

# New York State Groundwater Assessment

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Each day, ground water directly touches the lives of approximately six million New York State residents, or about one-third of the state's population, as their source of residential drinking water using an estimated average 110 gallons per day each. This and an untold number of additional state and non-state residents also incorporate New York's ground water into their daily activities, while away from home, to an extent that is often unseen. This may include use at work, school, recreation, or leisure activities, and amounts associated with the manufacture or production of goods and services.<sup>1</sup>

New York's population dependence on ground water is considerable (Figure 1). Of New York State's 62 counties a total of 27 (44%) are more than half dependent on ground water for their combined public and self-supplied domestic water needs. Even more telling, seven counties (Cortland, Nassau, Queens, Suffolk, Schenectady, Chenango, and Tioga) representing a population of 5.3 million people, are more than 95% dependent on ground water.

New York State's considerable dependence on ground water points out the critical need to protect the quality of this vital resource. The following sections focus on potential sources of contamination that commonly threaten ground water and the programs or activities New York State has established to minimize the effects these potential sources will have on the state's ground water resource. Table 1 lists major sources of ground water contamination indicating the top 10 considered to be of highest concern. Table 2 provides a listing of superfund registry and non-registry remediation sites providing an indication of the extent of ground water contamination in NYS.

New York continues to make progress in assessing ambient ground water quality across the state through the establishment of a basin approach to ground water sampling. As with the surface water program, ground water sampling is planned for each of NY's 8-digit Hydrologic Unit Code (HUC) basins over a five year period. The studies are being conducted jointly with USGS. As of the start of 2010, New York has conducted ambient ground water quality monitoring in 46 of the state's 51 8-digit HUCs representing 96% of the state. A summary of individual studies for the 2003-2007 sampling efforts is included at the end of this chapter. Final reports for the 2008 studies are expected in the near future with 2009 study reports due out next year.



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<sup>1</sup> Estimated Use of Water in the United States in 2000; USGS CIR 1268; 2004

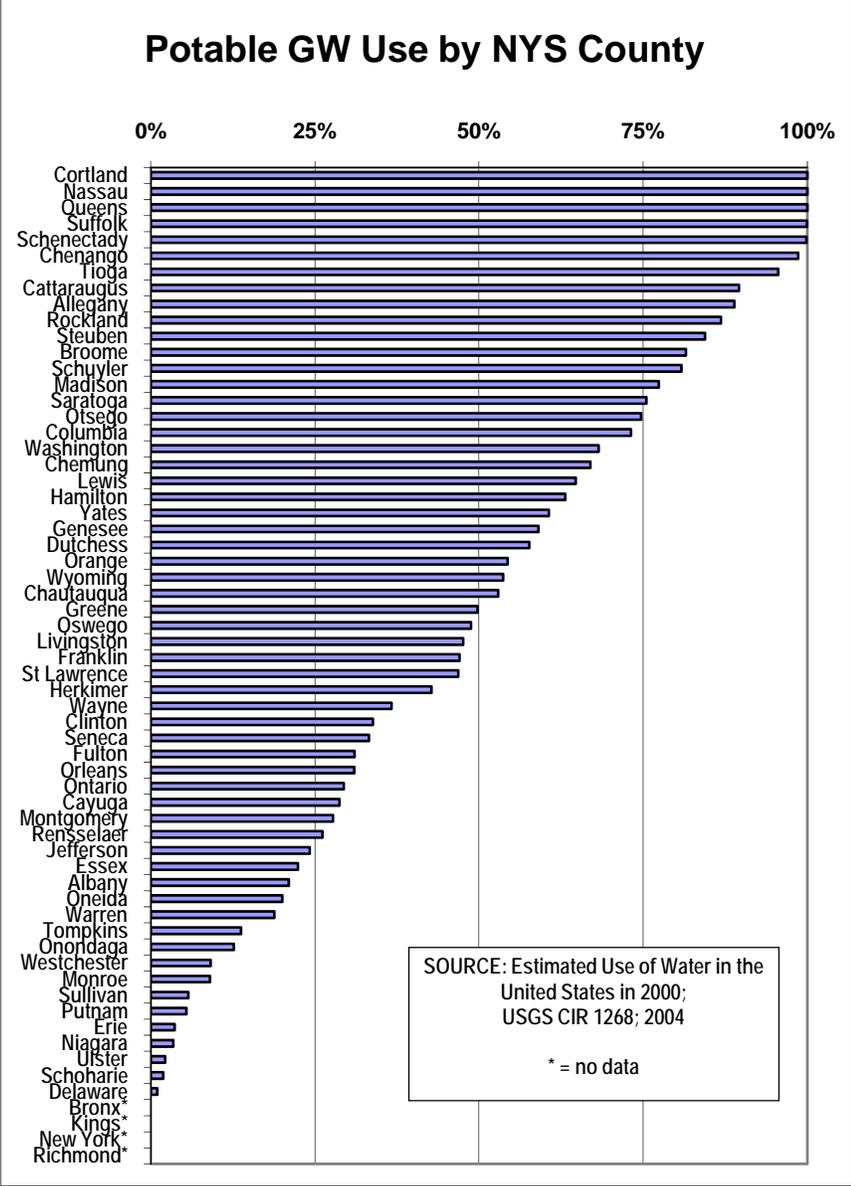


Figure 1

## Overview of Ground Water Contamination Sources

**Table 1: Major Sources of Ground Water Contamination**

Contaminant Source	Ten Highest-Priority Sources (v) <sup>(1)</sup>	Factors Considered in Selecting a Contaminant Source <sup>(2)</sup>	Contaminants <sup>(3)</sup>
<b>Agricultural Activities</b>			
Agricultural chemical facilities			
Animal feedlots			
Drainage wells			
Fertilizer applications			
Irrigation practices			
Pesticide applications	√	A, B, E, H	A, B
On-farm agricultural mixing and			
Land application of manure			
<b>Storage and Treatment Activities</b>			
Land appl. (Regulated/ Permitted)			
Material stockpiles			
Storage tanks (above ground)			
Storage tanks (underground)	√	A, H	A, B, C, D
Surface impoundments			
Waste piles/ Waste tailings			
<b>Disposal Activities</b>			
Deep injection wells			
Landfills	√	A, E	C, D, H
Septic systems	√	A, B, H	E, J, L, C
Shallow injection wells			
<b>Other</b>			
Hazardous waste generators	√	A, H	C, D, H
Hazardous waste sites	√	A, E	C, D, H
Large industrial facilities			
Material transfer operations			
Mining and mine drainage			
Pipelines and sewer lines			
Salt storage and road salting			
Salt water intrusion			
Spills	√	A, H	A, B, C, D
Transportation of materials			
Urban runoff			
Small-scale manuf. / repair shops	√	A, H	C, D, H
<b>Other sources (state added)</b>			
Abandoned Oil & Gas Wells	√	A, E	D
Radon	√	A, B, F	I

Notes for Table 1

1. A check (✓) indicates up to ten contaminant sources identified as highest priority in New York State. Ranking is not indicated.
2. Factor(s) used to select each of the contaminant sources, denoted by corresponding letter (A through I) and listed in order of importance. Additional or special factors of importance within New York State are described in accompanying narrative.

