

THE DRBC WATER USE DATABASE

The DRBC has compiled a water use database for the time period 1990-1996

The database includes the following information:

- Monthly ground water and surface water withdrawals
- Location of each withdrawal (latitude/longitude)
- Use categories include: public water supply, industry, power, golf courses, mining, (commercial, institutional, agriculture as available)

THE DATABASE WILL SUPPORT THE FOLLOWING OBJECTIVES

Compile a descriptive overview/profile of water use in the basin

Develop consumptive use estimates

Complete water demand forecasting

Evaluate the effectiveness of water conservation programs

CURRENT EFFORTS

The data are currently undergoing a process of quality control checks and are being transferred into GIS.

Preliminary analysis has been completed for potable water supply data and is presented in the following series of tables and graphs.

ESTIMATED POTABLE WATER WITHDRAWN FROM THE DELAWARE RIVER BASIN (IN MILLIONS OF GALLONS)

(preliminary)

	1990	1991	1992	1993	1994	1995	1996
DELAWARE	28,862	29,188	28,390	28,748	27,779	27,988	25,907
NEW JERSEY	67,066	71,914	70,895	73,469	71,792	73,146	68,242
NEW YORK STATE	3,408	4,377	4,330	4,029	3,962	3,779	4,313
PENNSYLVANIA	256,890	254,409	249,956	250,337	256,336	240,831	235,591
D & R CANAL EXPORT	34,880	32,814	29,817	31,562	31,119	32,692	28,788
NEW YORK CITY EXPORT	260,610	255,500	250,755	243,090	252,215	243,820	237,250
DOMESTIC	36,381	36,628	36,798	36,978	37,110	37,197	37,300
BASIN TOTAL:	688,097	684,830	670,942	668,212	680,313	659,452	637,391

Notes:

*The data represent ground and surface water withdrawals reported by public water suppliers, estimates of rural domestic water use, and the volume of water exported outside the basin.

*Public water supply includes all uses of water (residential, commercial, industrial, and other) supplied by public water suppliers.

*1990 domestic withdrawals are estimated from the number of individual wells and other sources as reported in the 1990 Census of Housing; per capita water use rates as reported in the USGS Estimated Use of Water in the U.S. in 1995-Circular 1200; and the assumption of 3.2 people per household. 1990 domestic withdrawal estimates are projected through 1996 at the same rate of increase as the basin population.

*The data are derived from the following sources: N.J. Dept. of Environmental Protection, N.J. Geological Survey, Pa. Dept. of Environmental Protection, Del. Dept. of Natural Resources and Environmental Control, N.Y. State Dept. of Environmental Conservation, N.Y. City Dept. of Environmental Protection, N.Y. State Health Dept., U.S. Geological Survey, 1990 Census of Population and Housing.

*The data do not include withdrawals under 100,000 gallons per day (gpd) with the following exceptions: domestic individual withdrawals, ground water withdrawals in the Southeast Pennsylvania Ground Water Protected Area which includes withdrawals greater than 10,000 gpd, the remainder of the Pennsylvania portion of the basin which includes community water supply systems with 15 connections or more, and Delaware which includes withdrawals greater than 50,000 gpd.

PUBLIC WATER SUPPLIERS

Includes all uses: residential, commercial, industrial, other

Metered withdrawals for each Water Year

Withdrawals >100,000 gallons per day (gpd), with the exception of:

Ground Water Protected Area: >10,000 gpd

Pennsylvania: community systems with 15 connections or more

Delaware: >50,000 gpd

Domestic Estimates

DOMESTIC ESTIMATES

Number of Drilled Wells – 1990 Census

Assumes 3.2 People per Household

Domestic Per Capita Usage:

New Jersey: 75 gallons per capita per day (gpcpd)

