

INSPECTIONS, FEES AND FINES

Inspections

In 2004 Oil and Gas staff traveled 114,317 miles to perform 2,491 well site inspections. Staff inspect well sites:

- during permit application review to check environmental and public safety issues;
- during drilling to check on well site construction and drilling permit compliance;
- during the operating phase to check for leaks, spills or other potential problems; and
- to ensure that well plugging and site reclamation comply with requirements.

DEC staff perform follow-up inspections to ensure any violations are properly remediated.

Compliance Enforcement

Violations are handled with a mixture of enforcement tools, remediation requirements and

penalties. In 2004 the Oil and Gas Program collected \$109,172 in fines and penalties.

Permit Fees and Program Revenues

Total oil and gas revenues collected by the Division equaled \$1,253,466 in 2004 with the major sources shown in Table 11. Further details on leasing revenues are available on page 32.

Table 11 2004 Fees and Revenues	
Well Permit Fees	\$355,312
Oil and Gas Account	\$23,200
Leasing Revenues	\$765,782



DEC inspection vehicle at a producing well site.

STATE LAND LEASING

At the end of 2004 the Division managed 96 leases covering roughly 77,500 acres of State land, a slight decrease from 2003's 81,000 acres.

Steuben County has the most State acreage under lease due to the high level of drilling activity associated with the Trenton-Black River.

At year-end 2004 the State was earning royalties from 99 productive oil and gas wells physically located on State lands and another 83 producing wells on adjacent and/or unitized lands. These wells were held under 47 leases.

New York collected royalties from these 182 wells which produced 5.97 bcf of natural gas and 9,155 bbl of oil. The average prices paid were \$6.98 per mcf for gas and \$35.27 per barrel of oil.

In 2004 the State received total leasing revenues of \$765,782:

Delay Rentals - Operators submitted a total of \$128,213 in delay rentals, up 677% from 2003. The dramatic increase in delay rentals was due almost entirely to primary term payments for 21 new leases awarded in the State's 2003 lease sale in central New York.

Royalties - The State received \$525,000 in royalty revenue from production of oil and gas on 47 leases in 9 counties (20,855 acres). The 2004 royalty total was down 13.9% from its 2003 mark of \$609,821 which had been augmented by release of extra money held in escrow for a long period.

Storage Leases - Fourteen storage leases added \$109,986, down 6.3% from 2003. The majority of New York's storage lease acreage is in Cattaraugus County.

Lease Sale Revenue - The State received \$2,533 from a non-competitive lease of New York State Department of Transportation acreage in preexisting production units.

DEC Managed Oil and Gas Leases

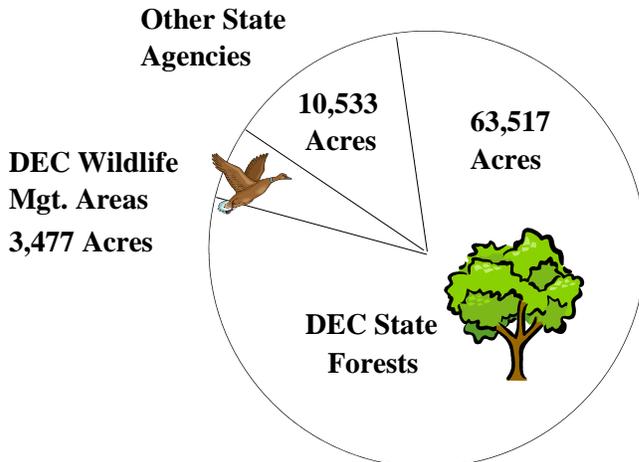


Table 12 - Total Leasing Revenues, 1997 - 2004

1997	\$168,029
1998	\$279,523
1999	\$3,206,406
2000	\$181,876
2001	\$379,845
2002	\$249,685
2003	\$5,326,927
2004	\$765,782



Chemung SRA #1 disturbed only 1.5 acres of State land, yet paid New York State over \$770,000 in royalties as of 12/31/04. The camouflaged well site is barely visible from the road. Above a glimpse inside the fence showing the well and production equipment.

