

MINED LAND RECLAMATION PROGRAM

Mines and Permits

In 2002 there were 2,417 active mines in New York State with mining in every DEC Region except the Region 2 - New York City area. Permit numbers for 2002 showed the continuing trend of fewer applications for new mines and increased number of applications to expand existing mines. In 2002 staff issued 56 new permits and 367 renewals for a total of 423 permits. See the Appendix starting on page 91 for more details on permits issued in 2002.

Inspections and Enforcement

Mined Land Reclamation staff conducted 2,575 field inspections during the year, traveling over 201,353 miles.

Affected Acreage and Life-of-Mine Area

Mining permits are issued for a set term not to exceed 5 years, so they must be periodically renewed. The affected land under permit in 2002 was 49,134 acres. Applicants must also identify the total area expected to eventually be mined at locations currently under permit. The total Life-of-Mine area for 2002 was 120,361 acres. Table 15 shows the number of mines in each size range based on affected acreage.

Permit Fees and Fines

In 2002 the Division billed mine operators for \$1,874,563 in annual regulatory permit fees and imposed \$235,200 in fines and penalties.

Table 14 - Owner Type, 2002

Industry	1,832
Town	503
County	64
State	17
Federal	1



Statistics in this report refer solely to mines that need a permit under the Mined Land Reclamation Law.

♦ More than 1,000 tons or 750 cubic yards of minerals in 12 consecutive months.

♦ More than 100 cubic yards of minerals in or adjacent to any body of water not classified as "protected" by Article 15 of the ECL.

Lands affected by mining before 1975 and not re-affected by later mining are not subject to the Mined Land Reclamation Law.

Reclamation and Financial Security

Mined Land staff approved final reclamation of 1051 acres at 93 closed mines and concurrent reclamation of an additional 374 acres at operating mines. Since 1975 a total of 20,667 acres have been reclaimed. In 2002 the Division of Mineral Resources held \$87,349,191 in financial security to guarantee reclamation of mines.

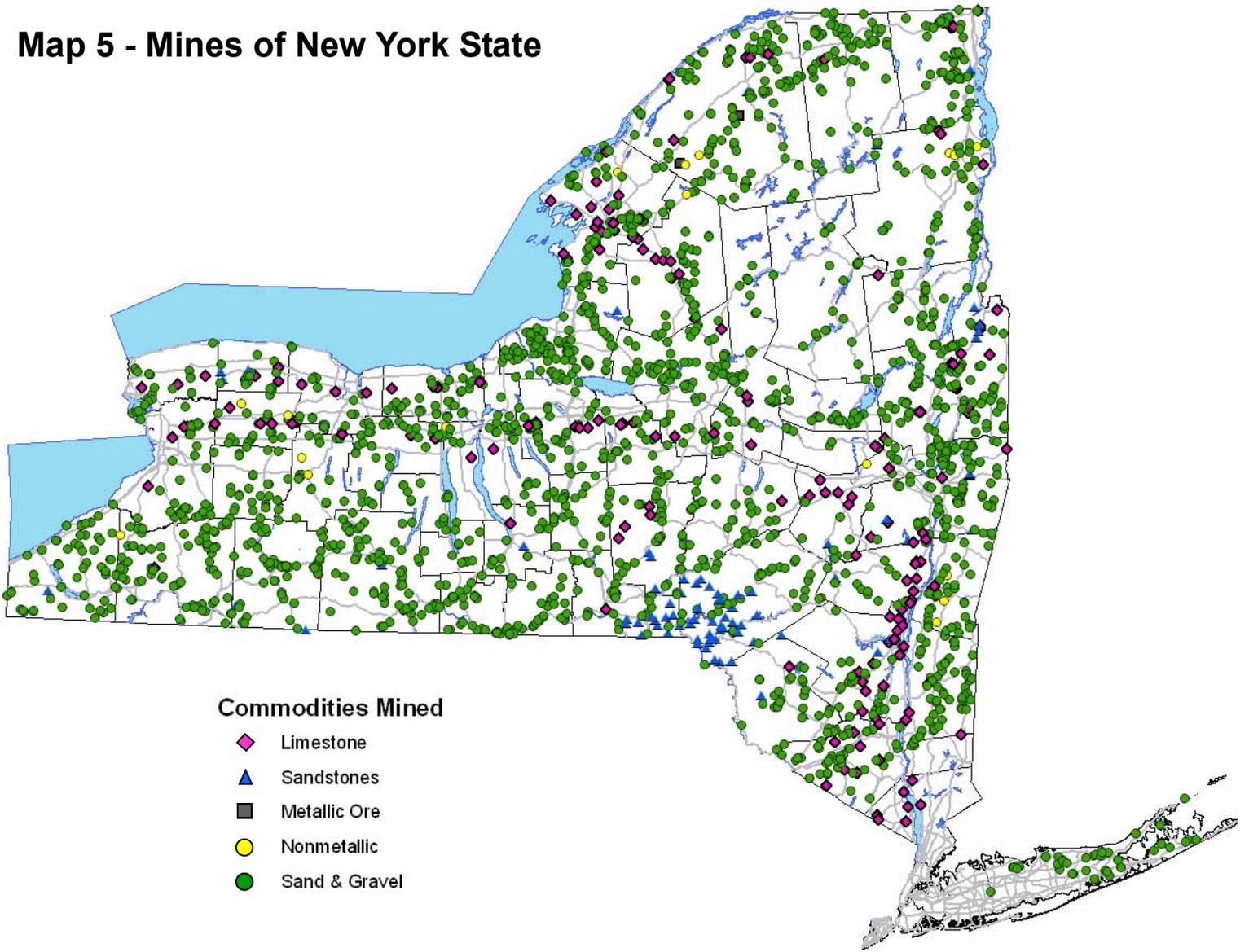
In 2002, final reclamation of mines occurred in 46 of the State's 62 counties. DEC Region 8 had the highest regional totals, both for number of mines with final reclamation completed during the year (30 mines) and the total acreage at the involved mines (429 acres). See the Appendix starting on page 107 for further details on final reclamation of New York mines in 2002.