New York: 75 gpcpd

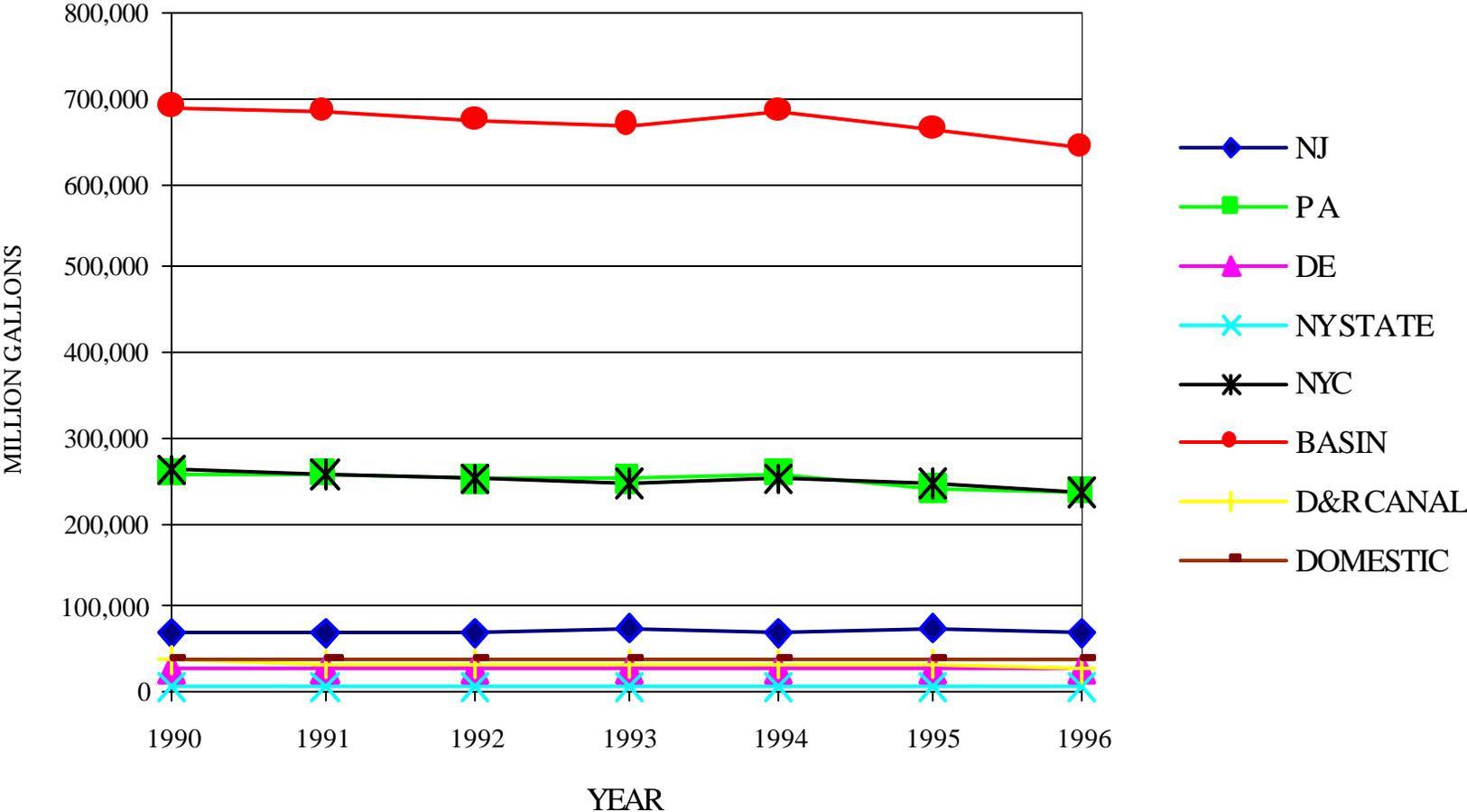
Delaware: 80 gpcpd

Pennsylvania: 60 gpcpd

1990 Estimates are Projected at the Same Rate of Increase as Population

DELAWARE RIVER BASIN POTABLE WATER SUPPLY WITHDRAWALS

(preliminary)



WATER YEAR 1996 - RANKING BY WITHDRAWAL VOLUME

(preliminary)

1) New York City	237,250 MG	37 %
2) Pennsylvania	235,591 MG	37 %
3) New Jersey	68,242 MG	11 %
4) Domestic	37,300 MG	5.8 %
5) D & R Canal	28,788 MG	4.5 %
6) Delaware	25,907 MG	4 %
7) New York State	4,312 MG	0.7 %