- |    |  |    |   |
|----|--|----|---|
| A. | Human health / environmental risk (toxicity)               | E. | Hydrogeologic sensitivity                   |
| B. | Size of the population at risk                             | F. | State findings, other findings              |
| C. | Location of the sources relative to drinking water sources | G. | Documented from mandatory reporting         |
| D. | Number / size of contaminant sources                       | H. | Geographic distribution / occurrence        |
|    |  | I. | Other criteria (Described in the narrative) |

3. Contaminants/classes of contaminants considered associated with each of the sources checked. Contaminants/contaminant classes are selected based on data indicating that certain chemicals or classes of chemicals may be originating from an identified source. Contaminants/classes of contaminants denoted by corresponding letter below (A through M).

- |    |                      |    |                                |
|----|----------------------|----|--------------------------------|
| A. | Inorganic pesticides | H. | Metals                         |
| B. | Organic pesticides   | I. | Radio-nuclides                 |
| C. | Halogenated solvents | J. | Bacteria                       |
| D. | Petroleum compounds  | K. | Protozoa                       |
| E. | Nitrate              | L. | Viruses                        |
| F. | Fluoride             | M. | Other (Described in narrative) |
| G. | Salinity/brine       |    |                                |

## Discussion of Ground Water Contamination Sources

### AGRICULTURAL ACTIVITIES

#### AGRICULTURAL CHEMICAL FACILITIES

- EPA defines agricultural chemical facilities as those having a Standard Industrial Classification (SIC) code of 3253 under the new North American Industrial Classification System (NAICS). This code refers to the manufacturing and production of fertilizers, pesticides and other miscellaneous agricultural chemicals. The latest Economic Census (2002) from the U.S. Census Bureau ([www.census.gov/econ/census02](http://www.census.gov/econ/census02)) shows 26 facilities in New York. This is further broken down to: two fertilizer manufacturing facilities, 18 fertilizer mixing only facilities, and six pesticide & other agricultural chemical manufacturing facilities.
- Level of Concern – Low
- Scope of Concern - Regional

#### ANIMAL FEEDLOTS

- CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) – Since 1999, NYS law has required Animal Feeding Operations (AFO) with animal numbers above designated values (e.g. 200 mature dairy cows, 300 beef cattle or heifers) to apply for a pollution discharge general permit from DEC. Each permit requires a Comprehensive Nutrient Management Plan (CNMP) prepared by a NRCS certified planner. Those AFOs not required to obtain a discharge permit are encouraged to participate in a voluntary assessment program and also implement a voluntary CNMP. This activity remains a concern due to the number of facilities exempt from CAFO requirements.
- Level of Concern – Intermediate
- Scope of Concern - Regional

#### DRAINAGE WELLS

- Drainage well is one example of a Class V injection well as designated by EPA's Underground Injection Control (UIC) program. Drainage wells include agricultural, storm water, or other special types of drainage wells. These wells are typically used to inject (dispose of) excess untreated surface and subsurface water. Such waters often contain contaminants that exceed New York State's water quality discharge standards. Primacy for the UIC program in NYS remains with USEPA. Storm water drainage wells are "authorized by rule," which means they may be operated without an individual permit so long as the injection does not endanger an aquifer.
- Level of Concern – Intermediate
- Scope of Concern – Regional

**FERTILIZER APPLICATIONS**

- Much of NYS remains in use for agricultural purposes. Impacts to groundwater from the use of agricultural fertilizers remains a concern largely due to their widespread use. Increasingly, there is also concern for residential lawn fertilizing whether by the homeowner or by a lawn care service. Results from DEC’s ambient groundwater monitoring program, beginning in 2002, have found relatively low detectable levels of nitrate in wells sampled (see table below). With one exception, all results were below the current MCL of 10 mg/L. (These results may not exclusively represent contributions from fertilizers).

Study Year	Study Basin (HUCs)	Wells Sampled	Nitrate > 10 mg/L*	Nitrite > 1 mg/L*	Nitrite plus Nitrate > 10 mg/L*	Nitrite plus Nitrate > 1 mg/L
2002	Mohawk R. (02020004)	23	0	0	0	8
2003	Chemung R. (02050105)	37	0	0	0	11
2004	Lake Champlain (02010001, 02010004, 02010006)	22	0	0	0	4
	U. Susquehanna R. (02050101, 02050102, 02050103)	33	1	0	1	16
2005	Delaware R. (02040101, 02040102, 02040104)	19	0	0	0	6
	St. Lawrence R. (04150301 through 04150307)	25	0	0	0	2
	Genesee R. (04130002, 04130003)	22	0	0	0	5
2006	Mohawk R. & Schoharie Ck. (02020004, 02020005)	27	0	0	0	4
	Allegheny R. (05010001, 05010002) Lk. Erie, W. Lk. Ontario & Niagara R. (04120101 – 04120104, 04130001)	33	0	0	0	7
2007	Upper Hudson (02020001 – 02020003)	25	2	0	2	6
	Finger Lks., Lk. Ontario (04140201 - 04140202, 04140101, 04140102)	35	0	0	0	8

\* The MCL for Nitrate is 10 mg/L, for Nitrite is 1 mg/L, for Nitrite plus Nitrate is 10 mg/L

- Level of Concern – Low
- Scope of Concern – Regional

**IRRIGATION PRACTICES**

- Concerns for ground water contamination related to irrigation practices potentially involve induced capture of pesticides or nutrients applied to farmlands. A combination of high ground water pumping rates in areas immediately adjacent to farmlands and excessive watering may serve to pull contaminants deeper into aquifers than would otherwise happen. The latest available USGS water use data (2000) ranks NYS 35<sup>th</sup> in the nation (including several US territories) in terms of groundwater use for irrigation. USGS

estimates 23.3 mgd of groundwater is used for irrigation in NYS compared with 11,600 mgd of groundwater for the highest irrigation use state. Overall, this activity is not believed to be a significant concern.

- Level of Concern – Low
- Scope of Concern – Regional

### **PESTICIDE APPLICATIONS**

- Pesticides, including insecticides, fungicides, herbicides, and other subcategories, remain in widespread use in agricultural, commercial, residential and other parts of society. Results from DEC's ambient groundwater monitoring program, beginning in 2002, have found detectable levels of pesticides or degradates on average in nearly one of every two wells sampled (see table below). Regionally, northern NY is below this average while the Chemung & Upper Susquehanna basins are above. All results were below current state & federal drinking water MCLs however their prevalence is worth noting. There is continuing high concern for the overuse or misuse of pesticides and the potential for groundwater contamination.

<b>Study Basin (HUCs)</b>	<b>Study Year</b>	<b>Wells Sampled</b>	<b>Wells With Detectable Pesticide Levels</b>
Mohawk R. (02020004)	2002	23	12
Chemung R. (02050105)	2003	27	16
Lake Champlain (02010001, 02010004, 02010006) U. Susquehanna R. (02050101, 02050102, 02050103)	2004	22 33	7 20
Delaware R. (02040101, 02040102, 02040104) St. Lawrence R. (04150301 through 04150307) Genesee R. (04130002, 04130003)	2005	19 25 22	10 4 12
Mohawk R. & Schoharie Ck. (02020004, 02020005) Allegheny R. (05010001, 05010002) Lk. Erie, W. Lk. Ontario & Niagara R. (04120101 – 04120104, 04130001)	2006	27 33	6 14
Upper Hudson (02020001 – 02020003) Finger Lks., Lk. Ontario (04140201 - 04140202, 04140101, 04140102)	2007	25 35	11 17

