

Department of Environmental Conservation

Division of Mineral Resources

New York State Oil, Gas and Mineral Resources 2001

Annual Report

New York State Department of Environmental Conservation

George E. Pataki, *Governor*

Erin M. Crotty, *Commissioner*

Division Mission Statement

The Division of Mineral Resources is responsible for ensuring the environmentally sound, economic development of New York's non-renewable energy and mineral resources for the benefit of current and future generations.

This report was produced by the
NYS Department of Environmental Conservation

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New York State Oil, Gas and Mineral Resources

2001

State of New York
George E. Pataki, Governor

Department of Environmental Conservation
Erin M. Crotty, Commissioner

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EXECUTIVE SUMMARY

Mining occurs in every region of the State except the New York City area. Oil and gas development has historically occurred in the western half of the State, but activity in the Finger Lakes area increased significantly in 2001. Due to differences in legal reporting requirements, the categories of statistics presented for the two programs are not identical. All information is for the year 2001.

Oil, Gas and Solution Mining

Inspections - Staff traveled 115,479 miles and performed 3,443 oil and gas inspections.

Permits and Completions

Gas Permits	127	Gas Comp.	103
Oil Permits	19	Oil Comp.	25
Other Permits	12	Other Comp.	46
Total Permits	158	Total Comp.	174

Active Wells - NY had roughly 10,000 active oil & gas wells and tens of thousands of older wells (plugged, unplugged, status unknown).

Production & Market Value -Total market value of production nearly doubled from 2000 to \$140.1 million in 2001.

Gas	28 bcf	Up	58%
Oil	183,094 bbl	Up	1%

State Leasing - 85 leases were in effect covering 61,970 acres and 173 productive wells.

Revenues from Oil and Gas

State Revenues	\$619,596
Local Govt. Taxes	\$4.2 million
Landowner Royalties	\$17.5 million

Underground Natural Gas Storage - 22 facilities were 79% full at year-end.

Total Storage Capacity	207 bcf
Working Gas Capacity	93 bcf
Max. Daily Deliverability	1,927 bcf/day

Solution Mining - 5 facilities produced 2.14 billion gallons of brine equal to 2.5 million metric tons of salt.

Financial Security - In 2001 New York held \$12.29 million to guarantee well plugging and final site reclamation.

Mined Land Reclamation

Inspections - Staff traveled 211,563 miles to perform 2,585 mine inspections, an increase of 60%. This resulted in increased detection of violations and enforcement cases.

Permits Issued		Fees Annual
New Permits	71	Regulatory
Renewals	307	\$2,003,077
Total Permits	378	

Active Mines 2,459

Estimated Market Value \$1.05 Billion

US Production Rank by Quantity

Wollastonite	1st	Zinc	4th
Garnet	2nd	Talc	4th
Salt	3rd	Cement	9th

NY Rank by Value

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

Common Mine Types

Sand & Gravel	1,931
Limestone & Dolostone	93
Bluestone	52

Owner Type

Industry	1,849
Government	610

Affected Acreage 48,571

Life-of-Mine Acreage 119,013

Reclaimed Acreage, 2001 1,017

Reclaimed Since 1975 19,464

Financial Security - In 2001 New York held \$83.46 million to guarantee mine reclamation.

TABLE OF CONTENTS

General Information

Executive Summary	5
Map 1- Regional Service Areas.....	8

Oil and Gas Section

Drilling Permits and Well Completions	9
Oil & Gas Wildcats and Field Extensions	10
Production of Oil and Gas	13
Market Value and Economic Benefits.....	15
Permit Fees and Fines	17
State Land Leasing Program	18
Region 7 & 8 Review - Trenton-Black River.....	20
Region 9 Review	21
Underground Gas Storage	22
Well Spacing and Integration - New Trenton-Black River Fields.....	25
Solution Mining	27

Charts

Chart 1 - Drilling Permits and Completions, 1992 - 2001.....	9
Chart 2 - Source Formation for NY Natural Gas, 1998 - 2001.....	10
Chart 3 - New York State Oil and Gas Production, 1992-2001.....	14

Maps

Map 2 - New York State Gas Production by Town, 2001	16
Map 3 - Underground Gas Storage and Solution Salt Mining Fields, 2001	24
Map 4 - Trenton-Black River Fields - Central New York.....	26

Tables

Table 1 - Drilled Wildcats, 2001	11
Table 2 - Field Extensions, 2001	12
Table 3 - Top Ten Gas Producing Counties, 2001	13
Table 4 - Top Ten Gas and Oil Producing Companies, 2001	13
Table 5 - Permitted Well Types, 2001.....	17
Table 6 - Approximate Leased Acreage by County, 2001	18
Table 7 - Total Leasing Revenues, 1996 - 2001	18
Table 8 - 2001 Summary and Year-End Status Underground Natural Gas Storage	22
Table 9 - Summary Storage Field Activity, 2001	23
Table 10 - Trenton-Black River Spacing Orders to Date	25
Table 11 - Status of Solution Salt Mining in New York, 2001.....	27

Appendices

Oil & Gas Tables and Statistics.....	41
--------------------------------------	----

Mined Land Section

Mined Land Reclamation Program	29
Mines and Permits	29
Inspections and Enforcement	29
Affected Acreage and Life-of-Mine Area	29
Reclamation and Financial Security	29
Permit Fees and Fines.....	29
2001 Highlights	30
Mined Land Reclamation Award	31
Products of New York Mines	32
Limestone & Dolostone, Crushed Stone and Cement	33
Sand and Gravel	34
Salt	35
Wollastonite	36
Garnet.....	37
Talc.....	37
Sandstone and Bluestone	38
Granite	39
Zinc and Lead	39
2001 New York Mining Industry At a Glance	40

Maps

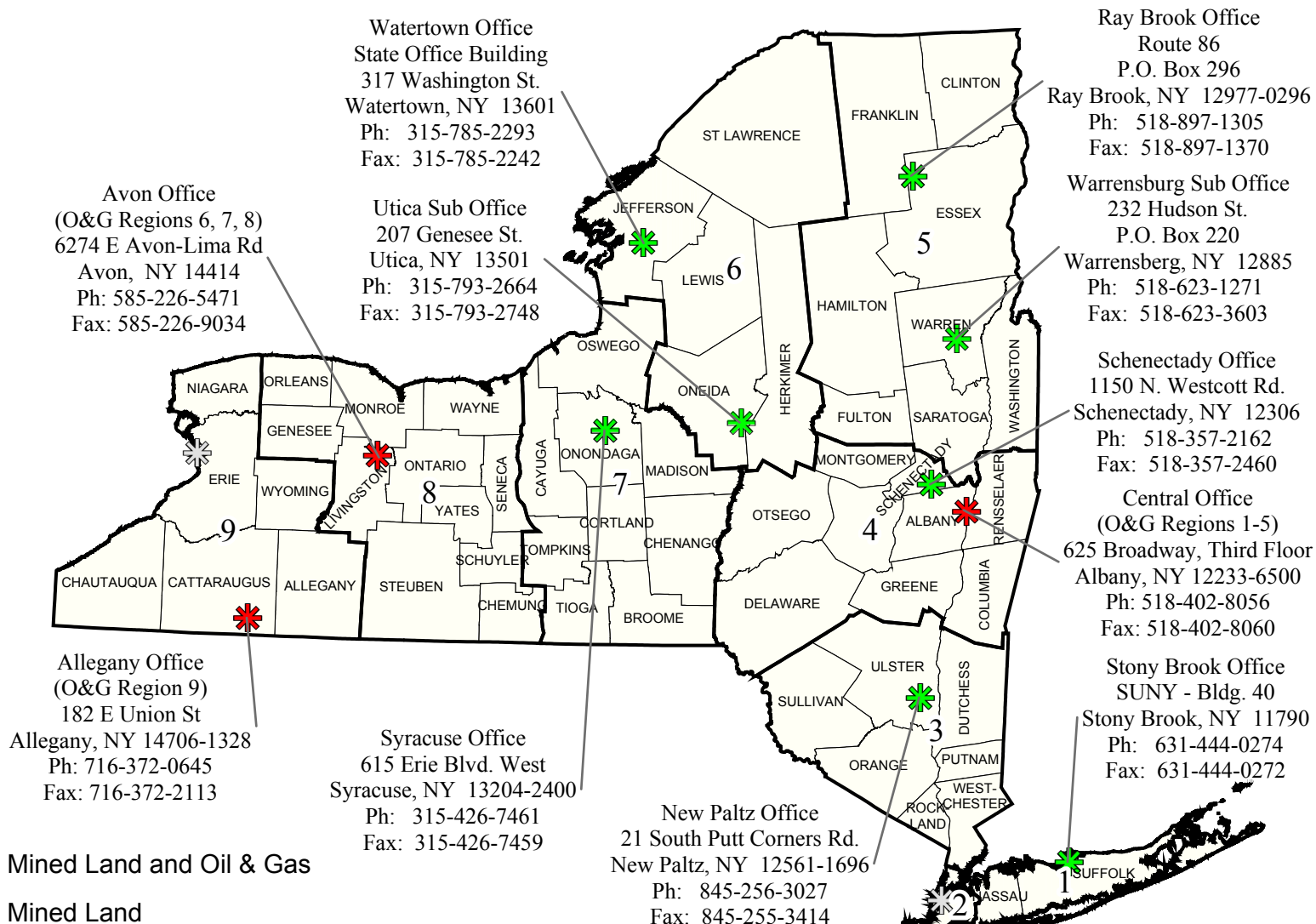
Map 5 - Mines in New York State.....	28
--------------------------------------	----