MG = million gallons

TIME SERIES GRAPHS

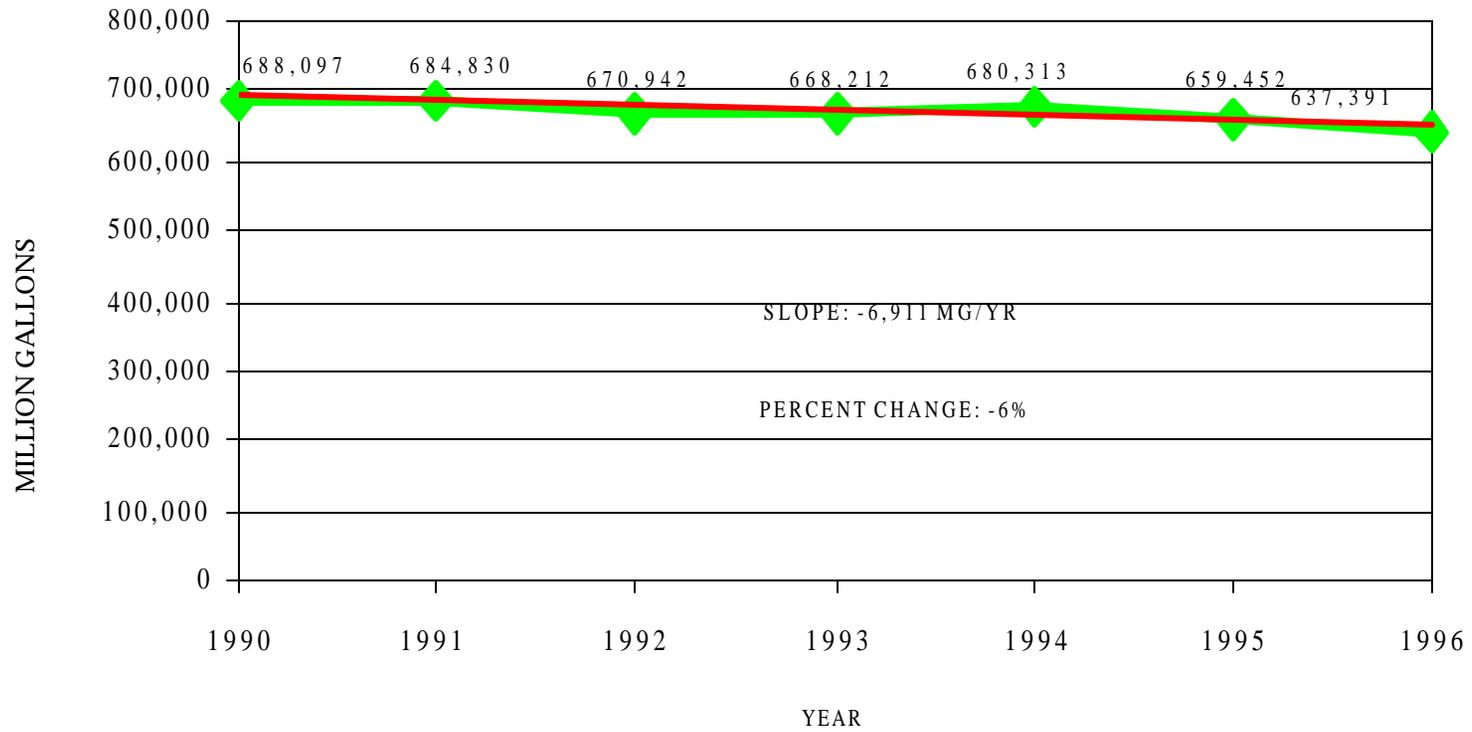
Annual Withdrawals 1990 – 1996

Linear Regression Indicates Trends in Water Use

Slope of Regression Line Indicates Magnitude and
Direction of Trend

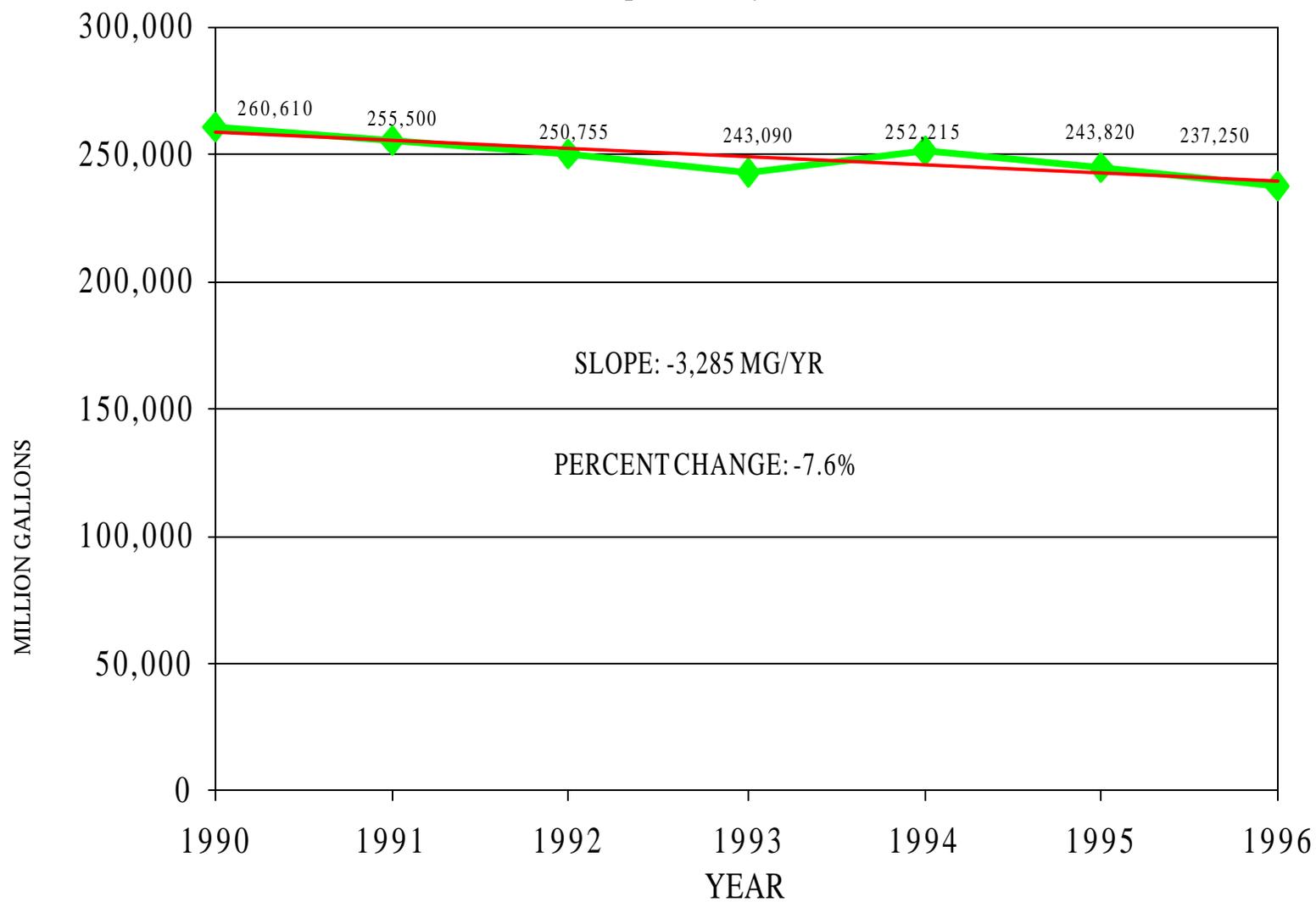
DELAWARE RIVER BASIN TOTAL POTABLE WATER SUPPLY

(preliminary)