Table 15 - Mine Size, 2002

Minor projects*	82
0 - 5 acres	814
6 - 10 acres	584
11 - 20 acres	449
21 - 30 acres	178
> 30 acres	310

* Less than 5 acres and meet certain criteria

Map 5 - Mines of New York State



2002 Mined Land Highlights

Bluestone Authorizations - The Legislature amended the Mined Land Reclamation Law and created a new Bluestone Exploration Authorization option in recognition of the industry's need to explore for new bluestone deposits without the burden of the full mining permit application process. Under the Exploration Authorization, an operator can extract small quantities of stone (up to 500 tons per year) from a maximum one-acre site to determine if the material is workable and marketable. The Authorization provides environmental protection similar to a permit and is renewable for one additional year. At the end of exploration, the operator must either reclaim the site or obtain a regular Mining Permit.

Bonding Problems - In 2002 surety companies cancelled bonds at a higher rate than previous years. Regional staff also noticed reluctance on the part of financial institutions to provide bonds or other securities for mine operations. Since there has not been any significant change in the overall health of the mining industry, these changes are probably related to increased fiscal conservatism of the insurance industry since September 11. In 2002 staff also noticed a spike in transfer of mining permits to new owners.

Wollastonite Mine Expansion Plans - NYCO Minerals Inc., proposed a major expansion of their wollastonite mine in the Town of Lewis, Essex County. New York State is the only producer of wollastonite in the country. The proposed modification would expand the current 59-acre Life-of-Mine area by roughly 50%.



Mined Land staff performed 2,575 mine site inspections in 2002 in all kinds of weather.

Unique Coal Waste Project - At New York's invitation, USEPA officials visited the Hanson Aggregates Clarendon mine in Orleans County where coal combustion waste (CCW) is being used to backfill the mine. In 2002 EPA published a proposed rule to govern the placement of CCW in mines and visited several mines using CCW across the country. The Hanson mine is the only site in New York authorized to use CCW for mine backfill and the work is proceeding under a Research and Demonstration permit issued by the Division of Solid and Hazardous Materials.

Cargill Salt Mine Expansion - Cargill, Inc submitted a permit modification application to expand their underground salt mine in Cayuga County from roughly 8,000 acres to 13,000 acres. The mine extends under Cayuga Lake and has been in operation for over 60 years.