Tables

Table 12 - Mine Size, 2001	29
Table 13 - Owner Type, 2001	29
Table 14 - New York Quantity of Production Rank for US, 1997-2001	32
Table 15 - Principal Limestone and Dolostone Producers	33
Table 16 - Principal Sand and Gravel Producers and Their Largest Mines.....	34
Table 17 - Principal Salt Producers	35
Table 18 - Principal Wollastonite Producers	36
Table 19 - Principal Garnet Producers	37
Table 20 - Principal Talc Producers	37
Table 21 - Principal Sandstone Producers	38
Table 22 - Principal Bluestone Producers	38
Table 23 - Principal Granite Producers	39
Table 24 - Principal Zinc and Lead Producers	39

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Map 1 - Division of Mineral Resources Regional Service Areas



DRILLING PERMITS AND WELL COMPLETIONS

Drilling Permits

Division staff issued 158 well drilling permits in 2001: 120 gas, 7 gas storage, 19 oil, 10 brine and 2 stratigraphic permits (see Table 5, page 17). The top three counties for permits were Chautauqua (29), Chemung (21) and Steuben (21) Counties. Interest in developing the Ordovician age carbonates of central New York continued to grow during 2001. The number of Trenton-Black River drilling permits rose 50% from 36 in 2000 to 54 in 2001.

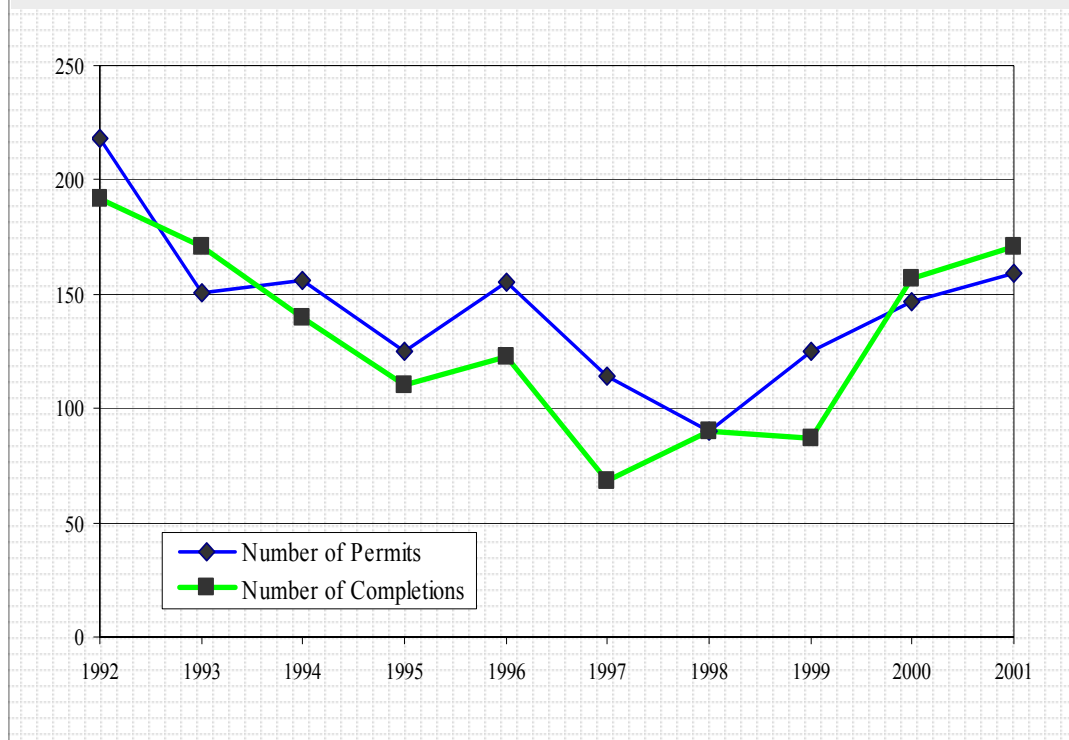
A complete listing of the issued permits, which includes town, owner, API number, well name, issue date and spud date, is included on page 45. A ten-year comparison of drilling permits issued versus completions is shown in Chart 1 below.

Well Completions

There were 174 gas, oil, gas storage, brine, stratigraphic and geothermal wells completed during 2001. Completed wells are listed in the table starting on page 48. Well type codes are listed on page 41.

In 2001 wells were completed in 19 of the State's 62 counties: Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Erie, Genesee, Livingston, Madison, New York, Ontario, Oswego, Schuyler, Seneca, Steuben, Tioga, Wyoming and Yates. The top two counties were Chautauqua with 52 completions and Cattaraugus with 20 completions. Steuben and Chemung tied for third place with 18 completions each.

Chart 1 - Drilling Permits and Completions, 1992 - 2001



OIL & GAS WILDCATS AND FIELD EXTENSIONS

Wildcats

In 2001, 15 wildcats were drilled in nine counties from Chenango County on the east to Cattaraugus County on the west. Most of the wildcats targeted the Trenton-Black River formation which contributed over half of New York's gas production in 2001 (see Chart 2 below). The deepest wildcat was the Schmidt 624537 drilled by Columbia Natural Resources in Chemung County at 10,366 feet.

Field Extensions

In 2001, 15 field extensions were drilled in Cayuga, Chemung, Schuyler and Steuben Counties. The Trenton-Black River was the target formation for 13 extensions involving 5 fields: County Line, Langdon Hill, Quackenbush Hill, Terry Hill South and Wilson Hollow.

The majority of the field extensions in 2001 were drilled in Chemung County, which also had the highest average well production for the year of 459,024 mcf.

The wildcats and field extensions drilled in 2001 are expected to make a significant contribution to New York's future gas production.

Well Codes for Wildcats and Field

Extension Tables 1 & 2

DW	Dry Wildcat
GW	Gas Wildcat
GE	Gas Extension

For a full listing of well codes used throughout this report see page 41.

Chart 2 - Source Formation for NY Natural Gas, 1998-2001

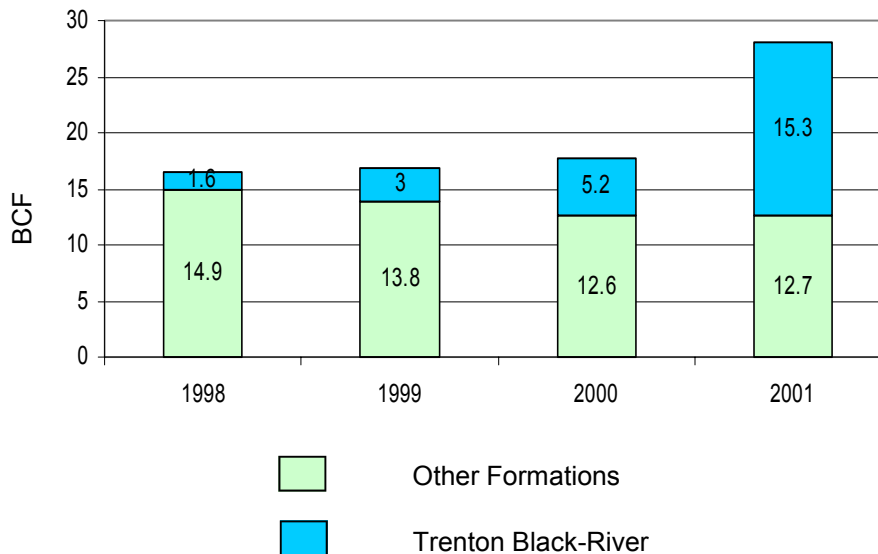


Table 1 - Drilled Wildcats, 2001

County/ Town	Company	API Number	Well Name	TVD	TVD Date	Well Type	Field	Objective Formation
Cattaraugus/ Allegany	Vertical Resources, Inc.	31009234350000	Geiger Hollow #1	9,346	9/8/01	DW	Unnamed	Tribes Hill
Cattaraugus/ Allegany	Vertical Resources, Inc.	31009234350100	Geiger Hollow #1A	9,157	9/17/01	GW	Unnamed	Tribes Hill
Chemung/ Erin	Columbia Natural Resources	31015228990100	Trimber 624536-A	10,364	7/8/01	DW	Dry Wildcat	Black River
Chemung/ Erin	Columbia Natural Resources	31015229110000	Schmidt 624537	10,366	8/20/01	GW	Unnamed	Black River
Chenango/ Smyrna	Nornew, Inc.	31017229280000	Smith 1	4,252	8/24/01	GW	Unnamed	Oneida
Schuyler/ Montour	Fortuna Energy, Inc.	31097228810000	Learn 1	9,061	4/2/01	GW	Unnamed	Black River
Schuyler/ Orange	Fortuna Energy, Inc.	31097228290000	Grand Prix 624065	9,198	10/17/01	GW	Unnamed	Black River
Seneca/ Lodi	EOG Resources, Inc.	31099229090000	Campion 1	7,673	7/5/01	DW	Unnamed	Black River
Seneca/ Lodi	EOG Resources, Inc.	31099229090100	Campion 1-A	7,284	10/11/01	DW	Unnamed	Black River
Steuben/ Corning	Fortuna Energy, Inc.	31101228850000	Corning Game Club 62446	10,050	2/26/01	GW	Cutler Creek	Black River
Steuben/ Erwin	Fairman Drilling Co.	31101228610100	NYS GMA 2-A	10,043	1/4/01	DW	Dry Wildcat	Black River
Tompkins/ Dryden	Columbia Natural Resources	31109228670000	Crissey 623697	1,934	1/25/01	GW	Unnamed	Oriskany
Wyoming/ Arcade	Stedman Energy, Inc.	31121234490000	Jachim #3	6,587	12/14/01	DW	Unnamed	Theresa
Yates/ Jerusalem	Columbia Natural Resources	31123229400000	Folts 624464	6,366	12/2/01	GW	Unnamed	Black River
Yates/ Starkey	Columbia Natural Resources	31123229410000	Boudinot 623968	7,181	10/18/01	GW	Unnamed	Black River

