

**COMMUNITY-BASED ENVIRONMENTAL JUSTICE INVENTORY
FOR THE
CITY OF PEEKSKILL**



DECEMBER 2010

PREPARED BY

**PEEKSKILL ENVIRONMENTAL JUSTICE COUNCIL
HUDSON RIVER SLOOP CLEARWATER, INC.
CITIZENS FOR EQUAL ENVIRONMENTAL PROTECTION (CEEP)**

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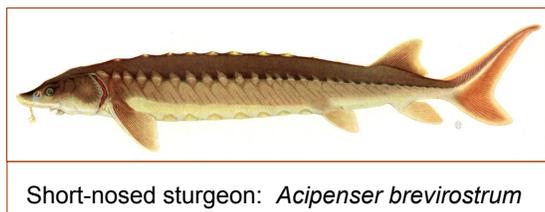
Table of Contents

Acknowledgements	4
Executive Summary	9
1. INTRODUCTION.....	13
Table 1: List of Facilities in 12.5 mi. Radius of Peekskill by Category	14
2. ENVIRONMENTAL JUSTICE	15
2.1 History of the Environmental Justice Movement.....	16
2.2 What is Environmental Justice?	17
2.3 Examples of Environmental Justice in the Hudson Valley	18
WE ACT	18
UPROSE.....	18
Sustainable South Bronx (SSBx).....	19
New York City Environmental Justice Alliance (NYCEJA)	19
W. Haywood Burns and Arbor Hill Environmental Justice Corporation (AHEJC).....	20
2.4 Environmental Justice and Human Rights	21
3. PEEKSKILL: HISTORY, DEMOGRAPHICS AND COMMUNITY CHARACTER	22
3.1 History	22
3.2 Demographics	24
Table 2. Population Figures for Peekskill and the Greater Peekskill Area.....	24
Table 3. Population Figures for Westchester and Putnam Counties.....	25
Table 4. Population by Age – 2000.....	25
Table 5. Westchester and Putnam Counties Population by Age.....	25
Table 6. Population Distribution by Race- 2000	26
Table 7. Hispanic or Latino Population- 2000.....	26
3.3 Community Character	27
3.4 Environmental and Community Assets to be Protected.....	27
4. ACTUAL AND POTENTIAL POLLUTION SOURCES	28
4.1 Air Pollution	28
Regulatory Framework.....	29
National Ambient Air Quality Standards (NAAQS) and Criteria Pollutants.....	30
Non-Attainment and Attainment Zones.....	31
4.2 Industrial Facilities in Peekskill and Adjacent Areas as Air Pollution Sources.....	31
BASF Corporation (Major Source of Air Pollution)	31
Wheelabrator Westchester L.P. (Major Source of Air Pollution).....	33
Lafarge North America, Inc.	33
4.3 Power Plants as Sources of Air Pollution.....	34
Lovett Generating Station (closed in 2008)	35
Indian Point Energy Center (IPEC).....	36
4.4 Solid Waste Storage Facilities as Air Pollution Sources	37
Construction and Demolition (C&D) Debris	38
Wheelabrator Westchester L.P.....	39
Westchester Department of Environmental Facilities - Sprout Brook Ashfill (closed in 2009)	40
Karta Corporation (closed in 2010).....	40
SW Dewatering Facility.....	41
Landfills	41

Municipal Solid Waste Landfills	41
Non-Hazardous Waste: Industrial Waste.....	42
Hazardous Waste Storage Facilities.....	43
Indian Point Energy Center.....	44
Waste Confidence Rule	45
NDL Hazardous Waste Site	47
4.5 Traffic.....	47
4.6 Environmental and Health Effects Associated with Exposure to Air Pollutants Produced by Local Sources	48
Nitrogen Oxides (NOx).....	48
Volatile Organic Compounds (VOCs).....	49
Carbon Monoxide (CO).....	53
Particulate Matter (PM).....	53
Radioactive Isotopes (Uranium-235)	54
Landfill Gas and Methane	55
5. WATER POLLUTION.....	56
5.1 Clean Water Act (CWA)	56
5.2 National Pollutant Discharge Elimination System (NPDES)	57
Pollutants	57
Point Source	58
Municipal Sources.....	58
Non-Municipal Sources.....	59
Types of Permits	60
5.3 State Pollutant Discharge Elimination System (SPDES)	60
5.4 Industrial Surface Water Pollution Sources in Peekskill and Adjacent Areas	59
Lafarge North America Inc.-Buchanan	61
Meenan Oil Company	61
Byram Concrete-Buchanan	61
Bear Mountain Bridge Maintenance Facility	61
Northern Westchester Joint Waterworks Catskill Aqueduct	62
Other Pollution Sources of Surface Water in the Peekskill Area	62
5.5 Power Plants in Peekskill and Adjacent Areas as Sources of Water Pollution	62
Indian Point Energy Center (IPEC).....	62
Lovett Generating Station (closed)	63
Buchanan Electrical Substation	64
Mirant Bowline Point Generation Station	64
Danskammer Generating Station	64
5.6 Wastewater Facilities	65
Separate Sewer System	65
Combined Sewer System Overflows	65
Peekskill Sanitary Sewer District (SD) Sewage Treatment Plant (STP)	66
Buchanan Village Sewage Treatment Plant (STP).....	66
5.7 Environmental and Health Effects Associated with Exposure to Water Pollutants Produced by Local Facilities	67
Power Plants	67
Fish Entrainment and Entrapment Refer to Fish section.....	67

Thermal Pollution	67
Wastewater Treatment Plants (WWTP)	68
Pathogens	68
Phosphorus	68
Chlorine	69
6. TOXIC RELEASE FACILITIES	70
6.1 Emergency Planning and Community Right-to-Know Act (EPCRA) and the Toxic Release Inventory (TRI) Program	70
6.2 Toxic Release Inventory Facilities in the Peekskill Area	72
Other Sources of Toxic Releases	72
6.3 Environmental and Health Effects Associated with Exposure to Toxic Release Inventory Chemicals	71
Lead	73
Hydrochloric Acid	73
Mercury	74
7. LAND USE IMPACTS	73
Stormwater Runoff	75
Other Non-Point Sources (NPS) of Pollution	75
Marinas and Boating	76
Roads, Highways and Traffic	77
Table 8. Typical pollutants found in runoff from roads and highways.	77
Brownfields	78
Corporate Drive Landfill Site	79
Croton Point Landfill	79
Peekskill Landing Site	80
8. PEEKSKILL HEALTH DATA	81
8.1 Introduction	81
8.2 Respiratory Diseases	81
Chronic Obstructive Pulmonary Disease	82
Asthma	85
8.3 Cardiovascular Diseases	88
8.4 Cancer	91
8.5 Perinatal Health	96
8.6 Lead Poisoning	99
8.7 Emerging Issues Requiring Further Research	102
Manufactured Chemicals found in the Environment (Pharmaceuticals, Industrial)	102
Diabetes	103
Body burdens on newborns	103
8.8 Conclusions	101
9. FISH AND WIDLIFE IMPACTS	102
9.1 Impacts on Fish and Other Aquatic Species	104
9.2 Fish Advisories	106
10. ANGLER SURVEY OF PEEKSKILL WATERFRONT – 2010	106
10.1 Introduction	108
10.2 Background	109
10.3 Methods	108

Table 10-1: Survey Numbers and Site Breakdown	110
10.4 Results and Discussion	111
Demographics	111
Table 10-2: Race / Ethnic Background of All Anglers Engaged & Language of Survey (Q39)	111
Table 10-3: % Residents vs. Visitors for Surveys Done Within Catchment Area	112
What brings people to the River?	112
Table 10-4: Peekskill Angler Survey - Reasons for Activity	112
Fish Consumption in regards to DEC Health Advisories '	113
Table 10-5: Fish Consumption and DEC Advisory	113
Compliance Risk	113
Table 10-6: Health Advisories 2010-2011 (NYS DOH)	112
Uses of Risk-Reducing Cooking and Cleaning Techniques	114
Awareness and Effectiveness of Health Advisories	115
10.5 Observations	116
Health Advisory Signage	116
Volunteers	116
Timing	116
Additional Language Skills Needed	116
Conscious Disregard Of Advisories	116
Broader Educational Outreach	116
Educational Outreach to Ethnic Communities	117
Survey Tool	117
Comparison with 1993 Clearwater Angler Survey Report and the 1996 ATSDR studies	117
10.6 Recommendations Related to Results	117
11. FINDINGS AND RECOMMENDATIONS	120
11.1 Findings	120
11.2 Recommendations	122
Preserving Environmental Assets and Resources	122
Farmland Protection	123
Preventing or Mitigating Pollution Impacts and Other Environmental Burdens	123
Traffic	123
Health	124
Angler Survey	124
Other	124
12. CONCLUSION	125
13. List of Attachments to Peekskill Community-Based Environmental Justice Inventory	126



Peekskill Community Based-Environmental Justice Inventory

Executive Summary

Citizens for Equal Environmental Protection of the Hudson Valley (CEEP), a community organization dedicated to securing equal environmental protection for all residents in the Lower Hudson River Valley region, partnered with Hudson River Sloop Clearwater, Inc. (Clearwater) to assess the various environmental and health impacts in the environmental justice community of Peekskill as part of a New York State Department of Environmental Conservation (NYSDEC) grant. The two organizations together with the Peekskill Environmental Justice Council collaborated to identify and research some of the most prominent sources of pollution in the City of Peekskill as well as key environmental assets, which need to be protected and equitably accessed.

The report focuses on environmental impacts in the City of Peekskill and compares health data for this city to the rest of Westchester County and to national averages. In some cases, as appropriate, the project looks at neighboring communities as well, but the focus is primarily on the City of Peekskill, which has been defined by NYS DEC as a Potential Environmental Justice Area (PEJA).

The City of Peekskill is located in the northwest corner of Westchester County in a bay on the east shore of the Hudson River, between Annsville Cove to the north and Charles Point, and Indian Point to the south. It is 4.5 square miles with a population of approximately 24,000 (Westchester County's 2005 estimated population). Approximately 50% of Peekskill is zoned for medium to high-density residential use, 2% is zoned for low-density residential use, and 5% is zoned for future planned residential developments. 10% of the City is zoned for industrial/manufacturing and warehousing and 15% is commercial. A full 20% of Peekskill land is parkland, providing City residents with a variety of recreational opportunities.

Over the course of two years CEEP and Clearwater worked with the Peekskill Environmental Justice Council (PEJC) to research multiple sources of pollution, review existing health data, and to attempt to assess if there are any disproportionate impacts on communities of color, ethnicity or low-income populations. They also administered an updated version of the 1993 Angler Survey by Clearwater to determine if people are eating the fish they catch and sharing their catch with their family or others, to understand their reasons for fishing, and to determine if they were aware of health advisories for various contaminants found in fish caught in this section of the Hudson River.

This report is the product of a labor intensive process. The Community-Based Environmental Justice Inventory (CBEJI) provides information on various sources of pollution in the study area and their potentially harmful effects on the surrounding population. Of principle concerns are the quality of air and water, and the storage, treatment and disposal conditions of wastewater, solid

waste and hazardous waste, and other sources of pollution such as stormwater runoff and brownfields.

Some key findings included in the CBEJI are an inventory of some of the prominent sources of pollution within the study area, a list of several of the pollutants released by these facilities, and health effects commonly associated with exposure to those pollutants. Some of the facilities identified by the community within specific environmental categories follow.

Air Pollution:

- Major Sources of Air Pollution include BASF Corporation, Wheelabrator Westchester L.P. and Lafarge North America
- Other sources of air pollution: Indian Point, BASF, Lovett Generating Station (closed).

These facilities emit nitrogen oxides, particulate matter, carbon monoxide, volatile organic compounds, sulfur dioxide, and many other hazardous air pollutants, such as arsenic, lead, mercury, and polychlorinated biphenyls. All of these pollutants have been proven to have a part in causing respiratory dysfunctions and cardiovascular problems in humans.

Traffic has also been identified as a major source of air pollution within the study area, disproportionately affecting the people living within close proximity to highways, railroads, or airports, which includes a large proportion of minority and low-income families. Because Routes 6 and 202 run directly through downtown Peekskill, emissions from trucks and cars idling at red lights and stop signs contribute significantly to air pollution. Engine combustion particularly impacts the concentration of benzene emission and lower-atmosphere ozone, or smog.

Water Pollution:

- Wastewater Facilities include Buchanan Village Sewage Treatment Plant, Peekskill Sanitary Sewer District Sewage Treatment Plant, Highlands Sewer Improvement Area.
- Industrial Surface Water Discharges come from Wheelabrator Westchester L.P., Westchester County EFD-Sprout Brook Ashfill, Lovett Generating Station, Lovett Solid Waste Management Facility, Lafarge North America Inc., Indian Point 1,2 and 3, Buchanan Electrical Substation, Byram Con-Buchanan, Meenan Oil Co., Northern Westchester Joint Waterworks/Catskill Aqueduct Water Treatment Facility, Mobil 06-G6J Peekskill, Arlo Lane Maintenance Facility, Bear Mountain Maintenance Facility.

Locally released cooling water from power plants contributes to thermal pollution, which can drastically change water temperature and oxygen content and have damaging effects on the metabolic and reproductive rates of the receiving water's many aquatic organisms and the overall health of the ecosystem. Wastewater treatment plants also release high levels of pathogens from inadequately treated sewage discharges, which are linked to severe disease and organ failure in humans and wildlife.

Solid and Hazardous Waste:

- Solid Waste and Hazardous Waste Facilities include Karta Transfer Station (closed), WCDEF-Sprout Brook Ashfill, Wheelabrator, SW Dewatering Facility, Indian Point Energy Center, NDL Hazardous Waste Site.

These waste storage facilities contribute to pollution by emitting contaminant materials into the surrounding air and into the groundwater or nearby surface water. Thus, they can be deemed both air pollution and water pollution sources.

Toxic Release Facilities:

- The Toxic Release Inventory identifies the following facilities: Indian Point, NDL Hazardous Waste Site, Wheelabrator, Lafarge, BASF, Lovett Generating Station (closed), Bowline Generating Station, Danskammer Generating Station, US Gypsum Corp., U.S. Camp Smith and Complementary Coatings Corp.

Any one of these facilities alone may cause minor impacts to surrounding communities, but collectively the impact is likely to be more significant due to cumulative and potentially synergist effects.

Health data that compares Peekskill to surrounding communities indicates that Peekskill has unusually high rates of asthma, including emergency room visits and hospitalizations, respiratory cancers, death due to cardiovascular disease, a high birth rate, with high incidents of low birth weight, especially in African-American babies, and the highest infant death rate in the county – all of which underscore the need for excellent programs such as the Lower Hudson Valley Perinatal Network and the Youth Fellows peer education program it sponsors. Compared to surrounding communities and Westchester County as a whole, Peekskill also has the highest rate of lead poisoning, with 77% of its housing stock built in the days when lead-based paint was widely used. These findings indicate that Peekskill has a low health status and that its population may be more vulnerable to additional exposure to pollutants in the environmental.

In addition, data gathered from the **2010 Peekskill Angler Survey** process shows that 49% of the respondents reported that obtaining food was at least one of the reasons they were fishing in the Hudson; recreation and relaxation were others. As in earlier studies fish consumption limits were exceeded, highly contaminated species were consumed, and the most vulnerable segments of the population, children and women of child-bearing age are eating fish and crabs from the Hudson either because the anglers were unaware of or disregarded health advisories. Better education and outreach, especially bilingual brochures and signage, is clearly needed.