Processing equipment similar to this screen and wash plant allows mine operators to wash, sort and produce aggregate of varying sizes to meet the required specifications for a job.



In 2002, Region 5, Region 7 and Central Office staff made a coordinated effort to add a large garnet boulder for the new outdoor trail on State symbols at DEC's Log Cabin at the State Fairgrounds. The garnet boulder was donated by Barton Mines LLC in Warren County. The mine has been reclaimed, the company continues operations at another nearby location.

Region 3 staff acquired a donation of garnet sand from Patterson Materials Corp. to hand out as samples to fair visitors.

Zinc Mine Temporary Closure - Zinc Corporation of America (ZCA) has operated mines in the Balmat-Edwards areas of St. Lawrence County for decades. With ore exhausted, the company started reclaiming their Pierrepont facility in late 2002. This leaves the Balmat # 4 as ZCA's only remaining active mine. During 2002, Horseheads Industries, the parent company of ZCA declared bankruptcy. DEC expects that the mine will be sold to a new owner and reopened.

Award for Public Outreach -The Interstate Mining Compact Commission presented an Honorable Mention Award to Andy Stokes of Callanan Industries (Callanan) of Albany. Callanan was one of the first mining companies to see the value of outreach in the form of public speaking engagements, mine tours for elementary school students, nature trails constructed next to their quarries and annual open houses at their facilities. Callanan is one of the largest producers of concrete aggregate, asphalt aggregate, sand and gravel and ready mix concrete in New York State.

Native American Mining Operations - Mineral Resources staff continued to monitor the transfer of active mining operations to the Oneida

Indian Nation in Central New York. These mines operate without DEC oversight and have attracted media attention. One mine that provided construction material for the Oneida Nations casino has serious erosion and visual impacts that affect nearby New York State citizens.



In 2002, New York had 93 limestone and dolostone mines that represented 90% of the rock sold in the State.

MINED LAND RECLAMATION AWARD, 2002

The Town of North Hempstead, Nassau County, is the recipient of the 2002 New York State Mined Land Reclamation Award. The town did an outstanding job of turning more than 400 acres of an abandoned sand mine into the community's first public golf course. Harbor Links is considered one of the finest golf courses on Long Island and is a perfect example of how a strong commitment to the environment, coupled with sound planning, can transform an environmental liability into a public asset.

The majority of material from the site was used for construction in New York City. When mining ended in the late 1980s, after more than 100 years of operation, the land had very rugged topography and severely eroding bluffs that threatened nearby property.

The erratic drainage patterns in this wasteland led to accumulation of silt in low spots and the subsequent formation of ponds and wetlands. All wetlands on the property are subject to fed-

eral regulations and two of the wetlands are regulated by the New York State Freshwater Wetlands program. During reclamation, the wetlands were improved and expanded to simultaneously provide drainage control and a variety of water features for golfing enthusiasts.