Table 13 - Summary Leased State Lands, 2004

	<u>Rental Lease¹</u>	<u>Royalty Lease²</u>	<u>Storage Lease³</u>	<u>Total Leases</u>	<u>Total Acreage</u>
Allegany County	9	1		10	11,627
Cattaraugus County		2	8	10	10,043
Cayuga County		4		4	62
Chautauqua County		29		29	15,913
Chemung County		3		3	492
Erie County		2	2	4	265
Madison County	1			1	53
Ontario County			1	1	55
Schuyler County	4	2	1	7	11,884
Seneca County		1		1	17
Steuben County	21	3	2	26	27,117
Total	35	47	14	96	77,528

- 1 Rental status means no wells drilled yet under lease, so delay rental paid on per acre basis.
- 2 Royalty status means there are producing wells on the lease and the State receives royalties.
- 3 Storage means it is a lease for an underground storage facility.

ORPHANED AND ABANDONED WELLS



Old wooden casing pulled from a well drilled in the 1800s.

DEC estimates that over 75,000 oil and gas wells have been drilled in New York State since the 1820s. Most of the wells date before New York established a regulatory program. Many were never properly plugged or were plugged using older techniques that may not last.

Abandoned wells can leak oil, gas and/or brine; underground leaks may go undiscovered for years. These substances can contaminate ground and surface water, kill vegetation and cause safety and health problems. Historically, abandoned wells have been discovered in residential yards, playgrounds, parking lots, wooded areas, inside buildings and underwater in wetlands, creeks and ponds.

Every year DEC staff discover additional abandoned wells while conducting scheduled inspections or investigating complaints. Many abandoned well issues take several years to resolve as DEC pursues legal action against the responsible parties.

Plugging Permits and Bonds

At the end of its productive life a well must be properly plugged and abandoned and the land reclaimed. The well must be plugged with cement, equipment removed from the area, land graded, and the well site and access road revegetated.

In 2004, 145 wells were plugged in accordance with a DEC plugging permit. At year-end DEC held \$12.9 million in financial security to guarantee well plugging and reclamation. However bonds are not required for wells that predate DEC's regulatory program. The Oil & Gas Account is meant to fund plugging of preregulation wells with a \$100 fee applied to every drilling permit. Those funds are inadequate to cover the scope of the abandoned well problem and most wells end up being placed on a Priority Plugging List waiting for available funds.

Financial Security

\$12.9 Million

Wells Plugged

Total 145

- **72 Oil Wells**
- **34 Gas Wells**
- **39 Other**

UNDERGROUND GAS STORAGE

Twenty-three natural gas and three liquefied petroleum gas underground storage facilities operated in 10 counties in the western and central parts of New York during 2004. DEC issued a permit for one new storage facility in 2004

Natural Gas Storage

Table 9 summarizes the 2004 year-end status of underground natural gas storage and Table 10 details activity during the year at each storage field. Storage operators injected 71.2 bcf of natural gas into storage during 2004 and delivered 69.8 bcf. Storage reservoirs were 78% full at the end of the reporting year and year-end working gas in storage represented 56% of working capacity. Underground storage reservoirs in New York State held a total of over 161.7 bcf of natural gas at year's end. More than 900 storage field wells were used during the year for injection, withdrawal or monitoring.

More gas is stored in the Oriskany sandstone formation than in any other rock unit in New York State. Used for storage at 10 fields including Stagecoach, the Oriskany accounted for 65% of total statewide capacity, 65% of working storage capacity and 61% of total maximum daily deliverability. The largest single storage field with respect to capacity, Dominion Transmission's Woodhull Field in Steuben County, can hold up to 35.9 bcf of gas in the Oriskany formation.