Recommendations: More generally, the final CBEJI recommends that the Planning Board and Town Boards in Peekskill and surrounding communities consult this report whenever land use proposals arise in the study area and in the planning process. Other recommendations include:

- Advocating and allowing for the preservation and restoration of natural landscape features;
- Utilizing Green Infrastructure to reduce and manage stormwater flow and improve water quality;
- Identifying potential projects and funding;
- Pursuing specific funding opportunities to install solar panels on appropriate building and other locations in the community, including to green the South Street Industrial Park, and to promote energy efficiency and other forms of renewable energy;
- Implementing sustainable development and smart growth practices that encourage population density in developed areas, preserving open space and reducing traffic emissions;
- Finding alternative routes to alleviate downtown traffic and establishing bike lanes.
- Developing a Community Supported Agriculture farm to promote local food security and the use of organic products;
- Holding educational programs that reach out to new members of the Peekskill community, especially to the expanding Hispanic population;
- Implementing a spring Angler education program regarding Hudson River Fish Advisories; and
- Meeting with area industrial and other facilities that are sources of pollution to better understand what control measures are already in place or what more could be done to further mitigate discharges, emissions or releases that would reduce pollution burdens on the Peekskill community

The data collected in this report, the analysis undertaken and the recommendations offered can help in future planning to protect vulnerable communities from further pollution burdens and to preserve Peekskill's remaining natural resources.

1. INTRODUCTION

Low income communities and communities of color have historically been overburdened as a result of air pollution from energy-generating facilities, small stationary sources, dense traffic, and water pollution from the disproportionate siting of locally undesirable land use practices.¹ For instance, studies have found that New York City residents in high asthma hospitalization areas were almost twice as likely to be African-American or Hispanic/Latino.²

To minimize further burdening these populations it is important that decisions with the potential to affect environmental justice communities consider the environmental and health impacts various public and private actions will have on these communities. In an effort to develop more robust and effective environmental justice policies and programs it is imperative to identify areas with disproportionately high rates of poverty, unemployment, traffic, and areas with greater concentrations of polluting facilities.³ Recognizing the importance of advancing these principles, Hudson River Sloop Clearwater, Inc. (Clearwater) partnered with Citizens for Equal Environmental Protection of the Hudson Valley (CEEP) to submit an Environmental Justice Grant to NYS DEC to examine various environmental and health impacts in the Peekskill area. NYS DEC Office of Environmental Justice funded Clearwater and CEEP \$21,000 to do this research and community outreach in Peekskill, a community that has been designated as a Potential Environmental Justice Area (PEJA). (See Attachment 1: NYSDEC Office of Environmental Justice Map of Potential Environmental Justice Areas.)

The project goal was to objectively research multiple sources of pollution, review existing health data, and evaluate if there are any disproportionate impacts on communities of color, ethnicity, or low-income populations. To accomplish this team members reached out to a wide-range of community stakeholders to collaboratively identify environmental issues and potential health impacts. This group, with the help of technical advisors and using information obtained from New York State Department of Environmental Conservation, New York State Department of Health, the New York State Department of Education and other sources, identified a wide range of sources of pollution in the designated study area, including transportation impacts. To assess the potential environmental burdens created on the City of Peekskill residents, Skidmore College Professor Rik Scarce and student interns created a series of GIS maps that includes the pollution sources in the City of Peekskill and surrounding communities which were identified by Peekskill EJ Council members as related to area demographics. This list of approximately 20 facilities was narrowed down from a list of 200 sources of pollution located within a 12.5 mile radius that was provided by the Department of Environmental Conservation (see Attachment 3B-P for Skidmore GIS Maps).

¹ New York State, "Environmental Justice Issue Brief, New York State Energy Plan 2009." December 2009. www.nysenergyplan.com

² Schrager, Thomas F., Asthma and Air Pollution, Toxicology Source. 2009. www.toxicologysource.com/scitox/asthma.html; Miller, K.A., et al., Long Term-Exposure to Air Pollution and Incidence of Cardiovascular Events in Women. 365 New Eng J Med, (2007).

³ New York State, "Environmental Justice Issue Brief," op. cit.

Table 1: List of Facilities in 12.5 mi. Radius of Peekskill by Category

Facility Name	Location	Municipality (NY State)	Title V and Minor Air Polluter	Industrial Surface Water	Municipal Surface Water	Solid Waste Facility	Hazardous Waste Facility	Toxic Release
Buchanan-VS STP	6 th St- River End	Buchanan			X			
Peekskill Sanitary SD STP	Hallenbeck Road	Peekskill			X			
Highlands Sewer Improvement Area	Mine Dock Road	Highlands			X			
SW Dewatering Facility	ST RTE-9A	Buchanan				X		
Wheelabrator Westchester LP	Charles Pt. Ave.	Peekskill	X	X		X		X
Karta Transfer Station	1011 & 1017 Lower So. St	Peekskill				X		
WCDEF-Sprout Br Ashfill	5729 Albany Post Road	Cortlandt Manor		X		X		
Lovett Generating Station	37 Elm Street	Tompkins Cove	X	X				X
Lafarge North America Inc-Buchanan	350 Broadway	Buchanan	X	X				X
Indian Point Unit 1 & 2 Nuclear Power	450 Broadway	Buchanan	X	X			X	X
BASF Corp	1057 Lower So. St.	Peekskill	X					X
Indian Point Unit 3	450 Broadway	Buchanan		X			X	
NDL HW-Site	South St- W Side	Peekskill					X	
Lovett SWM Facility	Elm Ave.	Tompkins Cove		X				
Buchanan Electrical Substation	Broadway-East Side	Buchanan		X				
Byram Con-Buchanan	Albany Post Road	Buchanan		X				
Meenan Oil Co	Roa Hook Road	Cortlandt		X				
No. Westchester Join Water Works/ Catskill Aqueduct WTF	2065 East Main St.	Cortlandt Manor		X				
Mobil 06-G6J Peekskill	Rt 6 & Locust Ave	T/Cortlandt		X				
Arlo Lane Maintenance Facility	Arlo Lane	Peekskill		X				
Bear Mtn. Bridge Maintenance Facility	W. Side of Bear Mountain Bridge	Fort Montgomery		X				

To complete the environmental justice profile of the City of Peekskill, the report attempts to assess whether there are any disparate health patterns in communities of color or low income, and identify possible environmental stressors. It was already known, for example, that asthma disproportionately affects low-income communities and communities of color. Between 2003 and 2005, the age-adjusted asthma death rate among non-Hispanic Black New Yorkers and Hispanic New Yorkers was more than 4.6 times higher and 3.8 time higher, respectively, than that among non-Hispanic White New Yorkers.⁴

As part of this project, and as an attempt to further evaluate environmental and health impacts in the community of Peekskill, Clearwater and CEEP revised and administered an updated Angler Survey to fishermen and crabbers along the Peekskill waterfront and in surrounding communities⁵ (see Section 10). The data gathered during this process explores whether people are eating the fish they catch and sharing their catch with their family or others, and if they are aware of health advisories for various contaminants in fish found in this area of the Hudson River, and of potential adverse effects associated with eating fish caught in the River. This process was aided by Professor Joanna Burger, PhD, MS, of the Environmental and Occupational Health Department of Rutgers University, a major advisor for this section of the project.

This CBEJI report identifies multiple point and non-point sources of pollution, health data, and an evaluation of any disproportionate impacts on communities of color, ethnicity and low-income populations.

Most importantly, this report is the product of an iterative collaboration with an inclusive task force of community stakeholders that came to call itself the Peekskill Environmental Justice Council and other interested community members and leaders. As such it depicts Peekskill's environmental values and concerns, and recommendations for future actions, including protecting existing assets, mitigating harms, and identifying further research needed. The goal is that the CBEJI will provide valuable information that will help Peekskill in future planning to protect impacted communities from further pollution burdens or environmental degradation.

2. ENVIRONMENTAL JUSTICE

The environmental justice movement arose to address the disproportionate injustices of environmental inequity being committed against communities of color and low income. Noticing the trend of toxic wastes, landfills, and other dangers to public health being concentrated in these communities soon led to an assertion that this was a case of environmental racism. The movement helped empower small communities around the world to stand up for their right to

⁴ Department of Health. "New York State Asthma Surveillance Summary Report." 2007. www.health.state.ny.us/statistics/ny_asthma/pdf/2007_asthmasurveillance_summary_report.pdf

⁵ The Angler Survey used during this project is an updated version of the first angler survey developed by Clearwater in 1993.

equal access to a clean, healthy, and fair environment, and helped these issues gain national attention.

2.1 History of the Environmental Justice Movement

The Environmental Justice movement has its values grounded in the struggles of the 1960's Civil Rights Movement⁶, but was created into a distinct, notable movement only in recent decades. As Dr. Robert Bullard, the father of the movement, says, "(t)he struggle for environmental justice was not invented in the 1990s. People of color, individually and collectively, have waged a frontal assault against environmental injustices that predate the first Earth Day...many of these struggles, however, were not framed as 'environmental' problems- rather they were seen as addressing 'social' problems".⁷ Seen from this perspective, the environmental justice movement is a component of a much larger fight for social equality.

One great example of a defining case for the movement is the 1982 community mobilization in Warren County, North Carolina against the state government's decision to dump 6,000 truckloads of toxic PCB-laced soil into their county.⁸ Legitimately worried about a large-scale contamination of their drinking water, many individuals physically stopped the trucks from entering the dumpsite. Though the community didn't succeed in the end, the demonstration of social action for a cause of environmental equity was the first of its kind.

As the Warren County protests gained more attention nationally, interest was stimulated in what demographics were most affected by the siting and construction of hazardous waste landfills. It was only a year later in 1983 that Congress's General Accounting Office published a study that declared that three-fourths of the hazardous waste disposal sites in eight states were localized in low income, African American and Latino communities.⁸

Further solidifying the notion of environmental racism, the United Church of Christ's Commission for Racial Justice, under the leadership of Dr. Ben Chavis, published *Toxic Wastes and Race in the United States* in 1987, the first report to demonstrate the strong correlation between race and the siting of hazardous wastes. As this "Toxic Movement" evolved, the year 1990 saw an even greater solidification of many environmental justice leaders, as they drafted and signed a widely publicized letter to the "Big 10" active environmental organizations, all of which were dominated by upper class whites, accusing them of racial bias in their agendas and representation. As a result, some mainstream environmental organizations adopted environmental justice into their activism and hired several people of color.⁹

⁶ US Environmental Protection Agency. "Environmental Justice." Retrieved December 22, 2010 from www.epa.gov/environmentaljustice/basics/ejbackground.html.

⁷ Bullard, Robert D. *Confronting Environmental Racism: Voices from the Grassroots*. Boston, MA: South End, 1993. p.9.

⁸ Skelton, Renee, and Vernice Miller. "The Environmental Justice Movement." (2006). Natural Resources Defense Council. Retrieved December 22, 2010 from www.nrdc.org/ej/history/hej.asp.

⁹ *Ibid.*

The Environmental Justice Movement really spurred its growth with the 1991 First National People of Color Environmental Leadership Summit meeting in Washington D.C. This summit brought hundreds of leaders together from a variety of places to network and strategize. Out of this meeting came two keystone documents of the movement: the “Principles of Environmental Justice” (see Attachment 4) and the “Call to Action”. The movement gained more power when President Clinton appointed Dr. Chavis and Dr. Bullard to his Natural Resources transition team, where they were able to develop a strong voice and make environmental justice a top priority. Soon enough, this led to a change in federal policy. In 1994, Clinton signed an executive order that “directed federal agencies to identify and address disproportionately high adverse health or environmental effects of their policies or programs on low-income people and people of color. It also directed federal agencies to look for ways to prevent discrimination by race, color or national origin in any federally funded programs dealing with health or the environment.”¹⁰

Although many cite the Warren County incident as what ignited the movement, it is difficult to pinpoint a particular event as the sole cause. The movement grew organically out of hundreds of local struggles and events and emerged from a variety of other social movements.¹¹ The movement itself has evolved from issues seen primarily from a community perspective to issues that are of national, and even international, concern.

2.2 What is Environmental Justice?

The United States Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC)¹² define environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.¹³ Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies. Meaningful involvement means that people have an opportunity to participate in decisions about activities that may affect their environment and/or health; the public’s contribution can influence the regulatory agency’s decision; their concerns will be considered in the decision making process; and the decision makers seek out and facilitate the involvement of those potentially affected.¹⁴

¹⁰ Skelton, Renee, and Vernice Miller. 2006, *op. cit.*.

¹¹ Center for Community Action and Environmental Justice. "Environmental Justice History." Retrieved December 23, 2010 from www.ccaej.org/environmental-justice/environmental-justice-history.html.

¹² The NYSDEC adopted EPA’s definition in 2003 under its Commissioner Policy on Environmental Justice Permitting. DEC. Commissioner Policy 29, “Environmental Justice and Permitting.” 2003. www.dec.ny.gov/docs/permits_ej_operations_pdf/ejpolicy.pdf.

¹³ New York State Department of Environmental Conservation. "Environmental Justice." (2011). www.dec.ny.gov/public/333.html.

¹⁴ U.S. EPA. Basic Information about Environmental Justice. www.epa.gov/compliance/basics/ejbackground.html

More specifically, environmental justice includes the right to be free from ecological destruction, the assurance that environmental burdens will be distributed fairly and equally, and equal access to environmental goods, such as food, clean air and water, education, and recreation.¹⁵

2.3 Examples of Environmental Justice in the Hudson Valley

The need for environmental justice is widespread. As mentioned in Section 2.1, many leaders and small grassroots organizations were born out of the environmental justice movement when it started gaining national attention. These include many leaders in the New York area, who founded organizations that are now well established and contribute a valuable role in the environmental justice movement.

WE ACT

West Harlem Environmental Action (WE ACT for Environmental Justice), one of the first environmental organizations in New York State to be run by people of color, and the first environmental justice organization in New York City, was founded and incorporated by Peggy Shepard, its current executive director, in 1988 as the result of local community struggles around environmental threats and resulting health disparities created by institutionalized racism and the lack of social and political capital.¹⁶ WE ACT's goals are to improve environmental health and quality of life in communities of color by fighting against public health threats apparent in communities. This organization strives to work on the community level conducting public health research and stressing an educational approach. Through community organizing and outreach WE ACT was able to mobilize its members to file a lawsuit against the Metropolitan Transit Authority (MTA) for their plans to construct a sixth diesel bus depot in Northern Manhattan, when only one other one existed in Lower Manhattan. Working to reduce fleet emissions and improve practices and conditions in and around bus depots has been an ongoing and increasingly successful effort of WE ACT. WE ACT also addressed the North River Sewage Treatment Plant detrimental emissions, winning a \$1.1 million settlement against the City of New York in 1993. With this victory WE ACT became a leading and important voice in ensuring political accountability and sound governmental regulations in the area.¹⁷

UPROSE

Another active participant in the regional environmental justice movement is UPROSE, the United Puerto Rican Organization of Sunset Park. Currently led by executive director Elizabeth Yeampierre, "UPROSE is dedicated to the development of Southwest Brooklyn and the empowerment of its residents primarily through broad and converging environmental, sustainable development, and youth justice campaigns."¹⁸ It aims to foster community

¹⁵ *Ibid.*

¹⁶ We Act For Environmental Justice. "History of WE ACT." (2010). www.weact.org/tabid/180/Default.aspx

¹⁷ *Ibid.*

¹⁸ United Puerto Rican Organization of Sunset Park. "Welcome to UPROSE." www.uprose.org.

leadership by promoting activism around a host of environmental justice issues. Its two biggest accomplishments include securing \$1 million for community pollution reduction and organizing a coalition to halt the siting of a 520-megawatt fossil fuel power plant in Brooklyn.