Table 2 - Field Extensions, 2001

County/ Town	Company	API Number	Well Name	TVD	TVD Date	Well Type	Field	Objective Formation
Cayuga/ Sennett	Columbia Natural Resources	31011228720000	Sierzenga 624349	2,357	1/17/01	GE	Auburn	Queenston
Cayuga/ Sennett	Columbia Natural Resources	31011228830000	Hares 624441	2,420	1/19/01	GE	Auburn	Queenston
Chemung/ Big Flats	Fortuna Energy, Inc.	31015228530000	Rhodes 1322	9,682	1/9/01	GE	Quackenbush Hill	Black River
Chemung/ Catlin	Fortuna (U.S.) Inc.	31015228910000	Parker 1401	10,323	6/11/01	GE	Wilson Hollow	Black River
Chemung/ Catlin	Fortuna Energy, Inc.	31015229010000	Roy 1	9,487	7/11/01	GE	County Line	Black River
Chemung/ Catlin	Fortuna Energy, Inc.	31015229020100	Lederer 1412-A	9,680	8/2/01	GE	Wilson Hollow	Black River
Chemung/ Catlin	Fortuna Energy, Inc.	31015229100000	Gublo 1	9,291	10/16/01	GE	Terry Hill South	Black River
Chemung/ Catlin	Fortuna Energy, Inc.	31015229190100	Hardy 1447-A	10,089	11/11/01	GE	Wilson Hollow	Black River
Chemung/ Erin	Columbia Natural Resources	31015229330000	Usack 624684	10,338	9/27/01	GE	Langdon Hill	Black River
Chemung/ Veteran	Fortuna Energy, Inc.	31015228620000	Lant 1	9,361	1/31/01	GE	Terry Hill South	Black River
Chemung/ Veteran	Fortuna Energy, Inc.	31015228800100	Kienzle 1-A	8,968	8/20/01	GE	Terry Hill South	Black River
Chemung/ Veteran	Fortuna Energy, Inc.	31015228890100	Clauss Jr 1-A	9,068	6/26/01	GE	Terry Hill South	Black River
Schuyler/ Dix	Fortuna Energy, Inc.	31097228930000	Purvis 1	9,095	10/9/01	GE	County Line	Black River
Steuben/ Corning City	Fortuna Energy, Inc.	31101228920100	Hartman 624546-A	10,126	4/29/01	GE	Quackenbush Hill	Black River
Steuben/ Hornby	Fortuna Energy, Inc.	31101228840100	Fratarcangelo 1371-A	9,550	5/9/01	GE	Wilson Hollow	Black River

PRODUCTION OF OIL & GAS

New York's reported natural gas production jumped to 28 billion cubic feet (bcf), a 58% increase from 2000. Over 15.3 bcf of gas came from just 32 producing Trenton-Black River wells. One well produced over 4.3 bcf.

Steuben County led in natural gas production for the first time, followed by Chemung County. Nearly all of Chemung County's production came from just nine Trenton-Black River wells. Long-time production leader Chautauqua County fell to third.

In 2001 New York's production of oil increased roughly one percent to 183,094 barrels (bbl) from 180,590 in the prior year.

Table 3 lists the top ten gas producing counties, while Table 4 gives the top ten gas and oil producing companies, respectively. Map 2 on page 16 shows natural gas production by town. Chart 3 on page 14 shows the State's total oil and gas production for the past ten years. Well counts and gas production volumes are based on re-

ports submitted by well owners. For an explanation of the units of volume measurement, see the box on page 15.

Table 3

Top Ten Gas Producing Counties, 2001

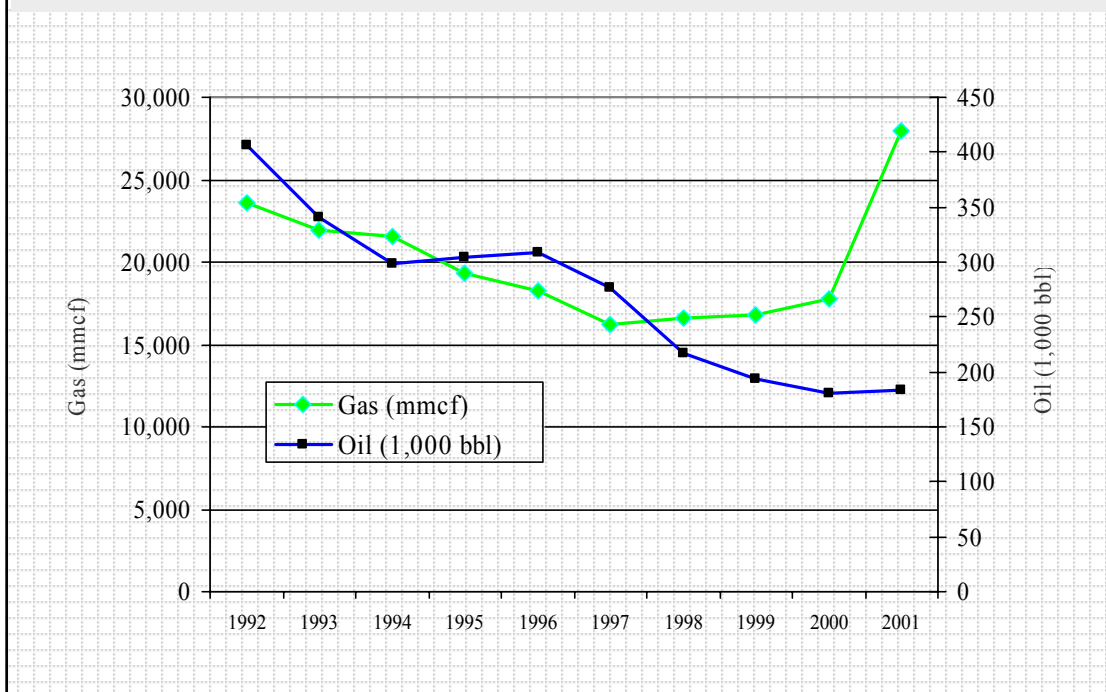
County	Gas (mcf)	Active Gas Wells	Average mcf/Well
Steuben	8,592,006	41	209,561
Chemung	6,885,360	15	459,024
Chautauqua	6,321,486	3,152	2,006
Cattaraugus	1,383,691	427	3,240
Erie	1,132,634	875	1,294
Cayuga	1,003,624	289	3,473
Genesee	759,667	490	1,550
Seneca	660,379	146	4,523
Allegany	365,582	63	5,803
Wyoming	341,972	245	1,396

Table 4

Top Ten Gas and Oil Producing Companies, 2001

Company	Gas (mcf)	Company	Oil (bbl)
Pennsylvania General Energy	10,438,187	Richardson Petroleum Corp.	21,355
Columbia Natural Resources	4,976,595	East Resources, Inc.	15,283
Belden & Blake Corporation	1,788,542	Woods Oil Company, Inc.	14,039
Great Lakes Energy Partners	1,710,322	R & C Oil Co.	13,458
Fairman Drilling Co.	1,218,336	BDH Oil, Inc.	11,089
Nornew, Inc.	998,114	Synergy Oil & Gas, Inc.	10,459
Seneca Resources Corp.	723,106	REI-NY, Inc.	8,094
United States Gypsum Co.	605,912	Otis Eastern Service, Inc.	5,866
Kastle Resources Enterprises	586,697	Klein, Roger, A.	5,391
Lenape Resources, Inc.	477,244	Curtis & Son Oil, Inc.	4,225

Chart 3 - New York State Oil and Gas Production, 1992 - 2001



Natural Gas

Natural gas is an important energy source for New York homeowners. Based on 1997 data, 3.4 million households use natural gas for home heat, cooking, heating water or other uses. For gas-fired heat, the average usage in New York is 79 mcf per year¹. That means the State's 2001 natural gas production of 28 bcf was enough to heat roughly 353,000 homes.

Crude Oil

The first commercial oil well was drilled in New York in 1865. New York's crude oil is particularly high in paraffin, and is refined into many valuable end products.