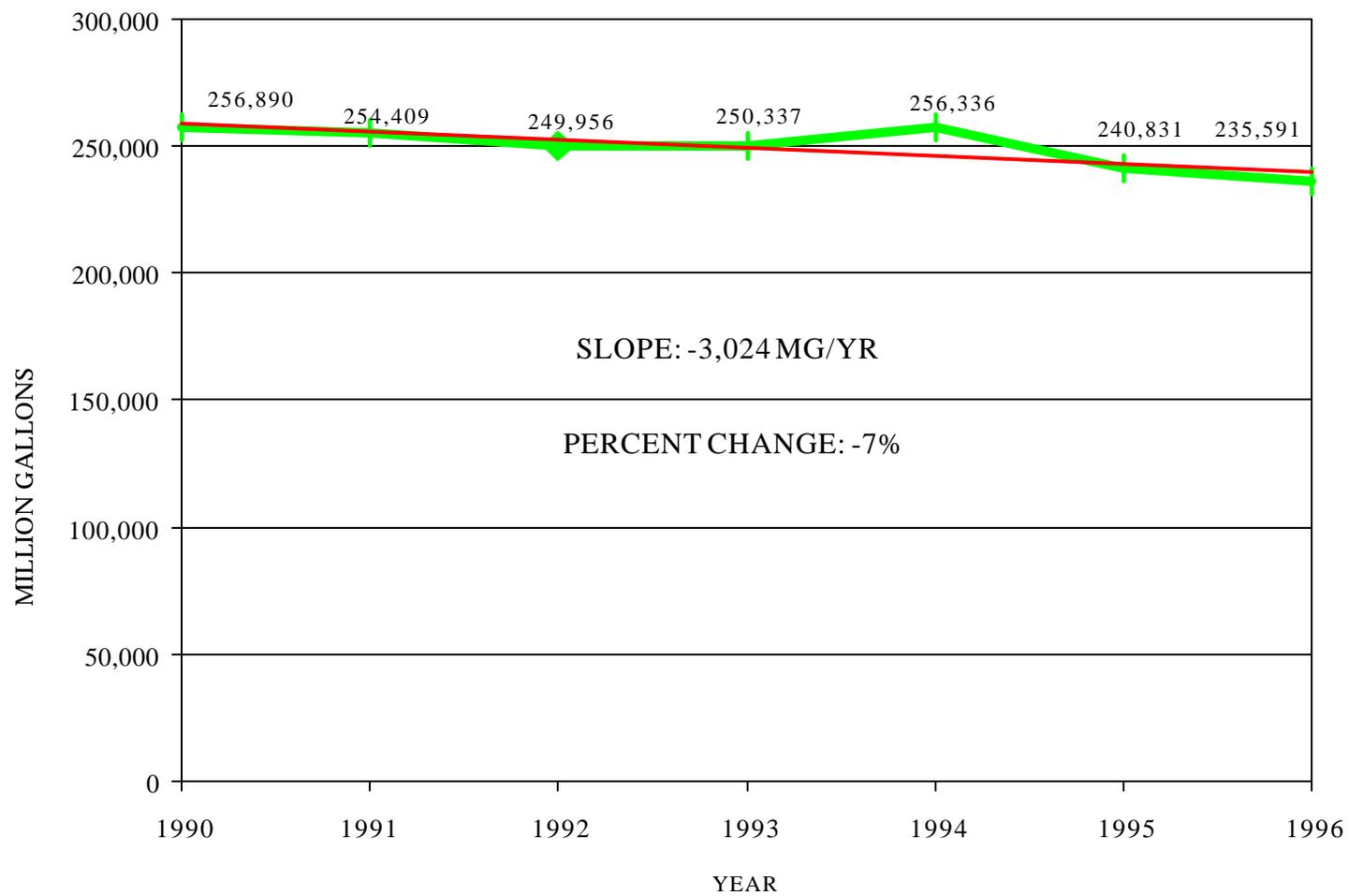


NEW YORK CITY EXPORT

(preliminary)



PENNSYLVANIA PUBLIC WATER WITHDRAWALS (preliminary)