Sustainable South Bronx (SSBx)

Majora Carter established Sustainable South Bronx in 2001 to advocate for the creation of new parks and green spaces and to oppose the construction of a new waste transfer station. The organization now serves to transform the South Bronx and surrounding underdeveloped areas into sustainable living spaces through policy change, community education, green job training, and community greening programs. Sustainable South Bronx was winner of the 2003 United States Department of Clean Energy's Clean Cities Program and the 2008 winner of the National Conservation Achievement Award from the National Wildlife Federation.¹⁹ One of its notable programs is the Stewardship Training Program that provides urban green collar training and placement programs, which allows communities to step out of poverty and into the expanding field of environmental sustainability and public health. Another issue for the area is the Sheridan Expressway, according to the organization, a poorly planned 1.25-mile redundant highway link, which was built by Robert Moses and has contributed to the blight, disinvestment and public health problems plaguing the South Bronx. SSBx is hoping that this short stretch of highway will be removed to reunite South Bronx neighborhoods and allow residents to access the newly restored Bronx River. The South Bronx also handles 25 percent of New York City's waste, with 15 waste transfer stations located within a one-mile radius in this community. SSBx is advocating for the redistribution of waste facilities and the elimination of long-haul diesel trucks by replacing them with more sustainable barge and rail export options.²⁰

New York City Environmental Justice Alliance (NYCEJA)

NYCEJA is an umbrella organization comprised of member groups based in low-income communities throughout New York City. Founded in 1991, NYCEJA became a 501(c) (3) corporation in 1995. It works as a city wide network that links grassroots organizations, low income neighborhoods and communities of color in their struggle for Environmental Justice. NYCEJA empowers its member organizations to fight against environmental injustice by coordinating citywide EJ campaigns and by encouraging them to coalesce around specific issues which threaten the ability of low income communities of color to thrive, by supporting the work that local community-based organizations are already doing, and by helping to replicate projects and activities that have proven successful in one or more communities. NYCEJA's board is comprised of executive directors of its member organizations, who set policy and guide program development.²¹

¹⁹ Sustainable South Bronx. "History and Mission." www.ssbx.org/index.php?link=2#history.

²⁰ Loria, Keith. "Sustainable South Bronx: Reimagining a Neighborhood." *The Cooperator*. www.cooperator.com/articles/1916/1/Sustainable-South-Bronx/Page1.html

²¹ NYCEJA. "History and Mission." www.nyceja.org/aboutus.html.

W. Haywood Burns and Arbor Hill Environmental Justice Corporation (AHEJC)

In Albany and the surrounding Capital District, the Arbor Hill Environmental Justice Corporation (AHEJC) is the voice for Environmental Justice. AHEJC was established in 1998 through a \$1.6 million federal Resource Conservation and Recovery Act (RCRA) settlement with New York State regarding pollution from the state-owned regional waste incinerator, the ANSWERS Plant. Located in a heavily populated minority neighborhood, it was described by then NY State DEC Commissioner, Thomas Jorling, as “abysmal” -- emitting the highest levels of dioxin and furans in the state: 188 times the state-of-the-art standard on dioxin of 0.10 nanograms per dry normal cubic meter, as well as the highest lead emissions. When attempts to retrofit the plant failed, it was closed permanently.²² Aaron Mair, founder and president of AHEJC and long-time Sierra Club Atlantic Chapter president, used the settlement to create two nonprofit community service organizations: AHEJC and the W. Haywood Burns Environmental Education Center, both of which are assets to the surrounding community. They actively advocate for environmental health, the rehabilitation of green spaces, and political accountability. Made up of mostly local community members, Arbor Hill EJ Corp. is a member of the White House Council on Environmental Quality.²³ Working closely with the W. Haywood Burns Environmental Education Center, much has been done to clean up the Tivoli Preserve and the Patroon Creek Watershed. Air pollution, exposure to lead, brownfields, toxic waste, pesticides, and water pollution are all areas of concern for the AHEJC, which works to educate the inner city community about pollution-related diseases and to establish links for care. It should be noted that Aaron Mair and W. Haywood Burns, former Dean of the City University of New York School of Law at Queens College and a longtime civil rights advocate for whom the Center is named, both came from Peekskill.

National Initiatives with a Focus on Climate Justice

In order to infuse an environmental justice perspective into the national dialogue on climate change, in 2008 WE ACT developed the Advancing Climate Justice initiative, which is designed to strengthen the capacity of communities of color and low income in New York City and the New York region to engage in said dialogue. WE ACT has joined with over 35 organizations from around the country to form The Environmental Justice Leadership Forum on Climate Change Leadership Council -- a national working group of environmental justice advocates who interact with identified scientists/academics and representatives of mainstream environmental groups to catalyze and inform state and federal, political and legislative action that will result in the development of just policies and mechanisms that equitably reduce carbon emissions in all communities. On a regional basis, the Northeast Regional Coalition for Climate Justice engages environmental justice advocates and allies in the Northeast to catalyze regional and federal political and legislative action. Their focus is on tracking and influencing the 10-state

²² Clarke, M. J. *Burning Garbage in the U.S.: Practice vs. State of the Art*. New York: INFORM, 1991.

²³ *Wiser Earth- The Social Network for Sustainability*. “Arbor Hill Environmental Justice Organization.” www.wiserearth.org/organization/view/9ad859b3be242f5be9a095426fb1b0a6.

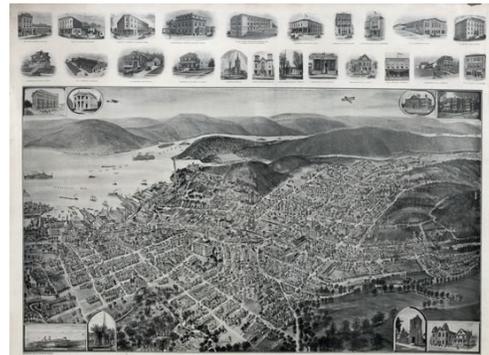
Regional Greenhouse Gas Initiative (RGGI) compact to reduce carbon emissions through a cap-and-auction system.²⁴

2.4 Environmental Justice and Human Rights

The Environmental Justice movement shares close ties with the fight for human rights. Many concepts in each movement parallel each other and possess the same core values. The Universal Declaration of Human Rights (Declaration), proclaimed in 1948 by the United Nations General Assembly, addresses the necessity to promote positive social progress and to hold all human beings to a higher standard in their obligation to show humane treatment and equitable regard for others.

In respect to environmental justice, the Declaration asserts the requirement of total equality of all people and the opportunity all should enjoy to equal access to an adequate standard of living. As such, Article 2 states that “(e)veryone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status(…)” and Article 25 declares, “(e)veryone has the right to a standard of living adequate for the health and well-being of himself and of his family(…)”²⁵ This fundamental Declaration set a new standard for conduct on an international, national, and community level. Many of its values are mirrored in subsequent declarations, including the 17 Principles of Environmental Justice.

The 17 Principles, developed during the First National People of Color Environmental Leadership Summit, have served as a defining document for the growing grassroots movement for environmental justice.²⁶ (See Attachment 4). The document takes the human rights argument and connects it wholeheartedly to a human debt to and reverence for Mother Earth. It stresses that not only should each person bear the burden of environmental wastes equally, but also that we should strive to altogether reduce the impact we have on the environment as a species. This includes the right to be free from ecological destruction and equal access to the environmental goods of clean air, land, water, and food. Most importantly, to further confirm the intimate link between environmental justice and human rights,



Aerial Image of Peekskill, 1911. Image by www.westchesterarchives.com

²⁴ We Act for Environmental Justice. “Environmental Justice Leadership Forum on Climate Change.” <http://weact.org/Coalitions/EJLeadershipForumonClimateChange/tabid/331/Default.aspx>.

²⁵ Welcome to the United Nations: It's Your World. "The Universal Declaration of Human Rights." Retrieved December 23, 2010 from www.un.org/en/documents/udhr/index.shtml.

²⁶ First National People of Color Environmental Leadership Summit held on October 24-27, 1991, Washington DC.

Principle 10 states that “(e)nviro(n)mental (j)ustice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.”²⁷

Both the definition of environmental justice, referenced in Section 2.2, and the 17 Principles emphasize the disproportionate negative environmental impacts on communities of color and low income. They call for a need to address this environmental racism by reducing and conserving our use of earth’s resources and by equally distributing the results of our uses, both beneficial and destructive, to all peoples collectively.

3. PEEKSKILL: HISTORY, DEMOGRAPHICS AND COMMUNITY CHARACTER

Peekskill is a small city located in northwestern Westchester County, covering a total area of 5.5 square miles (14.2 km²), of which, 4.3 square miles (11.2 km²) of it is land and 1.1 square miles (3.0 km²) of it (20.99%) is water.²⁸ The city is bordered by the town of Cortlandt and the Hudson River. Residents and visitors alike consider Peekskill a lively, multicultural city in the midst of a revival.

One of Peekskill’s major assets is its residents, a diverse group from all walks of life who are proactively involved in the city’s revitalization. The downtown area is attracting new, unique and high-tech businesses. In addition, the Downtown Artist District is developing and expanding live/work art lofts, and with the creation of the Hudson Valley Center for Contemporary Art and the newly renovated Paramount Center for the Arts, Peekskill has emerged as a thriving center for both fine and performing arts.²⁹

Peekskill's first legal incorporation of 1816 was reactivated in 1826 when Village elections took place. The Village was further incorporated within the Town of Cortlandt in 1849 and remained so until separating as a city in 1940.³⁰

3.1 History

European-style settlement took place slowly in the early 1700s. By the time of the American Revolution, the tiny community was an important manufacturing center from its various mills along the several creeks and streams.³¹ During 1764 Peekskill Landing was settled along the Hudson River, and the area between Annsville Creek and Dickey Brook was incorporated as a village in the Town of Cortlandt in 1816. During this period Peekskill had established itself as a busy port, transporting people, agricultural products and goods from Northern Westchester to

²⁷ First National People of Color Environmental Leadership Summit, 17 Principles of Environmental Justice, Principle 10. October 24-27, 1991, Washington DC.

²⁸ US Census Bureau, 2000.

²⁹ City of Peekskill New York. “About Peekskill.” www.cityofpeekskill.com/publicinformation/about-peekskill.

³⁰ *Ibid.*

³¹ *Ibid.*

New York City by sloop and, eventually, steamship. These industrial activities were attractive to the Continental Army in establishing its headquarters in the City in 1776.³²



Park St. AME Zion Church
www.nygeo.org/parkamezion.jpg

Peekskill played a very important role in the Underground Railroad through which slaves escaped to freedom during the 1800s. Hawley Green, a resident of Peekskill during the Civil War era, was an African American citizen who voted, ran a downtown barber business, and owned several properties with his wife Harriet. Mr. Green was credited before and during the war with "helping many a slave brother on his way to Canada."³³ Active assistance was provided by the African Methodist Episcopal Zion Church members, Reverend Henry Ward Beecher, his sister Harriet Beecher Stowe and local Quakers. Harriet Tubman and Frederick Douglass were founding members of this first A.M.E. Church in the United States. The A.M.E. Zion Church in Peekskill, Rev. Beecher's house and the "Safe House" owned by William Sands were equipped with tunnels and underground passages that provided safe passage for people fleeing slavery, many of whom came into the region on ships sailing up the Hudson for which Peekskill was their first stop.³⁴

In contrast to its positive role in the Underground Railroad, Peekskill was also the site of a series of riots in 1949 in response to two concerts by renowned African-American bass-baritone singer, athlete, actor and civil rights leader, Paul Robeson. Anti-communist riots, fueled by McCarthyism and racism, also erupted in Cortlandt Manor and several nearby towns. Clearwater's founder, Pete Seeger and his family were at Paul Robeson's side during these violent vigilante attacks.³⁵ The City of Peekskill and Westchester County have recently gone to great lengths to make amends to the survivors of the Peekskill Riots by holding a commemorative ceremony, "Remembrance and Reconciliation Ceremony, 50th anniversary commemoration of the 1949 Peekskill riots," at which an apology was made for their treatment.³⁶



Peekskill Tunnel

³² Virtual Archives, "Historical Treasures of Westchester County; City of Peekskill," *op. cit.*

³³ City of Peekskill New York, "About Peekskill." *op. cit.*

³⁴ Hudson River Valley. "Peekskill, New York-Peekskill Underground Railroad." www.hudsonrivervalley.org/library/pdfs/peekskillrailroad.pdf.

³⁵ Courtney, Steve. "Peekskill's Days of Infamy." *The Reporter Dispatch*. September 5, 1982. Web. *Ben Courtney Design*. www.bencourtney.com/peekskillriots/.

³⁶ Paul Robeson. "Paul Robeson Chronology." June 2009. http://bayarearobeson.org/Postthumous_1.htm#June%201-September%2030,%201999.

More recently, former New York Governor George Pataki was born and raised in Peekskill. His love of the Hudson River was very instrumental in assuring that the US EPA required General Electric to clean up the hotspots of PCB-contamination in the upper Hudson.

3.2 Demographics

The City of Peekskill's population as of July 1, 2009 was estimated by the U.S. Census Bureau to be 24,746. This is an increase of 10.3% since the beginning of the decade.³⁷ This has made the City of Peekskill one of the fastest growing municipalities in Westchester County during the first decade of this century. While new housing developments have contributed to the city's overall growth a growing and entrepreneurial Hispanic population has also contributed to the city.³⁸

The following population information reviews the City of Peekskill, the surrounding communities and both Westchester and Putnam Counties since 1990.

Table 2. Population Figures for Peekskill and the Greater Peekskill Area

City	1990	2000	2009	% Change 2000-09
Peekskill	19,536	22,441	24,746	10.30%
Buchanan	1,970	2,189	2,243	2.47%
Cortlandt	37,357	38,467	40,464	5.19%
Croton-on-Hudson	7,018	7,606	7,964	4.71%
Putnam Valley*	9,094	10,686	11,057	3.47%
Philipstown**	9,242	9,422	9,796	3.97%

Source: U.S. Census Bureau

* Putnam Valley's 17.5% increase between 1990 and 2000 was one of the highest rates of population increase in the Hudson Valley Region.