¹ US DOE/EIA 1997 Residential Energy Consumption Survey

Landowner Wells

A significant percentage of New York's gas well owners have just one or two wells. These wells, known as "landowner wells", are usually no longer productive enough for commercial purposes, but may produce enough gas to heat a house. The Division has prepared a brochure entitled "Do You Own or Intend to Buy a Natural Gas or Oil Well: Tips for Landowners". The brochure includes information on:

- how to identify an old well on land you own or might buy,
- your legal responsibilities when you own an unplugged well, and
- safety tips concerning gas hookups and signs of gas contamination in household water supplies.

For more information visit our website at www.dec.state.ny.us/website/dmn.

MARKET VALUE AND ECONOMIC BENEFITS

Market Value

The total market value of New York's oil and gas production nearly doubled between 2000 and 2001 to \$139.7 million, the State's highest level since 1987. The market value of the reported 28 bcf of gas produced was over \$135.5 million. The market value of the reported 183,094 barrels of oil produced was roughly \$4.2 million.

State Lease Oil and Gas Prices

The 2001 average gas price of \$4.85 per mcf was up 29% from \$3.75 per mcf in 2000. However, the oil price dropped 20% to \$22.76 per barrel in 2001. The average wellhead prices were obtained from royalty payments made to the State for leases on State lands.

Royalties to Landowners

The majority of landowners with producing oil and gas leases receive a royalty. Based on an average royalty of one-eighth of the production value, landowners in New York received roughly \$17.5 million in royalties from 2001 oil and gas production.

Tax Revenues to Local Governments

Communities in oil and gas producing areas also benefit from taxes assessed on production. Estimated real property tax revenues attributable to reported 2001 oil and gas production were approximately \$4.2 million. Taxes on natural gas and oil production were calculated to be roughly \$4.1 million and \$125,000 respectively.

Volume Measurements Used in Report

Throughout this report, you'll find the following units of volume measurement used for production.

Natural Gas

mcf	thousand cubic feet
mmcf	million cubic feet
bcf	billion cubic feet

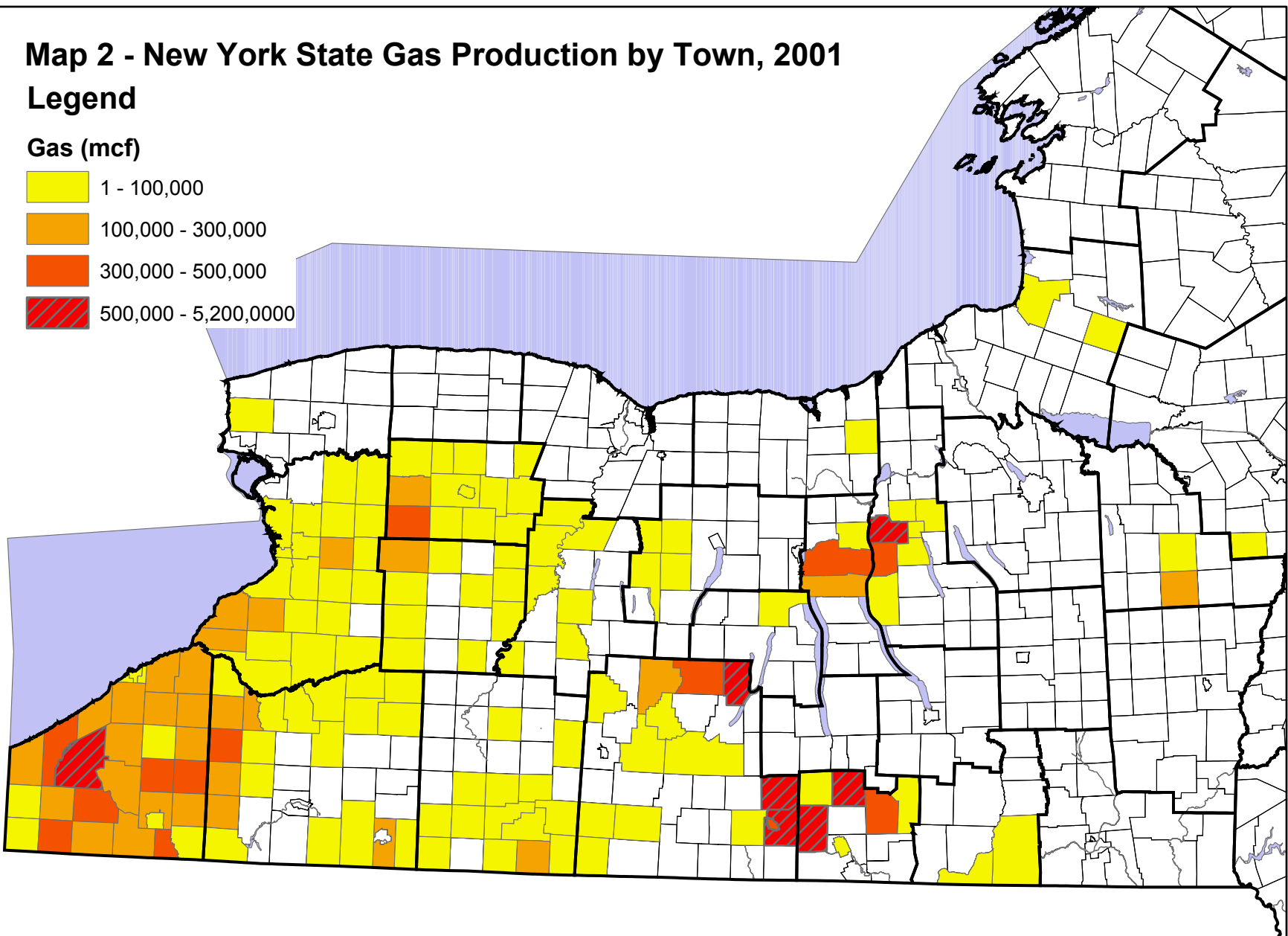
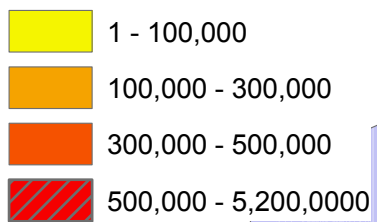
Crude Oil

bbl	barrel of oil (42 gallons)
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Map 2 - New York State Gas Production by Town, 2001

Legend

Gas (mcf)



PERMIT FEES AND FINES

The Division of Mineral Resources collects revenues from oil and gas activity under the Oil, Gas and Solution Mining Law. In 2001 total oil and gas revenues were \$619,596; fines and penalties were \$4,500, permit depth fees were \$207,751, oil and gas account fees were \$17,500, storage permit fees were \$10,000, and the remaining leasing revenues of \$379,845, are discussed in further detail on page 18.

Each well drilling permit application must include a depth-based fee. The fee is \$125 for the first 500 feet plus \$125 for each additional 500 feet up to a maximum of \$2,625 for wells over 10,000 feet deep. In addition, each application must include a \$100 oil and gas account fee used to plug old abandoned wells. Storage facility permit fees are \$10,000 for a new permit and \$5,000 for a modification permit.

Table 5 - Permitted Well Types, 2001

County	Gas Well	Oil Well	Storage Well	Brine Well	Stratigraphic	Geothermal	Total
Allegany	2	4					6
Broome	2						2
Cattaraugus	16	2					18
Cayuga	1						1
Chautauqua	25	3	1				29
Chemung	21						21
Chenango	1						1
Erie	2		2				4
Genesee	3						3
Livingston			1				1
Madison	6						6
Onondaga	1				2		3
Ontario	1						1
Schuyler	6						6
Seneca	9						9
Steuben	11	10					21
Tioga	2		3				5
Tompkins	1						1
Wyoming	1			10			11
Yates	9						9
Total	120	19	8	10	2	0	158

STATE LAND LEASING PROGRAM

At the end of 2001 the Division managed 85 leases covering 61,970 acres of State land, an increase of 286 acres from 2000. There were 173 productive oil and gas wells that earned royalties from 41 different State leases. These wells produced over 3 bcf of natural gas and 113 barrels of oil.

Oil and gas leasing of State land involves consultation at many levels. Drilling and operation plans are adjusted to protect the environment and public safety and accommodate the State's surface management goals for the parcel.

In 2001 leasing revenues from State land totaled \$379,845. This revenue came from a variety of sources:

- **Royalties** - The State collected \$168,524 in royalties from 41 leases. The increase of 112% from the previous year was a direct result of much higher production levels from State lands as well as higher gas prices. Natural gas prices averaged \$4.85 per mcf for the year and oil prices averaged \$22.76 per barrel.
- **Delay Rentals** - Operators submitted a total of \$108,920 in delay rentals from 30 leases, up 158% from the previous year's total of \$42,280.
- **Storage Leases** - Fourteen storage leases added \$102,402, up 66% from 2000's total of \$61,738.
- **Lease Sales** - There were no lease sales held in 2001. However, the Division anticipates a lease sale of State mineral rights in Steuben and Schuyler Counties in 2003 which may generate several million dollars in bonus bids and millions more in potential royalty revenue.

