co.	Chesterville Plant	Chester	Sand—building, fill Gravel—building, road construction/resurfacing, filtration	Mw-10
Muskingum	LUB, Inc.	LUB, Inc.	Muskingum	Sand—building Gravel—building	Mum-LB
	Muskingum River Gravel Co.	S & S Aggregate #1	Wayne	Sand—asphaltic concrete, road construction/resurfacing Gravel—asphaltic concrete, road construction/resurfacing	Mum-228
Pickaway	George J. Igel & Co., Inc.	George J. Igel & Co., Inc.	Darby	Gravel—unspecified	Pky-C
	William A. Hoffman, Jr.	Hoffman Pit	Wayne	Sand—unspecified Gravel—unspecified	Pky-H
	The Melvin Stone Co., LLC	Circleville	Wayne	Sand—building, Portland cement concrete, asphaltic concrete, farm/residential Gravel—building, asphaltic concrete, road construction/resurfacing, farm/residential	Pky-R
	Roy M. Roush	R Farm S & G	Darby		Pky-RR
	Westfall Aggregate & Materials, Inc.	Hill Road Pit	Jackson	Sand—building Gravel—building	Pky-WA

2014 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY (cont.)

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Pike	Hanson Aggregates, LLC	Piketon Sand & Gravel	Scioto	Sand—unspecified Gravel—unspecified	Pke-24
	South Central Sand & Gravel	South Central Sand & Gravel	Scioto	Sand—Portland cement concrete Gravel—road construction/resurfacing	Pke-30
Portage	Ballentine Sand & Gravel, LLC	Ballentine Lake	Shalersville	Sand—Portland cement concrete Gravel—building	Pe-BA
	Beck Sand & Gravel, Inc.	Beck Sand & Gravel, Inc.	Portage, Shalersville	Sand—building, Portland cement concrete, landscaping Gravel—building, asphaltic concrete, road construction/resurfacing, filtration, landscaping, ice control	Pe-50
	D & K Materials, Inc.	D & K Materials, Inc.	Brimfield	Sand—building, Portland cement concrete, asphaltic concrete Gravel—road construction/resurfacing, filtration	Pe-101
	Lakeside Sand & Gravel Co.	Lakeside Sand & Gravel Co. Plant 1	Shalersville	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Pe-LS
		Solak	Shalersville	Sand—building Gravel—building	Pe-A
	Miller's Sand & Gravel, Inc.	Miller Sand & Gravel, Inc.	Windham	Sand—fill	Pe-39
	Oscar Brugmann Sand & Gravel, Inc.	Oscar Brugmann Sand & Gravel, Inc.	Shalersville	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Pe-9
	Patrick Excavating, Inc.	Patrick	Charlestown	Gravel—unspecified	Pe-P
	Portage Aggregate & Supply, LLC	Portage Aggregate & Supply, LLC	Shalersville	Sand—building, Portland cement concrete Gravel—building	Pe-M
	RAK, Inc.	Rainbow Sand & Gravel, Inc.	Shalersville	Gravel—unspecified	Pe-64
	Rockwell Sand & Gravel, Inc.	Suffield Aggregate, LLC	Suffield	Sand—Portland cement concrete, fill, soil blend Gravel—filtration	Pe-R
	S & S Aggregate, Inc.	S & S Aggregate #16	Ravenna	Sand—asphaltic concrete, road construction/resurfacing Gravel—asphaltic concrete, road construction/resurfacing	Pe-15
	Shelly Materials, Inc.	Jefferson Materials	Streetsboro	Sand—Portland cement concrete, asphaltic concrete Gravel—asphaltic concrete	Pe-63
		Shalersville North	Shalersville	Sand—Portland cement concrete, asphaltic concrete Gravel—Portland cement concrete, asphaltic concrete	Pe-La
	Sober Sand & Gravel Co.	Sober Sand & Gravel Co.	Rootstown	Sand—building, Portland cement concrete Gravel—building, asphaltic concrete	Pe-18
Preble	Loxley Aggregates, Inc.	Loxley Aggregates, Inc.	Twin	Sand—building Gravel—building	Pre-9
	Thomas Sand & Gravel	Howard Thomas	Lanier	Gravel—pipe backfill	Pre-T
	U.S. Aggregates, Inc.	U.S. Aggregates - Richmond Plant	Jefferson	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Pre-AAC
	Wysong Gravel Co.	Wysong Gravel Co.	Somers	Sand—building Gravel—building	Pre-4
		Wysong Gravel Co. - West Alexandria Plant	Twin	Sand—building Gravel—building	Pre-6