Permit Applications - In July 2004 the Department received underground storage permit applications from Dominion Transmission, Inc. for its proposed new Northeast Storage Project in the Town of Olean, Cattaraugus County, and from Steuben Gas Storage Company for a capacity expansion of its existing Adrian Reef facility in the town of Canisteo, Steuben County. The Adrian Reef modification permit was issued in November, authorizing the capacity increase through a higher maximum stabilized reservoir pressure. No additional surface facilities are in-

involved. The Dominion proposal involves conversion of a depleted natural gas production reef to storage. The Department will participate in the Federal Energy Regulatory Commission review of the project as a cooperating agency, in addition to conducting its own permit review.

Storage permit applications from Wyckoff Gas Storage Company and National Fuel Gas Supply Company remained under review in 2004. An application from Seneca Lake Storage for an underground salt cavern storage project remains on hold at the request of the applicant.

Legal Action Over Stagecoach Royalties - In March 2004 the Commissioner denied a petition filed by a group of 45 landowners in the area of Stagecoach Field. They were challenging the Spacing and Integration Order 10 years after the applicable statute of limitations had expired and wanted royalties that had already been paid out. The Commissioner ruled that the petitioners did not present any evidence that supported the change. The royalties had already been paid to the mineral rights owners based on the 1993 Order and the field had since been converted to its current use as an underground natural gas storage facility.

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 market as needed. Operators reported that 66,845,000 gallons of LPG were in storage at year-end 2004. The volume stored at year-end represents 45% of total LPG storage capacity.

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 five solution mining facilities.

**Table 14 - Summary and Year-End Status
Underground Natural Gas Storage, 2004**

	<u>Onondaga</u>	<u>Oriskany</u>	<u>Medina</u>	<u>Salt Cavern</u>	<u>Total</u>
Number					
Fields	2	10	10	1	23
Wells	51	333	524	3	911
Acreage					
Reservoir	7,541	29,706	42,706	4	79,957
Total	13,577	62,723	102,918	4	179,222
Total Storage Gas					
Capacity (bcf)	11.200	135.754	59.280	2.340	208.574
Year-End (bcf)	9.451	101.467	49.237	1.568	161.723
Working Gas					
Capacity (bcf)	6.863	69.027	27.973	1.450	105.313
Year-End (bcf)	5.114	34.740	17.930	0.678	58.642
Max. Daily Deliverability (mmcf/day)	100	1,171	511	145	1,927

**Table 15 - Liquefied Petroleum
Gas Storage Facilities**

	<u>Cavern Type</u>
Bath Petroleum Storage	Solutioned Salt
New York LP Gas Storage	Solutioned Salt
Texas Eastern Products	Excavated Rock

Table 16 - Summary Storage Field Activity, 2004

	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	15.412	17.115	357
Central NY Oil and Gas					
Stagecoach Field	18	14.750	8.788	8.657	500
Columbia Gas Trans. Corp.					
Dundee Field	134	11.000	3.212	2.909	77
Greenwood Field	6	3.600	0.107	0.034	5
N. Greenwood Field	2	3.200	0.754	0.476	9
Honeoye Storage Corp.					
Honeoye Field	39	10.780	4.582	3.845	55
National Fuel Gas Supply					
Beech Hill Field	56	23.000	4.170	4.642	66
Bennington Field	64	5.000	1.907	1.922	75
Colden Field	166	16.220	6.386	6.479	110
Collins Field	46	5.880	1.978	1.876	50
Derby Field	14	0.250	0.211	0.170	5
E. Independence Field	11	6.400	2.279	2.110	15
Holland Field	26	2.600	0.747	0.805	25
Lawtons Field	32	2.470	0.901	0.829	21
Limestone Field	14	19.800	1.482	1.406	37
Nashville Field	71	8.530	2.726	2.380	110
Perrysburg Field	40	3.850	0.754	0.621	35
Sheridan Field	26	3.700	0.983	0.905	25
Tuscarora Field	8	6.300	3.000	2.049	57
W. Independence Field	30	11.800	3.557	3.761	49
Zoar Field	39	2.200	0.764	0.921	40
NYS Electric & Gas					
Seneca Lake Field	3	2.340	1.536	1.757	145
Steuben Gas Storage Co.					
Adrian Reef Field	12	9.000	5.001	4.161	60
Totals	908	208.574	71.238	69.831	1,927

SOLUTION SALT MINING

Five solution mining facilities in New York (see Map 4 on page 36) produced 2.23 billion gallons of saturated brine, or about 2.65 million metric tons of salt, in 2004. Operators of these five facilities injected 2.24 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 2004 represent a slight increase compared to 2003's figure of 2.08 billion gallons. The value of New York's 2004 solution salt mining production is estimated at \$100 million.