- Level of Concern – **High**
- Scope of Concern - Statewide

### ***ON-FARM AGRICULTURAL MIXING AND LOADING PROCEDURES***

- NYS's Agricultural Environmental Management (AEM) Program was enacted through state legislation in August of 2000, under the State Soil and Water Conservation Committee, to assist farmers in identifying and correcting environmental risks associated with farming. As part of the AEM program a guidance worksheet was developed in 2001 specifically dealing with Pesticide Storage, Mixing & Loading. The guidance references and incorporates standards developed by NRCS for agri-chemical mixing facilities. This information is disseminated through 58 County Soil and Water Conservation Districts representing all of NYS. This activity remains of moderate concern.
- Level of Concern – Intermediate
- Scope of Concern – Statewide

### ***LAND APPLICATION OF MANURE (UNREGULATED)***

- Land application facilities for animal manure and associated bedding material are exempt from NYS solid waste regulations. Facilities of sufficient size to be regulated as Concentrated Animal Feeding Operations (CAFOs) would however require an Agricultural Waste Management Plan (AWMP) prepared by an NRCS certified planner.
- Other wastes, not considered manure, which are also exempt from land application regulations include: food processing wastes that are visually recognizable as a part of a plant or vegetable, aquatic plants or a combination of such wastes, and leaves and/or grass. This exemption contains numerous requirements including minimizing impacts to ground water.
- Concern remains for facilities not regulated as CAFO's and possibly non-manure land application of materials containing pesticides or nutrients.
- Level of Concern – Intermediate
- Scope of Concern - Regional

## **STORAGE AND TREATMENT ACTIVITIES**

### ***LAND APPLICATION (REGULATED OR PERMITTED)***

- Land application and associated facilities for disposal of septage, nonrecognizable food processing wastes or fish hatchery waste is regulated by NYS through DEC's solid waste program.
- Level of Concern – Low
- Scope of Concern - Regional

### ***MATERIAL STOCKPILES***

- Salt storage stockpiles are dealt with as a concern elsewhere in this section.
- Mined products stockpiles are regulated by DEC. Each mining permit application requires consideration for the potential of ground water contamination from stockpiles.
- Stockpiles that may be of concern for ground water contamination include treated woods. Although the

use of CCA is no longer allowed, continuous stockpiling of other unprotected treated woods may be a concern especially at wood treatment facilities. New York's Inactive Hazardous Waste Registry currently includes a former lumber pressure treatment facility (NY Id 401046) with a hazard classification of 02, which indicates a significant threat.

- Level of Concern – Intermediate
- Scope of Concern – Statewide

### ***STORAGE TANKS (ABOVE GROUND)***

- PETROLEUM TANK REGISTRATION – Since 1986, NYS law has required owners of petroleum tanks with a combined storage capacity of more than 1,100 gallons to register as petroleum storage facilities with DEC. This law applies to both aboveground and underground tanks. Facilities must re-register every five years. Owners are subject to construction, operation, and maintenance requirements. Concern remains for aboveground tanks currently exempt from regulation.
- CHEMICAL TANK REGISTRATION – Since 1989, NYS law has required owners of any underground tank of any size or aboveground stationary storage tanks equal to or greater than 185 gallons capacity, that store a defined hazardous substance, to register each with DEC. Concern remains for aboveground tanks currently exempt from regulation.
- Level of Concern – **High**
- Scope of Concern - Statewide

### ***STORAGE TANKS (UNDERGROUND)***

- PETROLEUM TANK REGISTRATION – See PETROLEUM TANK REGISTRATION under 'STORAGE TANKS (ABOVE GROUND)'. Concern remains for underground tanks currently exempt from regulation.
- CHEMICAL TANK REGISTRATION – See CHEMICAL TANK REGISTRATION under 'STORAGE TANKS (ABOVE GROUND)'. Concern remains for underground tanks currently exempt from regulation.
- Level of Concern – **High**
- Scope of Concern - Statewide

### ***SURFACE IMPOUNDMENTS***

- DEC regulations allow water impoundments to be constructed and used during mining activities however any discharge of water to either surface or subsurface waters must meet NYS water quality standards.
- DEC regulations allow the use of surface impoundments at facilities that treat, store or dispose of hazardous waste provided they are designed, constructed and installed to prevent any migration of wastes.
- DEC regulations allow the use of surface impoundments for treatment of solid waste provided they are located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.
- DEC regulations allow the use of surface impoundments for treatment of municipal wastewater as outlined

in Recommended Standards For Wastewater Facilities<sup>2</sup>. Construction standards include the sealing of cells to prevent seepage loss. Standards also require assessment of industrial wastes for possible pretreatment prior to this method of treatment.

- DOH regulations do not allow the use of surface impoundments for individual wastewater treatment systems.

This activity is of low concern due to the amount of regulatory oversight.

- Level of Concern – Low
- Scope of Concern – Statewide

### **WASTE PILES**

- Regulations require piles of material classified as hazardous waste must be covered and bottom lined to prevent the migration of hazardous constituents.
- WASTE TIRES – Although waste tires do not pose a direct significant threat to ground water, there is increasing concern for waste tire fires and the associated toxic materials released to the environment, including ground water, during such an event. Since 1989 there have been at least 17 major waste tire fires in NYS consuming over 3 million tires. Waste tires have been regulated in NYS, as solid waste, since 1988 however there remains a concern for waste tire stockpiles.
- Level of Concern – Intermediate
- Scope of Concern - Statewide

### **WASTE TAILINGS**

- Since at least 1991 NYS regulations have required mining applications to include, among other things, the proposed location(s) and size of mineral and spoil storage areas along with existing or proposed drainage and water control features. Each application must also include proposed methods of pollution prevention. Due to the regulatory requirements involved in this activity, concern for ground water contamination is low for newer activities and high for activities that predate 1991.
- Level of Concern – Low / **High**
- Scope of Concern – Regional

## **DISPOSAL ACTIVITIES**

### **DEEP INJECTION WELLS**

- Currently there are six brine disposal wells, greater than 500 feet deep, permitted for use in five western or central NY counties (Genesee, Cayuga, Livingston, Steuben, and Allegany). Of those, four are associated with oil & gas production, two with gas storage operations, and the last with cavern construction. Rigorous

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<sup>2</sup> Recommended Standards For Wastewater Facilities, Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997

construction, operation, and closure regulations are in place for brine disposal wells. Wells less than 500 feet are not permitted for use in brine disposal.

- There are no other deep wells in NYS where a permit has been approved for disposal of untreated waste.
- Level of Concern – Low
- Scope of Concern - Regional

### **LANDFILLS**

- Landfills, including Construction & Demolition (C&D) Debris Landfills, have extensive NYS siting, design, operating and monitoring requirements. The last unlined landfill operating in New York State was closed in 2001. New, unlined landfills have not been issued permits to operate in NYS since 1988. Landfills constructed since then therefore do not pose the same threat to ground water as previous unlined facilities. Numerous older, closed landfills continue however to pose a threat to ground water. Currently, 121 former landfill sites are listed in the State Superfund Program.
- Level of Concern – **High**
- Scope of Concern - Statewide

### **SEPTIC SYSTEMS**

- Septic systems must be properly sited, designed, constructed, maintained and used in order to prevent ground water contamination. Procedures are in place at state and local levels to address the first three issues. Maintenance and use of Onsite Wastewater Treatment Systems (OWTS) usually falls to the discretion of each owner. Neglect, careless or intentional misuse of an OWTS remains a concern throughout the state.
- Level of Concern – **High**
- Scope of Concern - Statewide