Richland	John L. Garber Materials, Inc.	John L. Garber Materials, Inc.	Troy	Sand—building Gravel—building	Rd-14
		John L. Garber Materials, Inc.	Washington	Sand—unspecified Gravel—unspecified	Rd-G
	Mid Ohio Resources	Bellville West	Jefferson	Sand—building, Portland cement concrete Gravel—building, road construction/resurfacing, ice control	Rd-M1
	S & S Aggregate, Inc.	S & S Aggregate #14	Monroe	Sand—asphaltic concrete Gravel—asphaltic concrete, road construction/resurfacing	Rd-5
Ross	Calvin's Hauling, Inc.	Calvin's Hauling, Inc.	Concord	Sand—building Gravel—road construction/resurfacing	Rs-C
	D.G.M., Inc.	Towpath-Warwick	Twin	Sand—building, Portland cement concrete Gravel—building, Portland cement concrete	Rs-D
	David E. Edgington	Edgington Pit	Concord	Sand—building Gravel—building	Rs-E
	Muskingum River Gravel Co.	S & S Aggregate Plant #7	Jefferson	Sand—asphaltic concrete, road construction/resurfacing Gravel—asphaltic concrete, road construction/resurfacing	Rs-M
	Shelly Materials, Inc.	Shelly Materials, Inc. - Chillicothe	Springfield	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Rs-27
Sandusky	Carmeuse Lime, Inc.	Woodville Plant	Woodville	Gravel—unspecified	Sy-3
	Precision Aggregates II, LLC	Precision Aggregates III, LLC	Sandusky	Sand—asphaltic concrete Gravel—asphaltic concrete	Sy-5-1
Scioto	D.G.M., Inc.	Tow Path Ready Mix	Morgan	Sand—building, Portland cement concrete Gravel—building, Portland cement concrete	So-DGM
	Youngs Sand and Gravel	Young	Porter	Gravel—fill	So-Y
Shelby	Barrett Paving Materials, Inc.	Hardin Sand & Gravel	Washington	Sand—Portland cement concrete Gravel—Portland cement concrete, asphaltic concrete	Shy-SC
Stark	American Sand & Gravel, Inc.	Plant #4	Jackson	Sand—road construction/resurfacing Gravel—road construction/resurfacing	Sk-243
		Plant #6	Jackson	Sand—road construction/resurfacing Gravel—road construction/resurfacing	Sk-RO
	Beaver Excavating, Inc.	Stone Products	Canton	Sand—unspecified Gravel—unspecified	Sk-BE
	Central-Allied Enterprises, Inc.	Canton Aggregate Div.	Plain	Sand—building	Sk-681
		Central Sand & Gravel Div.	Plain	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Sk-CA1
		Massillon Washed Gravel Div.	Bethlehem	Sand—unspecified	Sk-607
		Massillon Washed Gravel Div.	Bethlehem	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Sk-MW
	L & M Mineral Co.	Barr Farm	Bethlehem	Sand—unspecified	Sk-LM
	Massillon Materials, Inc.	Massillon Materials, Inc.	Perry	Sand—unspecified Gravel—unspecified	Sk-M
		MMI Warmington Plant	Perry	Sand—unspecified Gravel—unspecified	Sk-M1
	Oster Sand & Gravel, Inc.	Massillon Plant	Jackson, Perry	Sand—building, Portland cement concrete, asphaltic concrete, fill Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Sk-165