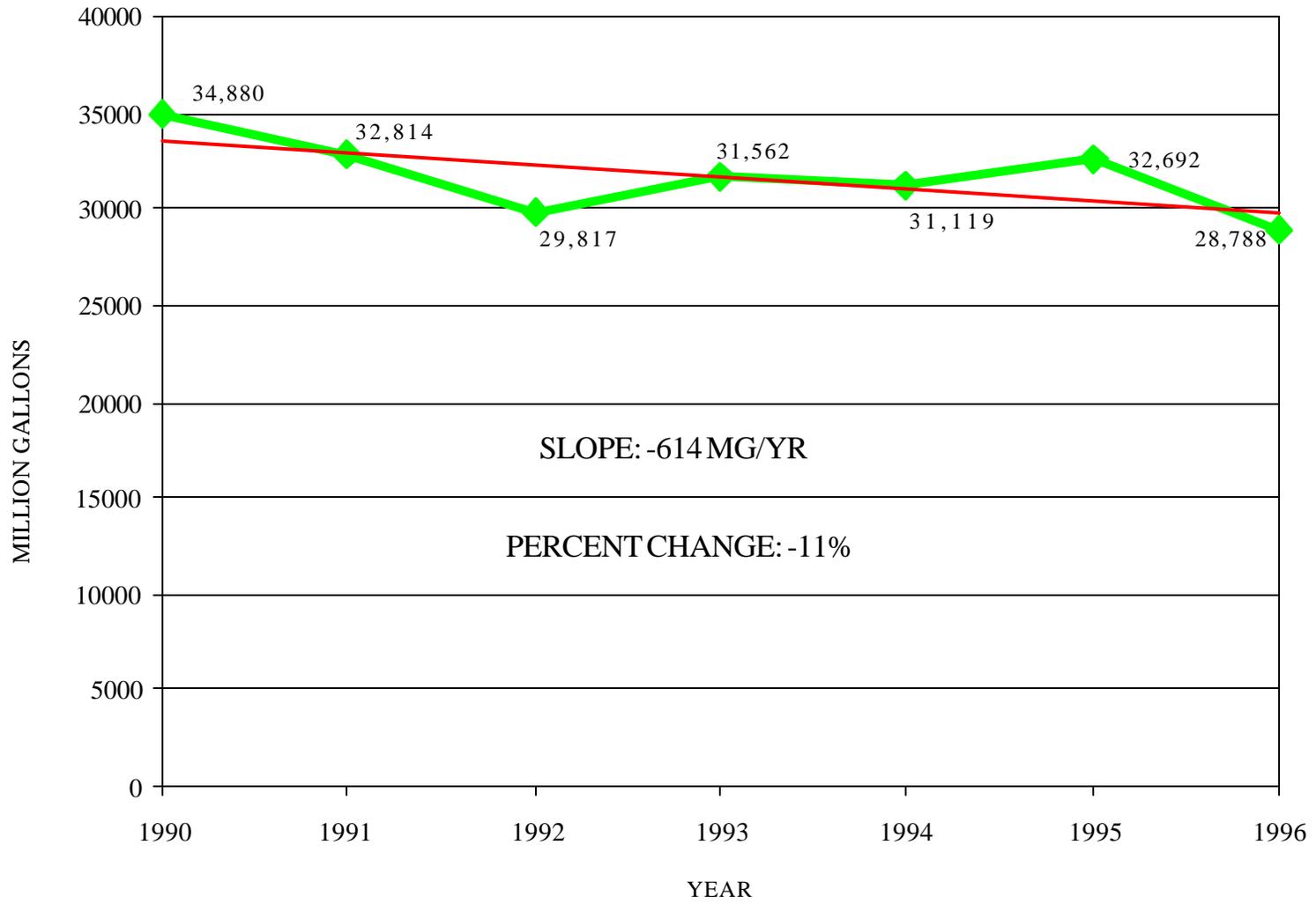


NEW JERSEY PUBLIC WATER SUPPLY WITHDRAWALS (preliminary)