The 130 operating wells reported in 2004 include injection wells, withdrawal wells, wells equipped for both injection and withdrawal, and standby wells. Table 17 gives the number of operating and plugged wells at each facility.

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 and Occidental Chemical supplied chemical manufacturing plants in Niagara Falls via 60-mile-long brine pipelines.

In 2004 solution mining facilities accounted for approximately 41% 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.

New York has more than 10,000 square miles of salt beds under the central and western parts of the State. Most of these salt deposits are thick enough to be potentially commercial.

Table 17 - Status of Solution Salt Mining in New York, 2004

Operator	County	Town	Year Started	Operating Wells	Plugged Wells
U.S. Salt	Schuyler	Reading	1893	6	66
Cargill	Schuyler	Dix	1898	17	13
Morton	Wyoming	Castile & Gainesville	1884	20	25
Occidental Chemical	Wyoming	Middlebury (Dale Field)	1970	52	98
Texas Brine	Wyoming	Middlebury (Wyo. Vil. Field)	1984	35	35
			Total	130	237

GEOTHERMAL AND STRATIGRAPHIC WELLS

New York City continued to be the focus of geothermal and stratigraphic well activity in 2004. A permit is required from DEC for all geothermal and stratigraphic test wells over 500 feet deep. The 2 stratigraphic test wells were only 590 feet, but the 14 geothermal wells ranged from 950 to 1,550 feet in depth.

Site reviews for wells drilled in an urban environment are far different from those in rural areas where the majority of wells regulated by the Division are drilled. The factors that the Division reviews for most permits, such as impacts to surface and groundwater resources, are supplemented by topics such as traffic control and sewer discharges which are handled by city agencies. Other urban siting concerns include avoidance of subsurface utilities, noise abatement, and emergency access and evacuation routes to and from buildings.

Stratigraphic Wells

DEC issued 2 stratigraphic well permits to the New York City Department of Environmental Protection (NYCDEP) to collect geologic information on the proposed route of City Water Tunnel #3. The tunnel is under construction 350 to 550 feet below the streets of Manhattan to

convey drinking water for the city from upstate reservoirs.

Geothermal Wells

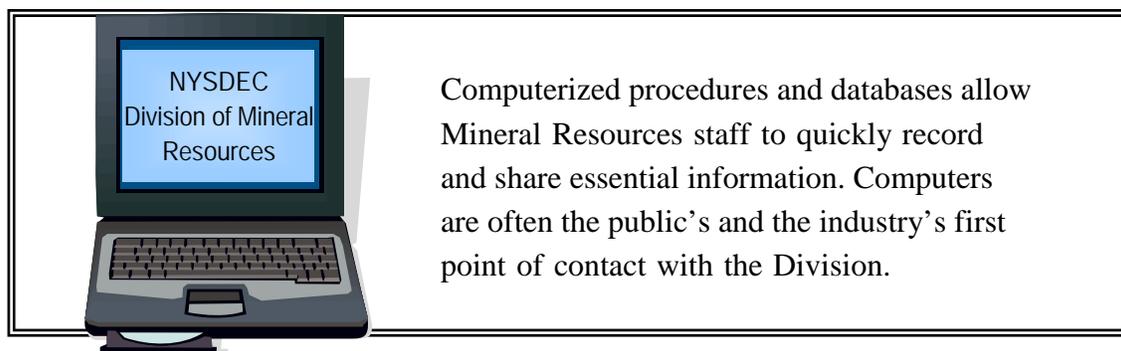
Three separate projects in New York City resulted in a record high of 14 geothermal well permits being issued in 2004. These geoexchange wells use the earth as either a heat source or a heat sink, depending upon the season, by circulating water between the surface and the bottom of the well. Since the mean earth temperature beneath New York City at the permitted well depths is roughly 55° F, these wells are expected to have high operating efficiency. One well tested subsurface conditions for geothermal heating and cooling of the Bronx Zoo Lion House exhibit. Thirteen other wells were permitted to support two residential and commercial projects. One project has qualified for the Green Building Tax Credit Program administered by the Department.