** Philipstown includes municipalities such as Garrison, Cold Spring, and Nelsonville

³⁷ City of Peekskill New York . "Population." www.cityofpeekskill.com/economicdevelopment/population

³⁸ *Ibid.*

Table 3. Population Figures for Westchester and Putnam Counties

County	1990	2000	Jul 1, 2009	% Change 2000-09
Westchester County	874,886	923,459	955,962	3.52%
Putnam County	83,941	95,745	99,265	3.60%

Source: U.S. Census Bureau

Annual Estimates of Resident Population for Incorporated Places in New York: April 1, 2000 to April 1, 2009.³⁹

Table 4. Population by Age – 2000

City	Total	19 and Under	% of Total	20-34	% of Total	35-54	% of Total	55- Older	% of Total
Peekskill	22,441	5,903	26%	5,225	23%	7,018	31%	4,295	19%
Buchanan	2,189	590	27%	407	19%	703	32%	489	22%
Cortlandt	38,467	10,898	28%	5,507	14%	13,429	35%	8,633	22%
Croton-on- Hudson	7,606	2,065	27%	997	13%	2,785	37%	1,759	23%
PutnamValley	10,686	3,050	29%	1,751	16%	3,919	37%	1,966	18%
Philistown	9,422	2,400	25%	1,261	13%	3,464	37%	2,297	24%

Source: U.S. Census Bureau

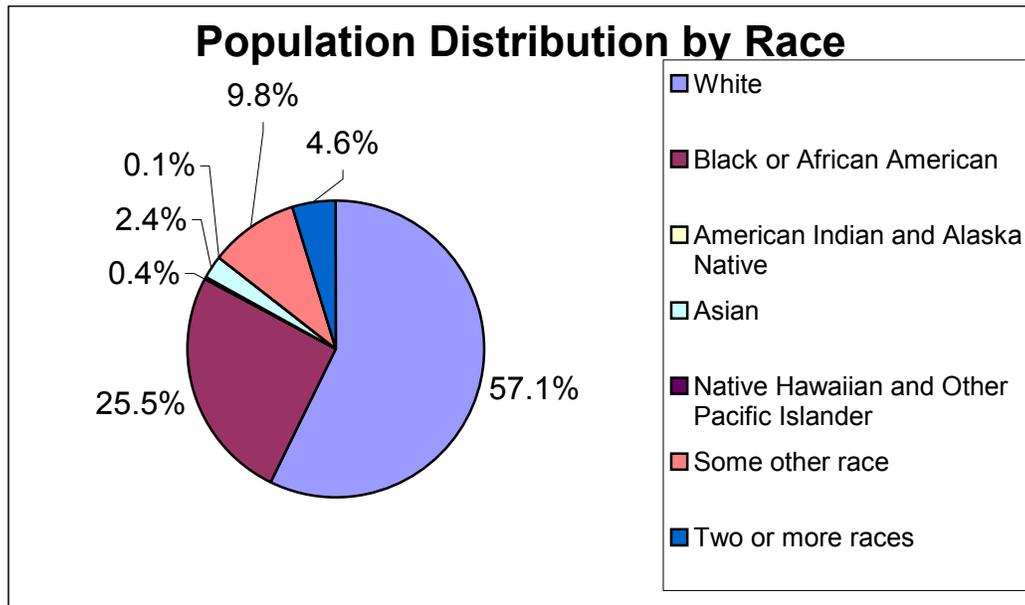
Table 5. Westchester and Putnam Counties Population by Age

County- 2006	19 and Under	20-34	35-54	55-Older	Median Age (2006)
Westchester	259,478	157,759	292,606	239,512	39.1
Putnam	26,696	16,817	33,985	23,105	39.7

Source: U.S. Census Bureau

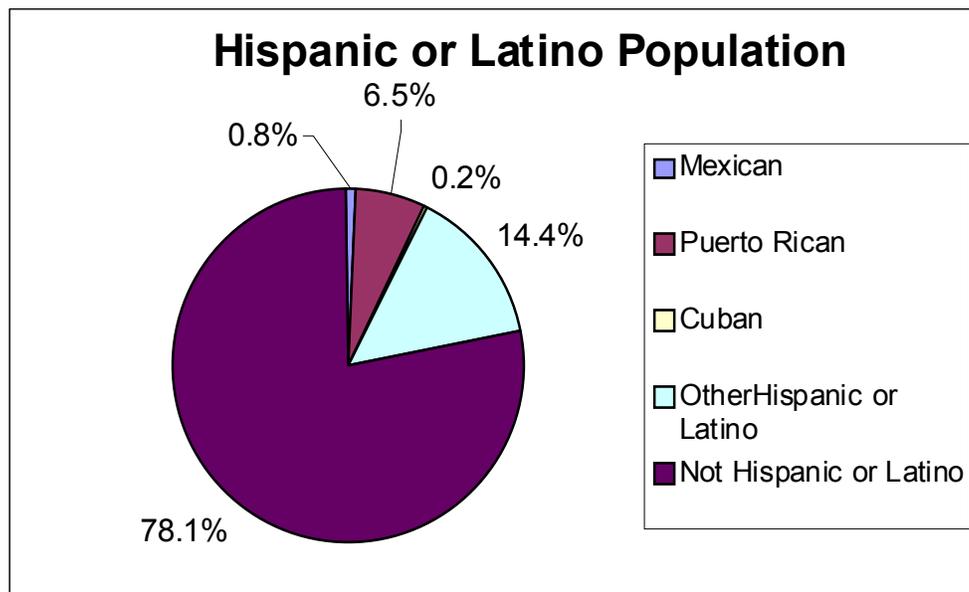
³⁹ U.S. Census Bureau, Population Division, Release September 2010.

Table 6. Population Distribution by Race- 2000



Population Distribution by Race	Number	Percent
White	12,819	57.1
Black or African American	5,732	25.5
American Indian and Alaska Native	95	0.4
Asian	535	2.4
Native Hawaiian and Other Pacific Islander	13	0.1
Some other race	2,206	9.8
Two or more races	1,041	4.6

Table 7. Hispanic or Latino Population- 2000



	Number	Percent
Total Population	22,441	100
Hispanic or Latino (of any race)	4,920	21.9
Not Hispanic or Latino	17,521	78.1

3.3 Community Character

Peekskill is a small city with a population of approximately 25,000. It has a dedicated historic district to protect its historic assets, an art district to encourage revitalization of the city, and a diverse community, with the majority of its population being African American or Latino.

The City has one of the largest inventory of Victorian homes, an urban downtown, and is home to a number of festivals each year, including the Cinco de Mayo festival, Jazz & Blues festival, Italian festival, and Caribbean Splash and the Peekskill Celebration. Peekskill was an early American industrial center, known primarily for its manufacture of the iron plow and stove products. Peekskill's manufacturing base operated well into the 20th century with the Fleischman/Standard Brands Company making yeast bi-products.

3.4 Environmental and Community Assets to be Protected

Peekskill's natural beauty, evolving community, and proximity to the Hudson River make it a valuable city to protect and take care of.

The city's environmental and community assets are integral to building community unity and maintaining the city's character. The city's emphasis on the importance of an art presence makes their newly and beautifully restored 1930 movie palace, the Paramount Center for the Arts, an extremely valuable landmark that acts as the city's central cultural hub. Also important are the other structures of its downtown historic district. However, the built features of the city would not give Peekskill the same character without the natural landscape through which they permeate.



The enchanting Charles Point provides a refuge for local families with its picturesque setting. *Photo by Cityofpeekskill.com*

The need to protect the health and cleanliness of the land, water, and air of Peekskill stems from the need to preserve the city itself. The Depew, Pugsley, Thompson, Franklin, Monument, Charles Point, and Fort Hill parks are all protected by the law, but many other green spaces and the few farmlands located throughout the city are not. However, they play a crucial role in keeping the air clean, and providing natural habitat and recreational space.

The Hollowbrook Watershed is an important resource that impacts the quality of drinking water used by the City of Peekskill. The watershed lies completely outside the boundaries of the City, in the towns of Cortlandt, Yorktown, and Putnam County. The water features within the borders of the city include McGregory Brook, Travis Brook, Annsville Creek, Lake Mitchell, the lake at Westchester County's Blue Mountain Park, the Hollowbrook, and the Hudson River. Excitingly, Peekskill has plans to restore and revitalize the waterfront area in the near future.

4. ACTUAL AND POTENTIAL POLLUTION SOURCES

The ecological future of the planet is constantly being shaped by its geophysical history by continuing forces of sun, rain, wind, water, seismics, volcanic, the carbon cycle, and the diverse biological evolution built upon them - and by humans, corporations, and governments.⁴⁰ These latter three items are very recent arrivals on the global scene and although these are relatively trivial in mass they have proved to have remarkable capacity for causing planetary effects, for good and ill, and it is upon them that this report focuses on.

4.1 Air Pollution

Air pollution comes from many different sources such as factories, power plants, dry cleaners, auto repair shops, cars, buses, trucks and even windblown dust and wildfires threatening the health of human beings, trees, lakes, crops, and animals.⁴¹ This section of the Community-Based Environmental Justice Report identifies some of the most prevalent sources of air pollution in the Peekskill area. In an attempt to depict a clear picture of some of the effects associated with the emissions these facilities release into the ambient air, it also includes a section on the air pollutants commonly associated with the identified sources and their known consequences on human health and the environment.

Although air quality issues have been the subject of public and private nuisance actions since the nineteenth century, state legislation to safeguard air quality was, until recently, rudimentary. Public concern in the 1960s over industrial air pollution and urban smog from motor vehicle exhaust became serious enough to attract the attention of Congress.⁴²

Today, air quality in most areas of New York meets standards that are much more rigorous than those of 1970. As new information on the health and environmental effects of air pollution has become available, new state and federal standards have been established and early limits tightened to protect health and environment. By requiring the use of effective pollution control technology and enforcing compliance with permit conditions, DEC's air permitting program has been a vital means of reducing emissions to meet ever more stringent standards.⁴³

⁴⁰ Plater, Abrams, et al. *Environmental Law and Policy: Nature, Law and Society*, Ch.1 Basic Themes in the Legal Process of Environmental Law, 2004 Aspen Pub., Third Ed., p. 3.

⁴¹ US Environmental Protection Agency. "Air." www.epa.gov/ebtpages/air.html.

⁴² Weinberg & Reilly. "Understanding Environmental Law". 2007. Second Ed, p 77.

⁴³ New York State Department of Environmental Conservation. "Air-NYS DEC." www.dec.ny.gov/chemical/281.html

Although national air quality has improved over the last 20 years, many challenges remain in protecting public health and the environment from air pollutants.

Regulatory Framework

For nearly four decades, state and federal governments have controlled the emission of pollutants through permits with enforceable requirements, and have measured and monitored pollution levels in the air.⁴⁴ Under the Clean Air Act (CAA) of 1970, the EPA sets limits on how much of a pollutant is allowed to be released into the air anywhere in the United States.⁴⁵ At the state level NYS DEC is the agency that carries out both the state and federal air pollution control and monitoring programs.⁴⁶

New York's air permitting program identifies and controls sources of air pollution. These sources range in size from large industrial facilities and power plants to small commercial operations, such as dry cleaners and auto repair shops. While smaller sources of air pollution are covered by NYS DEC's air source registration program, most large sources require full air pollution permits.⁴⁷

The two most common types of permit for air contamination sources described in 6 NYCRR Part 201 are: Air State facility (ASF) permits and Title V facility (ATV) permits. The first type of permits, ASF, are issued to facilities that are not considered to be major (as defined in the department's regulations), but that meet the criteria of 6 NYCRR Subpart 201-5. These are generally large facilities with the following characteristics:

- (a) actual emissions exceed 50 percent of the level that would make them major, but their potential to emit as defined in 6NYCRR Part 200 does not place them in the major category;
- (b) they require the use of permit conditions to limit emissions below thresholds that would make them subject to certain state or federal requirements;
- (c) they have been granted variances under the department's air regulations, or
- (d) they are new facilities that are subject to New Source Performance Standards (NSPS) or that emit hazardous air pollutants.⁴⁸

The second type of permit, Title V permits, are issued to facilities considered to be "major sources" under applicable law.⁴⁹ A "major source" has been construed to include any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of

⁴⁴ *Ibid.*

⁴⁵ US Environmental Protection Agency, "Air," *op. cit.*

⁴⁶ New York State Department of Environmental Conservation, "Air-NYS DEC," *op. cit.*

⁴⁷ *Ibid.*

⁴⁸ New York State Department of Environmental. "Air Facility Permits and Registrations." www.dec.ny.gov/chemical/8569.html

⁴⁹ 42 U.S.C. 7412. 2010 and 6 NYCRR Subpart 201-6.

hazardous air pollutants.⁵⁰ As per applicable law, the Administrator of the EPA may establish a lesser quantity, or in the case of radionuclides different criteria, for a major source than that specified in the previous definition, on the basis of the potency of the air pollutant, persistence, potential for bioaccumulation, other characteristics of the air pollutant, or other relevant factors.⁵¹

National Ambient Air Quality Standards (NAAQS) and Criteria Pollutants

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These commonly found air pollutants or criteria pollutants are found all over the United States. Of the six pollutants, particle pollution and ground-level ozone are the most widespread health threats.⁵² These pollutants are commonly called "criteria" air pollutants because EPA regulates them by developing human health-based and/or environmentally-based criteria, science-based guidelines, for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards.⁵³

The six criteria pollutants and some of the consequences of exposure to these pollutant identified by EPA are listed below.¹⁸

- Carbon monoxide, exposure to which reduces central nervous system function and has cardiovascular impacts;¹⁹
- Lead, which accumulates in bones, blood, and soft tissue, can have neurological, cardiovascular, autoimmune, and developmental impacts, especially in young children;²⁰
- Ground level ozone, which is smog caused from a combination of cars, industrial sites, and chemicals. Exposure to these pollutants can cause inflammation of the lungs, reduced lung function, and respiratory symptoms such as a cough, chest pain, and shortness of breath;²²
- Particulate matter, which is defined by the EPA as "a complex mixture of extremely small particles and liquid droplets,"²³ causes increased risk of mortality from heart and lung

⁵⁰ New York State Department of Environmental, "Air Facility Permits and Registrations," *op. cit.*.

⁵¹ 6 NYCRR Subpart 201-6. 2010.

⁵² The United States of America Environmental Protection Agency. "Six Common Air Pollutants." 17 Nov. 2009. www.epa.gov/air/urbanair/.

⁵³ *Ibid.*

¹⁸ *Ibid.*

¹⁹ The United States of America Environmental Protection Agency. "Six Common Air Pollutants, Carbon Monoxide Health and Environmental Impacts of CO." 17 Nov. 2009. www.epa.gov/air/urbanair/co/hlth1.html.

²⁰ The United States of America Environmental Protection Agency. "Lead in Air, Health and Environment." 17 Nov. 2009. www.epa.gov/air/lead/health.html.

²² The United States of America Environmental Protection Agency. "Ground-level Ozone, Health and Environment." 17 Nov. 2009. www.epa.gov/air/ozonepollution/health.html.

²³ The United States of America Environmental Protection Agency. "Particulate Matter." 28 Dec. 2009. www.epa.gov/oar/particlepollution/.

diseases, as well as extensive respiratory impacts and decreased lung function, particularly in children and adults with asthma;²⁴

- Nitrogen dioxide, which is associated with decreased lung function, increased respiratory symptoms or illness, and increased symptoms in children with asthma;²⁵ and
- Sulfur dioxide, which causes symptoms such as wheezing, chest tightness, or shortness of breath, and, similar to many of the previous pollutants, poses a particular threat to those with asthma.²⁶ These pollutants are known as "criteria pollutants," because the EPA uses health indicators to set their permissible atmospheric levels.²⁷

Non-Attainment and Attainment Zones

Section 107(d)1 of the CAA governs the designation process by which the Governor of each State submit to the Administrator a list of all areas, or portions thereof, in the State, to designate as non-attainment, attainment or unclassifiable. For these purposes the CAA defines a non-attainment zone as any area that does not meet or that contributes to ambient air quality in a nearby area that does not meet the national primary or secondary ambient air quality standard for the pollutant. An attainment zone is any area, other than an area identified as a non-attainment area, that meets the national primary or secondary ambient air quality standard for the pollutant. Additionally, the CAA also defines an unclassifiable zone as any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.⁵⁴

The City of Peekskill is currently in attainment for all the criteria pollutants except for Ozone for which Peekskill is in severe non-attainment.

4.2 Industrial Facilities in Peekskill and Adjacent Areas as Air Pollution Sources

BASF Corporation (Major Source of Air Pollution)

BASF Corporation (formally Engelhard Corporation) Peekskill Pigments Plant facility is located in Lower South Street, Peekskill. It operates under a Title V Permit that was issued in June 28, 2007 and will expire on June 27, 2012. This facility is subject to Title V permit requirements based on the potential to emit nitrogen oxides (NOx).⁵⁵ BASF is also characterized as a toxic release facility (see Section 6).

²⁴ The United States of America Environmental Protection Agency. "Particulate Matter, Health and Environment." 9 May 2008. www.epa.gov/air/particlepollution/health.html.

²⁵ The United States of America Environmental Protection Agency. "Nitrogen Dioxide, Health." 29 June 2009. www.epa.gov/air/nitrogenoxides/health.html.

²⁶ The United States of America Environmental Protection Agency. "Sulfur Dioxide, Health." 17 Nov. 2009. www.epa.gov/air/sulfurdioxide/health.html.