### **SHALLOW INJECTION WELLS**

- Some geothermal well systems employ an ‘open loop’ design that involves return of water by way of a shallow injection well. This activity is reviewed by DEC to determine if a discharge permit is required. Where it can be demonstrated that the initial water quality meets discharge standards and nothing will be substantially added during use, the system is not required to obtain a discharge permit. The system owner is however advised of and referred to EPA’s Underground Injection Control (UIC) program. All other types of shallow injection wells are likewise referred to EPA’s UIC program.
- Level of Concern – Low
- Scope of Concern – Statewide

## OTHER ACTIVITIES

### HAZARDOUS WASTE GENERATORS

- DEC has established three categories of hazardous waste generators: New York State Conditionally Exempt Small Quantity Generators (NYCESQGs), Small Quantity Generators (SQGs), and Large Quantity Generators (LQGs). Hazardous waste generation is categorized by DEC as either aqueous, or non-aqueous hazardous waste. In 2000 an estimated 72.0 million tons of aqueous hazardous waste was generated in NYS. In the same year, 836.8 thousand tons of non-aqueous hazardous waste was generated in NYS. Although 2% of LQGs accounted for 90% of this total, a significant amount of hazardous waste is generated by the remaining regulated community as well as those not subject to regulations. Concern remains high for this activity due to the widespread occurrence of generators and the human health risks of the wastes generated.
- Level of Concern – **High**
- Scope of Concern - Statewide

### HAZARDOUS WASTE SITES

- New York State currently has (as of July 14, 2010) a list of Inactive Hazardous Waste Sites (IHWS) totaling 884. Sites are ranked from Class 1, (posing imminent danger) to Class 5 (completely remediated). DEC's website database of inactive hazardous waste sites has a breakdown as follows: Class 1 sites = 0; Class 2 sites = 523; Class 3 sites = 70; Class 4 sites = 275; Class 5 sites = 16. Class 5 sites are eventually delisted from the site registry and noted as a class C. This total includes 86 federal NPL sites.
- MANUFACTURED GAS PLANT (MGP) SITES – Currently approximately 200 sites have been identified as former MGP sites needing action. At this time it is estimated there is a total of roughly 300 former MGP sites in NYS. Manufactured gas plants operated in many cities and towns across New York, primarily during the 1850s to 1950s. The plants converted coal, or a combination of coal, oil and water, into a gas product used for lighting and heating. The potential wastes and substances of concern at former MGP sites may include coal, ash, cinders, coal tars, coal tar-related liquids and sludges, and gas purification wastes. Such materials may contain various organic and/or inorganic chemicals that are classified as hazardous substances or potentially regulated solid waste under State and Federal laws.
- Level of Concern – **High**
- Scope of Concern - Statewide

### LARGE INDUSTRIAL FACILITIES

- Large industrial facilities can pose a threat to ground water in numerous ways. Often however they involve activities for which they are regulated in some manner whether it is storage, treatment, disposal, or generation of materials and wastes. For this reason these facilities are not a high concern.
- Level of Concern – Intermediate
- Scope of Concern - Statewide

### ***MATERIAL TRANSFER OPERATIONS***

- Concerns associated with this activity center on spills, see section on *SPILLS* for discussion of concerns.
- Level of Concern – **High**
- Scope of Concern - Statewide

### ***MINING AND MINE DRAINAGE***

- NYS regulations require discharges from mining operations must meet established water quality requirements including ground water. Due to existing regulatory programs, this activity is of lower concern for ground water contamination.
- Level of Concern – Low
- Scope of Concern - Statewide

### ***PIPELINES AND SEWER LINES***

- PIPELINES - Individual product pipelines that traverse large portions of NYS generally carry natural, propane or similar gas products. One major petroleum pipeline serves the NYC/NY-NJ Harbor area (details are no longer publicly available). Due to the types of products handled or the low occurrence of petroleum pipelines traversing the state, this activity is not a significant ground water contamination concern.
- SEWER LINES – Sewer lines are found in NYS communities of all sizes. Systems are commonly operated by gravity feed or at relatively low pressure. Forced mains are also used in some areas or from collection points to treatment plants. The frequency of ground water contamination from sewer lines is believed to be low in NYS however this is difficult to confirm. The potential for contamination is higher for forced mains however any such occurrence is usually detected and corrected quickly. Generally, sewer areas are also served by public water. This greatly reduces the potential of private well contamination.
- Level of Concern – Low
- Scope of Concern - Statewide

### ***SALT STORAGE AND ROAD SALTING***

- A 1991 report from the National Research Council<sup>3</sup> suggests NYS may lead the nation in the total amount of salt used for roadway deicing with 450,000 tons used annually. A comparison of usage per road mile was not provided. To lessen the impacts of road salt the State Department of Transportation (DOT) has established recommended storage and handling procedures for its facilities including covered storage structures and, when needed, the use of temporary covering measures. Concern remains for this activity due to the amount used and its continuing impact on aquifers and at times, drinking water supplies.
- Level of Concern – Intermediate
- Scope of Concern – Statewide

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<sup>3</sup> Special Report 235; Highway Deicing, Comparing Salt and Calcium Magnesium Acetate; Transportation Research Board, National Research Council; 1991

### ***SALT WATER INTRUSION***

- Salt water intrusion has long been recognized as an important issue in the coastal New York counties of Nassau, Suffolk, Kings (Brooklyn) and Queens which are heavily dependent on ground water. Some additional concerns exist in isolated areas of the state where ground water encounters salt deposits at relatively shallow depths.
- Level of Concern – Intermediate
- Scope of Concern - Regional

### ***SPILLS***

- There were 14,639 spills reported to DEC during 2009. This compares to 15,337; 15,085; 16,784; 16,084, 15,713; 15,522; 14,915; 14,564; and 16,522 for the years 2008 - 2000 respectively. These totals reflect a wide range of volumes and materials spilled as well as the manner of spills and the resulting response. Although many spills were small, contained, or quickly cleaned up, the overall number, volume, materials involved, and their possible effect on ground water, remain a high concern.
- Level of Concern – **High**
- Scope of Concern - Statewide

### ***TRANSPORTATION OF MATERIALS***

- Risks to ground water associated with the transportation of materials are discussed in several other sections. See sections regarding *SPILLS*, *PIPELINES AND SEWER LINES*, and *MATERIAL TRANSFER OPERATIONS*.
- Level of Concern – **High**
- Scope of Concern - Statewide

### ***URBAN RUNOFF***

- Urban runoff is generated from nonporous surfaces like roads, bridges, parking lots, and buildings. Examples of urban runoff contaminants of concern include: oil; grease; toxic chemicals; nutrients; pesticides; pathogens; road salts; and heavy metals. This activity is already recognized as a significant concern to surface water quality. With increasing use of designed infiltration areas, storm water collection basins, or constructed wetlands there is concern that these vegetated areas will not be able to sufficiently treat or store runoff contaminants allowing their passage to ground water. There is additional concern for ground water contamination where natural or constructed infiltration areas are not vegetated, properly maintained, or the vegetation has been degraded from excessive pollutant loads.
- Level of Concern – Intermediate
- Scope of Concern - Statewide

### ***SMALL-SCALE MANUFACTURING AND REPAIR SHOPS***

- Small-scale manufacturing and repair shops, like large industrial facilities, can pose a threat to ground water in numerous ways. Small-scale facilities however may not be subject to the same level of regulatory

oversight. They are also less likely to have dedicated staff, programs, or advanced methods and training in the prevention of ground water pollution. There is a higher concern for this activity for these reasons as well as their higher geographic occurrence throughout the state.