2014 OHIO DIRECTORY OF SAND AND GRAVEL MINING OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY (cont.)

County	Name of operator	Name of pit	Township	Type and principal use	State mine number
Stark (*cont.*)	Scassa Asphalt, Inc.	Roio Sand & Gravel	Lawrence	Sand—building Gravel—building	Sk-S
	Shelly Materials, Inc.	Massillon Aggregates	Perry	Sand—Portland cement concrete, asphaltic concrete Gravel—asphaltic concrete	Sk-173
	Tiger Sand & Gravel, LLC	Tiger Sand & Gravel, LLC	Perry	Sand—building Gravel—building	Sk-T
Summit	Alden Excavating	Alden Excavating	Northampton	Sand—unspecified	St-55
	Bontrager Excavating Co.	Gilbert	Green	Sand—building Gravel—building	St-B
	S & S Aggregate, Inc.	Twin Lakes - S & S Aggregate #9	Coventry	Sand—asphaltic concrete, road construction/resurfacing Gravel—road construction/resurfacing, customer sales	St-44
Tuscarawas	L & M Mineral Co.	Spring Industries	Goshen, Warwick	Sand—fill Gravel—fill	Ts-SI
	Newton Asphalt Paving, Inc.	516	Dover	Sand—asphaltic concrete Gravel—asphaltic concrete	Ts-2001
	Oster Sand & Gravel, Inc.	Oster Sand & Gravel, Inc. - Bolivar	Sandy	Sand—building, Portland cement concrete, asphaltic concrete, fill Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	Ts-2036
	Sidco Development, Inc.	Midvale Sand & Gravel	Goshen	Sand—Portland cement concrete, asphaltic concrete Gravel—Portland cement concrete, asphaltic concrete	Ts-S2
	Soehnlen Bros. Sand & Gravel, Inc.	Soehnlen Bros. Sand & Gravel, Inc.	Wayne	Sand—Portland cement concrete, industrial sand Gravel—building, road construction/resurfacing	Ts-1826
	Stocker Sand & Gravel Co.	Stocker Sand & Gravel Co. - Gnaden	Clay	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Ts-69
		Stocker Sand & Gravel Co. - Island	Clay	Sand—building, road construction/resurfacing Gravel—building, road construction/resurfacing	Ts-125
Warren	Carl E. Oeder and Sons Sand & Gravel	Carl E. Oeder and Sons Sand & Gravel	Turtle Creek	Sand—building Gravel—building	Wan-41
	Central Ready Mix, LLC	Carlisle Plant #27	Franklin	Sand—unspecified Gravel—unspecified	Wan-7
	L & I Natural Resources, Inc.	L & I Pit & Mill	Union	Sand—building Gravel—building	Wan-50
	Little Miami Sand & Gravel	Little Miami Sand & Gravel Plant #1	Salem	Gravel—unspecified	Wan-B
		Little Miami Sand & Gravel Plant #2	Salem	Gravel—unspecified	Wan-46
	Martin Marietta Aggregates	Franklin Gravel	Franklin	Sand—unspecified Gravel—unspecified	Wan-38
	Miami View Mining Co., Ltd.	Miami View	Union	Gravel—bank run	Wan-MV
	Morrow Gravel Co.	Morrow Gravel Co.	Hamilton, Salem	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete, asphaltic concrete	Wan-M
Washington	Atlas Towing Co.	Belpre Bank Run	Belpre	Sand—bank run	Wn-54
	Briggs Sand & Gravel, Inc.	Briggs Sand & Gravel, Inc.	Warren	Sand—building Gravel—road construction/resurfacing	Wn-508
	Grimes Excavating	Grimes Sand and Gravel	Grandview	Sand—building Gravel—building	Wn-1008

Washington *(cont.)*	Sharon Stone Co.	Belpre Sand & Gravel	Belpre	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete	Wn-SS
	Shelly Materials, Inc.	Reno	Newport	Sand—unspecified	Wn-SM
	Trout Sand & Gravel Co.	Trout Sand & Gravel Co.	Warren	Sand—building Gravel—building	Wn-510
Wayne	Olen Corp.	The Olen Corp. - Wooster	Franklin, Wooster	Sand—building, Portland cement concrete, asphaltic concrete Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing	We-11
	Rupp Construction, Inc.	Rupp Construction, Inc.	Baughman	Sand—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing, fill Gravel—building, Portland cement concrete, asphaltic concrete, road construction/resurfacing, filtration	We-7
Williams	Thiel Construction Co.	Thiel Construction Co.	Superior	Sand—building Gravel—building	Ws-21
Wood	Precision Aggregates II, LLC	Precision Aggregates II, LLC	Portage	Sand—asphaltic concrete	Wd-14
Wyandot	JALIP, Ltd.	JALIP, Ltd.	Pitt	Sand—bedding	Wt-J
	Kirby's Sand & Gravel, Inc.	Kirby's Sand & Gravel, Inc.	Eden	Sand—unspecified Gravel—unspecified	Wt-K
	National Lime & Stone Co.	Upper Sandusky Plant	Antrim	Sand—building, Portland cement concrete, asphaltic concrete Gravel—base and backfill	Wt-N
	Olen Corp.	Upper Sandusky	Pitt	Gravel—unspecified	Wt-3