²⁷ The United States of America Environmental Protection Agency. "Six Common Air Pollutants," *Op. cit.*

⁵⁴ United States Environmental Protection Agency. "Attainment and Non-attainment areas." www.epa.gov/OCEPAterms/nterms.html

⁵⁵ New York Department of Environmental Conservation. Permit Review Report. Permit ID: 3-5512-00041/00083
Renewal Number: 1 06/29/2007

The facility consists of approximately 40 buildings located on approximately 15 acres of land in the South Street Industrial Park, parallel to the railroad and the Peekskill waterfront. BASF produces pigments consisting primarily of titanium-coated mica and iron oxide coated mica, as well as bismuth oxychloride products. According to the Permit Review Report, the mica is received from the Engelhard Hartwell, GA facility, while the chemical raw materials are received in tank truck shipments and stored in tanks located onsite. A portion of the production is used at the Buchanan Pearl Plant, to be sold for use in cosmetics, paint, and plastics markets.⁵⁶

BASF has a 300,000 gallon/day ion exchange water demineralization plant for this purpose. In manufacturing the titanium coated mica, the mica is first classified by particle size and then transferred as slurry into reaction vessels. It is then mixed with titanium chloride solution and sodium hydroxide is added to maintain the pH. The slurry is then washed and dewatered on a vacuum filter and dried in a furnace to fix the coating. The dried product is then pneumatically conveyed to tote bins to be packaged.⁵⁷

The process for the manufacturing of the iron oxide coated mica is similar to the titanium coated mica, except that ferric chloride solution is added to the mica instead of titanium chloride solution. Adding bismuth nitrate to a sodium chloride solution produces the bismuth oxychloride pigments.

BASF's Title V permit also includes Engelhard's Specialty Films Plant (IF Plant), which is located across South Street from the Peekskill Pigments Plant. The iridescent films

produced at the IF plant are layered polyester and acrylic based. Layered films are produced in sheets and wound on various width rolls. Plastic resins are predried and pneumatically conveyed, melted, and sent to an extruder where they are extruded into layered sheets, cooled on a cast roll, trimmed and rolled.

Because BASF Corp. is located in a severe non-attainment zone for ozone, it is legally required to comply with a Reasonably Available Control Technology (RACT) -- the lowest emission limit that a specific source is capable of meeting by application of control technology that is reasonably available, considering technological and economic feasibility.⁵⁸ RACT is a control strategy used to limit emissions of volatile organic compounds (VOCs) and nitrogen oxide (NOx) for the purpose of attaining the air quality standard for ozone.



Aerial Image of BASF Corp. (Photo by wikimapia.org)

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

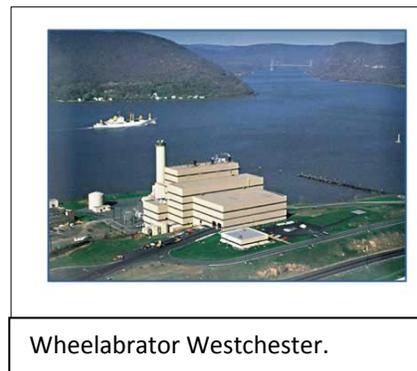
⁵⁸ 6 NYCRR Parts 212.10, 226, 227-2, 228, 229, 230, 232, 233, 234, 235, 236.

Wheelabrator Westchester L.P. (Major Source of Air Pollution)

Wheelabrator Westchester, located in the City of Peekskill, is subject to a Title V Permit that was issued in August 27, 2008 and will expire January 29, 2012.

This facility is a Municipal Solid Waste Resource Recovery facility designed, constructed, and operated by Wheelabrator to receive and burn all of Westchester County's garbage. It processes up to 2,250 tons per day of municipal solid waste. It is also characterized as a toxic release facility and contributes to industrial surface water discharges (see Sections 4.4, 5.4 and 6 for more information). Wheelabrator Westchester has an electrical generating capacity of 60,000 kilowatts, available for sale to the local utility.

The plant consists of three municipal waste combustors that generate steam which is used to produce energy. Wheelabrator is subject to Title V permit requirements based on the emission of criteria pollutants that are subject to Prevention of Significant Deterioration (PSD) Regulation and it also has potential for more than 25 tons per year (tpy) of NOx.



Some of the contaminants, most of them hazardous air pollutants (HAP), released to the ambient air by this facility are tetrachlorodibenzo-*p*-Dioxin, antimony, arsenic, ash residues, beryllium, cadmium chromium, cobalt, hydrogen fluoride, lead, manganese, mercury, polychlorinated biphenyls (PCBs), selenium, and also carbon monoxide, nickel metal and insoluble compound, oxides of nitrogen particulates, sulfur dioxide, sulfuric acid and volatile organic compounds (VOCs).

Lafarge North America, Inc.

Lafarge NA holds a Title V Permit, which was issued July 14, 2009 and will expire August 26, 2012. The facility, located in the neighboring Town of Buchanan, is in an attainment zone for all the criteria pollutants except for ozone, which is in a severe non-attainment status. Lafarge is subject to Title V requirements based on the fact that the facility is a major source of NOx and particulate matter. It also contributes to industrial surface water discharges and is characterized as a toxic release facility (see Section 5.4 and 6).



Lafarge produces bulk gypsum and wallboard. Gypsum rock is delivered to the facility by water borne vessel. Raw, reclaimed gypsum material, and synthetic gypsum material can be stockpiled or sent directly to processing. The first step in the process is the crushing of the raw, reclaimed gypsum material and synthetic gypsum to reduce the maximum rock size. The material then proceeds to the calcining mill, where the free and chemically-bound water is removed. The product of the calcining mill, called stucco, is pneumatically conveyed to the wallboard plant. Here the stucco is conveyed to the pin mixer. Depending upon the type of wallboard being produced, appropriate additives, including water, are mixed with the stucco in the pin mixer to produce a slurry. The slurry is extruded between two sheets of paper on the forming line. While traveling down the length of the forming line, the slurry hardens into wet wallboard. At the end of the forming, the wet wallboard is cut into varying lengths and is inverted to protect the face of the board during drying.⁵⁹ Finally, the boards are conveyed through the board dryer to drive off moisture and induce chemical bonding of the wallboard ingredients. The wallboard is finished with end saws and the exposed ends are sealed with tape. It is then stored on site until shipped off site.⁶⁰

According to the Permit Review Report for Lafarge some of the contaminants release by the facility are: carbon monoxide, lead, oxides of nitrogen, particulates (PM-10), sulfur dioxide, and VOCs.⁶¹

4.3 Power Plants as Sources of Air Pollution

Electricity generation is the dominant industrial source of air emissions in the United States today.⁶² Soot and smog-forming air pollution, gases that cause global warming, and mercury from power plants, seriously threaten public health and the environment.⁶³

Congress is currently considering proposals to require further reductions of emissions from power plants, including the President's Clear Skies Initiative. Renewable energy now is receiving increased attention by environmental policymakers because renewable energy technologies have significantly lower emissions than traditional power generation technologies.⁶⁴

The air emissions impacts of electricity generation vary from technology to technology, as described below.

⁵⁹ New York State Department of Environmental Conservation. "Permit Review Report." Permit ID: 3-5522-00087/00019

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² United States Environmental Protection Agency. "Clear Skies." (2010). www.epa.gov/clearskies/.

⁶³ Clean Air Network, America's Poisoned Power: Electricity & Pollution from Power Plants. www.greenlink.org/assess/pdfs/cleanairnetwork.pdf

⁶⁴ United States Environmental Protection Agency. "Clear Skies," *Op. cit.*

Fossil Fuel Power Plants

Fossil fuel-fired power plants are responsible for 67 percent of the nation's sulfur dioxide emissions, 23 percent of nitrogen oxide emissions, and 40 percent of man-made carbon dioxide emissions.⁶⁵

Lovett Generating Station (closed in 2008)

Pursuant to the New York Public Service Commission Generating Unit Retirement Order,⁶⁶ Mirant Lovett, LLC (Mirant Lovett) discontinued operations of Unit 5 at the Lovett Generating Station on April 19, 2008.

Lovett Generating Station was a coal-fired power plant owned and operated by Mirant, located in Stony Point. It had a capacity of 462 megawatts and used a once-through cooling system. It was also a toxic release facility and contributed to industrial surface water discharges. (See Sections 5.4 and 6 for more information).

Some of the contaminants released to the ambient air by this facility were sulfur dioxide, nitrogen oxides, mercury, hydrochloric acid, carbon monoxide, ammonia, PM-10, hydrogen fluoride, VOCs, benzyl chloride, acetaldehyde, isophorone, methyl chloride, NOx and fly ash, the waste product of coal combustion.⁶⁷

Burning coal is a leading cause of smog, acid rain, global warming, and air toxics. In an average year, a typical (500 MW) coal plant generates: 3,700,000 tons of carbon dioxide (CO₂), 10,000 tons of sulfur dioxide (SO₂), 500 tons of small airborne particles, 10,200 tons of NOx which leads to formation of ozone (smog) as indicated in Section 4.6, 720 tons of carbon monoxide (CO), 220 tons of hydrocarbons, volatile organic compounds (VOCs), 170 pounds of mercury, where just 1/70th of a teaspoon deposited on a 25-acre lake can make the fish unsafe to eat, 225 pounds of arsenic, which will cause cancer in one out of 100 people who drink water containing 50 parts per billion and 114 pounds of lead, 4 pounds of cadmium, other toxic heavy metals, and trace amounts of uranium.⁶⁸

Additionally, coal burned by power plants is typically stored onsite in uncovered piles. Dust blown from coal piles irritates the lungs and often settles on nearby houses and yards.⁶⁹ Rainfall

⁶⁵ *Ibid.*

⁶⁶ Case No. 05-E-0889, Proceeding on Motion of the Commission to Establish Policies and Procedures Relating Generating unit Retirements, Order Adopting Notice Requirements for Generating Unit Retirement (issued and effective December 20, 2006).

⁶⁷ Planet Hazard. "Lovett Generating Station." (2002).
www.planethazard.com/phmapone.aspx?lid=30009346&info=pollutants.

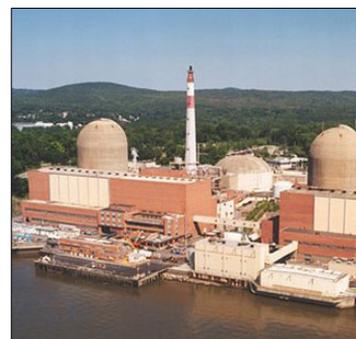
⁶⁸ Union of Concerned Citizens: Citizens and Scientists for Environmental Solutions. "Environmental impacts of coal power: Wastes Generated." www.ucsusa.org/clean_energy/coalvswind/c02d.html.

⁶⁹ Union of Concerned Scientists: Citizens and Scientists for Environmental Solutions. "Environmental Impacts of Coal Power." www.ucsusa.org/clean_energy/coalvswind/c02a.html.

creates runoff from coal piles. This runoff contains pollutants that can contaminate land and water.⁷⁰ Although a little more than half of the nation's electricity is created by burning coal, these power plants contribute 96% of the sulfur dioxide emissions, 93% of the nitrogen oxides, 88% of the carbon dioxide and 99% of the mercury emissions are from the electric industry.⁷¹

Nuclear Power Plants

A comprehensive analysis of the environmental impacts of nuclear power plants requires that the life cycle of generating nuclear power – from mining to refining, transportation and storage – be considered. This process consumes large amounts of energy derived mainly from fossil fuels, produces large amounts of CO₂, and exposes other radioactive materials (such as uranium and radon) and chemicals to the air (see Section 5.5 for information on the effects of nuclear mining on water quality).



Indian Point, a major source of thermal pollution to the Hudson River. *Photo provided by treehugger.com*

Indian Point Energy Center (IPEC)

IPEC is a three-unit nuclear power plant station located in Buchanan, just south of Peekskill. It sits on the east bank of the Hudson River, 24 miles north of New York City. The plant is owned and operated by Entergy Nuclear Northeast, a subsidiary of Entergy Corporation, and includes two operating Westinghouse pressurized water reactors – designated Indian Point 2 and Indian Point 3. The facility also contains the permanently shut down Indian Point Unit 1 reactor. In addition to being a source of air pollution, the Indian Point units are also hazardous waste facilities, contributors to industrial surface water discharge, and toxic release facilities (see Sections 4.4, 5.5, 5.7 and 6 for more information).

Indian Point Unit 1 (IP-1) (closed since 1974)

IP-1 operated commercially from August 1962 until October 1974, when the plant was shut down because the emergency core cooling system did not meet regulatory requirements.⁷² Some preliminary decommissioning work associated with spent fuel storage was performed from 1974 through 1978.⁷³ By January 1976, all spent fuel was removed from the reactor vessel, and moved into the IP-1 fuel pool. From 1976 until 2008, the spent fuel rods from IP-1 were held in the IP-1 fuel pool, which became a major source of the leakage of radioactive isotopes, including Sr-90, Cs-137 and Ni-63, into the groundwater under the plant. In 2008 the fuel rods from IP-1 were transferred to 5 casks of dry storage on site at the Indian Point Energy Center independent spent fuel storage installation, when the IP-1 fuel pool was emptied and drained in an attempt to remediate this source of the leaks.

⁷⁰ *Ibid.*

⁷¹ Clean Air Network. "Fast Facts on Power Plants." (April 2000). www.greenlink.org/assess/pdfs/cleanairnetwork.pdf.

⁷² *Ibid.*

⁷³ United States Nuclear Regulatory Commission. "Indian Point- Unit 1." (2010). www.nrc.gov/info-finder/decommissioning/power-reactor/indian-point-unit-1.html

The Nuclear Regulatory Commission (NRC) order approving SAFSTOR was issued in January 1996.⁷⁴ A Post-Shut-down Decommissioning Activities Report (PSDAR) public meeting was held on January 20, 1999. Entergy plans to decommission IP-1 with Unit 2 (IP-2), which is currently in operation and has requested an operating license extension.

In addition to being a source of air pollution, this facility is characterized, in the data provided by the NYS DEC Office of Environmental Justice, as a toxic release facility, hazardous waste facility and contributor to industrial surface water pollution (see Sections 4.4, 5.4 and 6).

Indian Point Units 2 (IP-2) and 3 (IP-3)

Indian Point Generating Station Units 2 and 3 (IP-2 and IP-3), also located in the Village of Buchanan, are now seeking a 20-year extension of its 40-year license from the U.S. Nuclear Regulatory Commission (NRC). The current NRC licenses for IP-2 and IP-3 expire in 2013 and 2015 respectively. On November 30, 2007, the State of New York, Riverkeeper and Clearwater filed petitions seeking a hearing before the NRC Atomic Safety Licensing Board (ASLB) regarding the many significant issues that this application presents. The Department of Environmental Conservation drafted the State's petition in conjunction with the NY State Attorney General's office.

Some of the issues being argued before the Board in this relicensing process are: an environmental justice evacuation contention, the risk of terrorist attack on IP's spent fuel pool, groundwater contamination by leaking radionuclids, fish impingement and entrainment, heat shock/thermal pollution and an endangered species contention. As stated by NYSDEC, for the first time, issues as critical as these to the future of the Hudson Valley and to the millions who live in the region, are being addressed in an open and comprehensive public process.⁷⁵ For more detailed information about these proceedings See Section 5.5.

IP-2 is also a hazardous waste and toxic release facility and contributes to industrial surface pollution (see Sections 4.4, 5.4 and 6). IP-3 is considered a hazardous waste facility and discharges into surface water (see Sections 4.4 and 5.4).

4.4 Solid Waste Storage Facilities as Air Pollution Sources

The pervasiveness of the many problems associated with waste handling and disposal, and the drastic consequences of historic indifference to the connections between chemical waste, environmental contamination, and public health, prompted unprecedented federal intervention during the 1970's and 1980's into what formerly had been controlled by local authorities.

⁷⁴ The NRC defines SAFSTOR as a method of decommissioning in which a nuclear facility is placed and maintained in a condition that allows the facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use. United States Nuclear Regulatory Commission, Glossary. www.nrc.gov/reading-rm/basic-ref/glossary/safstor.html.