Table 6 - Approximate Leased Acreage By County, 2001

County	Leased Acreage
Allegany	11,627
Broome	345
Cattaraugus	9,470
Cayuga	62
Chautauqua	16,923
Chemung	609
Erie	835
Ontario	55
Schuyler	11,573
Seneca	17
Steuben	7,332
Yates	3,098

The main factor affecting the level of leasing revenues from year to year is whether or not a lease sale was held and bonus bids collected. The 1999 lease sale generated substantially higher income than years when sales were not held.

Table 7 - Total Leasing Revenues, 1996 - 2001

1996	\$143,592
1997	\$168,029
1998	\$279,523
1999	\$3,206,406
2000	\$181,876
2001	\$379,845



The rig crew is making a drill pipe connection so they can continue drilling this well on a State lease in Schuyler County.

REGION 7 & 8 REVIEW - Trenton-Black River

The Trenton-Black River continued its reign as the predominant target formation in Regions 7 and 8. An increasing number of companies across the country continue to inquire about this productive formation. Questions regarding the leasing process increased dramatically as leasing of mineral rights expanded further into frontier areas. While the Department does not involve itself in private contractual matters, staff do provide information on spacing, unitization, reclamation, groundwater protection and other regulatory issues. During 2001 staff participated in over 20 informational meetings reaching nearly 2,500 individuals.

In 2001 Regions 7 and 8 processed 114 drilling permit applications, the most since 1990, when 124 were reviewed. Trenton-Black River wells accounted for 47 of the applications. Although Steuben and Chemung Counties remained the mainstay of Trenton-Black River operations, Yates, Seneca and Schuyler Counties all experienced some activity. Staff reviewed Trenton-Black River applications for three new counties in 2001: Tioga, Onondaga and Ontario.

Interest in New York's oil fields and traditional natural gas formations also continued in 2001. Staff permitted 10 oil wells in Steuben County. In addition, there was natural gas permit activity for: Broome County (2 Oriskany/Helderberg), Cayuga County (3 Queenston), Genesee County (4 Medina), Madison County (7 Oneida/Oswego), Seneca County (7 Queenston), and Steuben (1 Oriskany).

Staff also continued their efforts with underground gas storage operations. Seven drilling permit applications were processed for the Stagecoach natural gas field in Tioga County as part of its conversion to an underground gas storage facility. One drilling permit was issued for operations at the Adrian Reef Storage Field in Steuben County. No solution salt mining



Horses grazing near drilling operations for the Gublo #1 well in the Town of Catlin, Chemung County. This is a Trenton-Black River field extension well.

permit applications were received in Regions 7 and 8 during 2001.

Thirty-seven wells were plugged in 2001 including two old Trenton wells located in Selkirk Shores State Park in northern Oswego County. The two wells were drilled in the 1920s as part of the Pulaski gas field that was used to support a local utility. Staff conducted continuous inspections throughout the plugging operations.

During 2001 Trenton-Black River activity in the Southern Finger Lakes Region required the greatest level of staff attention. To assist with this workload, as well as traditional oil and gas regulatory functions, the Region 8 office added an additional staff person.

The growth in production volumes from Regions 7 and 8 in 2001 will undoubtedly fuel further growth in both the traditional and frontier areas. We expect a continued high level of activity from both new and existing operators.

REGION 9 REVIEW

Region 9 drilling activity in 2001 remained relatively unchanged from the year 2000. The Allegheny office issued 68 drilling and 76 plugging permits. One highlight was the drilling of the region's first Trenton-Black River well. Permitted for 10,000 feet, it was the deepest well drilled in Region 9 in 30 years. Staff expect additional Trenton-Black River drilling based on a flurry of leasing activity in several counties.

Special projects for the year included an effort to inspect all known oil and gas wells in Erie County. The long-term project covers roughly 1,200 wells, some of which went uninspected for a decade due to staffing constraints. By the end of 2001 nearly 500 inspections had been completed. Staff documented several infractions including faulty brine storage tanks, missing identification, and minor gas leaks. Well owners were directed to correct the problems with their wells.

As part of another multiyear endeavor, Region 9 staff added roughly another 150 "lost" or abandoned wells to the oil and gas database using GPS (global positioning system) equipment. As in the previous year, the 2001 GPS work focused mostly on the old oilfields of Allegany County. The majority of the wells involved were drilled prior to creation of DEC's regulatory program and were never registered with the Department. Staff found several wells that had leaked small amounts of oil to the ground over the years. However, a much larger problem with abandoned oil wells is the likelihood that some of them are actively leaking crude oil into groundwater. In such cases there is often no evidence at the ground surface.

As abandoned wells are located, steps are taken to make the responsible party bring the wells into compliance. In some cases, however, expensive and lengthy searches are necessary to determine the identity of the responsible party. To compound the problem, some leases contain such a large number of abandoned wells that the



Vertical Resources Geiger Hollow #1 well drilled in 2001 in Cattaraugus County was the first well in Region 9 to target the Trenton-Black River formation.

responsible party does not have the necessary financial resources. The scope of New York's abandoned well problem is quite large. Thousands of wells have yet to be located and the GPS project is expected to continue for many years.

Abandoned wells are sometimes found in surprising locations. During a building expansion project at Bolivar-Richburg Central Schools in 2001, two abandoned wells were uncovered on school property. One of the wells had leaked crude oil into the surrounding soil. Consequently, two plugging permits were issued to the school which hired a contractor to properly plug the wells.

Four abandoned wells were also located on public land that is maintained by the Department's Division of Lands and Forest. Three of them were found to be actively leaking gas to the surface. Funds have been secured to plug them, with work scheduled for the first half of 2002.

UNDERGROUND GAS STORAGE

Natural Gas Storage

Twenty-two natural gas and three liquefied petroleum gas underground storage facilities operated in nine counties in the western and central part of New York during 2001. In June 2001 the Department issued a permit to convert Stagecoach Field in Tioga County into a storage facility. The operator projects that when Stagecoach field is fully operational, it will increase statewide natural gas deliverability from storage by 35%.

Table 8 summarizes the 2001 year-end status of underground natural gas storage in New York. Table 9 details activity during the year at each storage field. New York's 22 underground gas storage reservoirs were 79% full at the end of 2001 compared to 76% in 2000. Year-end work-

ing gas in storage represented 54% of working gas capacity in 2001, compared to 50% in 2000. Twenty-one of New York's underground natural gas storage facilities are in depleted reservoirs and one is in a solution-mined cavern.

Liquefied Petroleum Gas Storage

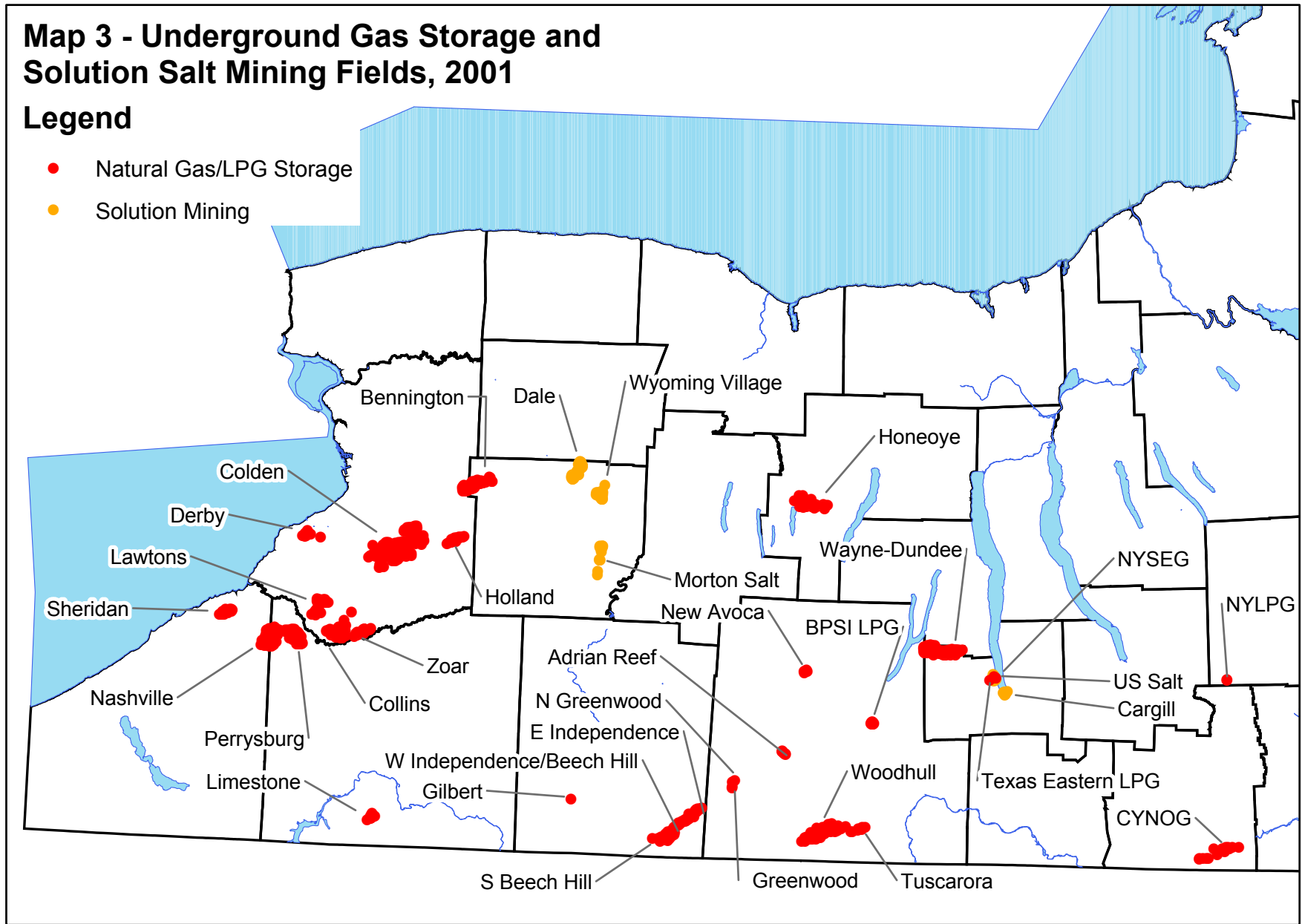
New York's three liquefied petroleum gas (LPG) underground storage facilities are in Cortland, Steuben and Schuyler counties. The facilities store propane, butane and other liquid hydrocarbons for delivery to the market as needed. Liquefied petroleum gas is stored in caverns excavated in the shales of the Genesee Group or solution mined out of the Salina Group salt formations, which are the same formations used by New York's four solution mining facilities.