2014 SANDSTONE/CONGLOMERATE
COMPANIES WITH SALES OR PRODUCTION

Company	Number of operations	Sales (tons)	Production (tons)
Agg Rok Materials	1	6	6
Best Sand Corp.	2	722,364	722,364
Briar Hill Stone Co.	4	9,169	9,169
City Stone, LLC	1	123,637	123,637
D. & D. Mining Co.	1	120	0
IRG Operating, LLC, dba Cleveland Quarries	1	9,305	15,744
Johnson Stone Products, Inc.	1	1,994	5,981
Keeney Sand & Stone, Inc.	1	42,507	42,507
Mesenburg Bros., Inc.	1	6,136	6,136
Ohio Basic Minerals, LLC	1	46,738	17,152
Precision Aggregates II, LLC	2	10,366	10,366
Premier Silica, LLC	2	100,396	129,050
R. W. Sidley, Inc.	1	101,448	144,000
Riverside Sand & Gravel Co., Inc.	1	283	0
Rocky Enterprise	1	54,654	54,654
Romig Excavating	1	1,221	1,221
Solomon's Mines, Inc.	1	8,632	8,632
State Line Resources, Inc.	1	3,000	3,000
Zollinger Sand & Gravel Co.	1	1,225	1,225
TOTAL: 19 companies	25	1,243,201	1,294,844

2014 OHIO DIRECTORY OF SANDSTONE/CONGLOMERATE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

For those mines for which a state mine number has not been assigned, a letter designation is used (example: Gea-N).

County	Name of operator	Name of mine or quarry	Township	Geological unit (age)[1]	Type and principal use	State mine number
Carroll	Romig Excavating	Romig Excavating	Monroe	Unidentified sandstone (Pennsylvanian)	Crushed or broken stone—riprap	Cl-R
Columbiana	Solomon's Mines, Inc. State Line Resources, Inc.	Solomon's Mines, Inc. State Line Resources, Inc.	Salem Middleton	Buffalo sandstone (Pennsylvanian) Unidentified sandstone (Pennsylvanian)	Crushed or broken stone—riprap, construction Crushed or broken stone—riprap	Ca-S Ca-505
Coshocton	Briar Hill Stone Co.	Quarry #32 Quarry #54 Quarry #55	Jefferson Clark Clark	Massillon sandstone (Pennsylvanian) Massillon sandstone (Pennsylvanian) Massillon sandstone (Pennsylvanian)	Dimension stone—other Dimension stone—other Dimension stone—other	Cn-686 Cn-809 Cn-815
Erie	IRG Operating, LLC, dba Cleveland Quarries	IRG Operating, LLC	Florence	Berea Sandstone (Devonian)	Dimension stone—rough construction, rubble, finished stone, flag	Ee-21
Franklin	Agg Rok Materials	Agg Rok	Franklin	Unidentified sandstone	Dimension stone—other	Fn-36
Geauga	Best Sand Corp. R. W. Sidley, Inc.	Best Sand Corp. Thompson Pit	Munson Thompson	Sharon conglomerate (Pennsylvanian) Sharon conglomerate (Pennsylvanian)	Crushed or broken stone—foundry sand, glass sand, polish grind, construction, industrial Crushed or broken stone—foundry sand, metallurgical pebble, aggregate, polish grind, construction, industrial	Gea-3 Gea-1
Guernsey	Rocky Enterprise	Rocky Enterprise - Robins Ridge	Richland	Conemaugh Group (Pennsylvanian)	Crushed or broken stone—riprap Dimension stone—rough construction	Gy-R
Huron	Mesenburg Bros., Inc.	Mesenburg Bros., Inc.	Townsend	Berea Sandstone (Devonian)	Dimension stone—rough construction	Hrn-8
Knox	Briar Hill Stone Co. Premier Silica, LLC	Quarry #6 Millwood Plant	Union Butler, Union	Massillon (Pennsylvanian) Cuyahoga Formation (Mississippian)	Dimension stone—finished stone Crushed or broken stone—glass sand, metallurgical pebble, construction, industrial	Kx-12 Kx-1
Lake	Keeney Sand & Stone, Inc.	Keeney Sand & Stone, Inc.	Leroy	Berea Sandstone (Devonian)	Crushed or broken stone—aggregate, construction	Lke-K
Lorain	Johnson Stone Products, Inc.	Johnson Stone Products	Camden	Berea Sandstone (Devonian)	Dimension stone—rubble, finished stone	Ln-J
Mahoning	City Stone, LLC D. & D. Mining Co.	City Stone, LLC D. & D. Strip	Milton Springfield	Sharon sandstone (Pennsylvanian) Allegheny Group (Pennsylvanian)	Crushed or broken stone—construction Crushed or broken stone—aggregate	Mg-62 Mg-D
Perry	Premier Silica, LLC	Glass Rock Plant	Hopewell	Unidentified sandstone (Pennsylvanian)	Crushed or broken stone—refractory	Py-344
Pike	Best Sand Corp. Ohio Basic Minerals, LLC	Best - Southern Division Scioto Mine	Jackson Jackson	Sharon conglomerate (Pennsylvanian) Unidentified sandstone	Crushed or broken stone—foundry sand, construction Crushed or broken stone—industrial	Pke-31 Pke-O
Sandusky	Precision Aggregates II, LLC	Precision Aggregates III, LLC	Sandusky	Unidentified sandstone	Crushed or broken stone—aggregate	Sy-5-1
Summit	Riverside Sand & Gravel Co., Inc.	Riverside Sand & Gravel Co., Inc.	Stow, Tallmadge	Sharon conglomerate (Pennsylvanian)	Dimension stone—other	St-24
Wayne	Zollinger Sand & Gravel Co.	Zollinger Sand & Gravel Co.	Chippewa	Cuyahoga Formation (Mississippian)	Crushed or broken stone—construction	We-15
Wood	Precision Aggregates II, LLC	Precision Aggregates II, LLC	Portage	Unidentified sandstone	Crushed or broken stone—aggregate	Wd-14