⁷⁵ NYS DEC Position on Indian Point Relicensing www.dec.ny.gov/permits/40237.html

However, while Congress has provided the regulatory superstructure governing the handling and disposal of wastes, the implementation of federal programs often remains the responsibility of state and local governments. The two main federal solid waste statutes, the Resource Conservation Recovery Act (RCRA)⁷⁶ and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA),⁷⁷ designate significant authority to qualifying states. These two statutes do not preempt state law.⁷⁸

The term solid waste is very broadly construed in RCRA. The criteria for what are considered to be solid wastes under RCRA, and hence for determining which solid disposal facilities and practices may pose adverse effects on health and the environment are set forth in 40 C.F.R. Part 257. Except as specifically excluded, solid waste is defined to include any garbage, refuse, sludge from a waste treatment plant, waste from a water supply treatment plant, and waste from air pollution control facility.⁷⁹

“Solid” waste is not always solid. It may be dissolved. It also includes other “discarded material”, including solid, liquid, semi-solid, or contained gaseous material” from industrial, commercial, mining, and agricultural operations.⁸⁰ Industrial solid waste can be generated by industrial or manufacturing processes, but the term excludes mining waste or oil or gas waste.⁸¹

Under applicable regulations a material is considered to have been discarded if it is abandoned by being: disposed of; burned or incinerated, including being burned as a fuel for the purpose of recovering usable energy; or accumulated, stored or physically, chemically or biologically treated (other than burned or incinerated) instead of being disposed of.

A material is disposed of if it is: discharged, deposited, injected, dumped, spilled, leaked or placed into or on any land or water so that such material or any constituent thereof may enter the environment or be emitted into the air or discharged into groundwater or surface water.⁸²

Construction and Demolition (C&D) Debris

According to NYS DEC regulations, construction and demolition debris mean uncontaminated solid waste resulting from the construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated solid waste resulting from land clearing.⁸³ Such waste includes, but is not limited to bricks, concrete and other masonry materials, soil, rock, wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation, roofing shingles and

⁷⁶ 42 U.S.C. Sections 6901-6992k.

⁷⁷ 42 U.S.C. Sections 9601-9675.

⁷⁸ 42 U.S.C. Section 9614 (CERCLA); 42 U.S.C. Sections 6926, 6929 (RCRA).

⁷⁹ 42 U.S.C. Section 6903(27).

⁸⁰ See 42 U.S.C. Section 6903(27); 40 C.F.R. Section 257.2.

⁸¹ 40 C.F.R. Section 258.2.

⁸² New York State Department of Environmental Conservation. “What is Solid Waste.” www.dec.ny.gov/chemical/8732.html.

⁸³ *Ibid.*

other roof coverings, asphaltic pavement, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above.⁸⁴

Solid waste that is not C&D debris (even if resulting from the construction, remodeling, repair and demolition of utilities, structures and roads and land clearing) includes, but is not limited to asbestos waste, garbage, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, carpeting, furniture, appliances, tires, drums, containers greater than ten gallons in size, any containers having more than one inch of residue remaining on the bottom and fuel tanks.⁸⁵

Specifically excluded from the definition of construction and demolition debris is solid waste (including what otherwise would be construction and demolition debris) resulting from any processing technique, other than that employed at a department-approved C&D debris processing facility, that renders individual waste components unrecognizable, such as pulverizing or shredding.⁸⁶

Wheelabrator Westchester L.P.

In addition to requiring a Title V permit, the Wheelabrator Westchester, L.P is characterized as a toxic release facility and contributes to surface water pollution (see Sections 4.2 and 6).

The facility began operations in 1984 and was retrofitted with updated emissions control equipment in 1998 and 1999. The facility can process up to 2,250 tons per day of municipal solid waste, using three mass burn municipal waste combustors (MWCs). Each of the three MWCs are designed for a maximum heat input of 325 MMBtu/hr. The hot gasses produced by the combustion process pass through a waterwall boiler with a maximum continuous rating of 192,100 pounds per hour of steam at 900 psig/830 degrees F. The steam is piped to a steam turbine generator to produce electrical power for distribution to the local electrical grid. The three MWC trains combined produce a nominal 60 megawatts of electrical power.



Wheelabrator located in Peekskill. Photo by Wheelabrator.

Each of the MWC process trains has dedicated emission control equipment, continuous emissions monitors and a separate stack flue. Each unit is equipped with a spray dryer absorber, fabric filter, selective non-catalytic reduction system and powdered activated carbon

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

injection system for air emissions control. The three stack flues are contained within a single 195 foot tall stack.⁸⁷

Westchester Department of Environmental Facilities - Sprout Brook Ashfill (closed in 2009)

The 38-acre Sprout Brook ashfill facility, located in Cortland, is owned by Westchester County and was the sole disposal facility for the ash generated by the County's Wheelabrator Westchester L.P., which serves the waste disposal needs of a large portion of Westchester County. The ashfill was first permitted in 1983.

On October 22, 2009, the ash pit accepted the final load of ash from Wheelabrator in Peekskill. This marked the end of a nearly thirty-year contract that enabled Westchester County to dump millions of tons of the charred remnants of the County's solid waste in the Town of Cortlandt. Even after it closed, WCDEF-Sprout Brook Ashfill contributes to industrial surface water discharges as well as being considered a solid waste facility (see Section 5.4).

Karta Corporation (closed in 2010)

Karta Corporation ("Karta"), located on South Street in the City of Peekskill, was authorized to accept up to 500 tons per day (tpd) of mixed municipal waste and Construction & Demolition (C&D) Debris at its transfer station, and, as a registered recycling facility, to accept and process an average of 2,000 cubic yards of source separated recyclables, 2,000 cubic yards of uncontaminated and unadulterated wood, and 2,000 cubic yards of recognizable uncontaminated concrete, asphalt pavement, brick, soil or rock.⁸⁸



Karta Corporation in the Peekskill Industrial Park, recycled many tons of materials annually and provided employment to many residents of Peekskill and surrounding communities, however their failure to comply with protective regulations led to their closure. *Photo by <http://ncnlocal.com>*

On August 10, 2010 Karta's May 3, 2006, permit was revoked. Due to a significant and persistent history of noncompliance with the NYS DEC provisions, it was ordered that the facility be emptied of remaining waste, scrap, or recyclables, and the facility's gates be secured to prevent further access to the facility.

In this proceeding, it was adjudged that Karta had committed over 4,500 violations at its Peekskill facility during the period from May 3, 2006 through April 2, 2009, including violations of various provisions of the NYS Department of Environmental Conservation solid waste management regulations (6 NYCRR Part 360), of the May 3, 2006 permit, and a 2006 consent

⁸⁷ ECL permit

⁸⁸ New York State Department of Environmental Conservation, DEC Permit No. 3-5512-00054/00004.

order. The violations consisted, among others, in persistent failure to control waste, litter, dust, odors, leachate and vector-breeding areas at the facility.

SW Dewatering Facility

SW Dewatering Facility operates as a septage/sludge dewatering plant and transfer station within an existing industrial building located in the Village of Buchanan. The facility can process up to 30,000 gallons per day of filtrate, which is then discharged to the Village of Buchanan wastewater treatment plant. Sludge dewatering is typically the final step for industrial wastewater treatment processes and plants. After pH adjustment, the addition of wastewater chemicals, liquid solids separation or a biological treatment, the remaining sludge is high in water content, which can be reclaimed through sludge dewatering.

Residual solids are contained within specifically designed, closed roll-off containers, which, when full, are transported off-site to an authorized solid waste disposal facility.

Landfills

Although Westchester County uses mass burn incineration instead of landfills to dispose of municipal waste, and most of its landfills were closed in the 1990's when the RESCO plant was built, it is still worthwhile to understand the potential impacts of these facilities and what the current regulations are. Modern landfills are well-engineered facilities that are located, designed, operated, and monitored to ensure compliance with federal regulations. Solid waste landfills must be designed to protect the environment from contaminants which may be present in the solid waste stream.⁸⁹ The landfill siting plan, which prevents the placement of landfills in environmentally-sensitive area, and on-site environmental monitoring systems, which monitor for any sign of groundwater contamination and for landfill gas, provide additional safeguards. In addition, many new landfills collect potentially harmful landfill gas emissions and convert the gas into energy.⁹⁰

Municipal Solid Waste Landfills

Municipal solid waste landfills (MSWLFs) receive household waste. MSWLFs can also receive non-hazardous sludge, industrial solid waste, and construction and demolition debris. All MSWLFs must comply with the federal regulations in 40 CFR Part 258 (Subtitle D of RCRA), or equivalent state regulations. Some of the federal MSWLF standards include:

- Location restrictions — ensure that landfills are built in suitable geological areas away from faults, wetlands, flood plains, or other restricted areas.

⁸⁹ U.S. Environmental Protection Agency. "Landfills." (2010). www.epa.gov/osw/nonhaz/municipal/landfill.htm.

⁹⁰ *Ibid.*

- Composite liners requirements — include a flexible membrane (geomembrane) overlaying two feet of compacted clay soil lining the bottom and sides of the landfill, protect groundwater and the underlying soil from leachate releases.
- Leachate collection and removal systems — sit on top of the composite liner and remove leachate from the landfill for treatment and disposal.
- Operating practices — include compacting and covering waste frequently with several inches of soil to help reduce odor; control litter, insects, and rodents; and protect public health.
- Groundwater monitoring requirements — requires testing groundwater wells to determine whether waste materials have escaped from the landfill.
- Closure and postclosure care requirements — include covering landfills and providing long-term care of closed landfills.
- Corrective action provisions — control and clean up landfill releases and achieves groundwater protection standards.
- Financial assurance — provides funding for environmental protection during and after landfill closure.⁹¹

Additionally, 6NYCRR Part 360 consists of New York State’s Solid Waste Management Regulations. Part 306 is the regulatory framework by which the State sets design standards and operational criteria for all solid waste management facilities.⁹²

Some materials may be banned from disposal in municipal solid waste landfills including common household items such as paints, cleaners/chemicals, motor oil, batteries, and pesticides. These household hazardous wastes, if mishandled, can be dangerous to health and the environment. Many municipalities hold periodic household hazardous waste collections for these materials.⁹³

These landfills can also receive household appliances that are no longer needed. Many of these appliances, such as refrigerators or window air conditioners, rely on ozone-depleting refrigerants, such as chlorofluorocarbons (CFCs) and their substitutes. MSWLFs have to follow federal disposal procedures for household appliances that use refrigerants to assure that these chemicals are properly evacuated and disposed of, and the remaining appliance can then be recycled as scrap metal.⁹⁴

Non-Hazardous Waste: Industrial Waste

Commercial, institutional, and industrial waste is often a significant portion of municipal solid waste, even in small cities and suburbs. In contrast to most residential waste, commercial material is usually collected by the private sector, and municipalities have been slower to target

⁹¹ United States Environmental Protection Agency. Municipal Solid Waste. 2010. www.epa.gov/osw/nonhaz/municipal/landfill.htm.

⁹² NYS Dept. Of Environmental Conservation. “Comprehensive Revisions and Enhancements to Title 6 NYCRR Part 360 Regulations.” www.dec.ny.gov/regulations/8753.html.

⁹³ New York State Department of Environmental Conservation. “Municipal Waste Landfills in New York State.” www.dec.ny.gov/chemical/23682.html

⁹⁴ *Ibid.*

this waste stream for recovery.⁹⁵ EPA has developed several topical websites that can help communities effectively manage their commercial and industrial waste and successfully meet high waste recovery goals.⁹⁶

Hazardous Waste Storage Facilities

Hazardous wastes are a category of solid wastes and are regulated by RCRA. Therefore, for a waste to be considered a hazardous waste it must first meet the definition of solid waste. The difficulty lies in determining exactly what is a hazardous waste. A “waste”, which actually may be solid, liquid or gaseous, is hazardous if “it may cause or contribute to an increase in mortality or an increase in serious reversible illness”, or “pose(s) a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.”⁹⁷

EPA specifically lists numerous wastes as being hazardous, automatically bringing them within RCRA regulation.⁹⁸ An unlisted waste can also be a hazardous waste if it has certain characteristics. A federal agency can delegate the implementation of a regulatory program, such as the hazardous waste management program, to a state through an authorization process.⁹⁹ This means that the state will run the program and enforce the regulations on behalf of the federal agency.

A waste must be listed as hazardous if it is any of the following:

- Ignitable, with a flash point lower than 140 degrees Fahrenheit;¹⁰⁰
- Corrosive, with a pH of 2.0 or less, or 12.5 or greater;¹⁰¹
- Reactive, meaning chemically unstable, likely to detonate if heated or when introduced to water, or, when mixed with water, produces toxic emissions;¹⁰²
- Characteristically toxic;¹⁰³ or
- Contains constituents known to have toxic, carcinogenic, mutagenic, or teratogenic effects.¹⁰⁴

If a nonhazardous solid waste is mixed with a listed hazardous waste, the resulting compound is hazardous regardless of the relative quantity of the hazardous constituents. This is designed to prevent a new, unlisted, chemical compound, formed out of hazardous constituents, from evading regulation by using the expedient of also incorporating nonhazardous constituents.¹⁰⁵

⁹⁵ U.S. Environmental Protection Agency. “Wastes- Non-Hazardous Waste- Industrial Waste.” (2010). www.epa.gov/osw/nonhaz/industrial/index.htm.

⁹⁶ *Ibid.*

⁹⁷ 42 U.S.C. Section 6903(5)

⁹⁸ See 40 CFR Part 261, Subpart D.

⁹⁹ NYS Department of Environmental Conservation. “Hazardous Waste Management.”

www.dec.ny.gov/chemical/8486.html.

¹⁰⁰ 40 CFR Section 261.21

¹⁰¹ 40 CFR Section 261.22

¹⁰² 40 CFR Section 261.23

¹⁰³ 40 CFR Section 261.24

¹⁰⁴ The listed toxic constituents are included in 40 CFR Part 261. See 40 C.F.R. Section 261.11(a)(3).

¹⁰⁵ 57 Fed. Reg, 7628.

For hazardous waste management, NYS DEC is authorized to implement this regulatory program. DEC issues the permits, conducts inspections, signs consent orders, and gathers and processes data. DEC must document to the EPA that the State laws and regulations are at least as stringent as federal laws and regulations. In addition, DEC must show that the program structure is in place to effectively manage the program. When major regulatory changes occur, DEC must then submit an updated application to the EPA to update or add program areas for authorization.¹⁰⁶

Through Part 373 permits, the Division of Solid & Hazardous Materials (Division) ensures that environmentally protective design and operational standards are maintained at treatment, storage and disposal facilities (TSDFs).¹⁰⁷ As a part of this permit program, it is the responsibility of the Division to review permit applications and prepare permits for all facilities. A facility involved in the storage or treatment of hazardous waste receives an operating permit.

Categories of Hazardous Waste Generators:

A hazardous waste generator is any person or site whose processes and actions create hazardous waste subject to 40 CFR 260.10.¹⁰⁸ Generators are divided into three categories based upon the quantity of waste they produce:

- A Large Quantity Generator generates 1,000 kilograms of hazardous waste or more per month, or more than 1 kg per month of acutely hazardous waste.
- A Small Quantity Generator generates more than 100 kg, but less than 1,000 kg of hazardous waste per month.
- A Conditionally Exempt Small Quantity Generator (CESQG) generates 100 kilograms or less per month of hazardous waste, or 1 kg or less per month of acutely hazardous waste, or less than 100 kg per month of acute spill residue or soil.

Household Hazardous Waste (HHW) is generated by a residential household and is exempt from Hazardous Waste regulations.¹⁰⁹

Indian Point Energy Center

Indian Point has one of the largest quantities of irradiated (or “spent”) fuel in the northeast of the United States. The facility generates and stores ignitable and mixed hazardous and radioactive waste on site. On February 28, 1997, NYSDEC issued a Hazardous Waste Management Permit for the storage of mixed radiological and hazardous waste to this facility.¹¹⁰

¹⁰⁶ *Ibid.*

¹⁰⁷ *Ibid.*

¹⁰⁸ U.S. EPA. “Hazardous Waste Generators.” www.epa.gov/osw/hazard/generation/index.htm.