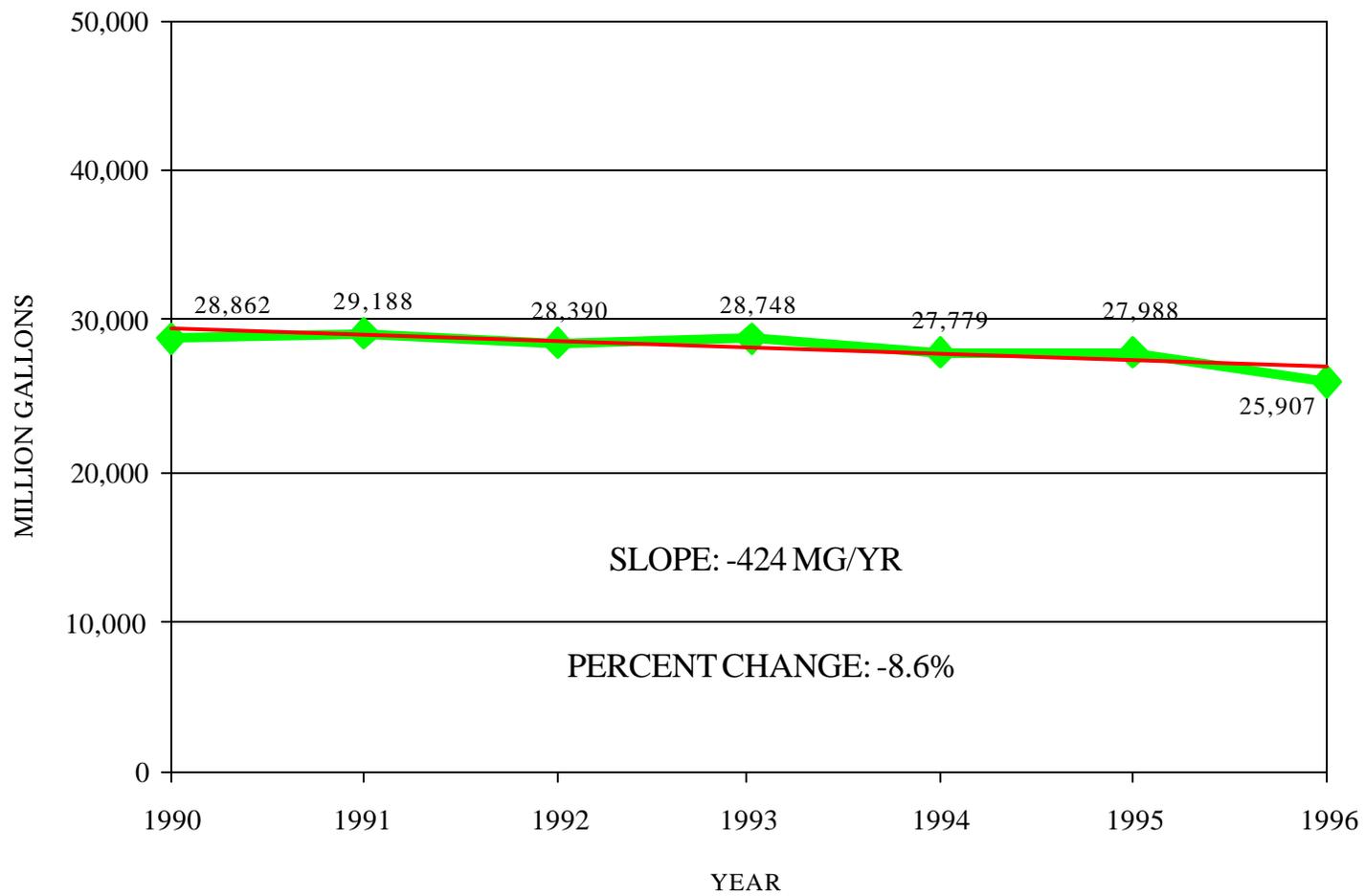


D & R CANAL EXPORT

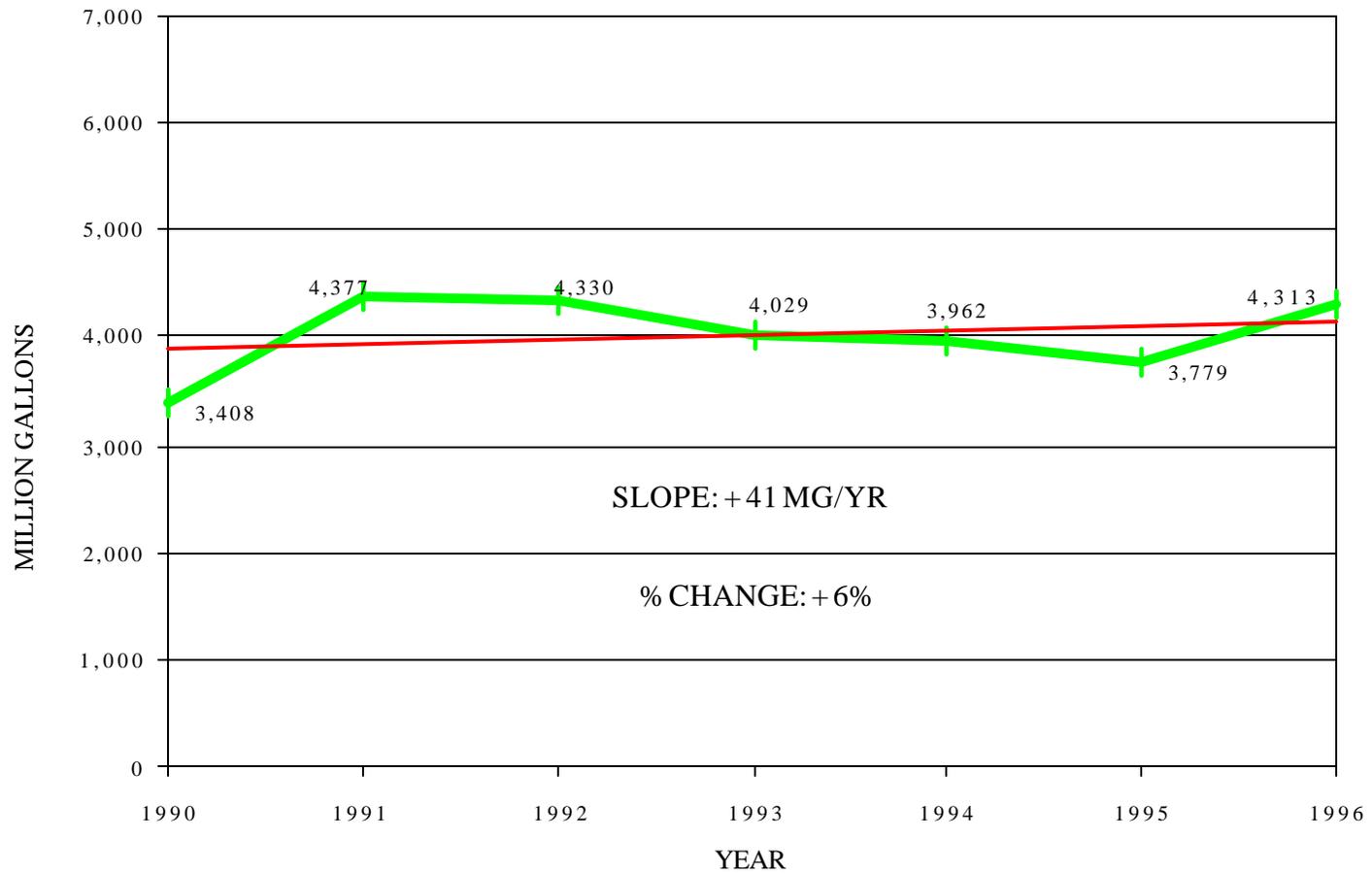
(preliminary)



DELAWARE PUBLIC WATER SUPPLY WITHDRAWALS (preliminary)



NEW YORK STATE PUBLIC WATER SUPPLY WITHDRAWALS (preliminary)



SUMMARY OF PERCENT CHANGE IN WITHDRAWALS 1990-1996 (preliminary)