[1] Refer to figure 22 (p. 22).

2014 CLAY COMPANIES WITH SALES OR PRODUCTION

Company	Number of operations	Sales (tons)	Production (tons)
A. P. Green Refractories, Inc.	1	3,788	3,788
Athens Hocking Reclamation Center	1	25,000	26,600
Beaver Excavating, Inc.	1	4,000	4,000
Belden Brick Co.	3	131,395	131,395
Bowerston Shale Co.	1	11,993	11,993
Boyas Excavating, Inc.	1	4,604	4,604
Brookside Materials, LLC	1	20,000	20,000
Cedar Heights Clay Co.	1	4,203	31,523
CEMEX, Inc.	1	95,421	95,421
D & K Materials, Inc.	1	981	981
Envirosafe Services of Ohio, Inc.	1	28,800	28,800
L & M Mineral Co.	2	17,893	17,893
Loxley Aggregates, Inc.	1	202	202
Maysville Materials, LLC	2	2,297	0
Patrick Excavating, Inc.	1	287	287
Phillips Companies, LLC	1	120,600	120,600
Sandkuhl Clay Works, Inc.	1	2,161	2,161
Sober Sand & Gravel Co.	1	17,125	17,125
Soltis Sand & Gravel	1	3,070	3,070
State Line Resources, Inc.	1	25,581	25,581
Sypniewski, Joseph N.	1	351	351
Valley Clay Mining Co.	1	15,295	15,295
Zollinger Sand & Gravel Co.	1	483	483
TOTAL: 23 companies	27	535,530	562,153

2014 OHIO DIRECTORY OF CLAY MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

For those mines for which a state mine number has not been assigned, a letter designation is used (example: Cn-B).