**Table 8 - 2001 Summary and Year-End Status
Underground Natural Gas Storage**

	Onondaga	Oriskany	Medina	Salt Cavern	Total
Number					
Fields	2	10	10	1	23
Wells	49	301	524	3	877
Acreage					
Reservoir	2,473	29,006	42,630	4	74,113
Total	7,112	61,737	102,946	4	171,799
Total Storage Gas					
Capacity (bcf)	10.700	134.754	59.208	2.340	207.074
Year-End (bcf)	9.881	101.449	51.743	1.240	164.313
Working Gas					
Capacity (bcf)	6.863	56.727	27.773	1.450	93.013
Year-End (bcf)	6.044	23.422	20.436	0.350	50.252
Max Daily Deliverability (mmcf/day)	100	1,171	511	145	1,927

Table 9 - Summary Storage Field Activity, 2001

	Total Number Wells	Total Storage Capacity (bcf)	Gas to Storage (bcf)	Gas from Storage (bcf)	Designed Max. Deliverability (mmcf/day)
Dominion Transmission, Inc.					
Woodhull Field	51	35.904	15.767	13.476	357.0
Central NY Oil and Gas					
Stagecoach Field	0	13.750	0.000	0.000	500.0
Columbia Gas Trans. Corp.					
Dundee Field	135	11.000	4.612	3.570	77.0
Greenwood Field	7	3.600	0.001	0.051	5.0
N. Greenwood Field	2	3.200	0.501	0.306	8.6
Honeoye Storage Corp.					
Honeoye Field	39	10.780	4.543	2.524	54.7
National Fuel Gas Supply					
Beech Hill Field	42	23.000	3.378	3.227	66.0
Bennington Field	64	5.000	1.565	1.002	75.3
Colden Field	166	16.220	6.676	5.440	110.0
Collins Field	47	5.880	2.154	1.298	50.0
Derby Field	14	0.250	0.121	0.132	5.0
E. Independence Field	11	6.400	2.336	1.729	14.7
Holland Field	26	2.600	0.601	0.549	25.0
Lawtons Field	31	2.470	0.943	0.480	21.0
Limestone Field	14	19.800	1.334	1.058	37.0
Nashville Field	71	8.530	3.223	2.447	110.0
Perrysburg Field	40	3.850	1.640	0.851	35.0
Sheridan Field	26	3.700	1.000	0.844	25.0
Tuscarora Field	8	6.300	3.694	2.212	57.0
W. Independence Field	31	11.800	4.942	3.350	48.7
Zoar Field	37	2.200	1.373	1.273	40.0
NYS Electric & Gas					
Seneca Lake Field	3	2.340	1.152	0.402	145.0
Steuben Gas Storage Co.					
Adrian Reef Field	12	8.500	4.541	2.878	60.0
Totals	877	207.074	66.096	49.100	1,927.0



WELL SPACING AND INTEGRATION - New Trenton-Black River Fields

2001 Spacing Order - Wilson Hollow

Trenton-Black River wells tend to be prolific producers that drain large areas, so the statewide minimum well spacing of 40 acres is insufficient. Table 10 summarizes the Trenton-Black River spacing rules established since 2000. The location of these fields is shown on Map 4.

After public hearings in Painted Post on April 10 and 11, Commissioner Crotty signed Orders on June 21 and September 13, 2001, which established field-wide spacing rules and integrated interests within five spacing units in Wilson Hollow Field, Steuben County. The Orders set forth the conditions for well permitting, new spacing units, and royalty interest distribution in Wilson Hollow Field.

Pennsylvania General Energy (PGE) discovered the Wilson Hollow Field with the Jimerson #1 well drilled in the Town of Hornby in early 1999. The Orders established units for the Jimerson and four extension wells that range in size from 497 to 637 acres. The Orders further require that future extension wells be spaced a mile apart and approximately centered in units of 320 to 640 acres.

Issuance of the June 21 Order authorized PGE to give over 100 landowners a combined total of

more than \$2,000,000 in royalties that the Department had required the company to hold in escrow until the units were established. Landowners continue to receive royalties based on substantial production from the wells.

Spacing Process

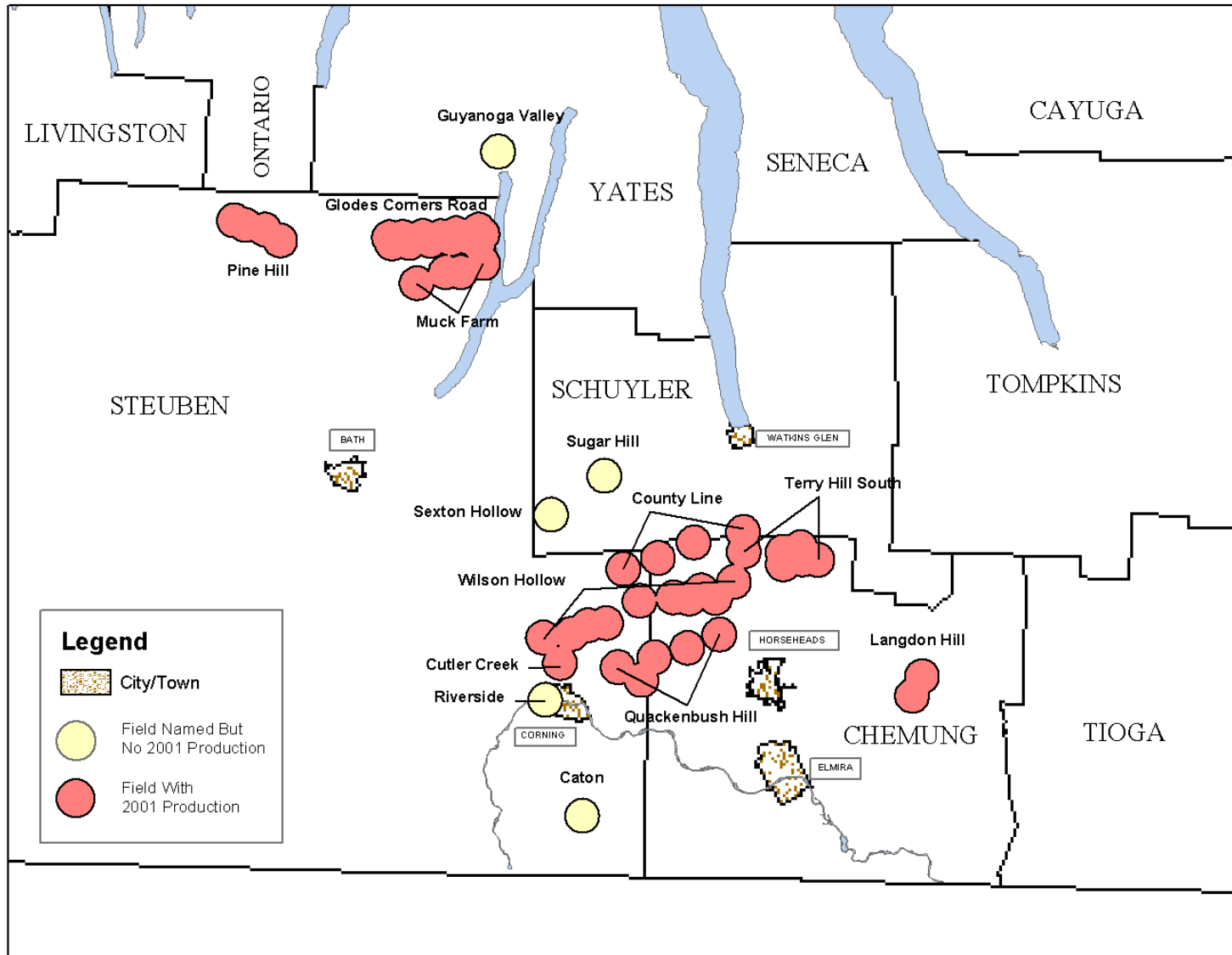
Spacing units must be of roughly uniform size and shape and no unit should be smaller than the maximum area that can be efficiently and economically drained by one well. These requirements are meant to ensure that: 1) wells are appropriately spaced to prevent waste of oil and gas resources, and 2) all owners of produced resources are fairly compensated. Unit configuration is based on field-specific geology and reservoir characteristics.