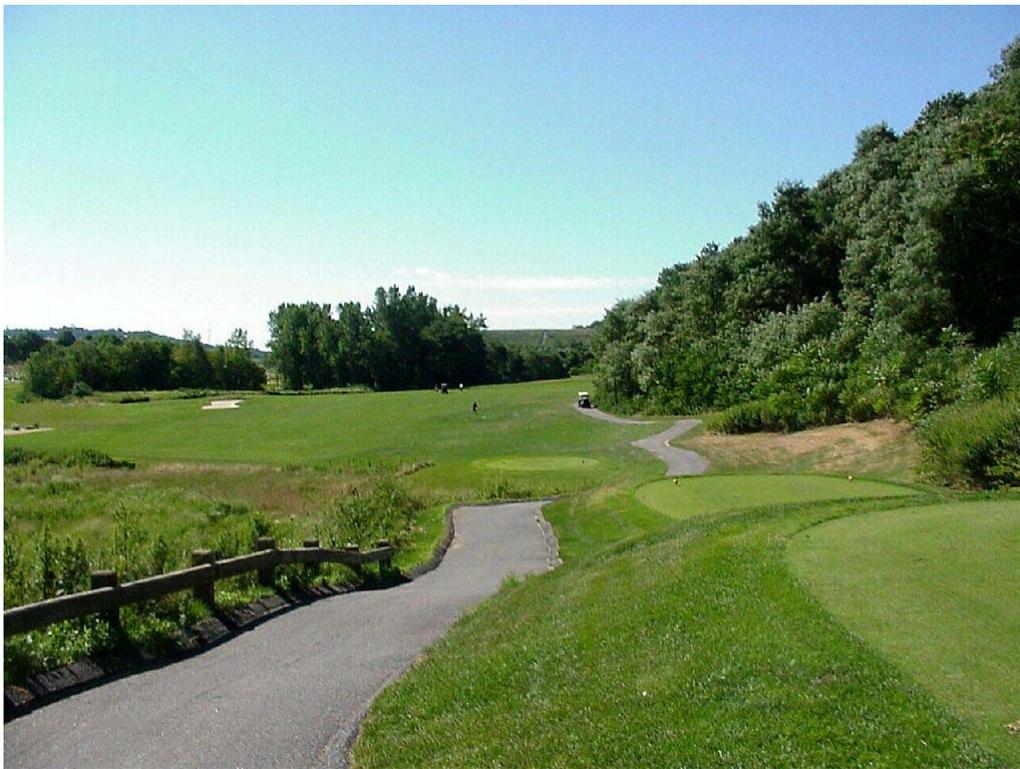
Throughout the design, development and construction of the Harbor Links golf course, the town and its consultant, Greeman-Pederson, Inc., worked closely with Audubon International to develop a facility that would foster wildlife conservation and habitat enhancement while providing quality playing conditions.

Having met strict standards set forth by Audubon International, the Harbor Links course was certified as the 17th Audubon Signature Facility in June 2001. In addition, the town has limited the use of fertilizers and pesticides and implemented a thorough water quality monitoring, management and conservation program to help minimize environmental impacts.



Before: Aerial photo of the mine's deeply eroded cliffs.

After



The Town of North Hempstead's efforts show the tremendous public benefit that can be gained when committed people pool their talents to tackle a seemingly insurmountable problem.

PRODUCTS OF NEW YORK MINES

New York State law does not require mine operators to report how much their facilities produce each year. Therefore, the rank, production quantity and production value figures included on pages 32 to 40 come from U.S. Geological Survey (USGS) publications. Every year USGS asks a large sample of mine operators in each state to submit information on over 100 mined commodities. The USGS's production estimates should be regarded as minimums since the surveys are incomplete and their figures are regularly revised as more information becomes available. However, the data is still useful for showing rough levels of production and year-to-year trends.

In 2002 crushed stone remained, by value, New York's leading non-fuel mineral, followed by cement (portland and masonry), salt, sand and gravel, and wollastonite. These five commodities accounted for 97% of the State's nonfuel mineral value. USGS estimated the value of the State's nonfuel mineral production at \$1.01 billion. In 2002 New York remained the only wollastonite-producing state and continued to rank second in production quantity for industrial garnet, third in production of salt and fourth in talc. New York remained in the top 10 in cement. Other important minerals mined in New York include bluestone, sandstone, granite, shale, slate and clay.

Table 16 - New York Quantity of Production Rank for US, 1998 - 2002

	1998	1999	2000	2001	2002
Cement (Portland)	8	9	10	9	10**
Garnet	2	1	2	2	2
Salt	3	4	3	3	3
Sand & Gravel*	12	13	13	12	12
Talc	4	4	4	4	4
Wollastonite	1	1	1	1	1
Zinc	3	4	4	4	***

New Yorkers use 50 pounds of minerals per capita per day !



- * Construction grade sand and gravel
- ** Preliminary cement figure
- *** Zinc mine temporarily closed in 2002

Limestone & Dolostone, Crushed Stone and Cement

New York’s limestone and dolostone resources are found throughout the State. In 2002 New York had 98 limestone and dolostone producing mines that represented roughly 90% of the stone sold in New York. The most important products from these mines are crushed stone and cement which are both used predominantly in building and road construction and maintenance. Based on value, crushed stone was New York’s leading nonfuel mineral in 2002, followed by cement (portland and mason).