- Level of Concern – **High**
- Scope of Concern - Statewide

## **OTHER SOURCES**

### ***ABANDONED OIL & GAS WELLS***

- Drilling for oil & gas in NYS has occurred since the early periods of exploration in the U.S. During much of that time proper well abandonment was not performed once wells were no longer in use. This has resulted in the improper abandonment of potentially tens of thousands of oil & gas wells from the western most regions of NYS to the eastern areas of Lake Ontario. Concern for ground water contamination involves the uncontrolled vertical migration of hydrocarbons & other associated contaminants by way of the abandoned bore hole.
- Level of Concern – **High**
- Scope of Concern – Regional

## Overview of State Ground Water Protection Programs

*Table 2: Summary of State Ground Water Protection Programs*

Programs or Activities	Check (√) <sup>(1)</sup>	Implementation Status <sup>(2)</sup>	Responsible State Agency <sup>(3)</sup>
Active SARA Title III Program	√	Fully established	NYSEMO*, NYSDEC
Ambient ground water monitoring system	√	Continuing efforts	NYSDEC, USGS
Aquifer vulnerability assessment	√	Continuing efforts	NYSDEC
Aquifer mapping	√	Continuing efforts	USGS, NYSDEC
Aquifer characterization	√	Continuing efforts	USGS, NYSDEC
Comprehensive data management system	√	Continuing efforts	NYSDEC
Ground water discharge permits	√	Fully established	NYSDEC
Ground water Best Management Practices	√	Continuing efforts	NYSDEC
Ground water legislation	√	Continuing efforts	Various agencies
Ground water classification	√	Fully established	NYSDEC
Ground water quality standards	√	Fully established	NYSDEC
Interagency coordination for ground water protection initiatives	√	Continuing efforts	NYSDEC
Nonpoint source controls	√	Continuing efforts	NYSDEC* NYSAGMKT
Pesticide State Management Program	√	Fully established	NYSDEC
Pollution Prevention Program	√	Fully established	NYSDEC
Resource Conservation and Recovery Act(RCRA) Primacy	√	Fully established	NYSDEC
Source Water Assessment Program	√	Fully established	NYSDOH*, NYSDEC
State Superfund	√	Fully established	NYSDEC
State RCRA Program incorporating more stringent requirements than RCRA Primacy	√	Fully established	NYSDEC
State septic system regulations	√	Fully established	NYSDOH*, NYSDEC

Underground storage tank installation Requirements	√	Fully established	NYSDEC
Underground Storage Tank Remediation Fund	√	Fully established	NYSOSC*, NYSDEC NYSOAG
Underground Storage Tank Permit Program	√	Fully established	NYSDEC
Underground Injection Control Program	√	Fully established	USEPA
Vulnerability assessment for drinking water/wellhead protection	√	Continuing efforts	NYSDOH*, NYSDEC
Well abandonment regulations	√	Continuing efforts	NYSDOH*, NYSDEC
Wellhead Protection Program (EPA- approved)	√	Fully established	NYSDOH*, NYSDEC
Well installation regulations	√	Fully established	NYSDOH
<b>OTHER NYS PROGRAMS OR ACTIVITIES</b>			
Freshwater Wetlands Program	√	Fully established	NYSDEC, USACE
Drinking Water State Revolving Fund (SRF)	√	Continuing efforts	NYSEFC*, NYSDOH
Clean Water State Revolving Fund (SRF)	√	Continuing efforts	NYSEFC*, NYSDEC
Clean Water/Clean Air Bond Act	√	Continuing efforts	NYSDEC

NYSDEC - New York State Department of Environmental Conservation	NYSEFC - New York State Environmental Facilities Corporation
NYSDOH – New York State Department of Health	NYSTAX – New York State Department of Taxation and Finance
NYSAGMKT - New York State Department of Agricultural & Markets	NYSGOSC - New York State Governor's Office for Small Cities
NYSEMO - New York State Emergency Management Office	USACE - United States Army Corp of Engineers
NYSOSC – New York State Office of the State Comptroller	USEPA – United States Environmental Protection Agency
NYSOAG – New York State Office of Attorney General	USGS - United States Geological Survey

Notes for Table 2

1. A check (✓) after a program or activity in Table 20 indicates existing applicable State program or activity.
2. Implementation status for each of the programs. Terms used to describe implementation status include "not applicable", "under development", "under revision", "fully established", "pending", or "continuing efforts". Implementation status of special programs or activities and the terms used are discussed in the accompanying narrative.
3. State agency, bureau, or department responsible for implementation and enforcement of the program or activity. The lead agency is indicated by an asterisk (\*) where multiple agencies are involved in the implementation and enforcement of a program or activity.

## Discussion of State Ground Water Protection Programs

**ACTIVE SARA TITLE III PROGRAM** - SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) was passed as part of the 1986 federal Superfund Amendments and Reauthorization Act (SARA). This act has four major provisions: Emergency planning; Emergency release notification; Hazardous chemical storage reporting requirements; and Toxic chemical release inventory. The NYS Emergency Management Office is the lead agency for New York's EPCRA program. One portion of SARA Title III, the TRI program, is handled by DEC. The state EPCRA requirements are fully established and active. [For further information, go to: [www.semo.state.ny.us/programs/serc](http://www.semo.state.ny.us/programs/serc) , [www.dec.ny.gov/chemical/8434.html](http://www.dec.ny.gov/chemical/8434.html) ]

**AMBIENT GROUND WATER MONITORING SYSTEM** - In 2001 DEC's Division of Water initiated a pilot ambient ground water monitoring program with the goal of establishing a continuing yearly sampling program based on the Division's Rotating Intensive Basin Study (RIBS) surface water monitoring program schedule. The pilot focused on the Mohawk River basin and was conducted as a cooperative effort with the U.S. Geological Survey (USGS). Sampling by USGS personnel occurred in 2002. The following is a chronology of activity since:

- In 2003 a similar limited effort was conducted in the Chemung River basin. A data report for the study was first developed and published.
- In 2004, a more extensive effort was conducted in the Lake Champlain and Upper Susquehanna River basins. Data reports for each area were again developed and published.
- In 2005, groundwater studies were conducted in the St. Lawrence, Delaware, and Genesee River basins. Data reports are also available from USGS for these study efforts.
- In 2006 studies were conducted in the Allegheny River, Lake Erie, Western Lake Ontario, and Mohawk River basins with data reports available through USGS.
- In 2007 studies were conducted in the Central NY - Finger Lakes and Upper Hudson River basins. Data reports have been finalized and published by USGS.
- In 2008 studies were conducted in the Lower Hudson River, Black River, and the Chemung River basins. This year's efforts completed the first full rotation of ground water sampling studies for NYS excluding Long Island. Data reports for these three basins are expected to be published in late 2010.
- In 2009 studies were again focused on the eastern Susquehanna River and Lake Champlain basins. Data and data reports are expected in 2011.
- In 2010 studies are underway for the St. Lawrence, Delaware, and Genesee River basins.