Upon completion of the first successful well in a new field, the operator must determine the expected drainage area for wells in the field and propose spacing units. This determination is based on analysis of pressure and production testing combined with geologic evaluation of data collected before, during and after well drilling. Once Division of Mineral Resources staff concur that the operator's spacing proposal conforms to legal requirements and sound engineering and geologic principles, a public hearing is scheduled to seek input from affected parties.

Table 10 - Trenton-Black River Spacing Orders to Date

Field	Effective Date	Unit Sizes For Wells Drilled Before Order	Allowable Unit Sizes Future Wells	Minimum Spacing Future Wells
Glodes Corner Road	5/30/00	158 - 246 acres	150 - 640 acres	1 mile apart
Muck Farm	1/31/00	432 - 516 acres	320 - 640 acres	1 mile apart
Wilson Hollow	6/21/01	497 - 635 acres	320 - 640 acres	1 mile apart
Quackenbush Hill	1/23/02	631 - 638 acres	560 - 640 acres	9,000 ft. apart

Map 4 - Trenton Black River Fields, Central NY



SOLUTION MINING

Five solution mining facilities in New York (see Map 3 on page 24) produced 2.14 billion gallons of saturated brine, or about 2.5 million metric tons of salt, in 2001. Operators of these five facilities injected 2.23 billion gallons of fresh and recycled plant process water into bedded salt zones of the Upper Silurian Salina Group to recover the brine. Brine withdrawals for 2001 represent a slight decrease compared to 2000's figure of 2.20 billion gallons. The value of New York's 2001 solution salt mining production is estimated at \$100 million.

The 146 operating wells reported in 2001 include injection wells, withdrawal wells, wells equipped for both injection and withdrawal, and standby wells. Table 11 gives the number of operating and plugged wells at each facility. Solution miners in New York withdraw brine from both single-well and multi-well caverns. Operators of multi-well caverns sometimes al-

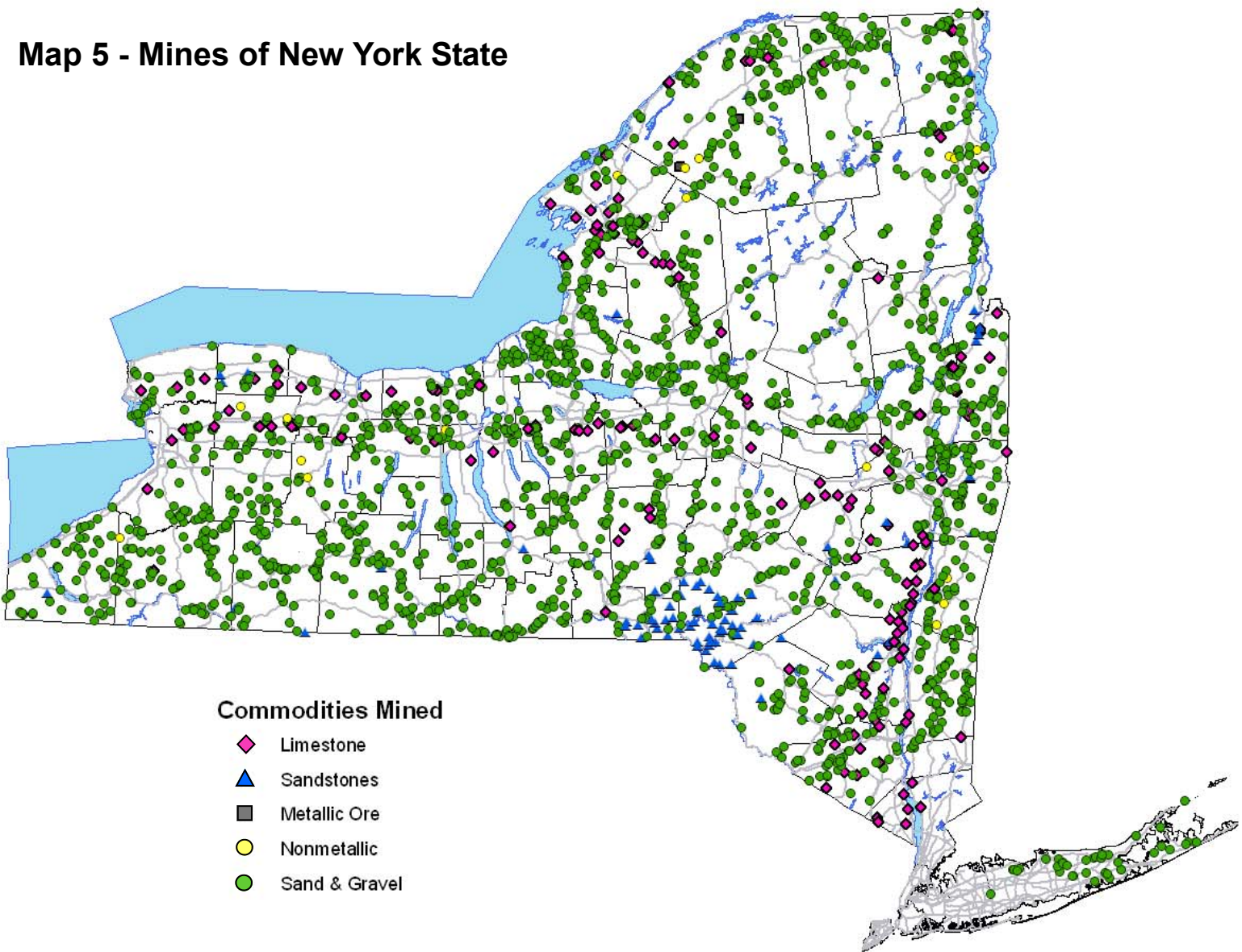
ternate wells between injection and withdrawal in order to balance dissolution, which occurs mostly at the injection well. This helps to control the size and shape of the caverns. Other techniques used to maximize salt production while ensuring cavern stability include horizontal drilling and roof padding.

U.S. Salt, Cargill, and Morton produced brine to supply on-site evaporation plants which manufacture and package table salt, water conditioning salt, and salt for other uses. Texas Brine's fields supply two chemical manufacturing plants in Niagara Falls via 60-mile-long brine pipelines. In 2001 solution mining facilities accounted for approximately 45% of New York's total mined salt production, with the remainder extracted by conventional underground mining. According to U.S. Geological Survey statistics, New York typically ranks third among the states in total annual salt production volume.

Table 11

Status of Solution Salt Mining in New York, 2001

Operator	County	Town	Year Started	Operating Wells	Plugged Wells
U.S. Salt	Schuyler	Reading	1893	11	61
Cargill	Schuyler	Dix	1898	15	13
Morton	Wyoming	Castile & Gainesville	1884	17	24
Texas Brine	Wyoming	Middlebury (Dale Field)	1970	54	90
Texas Brine	Wyoming	Middlebury (Wyo. Vil. Field)	1984	49	17
Total				146	205



MINED LAND RECLAMATION PROGRAM

Mines and Permits

In 2001 there were 2,459 active mines in New York State with mining in every DEC Region except the Region 2 - New York City area. Permit numbers for 2001 showed the continuing trend of fewer applications for new mines and increased number of applications to expand existing mines. In 2001 staff issued 71 new permits and 307 renewals for a total of 378 permits.

Inspections and Enforcement

Mined Land Reclamation staff conducted 2,585 field inspections during the year, traveling over 211,563 miles. This 60% increase in inspections was due to staff additions in 2000 and resulted in discovery of violations at mines that had not been inspected in years.

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 2001 was 48,571 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 2001 was 119,013 acres. Table 12 shows the number of mines in each size range based on affected acreage.

Table 12 - Mine Size, 2001

Minor projects*	87
0 - 5 acres	852
6 - 10 acres	605
11 - 20 acres	441
21 - 30 acres	166
> 30 acres	308
* Less than 5 acres and meet certain criteria	



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 Law.

Reclamation and Financial Security

Mined Land staff approved final reclamation of 737 acres at 92 closed mines and concurrent reclamation of an additional 280 acres at operating mines. Since 1975 a total of 19,464 acres have been reclaimed. In 2001 the Division of Mineral Resources held \$83,459,338 in financial security to guarantee reclamation when mines are abandoned or a company goes bankrupt.

Permit Fees and Fines

In 2001 the Division billed mine operators for \$2,003,077 in annual regulatory fees and imposed \$112,750 in fines and penalties.

Table 13 - Owner Type, 2001

Industry	1,849
Town	523
County	68
State	18
Federal	1

2001 Highlights

Among the new mines for 2001 was New York's first freshwater dredge operating on a lake in Manorville, Suffolk County. There were also some significant mine closures in 2001. US Gypsum permanently closed its 5,000-acre underground mine in the Town of Oakfield, Genesee County. In addition, Zinc Corporation of America permanently closed its Pierrepont mine and temporarily closed its Balmat mine, both in the Town of Edwards in St. Lawrence County. The Balmat mine is expected to reopen once a buyer is found.