Crushed Stone - New York’s crushed stone output rose 13 percent in quantity and 16 percent in value from the previous year to at least of 60,600,000 metric tons of stone worth roughly \$410 million. While limestone and dolostone represent the vast majority of New York’s crushed stone production, the State also produces crushed granite, marble, traprock, sandstone and quartzite.

Cement - The USGS did not publish 2002 quantity and value information for New York’s portland cement production, but the figures would be slightly below 2001’s 2,940,000 metric tons worth at least \$230 million. Cement production is concentrated in the upper Hudson Valley area where a very pure form of limestone is quarried from the Coeymans formation.

Table 17 - Principal Limestone and Dolostone Producers*		
<u>Company</u>	<u>County</u>	<u>Town</u>
Barrett Paving Materials, Inc.	St. Lawrence	Norfolk
	Lewis	Leyden
Buffalo Crushed Stone, Inc.	Genesee	Alabama
	Erie	Lancaster
Dolomite Products Co., Inc.	Wayne	Walworth
	Monroe	Penfield
	Ontario	Manchester
Hanson Aggregates NY, Inc.	Onondaga	DeWitt
	Livingston	Lima
	Oneida	Marshall
Lafarge N. American Cement	Albany	Coeymans
Tilcon New York, Inc.	Dutchess	Poughkeepsie

* Principal Producers based on number of acres permitted.

Sand and Gravel

Sand and gravel mines are New York’s most common type of mine with 2,035 active mines spread across the State. Suffolk, Dutchess and Rensselaer Counties are New York’s leading producers of sand and gravel due to their proximity to large markets. Sand and gravel is New York’s fourth most economically important nonfuel mineral

In 2002 New York’s production of construction grade sand and gravel dropped slightly to roughly 29,300,000 metric tons worth at least \$155 million. The vast majority of this material was used for road and building construction and maintenance.

Table 18 - Principal Sand and Gravel Producers and Their Largest Mines*		
<u>Company</u>	<u>County</u>	<u>Town</u>
Buffalo Crushed Stone, Inc.	Cattaraugus Allegany	Machias & Farmersville Alfred
Burton F. Clark, Inc.	Delaware	Davenport
Callanan Industries, Inc.	Rensselaer Albany	North Greenbush Coeymans
Cranesville Aggregate Co., Inc.	Schenectady	Glenville
Dalrymple Gravel & Contr.	Steuben	Campbell
E. Tetz & Sons, Inc.	Sullivan	Thompson
F. S. Lopke Contracting, Inc.	Tioga Broome	Tioga Barker
Gernatt Asphalt Products, Inc.	Erie	Sardinia
Graymont Materials (NY) Inc.	Clinton	Schuyler Falls
Hanson Aggregates NY, Inc.	Oswego Ontario Livingston Herkimer Steuben	Sandy Creek Phelps & Victor Caledonia Russia Bath

<u>Company</u>	<u>County</u>	<u>Town</u>
Lafarge North America, Inc.	Cattaraugus Erie	Freedom Lancaster
Northern Aggregates, Inc.	Oswego	Volney
Peckham Materials Corp.	Warren Greene	Chester Catskill
Red Wing Properties, Inc.	Dutchess	La Grange
Syracuse Sand & Gravel LLC	Ontario	Victor
Valley Sand & Gravel, Inc.	Livingston	Caledonia
Warren W. Fane, Inc.	Rensselaer	Schaghticoke

* Principal Producers based on number of acres permitted.



Many sand and gravel operations remove deposits from below the water table. During reclamation these areas may be brought up to grade or reclaimed to ponds or wetlands.

Salt

More than 10,000 square miles of central and western New York are underlain by the Salina formation which contains roughly 3.9 trillion metric tons of rock salt. This large salt resource has been very important throughout the State's history. The Cargill Lansing mine, near Ithaca, is the deepest underground salt mine in the western hemisphere and the former AKZO Retsof mine, near Geneseo, was the largest underground salt mine in the world when it was in operation. In 2002 salt ranked third by value in New York's nonfuel minerals commodities and the State was also the country's third largest salt producer.