Analytical results and data reports are generally available through USGS approximately 1-2 years following completion of respective studies. Analytical results for each of these studies are available online through the USGS National Water Information System (NWIS). The Division of Water expects to continue its ambient ground water monitoring program with plans to conduct ground water sampling efforts in two or three major basins each year with the goal of fully assessing the state every five years. [For further information, go to: [www.dec.ny.gov/lands/36117.html](http://www.dec.ny.gov/lands/36117.html) , [nwis.waterdata.usgs.gov/ny/nwis/qwdata](http://nwis.waterdata.usgs.gov/ny/nwis/qwdata) ]

**AQUIFER VULNERABILITY ASSESSMENT** - Aquifer vulnerability assessment is required as part of New York's State Environmental Quality Review Act (SEQR) which became effective in November of 1978. This law requires all state and local government agencies to consider environmental impacts whenever they must approve or fund a

privately or publicly sponsored action. It also applies whenever an agency directly undertakes an action. [For further information, go to: [www.dec.ny.gov/permits/357.html](http://www.dec.ny.gov/permits/357.html) ]

**AQUIFER MAPPING** - DEC's aquifer mapping and ground water resource evaluation cooperative effort with USGS dates back to the Department's predecessor, the NYS Water Resources Commission. This effort is expected to continue with approximately one mapping effort undertaken every two years. Consideration is given to population served, resource magnitude, and growth pressures when choosing subsequent mapping efforts. [For further information, go to: [www.dec.ny.gov/lands/36118.html](http://www.dec.ny.gov/lands/36118.html) ]

**AQUIFER CHARACTERIZATION** - Aquifer characterization is accomplished in conjunction with DEC's cooperative aquifer mapping effort with USGS (see AQUIFER MAPPING section above). Typical information includes material type (i.e. sand & gravel, lacustrine, etc), potential yields, aquifer thickness, and cross sections. Aquifer characterization is expected to continue with mapping efforts of approximately one every two years.

**COMPREHENSIVE DATA MANAGEMENT SYSTEM** - Ground water data management is a challenging issue due to the numerous programs involved in groundwater data collection and use. DEC has been working both internally and with outside agencies to create a dedicated data system incorporating remedial program data, public water supply and water well reporting data along with other appropriate data. One example of this effort is the current or planned establishment of network nodes at DEC and DOH.

**GROUND WATER DISCHARGE PERMITS** - DEC has had an approved NPDES pollutant discharge permit program since 1975 and an approved General Permit program since 1992. Although the NPDES program does not require NPDES permits for discharges to ground water, DEC maintains stringent requirements as part of its permitting process for discharges greater than 1,000 gpd to ground water. Discharges to ground water of less than 1,000 gpd are generally residential systems, which are handled through state & local health departments. [For further information, go to: [www.dec.ny.gov/permits/6054.html](http://www.dec.ny.gov/permits/6054.html), <http://cfpub.epa.gov/npdes/> ]

**GROUND WATER BEST MANAGEMENT PRACTICES (BMPs)** - Ground Water Best Management Practices include methods, measures or practices suggested or selected for use in protecting ground water. They include structural and nonstructural controls, operation, or maintenance procedures. DEC has developed a catalog of management practices as part of its Nonpoint Source Management Program. The catalog includes a separate review of management practices in nine separate activities relating to:

Urban/Stormwater Runoff Agriculture Silviculture	Construction Hydrologic/Habitat Modification Road/Right-of-Way Maintenance	Leaks, Spills, Accidents Resource Extraction On-Site Waste Disposal
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Each subject, while considering more than just impacts to ground water, specifically reviews ground water concerns. Other state programs including the Agricultural Environmental Management (AEM) Program, under NYS Agriculture and Markets, have also developed worksheets which, in part, consider ground water protection. In another example NYS DOT has developed an Environmental Handbook for Transportation Operations which is intended to provide general awareness and guidance related to state DOT operations. [For further information, go to: [www.dec.ny.gov/about/859.html](http://www.dec.ny.gov/about/859.html), [www.agmkt.state.ny.us/SoilWater/aem](http://www.agmkt.state.ny.us/SoilWater/aem), [www.nysdot.gov](http://www.nysdot.gov) ]

**GROUND WATER RELATED LEGISLATION**

- SMALL BUSINESS POLLUTION PREVENTION AND ENVIRONMENTAL COMPLIANCE ASSISTANCE PROGRAM – This law took effect September 16, 2005 establishing a new Article 28 under Environmental Conservation

Law titled Pollution Prevention. Among other things this law specifically cites protection of groundwater.

- MTBE - As of January 1, 2004, NYS law prohibits gasoline products containing MTBE as an additive from being imported, sold, dispensed or offered for sale in New York State.
- BROWNFIELD / GROUNDWATER GIS – In October of 2003, the NYS Brownfield Cleanup Program (BCP) was signed into law. This legislation sets forth requirements and criteria for participation and clean-up efforts as well as tax and grant incentives plus liability limitation once a Certificate of Completion is issued.

***GROUND WATER CLASSIFICATION*** - Classification of ground water has been established through state environmental regulations since 1985. All fresh ground water in NYS is classified as GA. Class GA waters are assigned a best usage as a source of potable water supply. [For further information, go to: [www.dec.ny.gov/chemical/23853.html](http://www.dec.ny.gov/chemical/23853.html) ]

***GROUND WATER QUALITY STANDARDS*** - Regulations establishing ground water quality standards in NYS were first promulgated in 1967. These regulations continue under authority of NYS Environmental Conservation Law and are enforced by DEC. Under NYS law DEC maintains these standards as part of its charge to protect the waters of the state. These standards closely parallel but should not be confused with NYS drinking water standards maintained by NYS DOH for public water supplies. [For further information, go to: [www.dec.ny.gov/chemical/23853.html](http://www.dec.ny.gov/chemical/23853.html) ]

***INTERAGENCY COORDINATION FOR GROUND WATER PROTECTION INITIATIVES*** - Interagency coordination of ground water protection issues occurs on various levels of federal, state and local governments from staff level on up through the bureau and director levels including both short and long term committees such as the NYS Nonpoint Source Coordinating Committee, Water Quality Coordinating Committees, the NYS Soil and Water Conservation Committee, and the Source Water Protection Coordinating Committee (SWPCC). Most recently coordination between DEC, NYSDOH, and USGS has been underway concerning the development of a groundwater related data system. (See section on COMPREHENSIVE DATA MANAGEMENT SYSTEM for additional details.)

***NONPOINT SOURCE CONTROLS*** - New York's strategy for dealing with nonpoint source pollution is based on the following source control mechanisms: planning, monitoring, direct implementation, regulatory programs, financial incentives, demonstration projects, technical assistance, technical training, and outreach. This strategy is pursued at the state level through the New York Nonpoint Source Coordinating Committee (NPSCC) representing 18 federal, state, and local agencies. It is also pursued at the local level by County Water Quality Coordinating Committees (WQCCs) established through the efforts of the NYS Soil and Water Conservation Committee (NYSSWCC) and DEC. [For further information, go to: [www.dec.ny.gov/docs/water\\_pdf/npsmgt.pdf](http://www.dec.ny.gov/docs/water_pdf/npsmgt.pdf), and [www.agmkt.state.ny.us/soilwater/aem](http://www.agmkt.state.ny.us/soilwater/aem) ]