¹⁰⁹ 40 CFR 260.10. 2010.

¹¹⁰ U.S. Environmental Protection Agency. “Indian Point- Unit 2.” (2010). www.epa.gov/region2/waste/fsindian2.htm.

Soils in a limited area of the site contain the heavy metals arsenic, selenium, and thallium in concentrations exceeding New York state soil cleanup guidelines. Groundwater in a limited area under the site contains the heavy metals selenium and thallium in concentrations exceeding New York state standards.¹¹¹ On February 7, 2008, Entergy submitted the RCRA facility investigation report documenting the soil and groundwater sampling results. The sampling results revealed the presence of some heavy metal contamination in on-site soils and groundwater. As a result, additional testing was required by NYSDEC to fully characterize the extent of contamination.¹¹²

On-Site Storage of Nuclear Waste: Approximately 1,500 tons of spent fuel is currently stored in densely packed pools at Indian Point. No containment structures exist over the spent fuel pools, which are vulnerable to a loss-of-coolant scenario; mock attack drills reveal accessibility to and vulnerability of spent fuel buildings. Two of the spent fuel pools at Indian Point (IP-1 and IP-2) have been leaking radioactive materials for an undetermined length of time.¹¹³ Entergy and the NRC have not been able to adequately identify the source of the leaks, determine the extent of the leaks, or develop a realistic plan to stop them.¹¹⁴ As mentioned above, fuel rods from IP-1 have recently been removed to on-site dry cask storage, but fuel rods remain densely packed in IP-2 fuel pool and in IP-3 as well.

Waste Confidence Rule

In October 1979, the Nuclear Regulatory Commission initiated a rulemaking process, known as the Waste Confidence proceeding, to assess: 1) its degree of assurance that radioactive wastes produced by nuclear power plants can be safely disposed of; 2) to determine when such disposal or offsite storage will be available, and 3) to determine whether radioactive wastes can be safely stored onsite past the expiration of existing facility licenses until offsite disposal or storage is available. This became known as the Waste Confidence Rule, and it provides generic findings relevant to environmental analyses related to power reactor licensing.¹¹⁵

Thirty years ago the designers of commercial nuclear reactor sites, like Indian Point, assumed that spent fuel, a highly radioactive form of nuclear waste, would only remain on-site for approximately five years, to allow the radioactivity in the waste to decay sufficiently to allow it to be transported off-site to another facility for reprocessing or disposal. Since 2002, the U.S. has generated approximately 12,000 metric tons of additional spent fuel bringing the total accumulated waste at reactor sites to 54,000 metric tons of spent fuel. This is far greater than was imagined when commercial nuclear reactors were constructed.

However, reprocessing of this waste in the United States never occurred in any appreciable quantity and ceased altogether in the 1970s. The replacement for reprocessing was supposed

¹¹¹ U.S. Environmental Protection Agency. "Indian Point- Unit 2," *Op. cit.*

¹¹² *Ibid.*

¹¹³ Source: Riverkeeper.

¹¹⁴ *Ibid.*

¹¹⁵ United States Regulatory Commission. "Waste Confidence and Waste Challenges: Managing Radioactive Materials". www.nrc.gov/reading-rm/doc-collections/commission/speeches/2008/s-08-008/html.

to be a long term repository for nuclear waste, but that has been repeatedly delayed. Most recently, the administration has taken actions that make it unlikely that the planned repository at Yucca Mountain will ever open. Instead, the Department of Energy (“DOE”) intends to convene a panel of experts to review all long term options. By default, in the absence of a central disposal facility, waste has accumulated at reactor sites like Indian Point, turning those sites into nuclear waste storage facilities in addition to nuclear waste producers.

The nation still continues to grapple with how to dispose of nuclear waste. Meanwhile any waste generated during a period of extended operation would continue to accumulate at Indian Point and there are no identified acceptable disposal alternatives. On September 24, 2009, the Commission decided not to amend the Waste Confidence Rule to find generically that a centralized waste disposal facility for spent fuel will be available 50-60 years after the current licenses for nuclear power stations expire because it did not have an adequate basis for making that prediction. Specifically, the current waste confidence rule states that a central waste repository will open within 30 years after power generation at reactors ceases. The Staff proposed amending the waste confidence rule to lengthen the time at which the off-site disposal will become available 50 to 60 years after power generation ceases: However, two of the three NRC Commissioners refused to vote to enact this new rule, because of the current uncertainty about the nation's approach to long term spent fuel disposal created by the administration's ongoing re-examination of how to move forward on this issue.¹¹⁶

The U.S. nuclear waste disposal dilemma is now being extensively reevaluated once more by all the stakeholders. The federal policy toward Yucca Mountain has changed markedly under Obama administration, which has determined that Yucca Mountain is not the best option for disposing of waste and has publicly stated that, as of 2011, the White House will no longer provide funds in the budget for Yucca Mountain.¹¹⁷

Over the past 60 years, an effort to develop a policy for disposal of spent fuel has taken many twists and turns, but the reality of nuclear waste disposal has not changed. Spent fuel will be stored on-site for at least the period of the proposed license renewal. At first the spent fuel was stored in low density pools, however because this waste has accumulated, pools are now tightly and densely packed with spent fuel. Many reactor spent fuel pools, including those at Indian Point, have reached capacity and now some of the spent fuel waste from 45 reactors, including Indian Point Units 2 and 3, is being moved to on-site dry casks storage, as well as in high density spent fuel pools.¹¹⁸ An evaluation of the impacts of long-term on-site storage of nuclear waste at Indian Point on human health or the environment has not yet been done.

¹¹⁶ Nuclear Regulatory Commission. “Consideration of Environmental Impacts of Temporary Storage of Spent Fuel after Cessation of Reactor Operation.” 2009. www.nrc.gov/reading-rm/doc-collections/commission/secys/2009/secy2009-0090/enclosure-2.pdf

¹¹⁷ Elaine Hiruo, *Global Power Report* “White House will not seek funds in 2011 budget for nuclear waste repository at Yucca Mountain.” August 6, 2009.

¹¹⁸ Entergy, IPEC Newsletter. www.safesecurevital.org/pdf/IPNewsletter071609.pdf, last revised October 26, 2009.

NDL Hazardous Waste Site

NDL Organization, Inc. operates a hazardous waste storage facility in the City of Peekskill under a Part 373 permit.¹¹⁹ NDL's facility is located on Lower South Street in Peekskill. NDL is a privately owned commercial interim waste storage facility. The Facility services hospitals, medical centers, research laboratories, universities, industrial facilities, and private laboratories for the disposal of radioactive waste and scintillation media waste. The Facility provides for a sealed concrete floor area for vial/drum container storage with a total storage capacity of 1,800 gallons, and a bermed area for bulk liquid container storage with a storage capacity of 1,200 gallons.

4.5 Traffic

Cars, buses and trucks are a big source of air pollution. When their engines burn petroleum-based fuels (gasoline or diesel), they produce large amounts of chemicals that are emitted in engine exhaust. In addition, some of the gasoline used by engines vaporizes into the air without having burned, and this also creates pollution.¹²⁰

Approximately 16% of U.S. housing units are located within 300 ft of a major highway, railroad, or airport (approximately 48 million people). This population likely includes a higher proportion of non-white and economically-disadvantaged people.¹²¹

The following are some of the main pollutants produced by road traffic: nitrogen oxides, carbon monoxide, volatile organic compounds (VOCs), fine PM and ground level ozone. Exposure to these contaminants may cause adverse impacts to humans and the environment (see Section 4.6).

One issue that has been identified by community members as a priority is vehicle idling. For example, trucks have been identified in numerous occasions idling for long periods of time in front of the Wheelabrator facility while waiting to unload (see picture above). Diesel exhaust particulate matter (PM) is a toxic air contaminant. Diesel engines contribute to fine particulate matter (PM 2.5) air quality problems. Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems.¹²² Residents of Peekskill have also been critical of the aesthetic and safety issues caused by the volume of truck traffic passing through their neighborhoods.



Truck idling waiting to unload in Wheelabrator. *Photo by MJ Wilson*

¹¹⁹ Part 373 permit of Title 6 of the New York Compilation of Codes, Rules and Regulations

¹²⁰ Health Canada. "The Health Effects of Traffic-Related Air Pollution." www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/traf-eng.php#th.

¹²¹ U.S. Environmental Protection Agency. "Nitrogen Dioxide: Health." (2010).

www.epa.gov/air/nitrogenoxides/health.html.

¹²² Air Quality Department. "Consequences of Diesel Idling"

www.maricopa.gov/air/aq/divisions/compliance/air/Diesel_Idling/ConsequencesOfDieselIdling.aspx

The City of Peekskill Planning Board has worked on a traffic study that assesses some of Peekskill most important traffic issues.¹²³ In 2002 a study, entitled “*The Bear Mountain Parkway Sustainable Development Study: Draft Bear Mountain Parkway Truck Analysis Report*”, was released. The purpose of the traffic study was to perform a detailed analysis of current and future truck traffic volumes in downtown Peekskill and on the Bear Mountain Parkway (BMP) should trucks be permitted to use the BMP 24 hours per day. The data for this report was collected in 2001 and it included an analysis of future years; 2007 and 2017. Under current regulations, truck traffic is only permitted on the BMP overnight from 7 PM to 7 AM.

Main routes into the City are U.S. Route 6, U.S. Route 9, U.S. Route 202/N.Y. Route 35, and the BMP. The Bear Mountain Parkway is an undivided, limited-access parkway that forms an east-west bypass to the north of downtown Peekskill. It extends from the Jans Peek Bride and U.S. Route 9 in the west to U.S. Route 202/N.Y. Route 35/Crompond Road in the east. It varies between one and two travel lanes in each direction. There are several traffic signals, with no turning lanes provided. The posted speed limit is 50 mph.

The Study shows that allowing trucks to use the Bear Mountain Parkway 24 hours per day would result in a large degree of truck traffic being diverted from downtown Peekskill to the BMP. Twenty-four-hour, bi-directional truck traffic on Main Street would decline by 60.4 percent. Because current regulations permit trucks on the BMP during overnight hours, the entire shift in truck traffic would be expected to take place during daytime hours. This percentage change represents 1,002 trucks being shifted away the City center. In 2007 and 2017, this number rises to 1,325 and 1,797, respectively. There were no changes at other survey locations.

4.6 Environmental and Health Effects Associated with Exposure to Air Pollutants Produced by Local Sources

This section of the report identifies some of the air pollutants released to the ambient air by the facilities listed earlier in Section 4. It also identifies some of the environmental and health effects commonly associated with the selected contaminants.

Nitrogen Oxides (NO_x)

These chemicals are produced by industrial processes and vehicle engines. When engines burn fuel, the nitrogen present in the air and nitrogen compounds found in fossil fuels produce NO_x. Nitrogen oxides can irritate airways, especially lungs.

NO_x react with ammonia, moisture, and other compounds to form small particles. These small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death.¹²⁴ Nitrogen dioxide (NO₂), one of

¹²³ Edwards and Kelcey. “Bear Mountain Parkway Sustainable Development Study Draft Bear Mountain Parkway Truck Analysis Report”. October 2002. Prepared for the New York State Department of Transportation.

¹²⁴ *Ibid.*

several highly reactive nitrogen oxides,¹²⁵ is a reddish-brown toxic gas that has a characteristic sharp, biting odor and is a prominent air pollutant.

While EPA's National Ambient Air Quality Standard (see Section 4.2) covers this entire group of NO_x, NO₂ is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO₂ forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO₂ is linked with a number of adverse effects on the respiratory system.¹²⁶

NO₂ concentrations in vehicles and near roadways are appreciably higher than those measured at monitors in the current network. In-vehicle concentrations can be 2-3 times higher than measured at nearby area-wide monitors.¹²⁷

Near-roadway (within about 50 meters) concentrations of NO₂ have been measured to be approximately 30 to 100% higher than concentrations away from roadways. Individuals who spend time on or near major roadways can experience short-term NO₂ exposures considerably higher than measured by the current network.¹²⁸

Current scientific evidence links short-term NO₂ exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO₂ concentrations, and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma.¹²⁹

Emissions that lead to the formation of NO₂ generally also lead to the formation of other NO_x. Emissions control measures leading to reductions in NO₂ can generally be expected to reduce population exposures to all gaseous NO_x. This may have the important co-benefit of reducing the formation of ozone and fine particles both of which pose significant public health threats.¹³⁰ (See Ozone and PM environmental and health effects below)

Volatile Organic Compounds (VOCs)

VOCs are emitted as gases from certain solids or liquids. These are a large group of organic chemicals that include any volatile compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) and that participate in atmospheric photochemical reactions.¹³¹ VOCs are of particular interest to regulators in part because they contribute to ozone formation.

¹²⁵ Other nitrogen oxides include nitrous acid and nitric acid.

¹²⁶ U.S. Environmental Protection Agency. "Nitrogen Dioxide." www.epa.gov/air/nitrogenoxides/.

¹²⁷ U.S. Environmental Protection Agency. "Nitrogen Dioxide: Health," *op. cit.*.

¹²⁸ *Ibid.*

¹²⁹ *Ibid.*

¹³⁰ *Ibid.*

¹³¹ U.S. Environmental Protection Agency. "Report on the Environment: Volatile Organic Compounds Emission." <http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&lv=list.listByAlpha&r=209842&subtop=341>.

As shown in previous sections VOCs are produced by a myriad of sources, including motor vehicles, chemical manufacturing facilities, refineries, factories, consumer and commercial products, and natural (biogenic) sources (mainly trees). One of the most common VOCs released into the ambient air is benzene. Benzene is an air toxic emitted from gasoline service stations, motor vehicle exhaust and fuel evaporation, the burning of coal and oil, and various other sources.¹³² Urban areas generally have higher ambient air concentrations of benzene than other areas; it may also contaminate water.¹³³

Other anthropogenic sources of VOCs are:

- (1) "Fuel combustion," which includes emissions from coal-, gas-, and oil-fired power plants and industrial, commercial, and institutional sources, as well as residential heaters and boilers;
- (2) "Other industrial processes," which includes chemical production, petroleum refining, metals production, and processes other than fuel combustion;
- (3) "On-road vehicles," which includes cars, trucks, buses, and motorcycles; and "Nonroad vehicles and engines," such as farm and construction equipment,
- (4) lawnmowers, leaf blowers, chainsaws, boats, ships, snowmobiles, aircraft and others.¹³⁴

Some of the health effects associated with exposure to benzene at sufficient concentrations are cancer and damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems. Plants and animals may also be harmed by exposures to benzene (U.S. EPA, 2003).¹³⁵

Ozone (O₃): Ozone is a gas composed of three oxygen atoms. It is not usually emitted directly into the air, but at ground-level is created by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight.¹³⁶ Children, the elderly, people with lung diseases such as asthma, and people who work or exercise outside are at risk for adverse effects from ozone. These include reduction in lung function and increased respiratory symptoms as well as respiratory-related emergency department visits, hospital admissions, and possibly premature deaths.¹³⁷



Indian Point on a smoggy day. Photo at <http://otrwiaw.wordpress.com/ta/west-point/>

¹³² U.S. Environmental Protection Agency. "Report on the Environment: Ambient Concentrations of Benzene." <http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&ch=46&subtop=341&lv=list.listByChapter&r=201745>.