There are two rock salt mines in New York State. Salt is also produced from five solution mining facilities in Schuylar and Wyoming Counties (see page 38). In 2002 these solution mining facilities produced brine equivalent to 2.5 million metric tons of salt worth approximately \$100 million. Data voluntarily submitted to the U.S. Geological Survey shows that the State's total salt output for 2002 was approximately 5.1 million metric tons, worth \$194 million. This means that New York's 2002 rock salt production was roughly 2.6 million metric tons worth approximately \$94 million. While these figures are not exact, they are useful indicators of the level and value of production in New York.

Table 19 - Principal Salt Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
American Rock Salt, Inc.	Livingston	Groveland
Cargill, Inc.	Tompkins	Lansing

* Principal Producers based on number of acres permitted.

This photo of the American Rock Salt Mine shows a temporary hoist used during initial development of the mine. Its twin is in the background. The temporary structures were used while the shafts were being sunk and the mine's underground infrastructure developed. They were replaced with permanent hoists when the mine went into full production.



Wollastonite

Wollastonite was New York’s fifth most valuable nonfuel mineral in 2002. More importantly, New York is the only commercial producer of wollastonite in the country and accounts for almost all US production. According to US Geological Survey estimates, imports of wollastonite are relatively low, so New York’s mines also supplied at least 90 percent of the wollastonite used in the U.S. and over one fifth of the world production in 2002. This production comes from just four mines located in the Adirondacks.

To protect proprietary data, the USGS does not publish detailed quantity and value statistics for NY wollastonite. However, they do give a rough estimate of U.S. production which is essentially New York production; for 2002 the estimate was between 115,000-127,000 metric tons. Wollastonite products vary widely in price depending on the level of milling and other processing needed.

Wollastonite is a white, fibrous industrial mineral. One of wollastonite’s most unusual characteristics is its ability to cleave into needle-like crystals. These fibrous particles make it useful as an asbestos replacement and as reinforcement in a wide array of products such as plastics, coatings, friction products, ceramics, paint and sealants.

Table 20 - Principal Wollastonite Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Gouverneur Talc Co., Inc.	Lewis	Diana
NYCO Minerals, Inc.	Essex	Lewis
	Essex	Willsboro

* Principal Producers based on number of acres permitted.



NYCO Minerals, Inc. Lewis Mine in Lewis County is a conventional open-pit mine where ore is drilled, blasted and then hauled to a processing plant. NYCO chemically modifies the surface of some of its wollastonite products to improve performance.

Garnet

New York ranks second of the three industrial garnet-producing states in the US. Barton Garnet's Gore Mountain mine, which opened in 1878 in the Adirondacks, was the largest garnet mine in the world during its operation. In 1983, the company's mining activity shifted to nearby Ruby Mountain. Garnets from Ruby Mountain make especially high-quality abrasives. Garnet is also mined on a smaller scale in the Hudson Valley. Since there are only two garnet-producing mines in the State, the U.S. Geological Survey does not publish production information for this commodity.

Most of the garnet from New York is used for sandpaper. Garnet is also used in grinding and polishing glass and metal, sandblasting, water filtration and waterjet stone cutting. Garnet is a well-known gemstone, but most New York garnets have too many internal cracks for this use.

Table 21 - Principal Garnet Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Barton Mines Co., LLC	Warren	Johnsburg

* Principal Producers based on number of acres permitted.

Talc

In 2002 New York ranked fourth in the country in talc production. Gouverneur Talc is New York's only talc producing company, but their holdings include two permitted mines on roughly 200 acres of land in the northwest Adirondacks as well as two milling operations. Industrial talc is a mixture of talc, tremolite, anthophyllite, serpentine and dolomite. Because of the presence of these minerals, New York's industrial talc is fibrous with long, thin white needle-like crystals. It is used as a paint extender, a carrier for insecticide dust and in many other products where a white powdery mineral is needed. It is also used in ceramics, filler in asphalt roofing, putty and linoleum. To protect proprietary data, the U.S. Geological Survey does not publish talc production or value information by state.

Table 22 - Principal Talc Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Gouverneur Talc Co., Inc.	St. Lawrence	Edwards

* Principal Producers based on number of acres permitted.