***PESTICIDE STATE MANAGEMENT PROGRAM*** - DEC is responsible for the regulation of pesticides and pesticide application reporting, providing compliance assistance, water quality monitoring for pesticides, public outreach activities and enforcement of State pesticide laws. Registration of pesticides in New York State predates DEC's creation in 1970. Products that constitute a major change in use or contain a new active ingredient undergo a thorough review prior to approved registration. Commercial application businesses are required to register with DEC with certification required for each individual who performs pesticide application. NYS has also adopted a Neighbor Notification Law that requires the posting of visual notification markers when 100 square feet or more of residential lawn application occurs. This law is in effect only when adopted at the county level. January 1, 2008, the following have "opted in": Albany, Erie, Monroe, Nassau, Rockland, Suffolk, Tompkins, Ulster, and Westchester Counties, and New York City. Lastly, a permit is required for the sale of restricted use pesticides in New York State. Pesticides are also a component of New York States' Department of Agriculture and Markets Agricultural Environmental Management (AEM) program. The voluntary, incentive-based program has developed two pesticide

management worksheets dealing with use, storage, mixing, and loading. AEM operates at state and local levels providing financial, educational and technical assistance to farmers to deal with environmental concerns. [For further information, go to: [www.dec.ny.gov/chemical/298.html](http://www.dec.ny.gov/chemical/298.html), and [www.agmkt.state.ny.us/soilwater/aem](http://www.agmkt.state.ny.us/soilwater/aem) ]

***POLLUTION PREVENTION PROGRAM*** - The Pollution Prevention Unit of DEC works to "Reduce or eliminate the use of toxic substances and the generation of pollutants at the source." This is done through technical assistance outreach and targeted prevention planning development with small & large businesses, local governments, state agencies, and the public. [For further information, go to: [www.dec.ny.gov/about/817.html](http://www.dec.ny.gov/about/817.html) ]

***RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PRIMACY*** - New York State initially received EPA interim base authorization to implement and enforce the federal RCRA-C program in July of 1982, with final base authorization granted in May of 1986. Currently, NYS has adopted 100+ percent of the federal program, including some optional rules. [For further information, go to: [www.dec.ny.gov/chemical/8477.html](http://www.dec.ny.gov/chemical/8477.html) ]

***SOURCE WATER ASSESSMENT PROGRAM*** - In NYS, the Source Water Assessment Program (SWAP) was developed and implemented by the New York State Department of Health (DOH) with input from other government agencies and private and public interest groups<sup>4</sup>. New York's SWAP was approved by EPA in November 1999. Over 9,000 public water systems maintain a total of approximately 14,000 sources of water in NYS. There are roughly 1,700 additional systems that purchase their water and were excluded from SWAP requirements. To accomplish the assessments, DOH awarded a contract to URS Corporation for upstate New York including 8,400 public water systems with 12,300 wells. An additional contract was awarded to Camp, Dresser and McKee to complete assessments for Nassau and Suffolk counties including over 500 public water systems with more than 1,500 wells. The source water assessments for the approximately 350 public supply surface water sources and springs in New York State were completed by NYSDOH. [For further information, go to: [www.health.state.ny.us/nysdoh/water/swap.htm](http://www.health.state.ny.us/nysdoh/water/swap.htm) ]

***STATE SUPERFUND*** - In NYS the Superfund program is known as the Inactive Hazardous Waste Disposal Site Remedial Program. The program seeks to identify and characterize suspected inactive hazardous waste sites and remediate those that have consequential amounts of hazardous waste which pose a significant threat to public health and the environment<sup>5</sup>. As part of the program a registry of sites is maintained with each assigned a classification based on its current stage of investigation or remediation. For a breakdown of the current list see section titled Summary of Ground Water Contamination Sources. [For further information, go to: [www.dec.ny.gov/chemical/8439.html](http://www.dec.ny.gov/chemical/8439.html) ]

***STATE RCRA PROGRAM INCORPORATING MORE STRINGENT REQUIREMENTS THAN RCRA PRIMACY*** - New York State has adopted the full federal RCRA program including some optional rules making the state program more stringent than RCRA primacy requirements, see *RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PRIMACY* above. [For further information, go to: [www.dec.ny.gov/chemical/8477.html](http://www.dec.ny.gov/chemical/8477.html) ]

***STATE SEPTIC SYSTEM REGULATIONS*** - Statewide minimum regulations for septic systems with a design capacity of 1,000 gallons per day (gpd) or less have been in place since 1967 under NYS Public Health Law regulations (NYCRR Title 10, Volume A-1a, Part 75 including Appendix 75-A). Septic systems with a design capacity of 1,000 gpd or more must be designed or approved by a licensed professional, and require a wastewater discharge permit from NYSDEC. [For further information, go to: [www.health.state.ny.us/nysdoh/water/appendix\\_75a.htm](http://www.health.state.ny.us/nysdoh/water/appendix_75a.htm) ]

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<sup>4</sup> Source Water Assessment Program Plan, NYS Dept. of Health, November 1999.

<sup>5</sup> Remedial Programs Annual Report for State Fiscal Year 2004-05, NYSDEC, Div. of Environmental Remediation, 625 Broadway, Albany, New York 12233-7010

***UNDERGROUND STORAGE TANK INSTALLATION REQUIREMENTS*** - Since 1994 DEC regulations have contained standards for the installation of new or replacement underground hazardous substance storage tanks dealing with: tank construction specifications; secondary containment; leak monitoring; installation; piping; spill/overflow prevention; vents, gauges and alarms; and tank labeling. Similar regulations have been in effect for new or replacement underground petroleum storage tanks since 1985 for facilities with a combined capacity of 1,100 gallons or more. [For further information, go to: [www.dec.ny.gov/chemical/287.html](http://www.dec.ny.gov/chemical/287.html) ]

***UNDERGROUND STORAGE TANK REMEDIATION FUND*** - This fund was established by the New York State Legislature in 1977 and is officially known as the New York Environmental Protection and Spill Compensation Fund. It is more commonly known as the (NYS) Oil Spill Fund and other times as the Leaking Underground Storage Tank Fund. The fund is used where the responsible party is unknown or unable to pay for a cleanup that is considered necessary to prevent risking public health or the environment. The fund is administered by the State Comptroller's Office. Technical guidance is provided by NYSDEC while the NYS Attorney General's Office pursues fund compensation and criminal charges as appropriate. [For further information, go to: [www.osc.state.ny.us/oilspill/index.htm](http://www.osc.state.ny.us/oilspill/index.htm) , [www.oag.state.ny.us/press/reports/oil\\_spills/oil\\_spill.html](http://www.oag.state.ny.us/press/reports/oil_spills/oil_spill.html) , [www.dec.ny.gov/chemical/8638.html](http://www.dec.ny.gov/chemical/8638.html) ]

***UNDERGROUND STORAGE TANK PERMIT PROGRAM*** - New York State has had a tank registration program since 1986. See section on *STORAGE TANKS (ABOVE GROUND)* for discussion of this item.

***UNDERGROUND INJECTION CONTROL PROGRAM*** - Currently NYS has not requested program primacy for the federal UIC program. As indicated above, NYS does maintain stringent requirements through its SPDES permitting process for discharges to ground water greater than 1,000 gpd. While this may exclude smaller facilities of concern, larger municipal & industrial ground water discharges are regulated. [For further information, go to: [www.epa.gov/safewater/uic/index.html](http://www.epa.gov/safewater/uic/index.html) ]

***VULNERABILITY ASSESSMENT FOR DRINKINGWATER/WELLHEAD PROTECTION*** - Vulnerability assessments have been undertaken for each public drinking water supply as part of the Source Water Assessment Program implemented by NYSDOH. See *SOURCE WATER ASSESSMENT PROGRAM* for additional details.