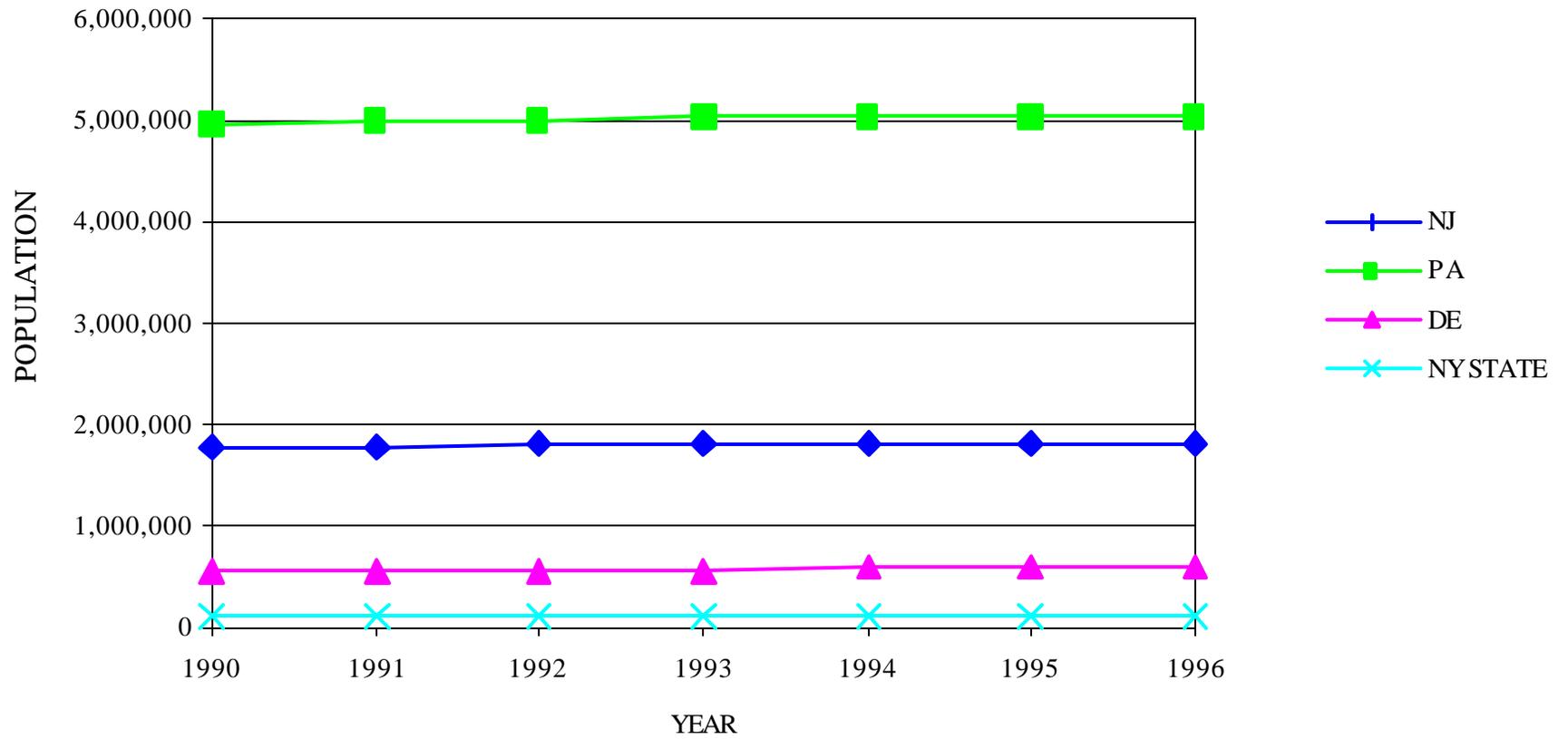
1) D & R Canal	-11%
2) Delaware	-8.6%
3) New York City	-7.6%
4) Pennsylvania	-7%
5) New Jersey	+2%
6) New York State	+6%

WHAT VARIABLES AFFECT WATER USE TRENDS?

Preliminary analysis includes comparison of population to water use.

Population data are not provided for New York City and the D & R Canal Export. These populations use water in addition to the Delaware River Basin resources.

**POPULATION SERVED BY DELAWARE RIVER BASIN PUBLIC WATER SUPPLY
WITHDRAWALS
(preliminary)**



**PERCENT CHANGE POPULATION vs PERCENT CHANGE WITHDRAWAL
1990 – 1996 (preliminary)**

	POPULATION % CHANGE	WITHDRAWAL % CHANGE
1) D & R Canal	na	-11%
2) New York City	na	-7.6%
3) Pennsylvania	+1.2%	-7%
4) Delaware	+5.7%	-8.6%
5) New Jersey	+3%	+2%
6) New York State	+0.5%	+6%

OBSERVED TRENDS IN POTABLE WATER USE

Population Increasing - Water Use Decreasing:

- may reflect positive results from water conservation efforts

Population Increasing - Water Use Increasing:

- may suggest per capita use remains steady and potable water use increases as population increases.