American Rock Salt opened its new underground mine in late 2000 in time for the 2000-01 winter season. Production from this mine, which is located in Hampton Corners, Livingston County, will replace the State's rock salt supply lost when roof failure and flooding closed AKZO Nobel's Retsof Mine in 1994.

In April 2001 poor storm water management at a mine in the Town of Russia, Herkimer County caused several million gallons of water impounded behind the mine's haul road to break through the barrier. Roughly 7,000 cubic yards of sand flowed over three-fourths of a mile, a foot and a half of sediment was deposited on a



A Mined Land staff person at the State Fair shows two budding scientists how to identify rocks and minerals

County road and some of the sediment eventually reached a nearby trout stream. An enforcement case is in progress.

In September 2001 the Division of Mineral Resources hosted the annual meeting of the National Association of State Land Reclamationists. The meeting included representatives from over 18 states and the Province of Ontario and covered a number of topics of mutual interest.



In 2001, the first freshwater dredge started operating in DEC Region 1. The dredge will pump 500-750 cubic yards of material an hour. After the material is pumped out of the lake, it is allowed to drain and then is run through a screening plant. Mining plans call for creation of a 40-acre lake.

MINED LAND RECLAMATION AWARD

2001 Award Winner

In 2001 Buffalo Crushed Stone received the annual New York State Mined Land Reclamation Award for voluntarily reclaiming a depleted gravel mine and transforming it into a beautiful recreation area. Buffalo Crushed Stone's 1982 purchase of the former Buffalo Slag Company included a spent gravel mining operation in the Town of Machias, Cattaraugus County. The company reclaimed 180 acres of mined-out lands and created wildlife habitat and a year-round outdoor facility for their employees.

This new facility has a lodge and guest cabin, open water for boating and fishing, a natural sand beach for volleyball or sunbathing and numerous nature trails. Under a Freshwater Wetlands Permit, the company also removed previously mined materials that had been discarded on-site and created additional wetlands.



The summerhouse across the water provides handy facilities for visitors.



This guest cabin has an attractive waterside location.



This duck crossing is a sign of the wildlife attracted by the wetlands and open water.

Award Application Process

Good reclamation deserves to be recognized. Any mining company located in New York may compete for the award. Each year applications are accepted until mid-June and the award is given at the New York State Fair in August.

**Since 1975
19,464 acres
of mined land
have been reclaimed.**

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 2001 crushed stone remained, by value, New York's leading non-fuel mineral, followed by cement (portland and masonry), salt, sand and gravel, and wollastonite. Increases in the value of these five commodities accounted for 93% of the State's nonfuel mineral value. USGS estimated the value of the State's nonfuel mineral production at \$1.05 billion. In 2001 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 zinc and talc. New York remained 10th in masonry cement and increased from 10th to 9th in Portland cement. Other important minerals mined in New York include bluestone, sandstone, granite, shale, slate and clay.

Table 14 - New York Quantity of Production Rank for US, 1997 - 2001

	1997	1998	1999	2000	2001
Cement (Portland)	9	8	9	10	9
Garnet	2	2	1	2	2
Salt	4	3	4	3	3
Sand & Gravel*	12	12	13	13	12
Talc	4	4	4	4	4
Wollastonite	1	1	1	1	1
Zinc	3	3	4	4	4

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



* Construction grade sand and gravel

Limestone & Dolostone, Crushed Stone and Cement

New York's limestone and dolostone resources are found throughout the State. In 2001 New York had 93 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 2001, followed by cement (portland and mason).

Crushed Stone - New York's crushed stone production rose to a minimum of 53,700,000 metric tons worth at least \$353 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 - In 2001 New York produced at least 2,940,000 metric tons of portland cement worth at least \$230 million. While New York also produced a much smaller amount of masonry cement, the State ranked 10th in the nation for this commodity in 2001. Cement production is concentrated in the upper Hudson Valley area where a very pure form of limestone is quarried from the Coeymans formation.

Table 15 - 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 1,931 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

The following statistical information is based on data voluntarily submitted to the U.S. Geological Survey every year from a large sample of mines. Since the numbers are incomplete, they should be regarded as minimums. However, the data is still valuable for showing rough levels of production and year-to-year trends.

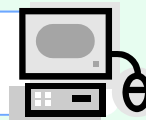
In 2001 New York's production of construction grade sand and gravel rose to a minimum of 30,800,000 metric tons worth at least \$162 million. The vast majority of this material was used for road and building construction and maintenance.

Table 16 - Principal Sand and Gravel Producers and Their Largest Mines

<u>Company</u>	<u>County</u>	<u>Town</u>
Buffalo Crushed Stone, Inc.	Cattaraugus	Machias
Callanan Industries, Inc.	Rensselaer	North Greenbush
	Albany	Coeymans
Cranesville Aggregate Co., Inc.	Schenectady	Glenville
F. S. Lopke Contracting, Inc.	Tioga	Tioga
Gernatt Asphalt Products, Inc.	Erie	Sardinia
Hanson Aggregates NY, Inc.	Oswego	Sandy Creek
	Ontario	Phelps
	Livingston	Caledonia
	Herkimer	Russia
	Steuben	Bath
Lafarge North America, Inc.	Cattaraugus	Freedom

* Principal Producers based on number of acres permitted.

For information on mines in your area, visit our website at
<http://www.dec.state.ny.us/website/dmn>



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 2001 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 Schuyler and Wyoming Counties (see page 19). In 2001 these 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 2001 was approximately 5.6 million metric tons, worth \$215 million. This means that New York's 2001 rock salt production was roughly 3.1 million metric tons worth approximately \$115 million. While these figures are not exact, they are useful indicators of the level and value of production in New York. They also show that New York's rock salt production levels did not recover from the 1994 AKZO roof collapse and mine closure until 2001.

Table 17 - 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 2001. More importantly, New York is the only commercial producer of wollastonite in the country and accounts for 99 percent of US output. 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 2001. This production comes from just three mines located in the Adirondacks.

To protect proprietary data, the U.S. Geological Survey 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 2001 the estimate was 130,000 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 18 - 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 2 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 19 - 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 2001 New York ranked fourth in the country in talc production. Gouverneur Talc is New York's only talc producing company, but their holdings include several mines and two milling operations on over 2,000 acres of land in the northwest Adirondacks. 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 20 - 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 2001 there were 21 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.

Table 21 - Principal Sandstone Producers*		
<u>Company</u>	<u>County</u>	<u>Town</u>
Callanan Industries	Ulster	Kingston
Cobleskill Stone Products, Inc.	Greene	Lexington & Prattsville
Champlain Stone, Ltd.	Washington	Dresden
Finger Lakes Stone	Tompkins	Dryden
Keeler Construction Co., Inc.	Orleans	Ridgeway
Shelby Crushed Stone	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 2001 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.

Table 22 - Principal Bluestone Producers*		
<u>Company</u>	<u>County</u>	<u>Town</u>
Helderberg Bluestone	Albany	Berne
Indian Country, Inc.	Delaware	Walton
Johnston & Rhodes Bluestone	Delaware	Hancock
Tompkins Bluestone Co., Inc.	Delaware	Hancock

* Principal Producers based on number of acres permitted.

Granite

In 2001 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 23 - Principal Granite Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Champlain Stone Ltd.	Washington	Fort Ann
Graymont Materials	Clinton	Mooers
Lake Placid Granite Co.	Essex	Jay

* Principal Producers based on number of acres permitted.

Zinc and Lead

In 2001 New York had two mines in the northwestern Adirondacks producing zinc ore. Unfortunately, the Pierrepont mine was permanently closed in 2001 and work at the Balmat mine was temporarily 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 is expected to reopen.

The Balmat mine produces the zinc ore sphalerite and a lead by-product called galena. Due to operation of the zinc mines, New York has typically ranked sixth nationally in lead production. Zinc is used to make galvanized steel for automobiles and other products, reinforce tires and make metal alloys. Lead is used predominantly in lead-acid batteries for vehicles.

To protect proprietary data, the U.S. Geological Survey does not publish zinc or lead production information for New York.

Table 24 - Principal Zinc & Lead Producers*

<u>Company</u>	<u>County</u>	<u>Town</u>
Zinc Corporation of America	St. Lawrence	Edwards

* Principal Producers based on number of acres permitted.

2001 New York Mining Industry At a Glance

2,459 Active Mines

**\$1.05 Billion
Estimated 2001
Production Value**

**Annual Regulatory Fees
\$2,003,077**

Major Types Of Mines, 2001

Sand & Gravel	1,931
Limestone & Dolostone	93
Bluestone	52
Sandstone	21
Granite	10
Salt	2
Zinc	2
Wollastonite	3

Affected & Reclaimed Land

Affected Acreage	48,571
Life-of-Mine Acreage	119,013
Reclaimed, 2001	1,017
Reclaimed Since 1975	19,464

US Quantity Rank, 2001

Wollastonite	1st
Garnet	2nd
Salt	3rd
Zinc	4th
Talc	4th
Cement	9th
Sand & Gravel	12th

NY Value Rank, 2001 Non-Fuel Minerals

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

Owner Type, 2001

Industry	1,849
Government	610

**Financial Security
To Guarantee
Reclamation
\$83,459,338**