***WELL ABANDONMENT REGULATIONS*** - Abandonment of mineral resource related wells is regulated by DEC. Types of wells include oil, gas, solution mining, geothermal, and exploration. To insure proper closure of wells, DEC requires each applicant to post appropriate financial bonding. NYS DOH has established regulations for abandonment of public and private water supply wells. [For further information, go to: [www.dec.ny.gov/energy/1618.html](http://www.dec.ny.gov/energy/1618.html), [www.health.state.ny.us/environmental/water/drinking/part5/appendix5b.htm](http://www.health.state.ny.us/environmental/water/drinking/part5/appendix5b.htm) , [www.health.state.ny.us/environmental/water/drinking/part5/appendix5d.htm](http://www.health.state.ny.us/environmental/water/drinking/part5/appendix5d.htm) , [www.dec.ny.gov/lands/5000.html](http://www.dec.ny.gov/lands/5000.html) ]

***WELLHEAD PROTECTION PROGRAM (EPA-APPROVED)*** - New York State's approved wellhead protection plan was transferred from DEC to DOH at the start of the Source Water Protection Program. DEC's program was approved by EPA in 1990. Wellhead protection is handled jointly by DOH and DEC for each new public water supply well as it goes through the water supply permitting process. [For further information, go to: [www.health.state.ny.us/environmental/water/drinking/wellhead/wellfact.htm](http://www.health.state.ny.us/environmental/water/drinking/wellhead/wellfact.htm) ]

***WELL INSTALLATION REGULATIONS*** - In 1999 the NYS Well Driller Registration Law was enacted and became effective in January of 2000. One aspect of this law called for the NYS Department of Health (DOH) to establish water well construction regulations. Separate regulations have been established for both private and public water supply wells. Important aspects of the regulations include: minimum casing, grouting, and separation distances from contamination sources. [For further information, go to: [www.health.state.ny.us/environmental/water/drinking/part5/appendix5b.htm](http://www.health.state.ny.us/environmental/water/drinking/part5/appendix5b.htm), and [www.health.state.ny.us/environmental/water/drinking/part5/appendix5d.htm](http://www.health.state.ny.us/environmental/water/drinking/part5/appendix5d.htm) ]

## **OTHER NYS PROGRAMS OR ACTIVITIES**

***FRESHWATER WETLANDS PROGRAMS*** - Freshwater wetlands are an important component of ground water protection. Wetlands help break down, use and immobilize pollutants. This is particularly important where involved in recharging groundwater. New York's Freshwater Wetlands Program was established after state passage of the State Freshwater Wetlands Act in 1975. The state regulates wetlands larger than 12.4 acres including an adjacent area of 100 feet. The U.S. Army Corps of Engineers also regulates activities in wetlands of any size. [For further information, go to: [www.dec.ny.gov/lands/4937.html](http://www.dec.ny.gov/lands/4937.html) ]

***DRINKING WATER STATE REVOLVING FUND (DWSRF)*** - The Drinking Water State Revolving Fund (DWSRF) was created in 1996 as a means to provide a significant financial incentive for municipally and privately owned drinking water systems to finance needed drinking water infrastructure improvements. The DWSRF is administered jointly by the New York State Department of Health (DOH) and the New York State Environmental Facilities Corporation (EFC). [For further information, go to: [www.nysefc.org](http://www.nysefc.org) , and [www.nyhealth.gov/environmental/water/drinking/water.htm](http://www.nyhealth.gov/environmental/water/drinking/water.htm) ]

***CLEAN WATER STATE REVOLVING FUND (CWSRF)*** - The NYS Clean Water State Revolving Fund was established in 1990 to provide low-interest financing to preserve, protect, or improve water quality. Eligible projects may involve point or nonpoint sources of pollution. [For further information, go to: [www.nysefc.org](http://www.nysefc.org) ]

***CLEAN WATER/CLEAN AIR BOND ACT*** - New York's Clean Water/ Clean Air Bond Act was approved by NYS voters in November 1996 part of which provided funding for investigations and cleanup of Environmental Restoration Projects. Enhancements to the program were enacted on October 7, 2003. Projects are evaluated on, among other things, the potential for public or recreational use after the site is cleaned up. Applications have not been approved since 2008 and new applications are not being accepted due to lack of funding. [For further information, go to: [www.dec.ny.gov/chemical/8444.html](http://www.dec.ny.gov/chemical/8444.html) ]

## Summary of Ground Water Contamination Sources

### New York State Superfund Program

New York's Superfund Program maintains a Registry of Inactive Hazardous Waste Disposal Sites where a disposal of a consequential quantity of hazardous waste has occurred. The program also maintains a list of non-registry site (i. e., Brownfield Cleanup Program, Environmental Restoration Program, and Voluntary Cleanup Program sites) where remedial program work is underway. The breakdown of sites as of July 14, 2010 is shown in Table 2. For current information see [www.dec.ny.gov/chemical/8439.html](http://www.dec.ny.gov/chemical/8439.html).

<b>Table 2 - Status of Sites Currently Listed on the Registry as of July 14, 2010</b>		
<b>Registry Class</b>	<b>Class Description</b>	<b>No. of Sites</b>
Class 1	Causing or presenting an imminent danger of causing irreversible or irreparable damage to public health or environment - immediate action required	0
Class 2	Significant threat to the public health or environment - action required	523
Class 3	Does not present a significant threat to the public health or environment - action may be deferred	70
Class 4	Site properly closed - requires continued management	275
Class 5	Site properly closed - no further action required	16
	<b>Sites on Registry</b>	<b>884</b>
Class A	The classification assigned to a non-registry site in any remedial program where work is underway and not yet complete.	671
Class C	The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program.	550
	<b>Total</b>	<b>2,105</b>

### Federal Superfund Program

Some inactive hazardous waste disposal sites listed on New York's Registry are also listed on the National Priorities List (NPL). EPA is the lead agency responsible for remediating NPL sites in New York. The Department provides oversight of EPA's remedial program at NPL sites in New York. As of July 14, 2010, 90 sites in New York have been listed on the NPL. For current information see [www.epa.gov/region02/superfund](http://www.epa.gov/region02/superfund).

## Summary of Ground Water Monitoring Data

NYS established a statewide Ambient Groundwater Monitoring Program in 2002 in cooperation with the U.S. Geological Survey (USGS). The program is designed to monitor all major drainage basins in the state once every five years. As of 2008 one full rotation of monitoring has been completed for the state. Since 2003 data reports have been developed for each major basin. Below are links to each year's data report for those that have been completed and published. Analytical data is also available online at the USGS National Water Information System (NWIS) web portal (<http://waterdata.usgs.gov/nwis>).

**2003 - [Ground-Water Quality in the Chemung River Basin, New York, 2003](#)**

**2004 - [Ground-water quality in the upper Susquehanna River Basin, New York, 2004-05](#)**

**2004 - [Ground-Water Quality in the Lake Champlain Basin, New York, 2004](#)**

**2005 - [Ground-Water Quality in the Delaware River Basin, New York, 2001 and 2005-2006](#)**

**2005 - [Ground-Water Quality in the St. Lawrence River Basin, New York, 2005-06](#)**

**2005 - [Ground-Water Quality in the Genesee River Basin, New York, 2005-2006](#)**

**2006 - [Ground-Water Quality in the Mohawk River Basin, New York, 2006](#)**

**2006 - [Ground-Water Quality in Western New York, 2006](#)**

**2007 - [Ground-Water Quality in the Upper Hudson River Basin, New York, 2007](#)**

**2007 - [Groundwater Quality in Central New York, 2007](#)**