County	Name of operator	Name of mine or quarry	Township	Geological unit (age)[1]	Type and principal use	State mine number
Ashtabula	Joseph N. Sypniewski	Sypniewski	Trumbull	Glacial clay (Pleistocene)	Construction	Asa-SY
Athens	Athens Hocking Reclamation Center	Athens-Hocking Clay Mine	York	Conemaugh Group (Pennsylvanian)	Landfill	As-594
Auglaize	Sandkuhl Clay Works, Inc.	Sandkuhl Clay Works, Inc.	Salem	Glacial clay (Pleistocene)	Common clay products	Ae-7
Belmont	Maysville Materials, LLC	Maysville Materials, LLC	Richland	Unidentified clay	Landfill	Bt-M
Columbiana	State Line Resources, Inc.	State Line Resources, Inc.	Middleton	Lower Kittanning (Pennsylvanian)	Common clay products	Ca-505
Cuyahoga	Boyas Excavating, Inc.	Boyas Excavating, Inc.	Independence	Bedford Shale (Mississippian)	Baseball diamonds	Cya-42
Geauga	Soltis Sand & Gravel	Soltis Sand & Gravel	Parkman	Glacial clay (Pleistocene)	Common clay products	Gea-9
Greene	CEMEX, Inc. Phillips Companies, LLC	Miller, Schieder, Batdorf, Stewart Phillips Companies, LLC	Bath Beavercreek	Unidentified clay Glacial clay (Pleistocene)	Unspecified Common clay products	Ge-8 Ge-36
Jackson	A. P. Green Refractories, Inc. Cedar Heights Clay Co.	Poetker Phillips	Jefferson Madison	Lower Kittanning clay (Pennsylvanian) Allegheny Group (Pennsylvanian)	Refractories Ground clay	Jkn-G Jkn-CH3
Licking	Brookside Materials, LLC	Brookside Materials, LLC	St. Albans	Unidentified clay	Construction	Lg-B
Lucas	Envirosafe Services of Ohio, Inc.	Johlin Property Clay Mine	Oregon	Glacial clay (Pleistocene)	Unspecified	Ls-E
Muskingum	Bowerston Shale Co. Maysville Materials, LLC Valley Clay Mining Co.	Frazeysburg Smith Spring Pit	Jackson Newton Newton	Flint Ridge and Middle Mercer clays (Pennsylvanian), unidentified clay (Pennsylvanian) Tionesta clay (Pennsylvanian) #3 Ohio clay, Tionesta (Pennsylvanian)	Unspecified Landfill Common clay products	Mum-776 Mum-M1 Mum-904
Portage	D & K Materials, Inc. Patrick Excavating, Inc. Sober Sand & Gravel Co.	D & K Materials, Inc. Patrick Sober Sand & Gravel Co.	Brimfield Charlestown Rootstown	Glacial clay (Pleistocene) Glacial clay (Pleistocene) Glacial clay (Pleistocene)	Common clay products Construction Construction	Pe-101 Pe-P Pe-18
Preble	Loxley Aggregates, Inc.	Loxley Aggregates, Inc.	Twin	Glacial clay (Pleistocene)	Construction	Pre-9
Stark	Beaver Excavating, Inc. L & M Mineral Co.	Stone Products Barr Farm	Canton Bethlehem	Newland-Brookville clay (Pennsylvanian) Newland-Brookville clay (Pennsylvanian)	Construction Common clay products	Sk-BE Sk-LM
Tuscarawas	Belden Brick Co. L & M Mineral Co.	Moomaw Pit Shanesville Pit Wallick Pit Spring	Sugar Creek Sugarcreek Franklin, Wayne Mill, Warwick	Unidentified clay (Pennsylvanian) Newland-Brookville clay (Pennsylvanian) Newland-Brookville clay (Pennsylvanian) Lower Kittanning clay (Pennsylvanian)	Common clay products Common clay products Common clay products Common clay products	Ts-1517 Ts-1939 Ts-1841 Ts-1982
Wayne	Zollinger Sand & Gravel Co.	Zollinger Sand & Gravel Co.	Chippewa	Glacial clay (Pleistocene), Cuyahoga Formation (Mississippian)	Construction	We-15

[1] Refer to figure 22 (p. 22).

2014 SHALE COMPANIES WITH SALES OR PRODUCTION

Company	Number of operations	Sales (tons)	Production (tons)
Belden Brick Co.	4	57,397	57,397
Bowerston Shale Co.	2	41,124	41,124
Crushers Stone Products, LLC	1	10,000	11,000
D. M. Mining, Inc.	1	7,879	7,879
DiGeronimo Aggregates, LLC	1	176,267	176,267
Glen-Gery Corp.	1	97,494	97,494
Joe Simak & Sons Trucking, Inc.	1	3,219	3,219
Knox County Board of Commissioners	1	0	2,851
L & M Mineral Co.	1	22,786	22,786
The Logan Clay Products Co.	1	15,876	15,876
Olen Corp.	1	11	11
Summitville Tiles, Inc.	1	11,471	11,471
Valley Clay Mining Co.	1	8,620	8,620
Walhonding Sand & Gravel	1	4,902	4,902
Zollinger Sand & Gravel Co.	1	215	215
TOTAL: 15 companies	19	457,261	461,112

2014 OHIO DIRECTORY OF SHALE MINE OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

For those mines for which a state mine number has not been assigned, a letter designation is used (example: Cn-B).