The Division expects geothermal drilling activity to continue and perhaps even increase in future years due to the economic and environmental benefits associated with this technology, as well as the incentives from rising fuel costs and “Green Building” tax credits.

Table 18 - Permitted Geothermal Wells, 2004

Company	Wells	Project	Location	Use/Purpose
1400 5th, LLC	6	1400 Fifth Avenue	Manhattan	Residential/ Commercial
New York City Design Dept.	1	Bronx Zoo	Bronx	Lion House Exhibit
Yarrow Development	7	South St Seaport	Manhattan	Residential

INFORMATION TECHNOLOGY



Website Use Statistics

Public use of the Division's website increased dramatically from the previous year for both the Mined Land and Oil and Gas Programs. The average number of user sessions rose 25% to 452 sessions per day, with an average session length of 22 minutes. The number of unique visitors rose by 11% and the total number of page views rose by 28%. Visitors downloaded over two gigabytes of information per month.

Electronic Reporting and Annual Reports

The Division mailed out preprinted Annual Well Reports to 986 registered owners of the 14,430 active oil and gas wells in the State for 2004. In addition to ensuring compliance and collecting basic information on the industry, production data from the reports is used by local governments to assess property taxes.

For the past five years well owners have had the option of filing their reports electronically using an Access database. However, this option has appealed mostly to the larger oil and gas companies with the ability to electronically load data. In 2004 the Division created a second electronic reporting option aimed at small operators. This new application is user-friendly - the operator enters their production data directly into a form on their computer screen, saves it in an xmi for-

mat and e-mails it back to the Division where the figures are uploaded into the database.

In 2004 well owners submitted electronic reports covering 6,070 wells or 50% of the State's reported wells. The 20% improvement from the previous year was due mostly to small operators taking advantage of the new electronic filing method. The percent of the State's total gas production reported by electronic filing increased from 91% in 2003 to 94% in 2004.

2004 marked the first year that reports for natural gas underground storage and solution mining facilities could be electronically filed. Staff also developed computerized well status forms for stratigraphic, monitoring and brine disposal wells.

Since New York does not have a protocol for digital signatures, well owners must still submit paper copies. Nonetheless, electronic reporting reduces data entry errors and saves significant time for both the industry and the Department.

2004 Special Projects

The Division worked with DEC Public Affairs staff to create a Flash presentation on the Mined Land program. Flash is a relatively recent software format that can be used to deliver graphics, video-like animation, sound and interactiv-



ity over the Internet. This new website feature educates visitors on how DEC protects the environment through mine permit requirements. Along the way visitors are treated to some eye-catching examples of successful mine reclamation (<http://www.dec.state.ny.us/website/dmn/recflash/index.html>).

In 2004 the Division also completed a Mined Land Database User's Manual to assist staff with database entry and retrieval of program information. The manual includes information on developing custom queries and reports to help staff get the most out of the available data.

In late 2004 the Division started a pilot test of an electronic inspection recording system. The new method, employing a Palm Pilot, makes record keeping easier.

When field staff return to the office, they can simply electronically download the information into the Division's database with no delay for typing data. Inspection results becomes available to the entire Division much more quickly using these new procedures.

The pilot project was run by Mined Land staff in DEC Regions 3, 4, 7 and 9 with eventual plans for adoption statewide by both the Mining and Oil and Gas programs. Staff performed sufficient inspections by year-end 2004 to determine the system worked well.

The importance of this new initiative to the Division cannot be overstated. As can be seen from the statistics in the illustration above, the two programs combined perform well over 4,500 inspections per year.

<http://www.dec.state.ny.us/website/dmn>