Sandstone and Bluestone

In 2002 there were 22 mines in New York producing sandstone, including graywacke, metamorphic quartzite, conglomerate and sedimentary sandstones. Sandstone, which is widely found across the State, is cut into blocks for building, flagstone and curbing. Some sandstone is used for rip-rap and some is crushed to make concrete aggregate. Pure quartz sandstone can be used to make high-quality glass, but sandstone in New York contains too much iron and alumina for this purpose. There are no quantity or value statistics available for New York sandstone production.

<u>Company</u>	<u>County</u>	<u>Town</u>
Blades Construction Corp.	Steuben	Bath
Callanan Industries, Inc.	Rensselaer	Brunswick
	Sullivan	Thompson
Cobleskill Stone Products, Inc.	Delaware	Hancock
Hanson Aggregates NY, Inc.	Orleans	Murray
Shelby Crushed Stone Products	Orleans	Shelby

* Principal Producers based on number of acres permitted.

New York and Pennsylvania are the only sources of bluestone, a particular type of commercial sandstone. In 2002 there were 52 bluestone mines in Regions 4, 7 and northern Region 3. The New York State Bluestone Association estimates that it is a \$30-million-a-year industry. The term “bluestone” was first applied to certain “blueish” colored sandstones quarried in Ulster County in the 1800s. As the industry developed, abundant quantities of similar materials were discovered in other locations. While bluestone is a strongly cemented rock, it splits easily into thin smooth slabs. The color varies from blue-gray, blue-green, buff, steel-gray to rust. It is used mainly for decorative purposes such as stone walls, outdoor patios, building exteriors, indoor floors and swimming pool steps and borders.

<u>Company</u>	<u>County</u>	<u>Town</u>
Helderberg Bluestone	Albany	Berne
Indian Country, Inc.	Broome	Sanford
Johnston & Rhodes Bluestone	Delaware	Hancock
Tompkins Bluestone Co., Inc.	Delaware	Hancock

* Principal Producers based on number of acres permitted.

Granite

In 2002 there were ten granite mines operating in the Adirondacks. Granite is used for building exteriors, granite countertops, other internal decorative uses, statues and gravestone monuments. New York granite ranges in color from gray and green to black.

Table 25 - Principal Granite Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Champlain Stone Ltd.	Washington	Fort Ann
Graymont Materials	Franklin	Brandon
Hanson Aggregates NY, Inc.	Oneida	Forestport
Lake Placid Granite Co.	Essex	Jay

* Principal Producers based on number of acres permitted.

Zinc

While New York has historically been a major zinc producer, there was no production from the single zinc mine in the northwestern Adirondacks in 2002. The Pierrepoint mine was permanently closed in 2001 and work at the Balmat mine was suspended awaiting a buyer. When the two mines were operating they ranked in the top ten zinc mines in the country and New York ranked third or fourth in total production. During 2000, which was the last full year of operation, the Balmat mine was the third most productive zinc mine in the country. This mine has a new owner and is expected to resume production.



See the Appendices on [page 89](#) for more details on mines in your area:

- Final Reclamation of Mines in 2002
- Mining Permits Issued in 2002

2002 New York Mining Industry At a Glance

2,417 Active Mines

**\$1.01 Billion
Estimated 2002
Production Value**

**Annual Regulatory Fees
\$1,874,563**

Major Types Of Mines, 2002

Sand & Gravel	2,035
Limestone & Dolostone	98
Bluestone	52
Sandstone	22
Granite	10
Wollastonite	4
Garnet	2
Salt	2
Talc	2
Zinc	1

Affected & Reclaimed Land

Affected Acreage	49,134
Life-of-Mine Acreage	120,361
Reclaimed, 2002	1,425
Reclaimed Since 1975	20,667

US Quantity Rank, 2002

Wollastonite	1st
Garnet	2nd
Salt	3rd
Talc	4th
Cement	10th
Sand & Gravel	12th

NY Value Rank, 2002 Non-Fuel Minerals

Crushed Stone	1st
Cement	2nd
Salt	3rd
Sand & Gravel	4th
Wollastonite	5th

Owner Type, 2002

Industry	1,832
Government	589
Local Govt.	567
State Govt.	17
Federal Govt.	1

**Financial Security
To Guarantee
Reclamation
\$87,349,191**

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