County	Name of operator	Name of mine or quarry	Township	Geological unit (age)[1]	Type and principal use	State mine number
Ashtabula	Joe Simak & Sons Trucking, Inc.	North Ridge Pit	Kingsville	Ohio Shale (Devonian)	Construction	Asa-18
Columbiana	Summitville Tiles, Inc.	Summitcrest, Inc.	Franklin	Conemaugh Group (Pennsylvanian)	Common clay products	Ca-SU
		Summitville Tiles, Inc.	Franklin	Conemaugh Group (Pennsylvanian)	Common clay products	Ca-205
Coshocton	Walhonding Sand & Gravel	Walhonding Valley Sand & Gravel	New Castle	Logan Formation (Mississippian)	Landfill	Cn-WL
Cuyahoga	DiGeronimo Aggregates, LLC	DiGeronimo Aggregates, LLC	Independence	Chagrin Shale (Devonian)	Lightweight aggregate	Cya-19
Harrison	Bowerston Shale Co.	Bowerston (Calwell)	Monroe	Conemaugh Group (Pennsylvanian)	Common clay products	Hn-152
Knox	Knox County Board of Commissioners	Apple Valley	Brown	Logan Formation (Mississippian)	Common clay products	Kx-K
Lawrence	D. M. Mining, Inc.	Ice Creek Land Co.	Upper	Conemaugh Group (Pennsylvanian)	Common clay products	Le-D
Licking	Bowerston Shale Co.	Hanover Pit	Hanover	Logan Formation (Mississippian)	Common clay products	Lg-501
Marion	Glen-Gery Corp.	Iberia Quarry	Tully	Bedford Shale (Mississippian)	Common clay products	Mn-7
Muskingum	Valley Clay Mining Co.	Spring Pit	Newton	Clarion shale (Pennsylvanian)	Common clay products	Mum-904
Perry	The Logan Clay Products Co.	Webb Summit	Monday Creek	Pottsville Group (Pennsylvanian)	Common clay products	Py-L
Tuscarawas	Belden Brick Co.	Belden Pit	Sugar Creek	Tionesta and Lower Kittanning clays (Pennsylvanian)	Common clay products	Ts-1646
		Moomaw Pit	Sugar Creek	Unidentified shale (Pennsylvanian)	Common clay products	Ts-1517
		Plotner Pit	Sugar Creek	Brookville clay (Pennsylvanian)	Common clay products	Ts-B
		Shanesville Pit	Sugar Creek	Brookville clay (Pennsylvanian)	Common clay products	Ts-1939
	L & M Mineral Co.	Heil	Warwick	Brookville clay (Pennsylvanian)	Common clay products	Ts-1884
Wayne	Crushers Stone Products, LLC	Crushers Stone Products, LLC	Clinton	Cuyahoga Formation (Mississippian)	Lightweight aggregate	We-25
	Olen Corp.	The Olen Corp. - Wooster	Franklin, Wooster	Cuyahoga Formation (Mississippian)	Common clay products	We-11
	Zollinger Sand & Gravel Co.	Zollinger Sand & Gravel Co.	Chippewa	Cuyahoga Formation (Mississippian)	Common clay products	We-15

[1]Refer to figure 22 (p. 22).

2014 OHIO DIRECTORY OF SALT MINE AND SALT-BRINING PLANT OPERATORS REPORTING SALES OR PRODUCTION, BY COUNTY

County	Name of operator	Name of mine or quarry	Township	Geological unit (age) and product[1]	State mine number
Cuyahoga	Cargill, Incorporated	Cargill Deicing Technology	City of Cleveland	Salina Group (Silurian)—rock salt	Cya-30
Lake	Morton International, Inc.	Fairport Mine	Painesville	Salina Group (Silurian)—rock salt	Lke-6
Licking	R. H. Penick Co., Ltd. Royalty Enterprises, Inc.	R. H. Penick Co. King #1	Newark Madison	"Newburg" (Silurian)—natural brine "Newburg" (Silurian)—natural brine	Lg-45 Lg-4484
Summit	Cargill Salt	Cargill Salt	Coventry	Salina Group (Silurian)—artificial brine	St-9127
Wayne	Morton International, Inc.	Morton Salt Well Field 9129	Milton	Salina Group (Silurian)—artificial brine	We-9129

[1] Refer to figure 22 (p. 22).

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY
Thomas J. Serenko, Chief

Map IM-1 2014 Edition
11/2015

MAP OF ACTIVE MINERAL INDUSTRY OPERATIONS IN OHIO 2014

By
J. D. Stucker

GIS Database Administration by Joseph G. Wells
GIS Cartography by Dean R. Martin

ABOUT THE MAP

This map is based on operators listed in the *2014 Report on Ohio Mineral Industries* and is intended for general reference. Locations of mineral extraction operations are approximate and are based on permitting information on file at the Ohio Department of Natural Resources (ODNR), Division of Mineral Resources Management. The letters and numbers adjacent to the symbols are the state mine numbers assigned to operations listed in the directories of the *2014 Report on Ohio Mineral Industries*. Operator and other information can be accessed by using the state mine number and commodity to refer to the directories of operators reporting sales or production, by county, in the report[1]. An interactive mineral industries map also is available on the ODNR Division of Geological Survey website. The *Report on Ohio Mineral Industries* and the interactive map are accessible at **OhioGeology.com**.

2014 OHIO ECONOMIC GEOLOGY IN BRIEF

Reports were filed in 2014 for 114 coal-mining operations, including 3 mines with their own coal-washing facilities. Coal production was reported from 53 individual operations. Reports also were filed for 6 separate coal-washing plants and associated facilities. Of the 564 industrial-mineral-mining operations known to be operating in 2014, 335 operations were reported active. A total of 41 mines reported production of multiple mineral commodities, including coal and/or one or more industrial minerals. There were 715 new wells completed for oil and gas in 2014, of which 699 were productive and 16 were dry.

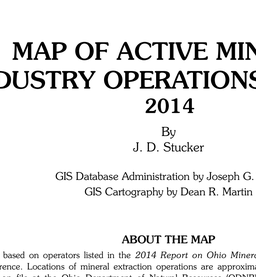
The total tonnage of coal and industrial minerals produced in Ohio during 2014 was 120,108,818 tons or approximately 10.4 tons per capita. The total value[2] of coal was $1,083,238,419 in 2014; the value of oil and gas was $3,142,833,605; and the total value[2] of all industrial minerals was $1,092,252,405 in 2014 (table 1). The combined total value of fuel and nonfuel minerals produced in Ohio during 2014 was $5,318,324,429 or approximately $459 per capita. Reported and estimated total direct employment in the extractive industries of Ohio in 2014 was more than 12,000 people.

[1]Refer to Appendices A and B of the *2014 Report on Ohio Mineral Industries*.
[2]Includes reported and estimated values. Some operations reporting sales did not report a value for those sales. A countywide- or statewide-average price per ton was calculated for each industrial-mineral commodity based on sales for which the value was reported. A countywide-average price per ton was calculated for coal based on sales for which the value was reported and method of production. These calculated averages were used to estimate the value of the sales for which the actual values were not reported.

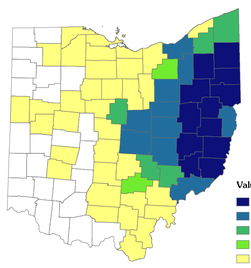
TABLE 1. *2014 Fuel and nonfuel mineral sales and production in Ohio*

Commodity	Production[1]	Sales[2]	Value[3]	Change in value from 2013 (percent)
Coal	21,975,836 tons	22,043,342 tons	$1,083,238,419	–9.7
Limestone and dolomite	59,428,907 tons	58,670,639 tons	$590,308,784	+15.2
Sand and gravel	30,942,292 tons	30,636,560 tons	$210,229,170	+5.0
Salt	5,443,674 tons	5,911,257 tons	$231,309,675	+87.7
Sandstone and conglomerate	1,294,844 tons	1,243,201 tons	$44,754,588	+6.8
Clay	562,153 tons	535,530 tons	$4,608,810	+14.7
Shale	461,112 tons	457,261 tons	$11,041,378	–5.8
Gas	512,964,465 thousand cubic feet	not available	$1,939,005,678	+229.0
Oil	15,062,912 barrels	not available	$1,203,827,927	+57.1

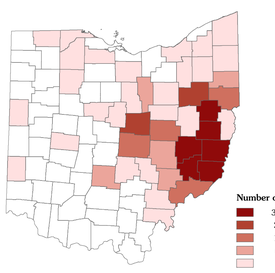
[1]The production figures for industrial minerals are estimates, as many operators do not know actual production. For those operators that do not report production, production is assumed equal to sales or estimated from ODNR Division of Mineral Resources Management records.
[2]Includes material for captive use.
[3]The FOB value of industrial mine-run sold was estimated for mines that failed to report this information and for those producting material for captive use. These estimates were calculated using a countywide- or statewide-average price per ton calculated on reported FOB values.



Total value of produced coal and/or industrial minerals in Ohio in 2014, by county.



Total value of oil and gas produced in Ohio in 2014, by county.



Number of oil-and-gas wells drilled and/or completed in Ohio in 2014, by county.

EXPLANATION OF SYMBOLS

- Clay and shale
- Coal, surface
- Coal, underground
- Limestone and dolomite
- Multiple commodities
- Salt
- Sand and gravel
- Sandstone and conglomerate
- Wn-C State mine number

N

10 5 0 10 20 30 40 MILES
10 5 0 10 20 30 40 50 KILOMETERS

SCALE 1:500 000

Projection of data is Ohio coordinate system, south zone, North American Datum 1983.

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Recommended bibliographic citation:

Stucker, J.D., 2015, Map of active mineral industry operations in Ohio, 2014: Columbus, Ohio Department of Natural Resources, Division of Geological Survey Map IM-1 2014 edition, scale 1:500,000.

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