¹³³ *Ibid.*

¹³⁴ U.S. Environmental Protection Agency. "Report on the Environment: Volatile Organic Compounds Emission," *op. cit.*

¹³⁵ U.S. Environmental Protection Agency. "Report on the Environment: Ambient Concentrations of Benzene," *op. cit.*

¹³⁶ U.S. Environmental Protection Agency. "Ground-level Ozone." www.epa.gov/air/ozonepollution/

¹³⁷ *Ibid.*

Ozone has the same chemical structure whether it occurs miles above the earth or at ground-level and can be "good" or "bad," depending on its location in the atmosphere. In the earth's lower atmosphere, ground-level ozone is considered "bad."¹³⁸ As mentioned above motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources emit NOx and VOCs that help form ozone. Depending on the location of ozone in the atmosphere it is considered good or bad. At ground-level, ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air more common in urban areas.¹³⁹

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- airway irritation, coughing, and pain when taking a deep breath;
- wheezing and breathing difficulties during exercise or outdoor activities;
- inflammation, which is much like a sunburn on the skin;
- it can worsen bronchitis, emphysema, asthma and cause increased susceptibility to respiratory illnesses such as pneumonia and bronchitis, and reduce the immune system's ability to fight off bacterial infections in the respiratory system;¹⁴⁰ and,
- permanent lung damage with repeated exposures.

Ground-level ozone can also have detrimental effects on plants and ecosystems. Some of these adverse effects include:

- interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather;
- damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, as well as vegetation in national parks and recreation areas; and
- reducing forest growth and crop yields, potentially impacting species diversity in ecosystems.¹⁴¹

NYS DEC Air Quality Index

NYS DEC determines air quality using EPA's Air Quality Index (AQI). The higher the AQI value, the greater the health concern. When levels of ozone and/or fine particles are expected to exceed an AQI value of 100, an Air Quality Health Advisory is issued alerting sensitive groups to take the necessary precautions. Clean Air NY publishes Air Quality Action Advisories to alert people with respiratory diseases to stay inside and to encourage reduced driving during periods of peak air pollution.¹⁴²

¹³⁸ *Ibid.*

¹³⁹ *Ibid.*

¹⁴⁰ Ozone and Your Health. EPA-452/F-99-003. USEPA, Air and Radiation. Washington, DC 20460.

¹⁴¹ U.S. Environmental Protection Agency. "Ground-level Ozone: Health and Environment."
www.epa.gov/air/ozonepollution/health.html.

¹⁴² NYS Department of Environmental Conservation. "Air Quality Index Legend and Additional Information."
www.dec.ny.gov/cfm/xtapps/aqi/aqi_info.cfm.

Air Quality Index (AQI) Values	Levels of Health Concern	Cautionary Statement
When the AQI is in this range...	...air quality conditions are:	...according to Air Quality level
0 to 50	Good	Air quality is considered satisfactory, and air pollution poses little or no risk.
51 to 100	Moderate	Air quality is acceptable, however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
101 to 150	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
151 to 200	Unhealthy	Everyone may begin to experience health effects, members of sensitive groups may experience more serious health effects.
201 to 300	Very Unhealthy	Health alert: everyone may experience more serious health effects.
301 to 500	Hazardous	Health Warnings of emergency conditions. The entire population is more likely to be affected.

Source: EPA

Air quality in Peekskill is 21 on a scale to 500 (lower is better). This is based on ozone alert days and number of pollutants in the air, as reported by the EPA.¹⁴³

Peekskill	10566	Westchester	USA
Air Quality Index - AQI	21.0	21.0	47.9

On average, Peekskill's air quality is ranked as good 79.2% of the days, however 20.8% of the days are less than optimal, and Air Quality Health Advisories are posted by the Peekskill Office of Emergency Management from time to time.

¹⁴³ www.westchestertowns.com/htm/zip/Zip10566.html#AirQuality

Carbon Monoxide (CO)

Carbon monoxide is a colorless, tasteless, odorless, and non-irritating gas formed when carbon in fuel is not burned completely. All engine exhaust contains a certain amount of carbon monoxide, but the amount will increase if your vehicle engine is poorly maintained.

Carbon monoxide enters the bloodstream through the lungs and attaches to hemoglobin (Hb), the body's oxygen carrier, forming carboxyhemoglobin (COHb) and thereby reducing oxygen (O₂) delivery to the body's organs and tissues. High COHb concentrations are poisonous. Central nervous system (CNS) effects in individuals suffering acute CO poisoning cover a wide range, depending on severity of exposure: headache, dizziness, weakness, nausea, vomiting, disorientation, confusion, collapse, and coma.¹⁴⁴ It is a common cause of death in enclosed spaces.

At lower concentrations, CNS effects include reduction in visual perception, manual dexterity, learning, driving performance, and attention level. 5% would be sufficient to produce visual sensitivity reduction and various neurobehavioral performance deficits.¹⁴⁵

Particulate Matter (PM)

PM is a complex mixture of extremely small particles and liquid droplets. These tiny particles contain many substances, including metals, acids and related chemicals (such as nitrates and sulfates), carbon, and polycyclic aromatic hydrocarbons and organic chemicals.¹⁴⁶

The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. EPA groups particle pollution into two categories:

- "Inhalable coarse particles," such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter.
- "Fine particles," such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air.¹⁴⁷ Particles less than 2.5 micrometers in diameter are so small that they can easily get into the lungs, potentially causing serious health problems

¹⁴⁴ Carbon Monoxide and the Nervous System. Raub, J. A., and V. A. Benignus. Carbon Monoxide and the Nervous System. NEUROSCIENCE AND BIOBEHAVIORAL REVIEWS 26(8):925-940, (2002).

¹⁴⁵ *Ibid.*

¹⁴⁶ U.S. EPA. "Air Quality Criteria for Particulate Matter." (Final Report, Oct 2004). U.S. Environmental Protection Agency, Washington, DC, EPA 600/P-99/002aF-bF, 2004.

¹⁴⁷ U.S. EPA. "Particulate Matter." www.epa.gov/pm/.

Vehicle engine exhaust may include all the substances described above. Ultrafine particles are observed in the emissions from spark, diesel, and jet engines.¹⁴⁸ In these cases, it seems likely that organic compounds, ammonia and sulfuric acid from sulfur in the fuel, as well as metal additives in the fuel or fuel oil, may contribute to the formation of ultrafine particles.¹⁴⁹ While some of these particles are emitted in vehicle exhaust, others are formed in the atmosphere through chemical reactions between the various pollutants found in exhaust. Particulates are known to aggravate symptoms in individuals who already suffer from respiratory or cardiovascular diseases. Particle pollution, especially fine particles, contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems.

Numerous scientific studies have linked particle pollution exposure to a variety of problems, including:

- increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing, for example;
- decreased lung function;
- aggravated asthma;
- development of chronic bronchitis;
- irregular heartbeat;
- nonfatal heart attacks; and
- premature death in people with heart or lung disease.¹⁵⁰

People with heart or lung diseases, children and older adults are the most vulnerable and likely to be affected by particle pollution exposure. However, even if you are healthy, you may experience temporary symptoms from exposure to elevated levels of particle pollution.

Fine particles (PM_{2.5}) are the major cause of reduced visibility (haze) in parts of the United States, including many of our treasured national parks and wilderness areas.¹⁵¹ Particles can be carried over long distances by wind and then settle on ground or water making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; and damaging sensitive forests.¹⁵²

Radioactive Isotopes

Radionuclides in air and water are brought directly into our bodies as we breathe and drink. Once there, they may lodge in our lungs or digestive tract and continue to emit radiation directly to living tissue. EPA protects people from these exposures through its regulatory programs to control air emissions and by setting standards for removing radionuclides from drinking water.

¹⁴⁸ U.S. EPA. "Air Quality Criteria for Particulate Matter," *op. cit.*.

¹⁴⁹ *Ibid.*

¹⁵⁰ U.S. EPA. "Particulate Matter," *op. cit.*.

¹⁵¹ Haze is caused when sunlight encounters tiny pollution particles in the air, which reduces the clarity and color of what is seen, particularly during humid conditions.

¹⁵² U.S. EPA. "Particulate Matter: Health and Environment." www.epa.gov/air/particlepollution/health.html

Through its voluntary programs, EPA encourages homeowners to help protect themselves and their families by testing their homes for radon and mitigating any problems found.¹⁵³

Uranium-235: As mentioned in Section 4.4, uranium mining is the process by which uranium ore is extracted from the ground to be used to fuel nuclear power plants. It is a silvery-white metallic chemical element in the actinide series of the periodic table with atomic number 92. Exposure to uranium poses little health hazard as long as it remains outside the body. If inhaled or ingested, however, its radioactivity poses increased risks of lung and bone cancer. Uranium is also chemically toxic at high concentrations and can cause damage to internal organs, notably the kidneys. Animal studies suggest that uranium may also affect reproduction, the development of the fetus, and can increase the risk of leukemia and other soft tissue cancers.¹⁵⁴

While there are many radioactive isotopes in air, both naturally occurring and of industrial origin, the two that are of the greatest concern in Peekskill, near Indian Point Nuclear Power Plant, are tritium and strontium-90.

- Tritium is an isotope of hydrogen, which makes it bind to hydroxyl radicals to form tritiated water (HTO), and it can bind with carbon atoms readily (C-T). The HTO and the carbon-tritium compounds are easily ingested by drinking, or by eating organic or water-containing foodstuffs. HTO has a short biological half-life in the human body of seven to 14 days, which both reduces the total effects of single-incident ingestion and precludes long-term bioaccumulation of HTO from the environment.
- Natural strontium is nonradioactive and nontoxic, but ⁹⁰Sr is a radioactivity hazard. ⁹⁰Sr is a product of nuclear fission and has a half-life of 28.90 years. It is present in significant amount in spent nuclear fuel and in radioactive waste from nuclear reactors and in nuclear fallout from nuclear tests. The human body absorbs strontium as if it were calcium and the highly radioactive form, ⁹⁰Sr, can lead to various bone disorders, including bone cancer.

Landfill Gas and Methane

Landfill gas has an unpleasant odor that can cause headaches or nausea. The odor, however, is more irritating than a hazard to health. Although some compounds that make up landfill gas could be hazardous if present in large amounts, they should not cause adverse health effects if present in very small amounts.¹⁵⁵

¹⁵³ U.S. Environmental Protection Agency. "Radionuclides in Air and Water: Overview." www.epa.gov/rpdweb00/air-water-overview.html.

¹⁵⁴ Agency for Toxic Substances and Disease Registry, ATSDR Public Health Statement: Uranium, Atlanta: ATSDR, December 1990.

¹⁵⁵ Illinois Department of Public Health: Environmental Health Fact Sheet. "Landfill Gas." www.idph.state.il.us/envhealth/factsheets/landfillgas.htm.

Methane is the main chemical in landfill gas and it is highly flammable. If a spark is present and enough methane is mixed into the air, a fire may occur. Breathing methane, however, is only hazardous if it is present at levels high enough to decrease the amount of oxygen in the air. The adverse health effects are due to a lack of oxygen, not by breathing the methane gas itself. In a building, methane would be a fire hazard at levels much lower than those that could cause breathing problems.¹⁵⁶

Methane burns very easily and often is used as natural gas for cooking and heating. It is lighter than air and collects at the top of enclosed spaces. When it rises through the soil and enters buildings, it gets trapped in the lower parts of a building, such as the basement. As more methane enters the building, the level in the air increases.¹⁵⁷

In addition to methane, hydrogen sulfide (H₂S) contributes to the odor of landfill gas, with a smell similar to that of rotten eggs.

5. WATER POLLUTION

5.1 Clean Water Act (CWA)

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1977.¹⁵⁸ It is the cornerstone of surface water quality protection in the United States.¹⁵⁹

The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."¹⁶⁰

Evolution of CWA programs over the last decade have also included something of a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach equal emphasis is placed on protecting healthy waters and restoring impaired ones.¹⁶¹ A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the

¹⁵⁶ *Ibid.*

¹⁵⁷ *Ibid.*

¹⁵⁸ U.S. EPA. "Laws and Regulations: Summary of the Clean Water Act." www.epa.gov/regulations/laws/cwa.html.

¹⁵⁹ The Act does not deal directly with ground water nor with water quantity issues.

¹⁶⁰ U.S. EPA. "Watershed Academy Web: Introduction to the Clean Water Act."

www.epa.gov/owow/watershed/wacademy/acad2000/cwa/.

¹⁶¹ *Ibid.*

development and implementation of strategies for achieving and maintaining state water quality and other environmental goals is another hallmark of this approach.¹⁶²

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. EPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges.

Phase I of the National Pollution Discharge Elimination System (NPDES) Stormwater program began in 1990 and required medium and large municipal separate storm sewer systems (MS4s) to obtain NPDES coverage. Municipalities that are designated as "MS4 Communities" through the NYSDEC Phase II Stormwater Permit Program must develop, implement, and enforce a "Stormwater Management Program" (SWMP) to reduce pollution to the "maximum extent practicable" (MEP) to protect water quality. An area is automatically designated if the population is at least 50,000 and has an overall population density of at least 1,000 people per square mile based on the 2000 Census. The NYS DEC has designated Peekskill as one of 44 MS4 communities in Westchester County.¹⁶³

5.2 National Pollutant Discharge Elimination System (NPDES)

Title IV, Permits and Licenses, of the FWPCA Act created the system for permitting wastewater discharges (Section 402), known as the National Pollutant Discharge Elimination System (NPDES). Under the NPDES program, all facilities which discharge *pollutants* from any *point source* into *waters of the United States* are required to obtain an NPDES permit.¹⁶⁴

Understanding how each of the key terms ("pollutant," "point source," and "waters of the United States") have been defined and interpreted by the regulations is the key to defining the scope of the NPDES Program.

Pollutants

The term *pollutant* is defined very broadly by the NPDES regulations and litigation and includes any type of industrial, municipal, and agricultural waste discharged into water. For regulatory purposes, pollutants have been grouped into three general categories under the NPDES Program: *conventional*, *toxic*, and *non-conventional*. There are five *conventional pollutants*, (see Section 4.1) and defined in Section 304(a)(4) of the CWA). *Toxic pollutants*, or *priority pollutants*, are those defined in Section 307(a)(1) of the CWA and include metals and man-made organic compounds. *Non-conventional pollutants* are those which do not fall under either of the above categories, and include such chemicals as ammonia, nitrogen, phosphorus, and parameters such as chemical oxygen demand (COD), and whole effluent toxicity (WET).

¹⁶² *Ibid.*

¹⁶³ NYS Dept. Of Environmental Conservation. "Designation Criteria for Identifying Regulated Municipal Separate Storm Sewer Systems (MS4s)." www.dec.ny.gov/docs/water_pdf/ms4gpdscrit.pdf.

¹⁶⁴ Kovalic, J. M. The Clean Water Act of 1987, 2nd edition; The Water Pollution Control Federation (W.P.C.F); Alexandria, VA, 1987.

Point Source

Pollutants can enter waters of the United States from a variety of pathways including agricultural, domestic, and industrial sources. For regulatory purposes these sources are generally categorized as either *point sources* or *non-point sources*. Typical *point source* discharges include discharges from publicly owned treatment works (POTWs), discharges from industrial facilities, and discharges associated with urban runoff. These are discrete conveyances such as pipes or man-made ditches. While provisions of the NPDES Program do address certain specific types of agricultural activities (i.e., concentrated animal feeding operations), the majority of agricultural facilities are defined as *non-point sources* and are exempt from NPDES regulation.¹⁶⁵

Pollutant contributions to waters of the United States may come from both *direct* and *indirect* sources. *Direct* sources discharge wastewater directly into the receiving water body, whereas *indirect* sources discharge wastewater to a POTW, which in turn discharges into the receiving water body.¹⁶⁶ Under the national program, NPDES permits are issued only to direct point source discharges. Industrial and commercial indirect dischargers are addressed by the National Pretreatment Program. As indicated above, the primary focus of the NPDES permitting program is municipal and non-municipal (industrial) direct dischargers. Within these major categories of dischargers, however, there are a number of more specific types of discharges that are regulated under the NPDES Program.

The Hudson River itself has been designated as a 200-mile Superfund site under CERCLA, due to contamination from discharges of 1.3 million pounds of polychlorinated biphenyls (PCBs) from two General Electric manufacturing sites in Hudson Falls and Fort Edward from 1947-1977. PCB-containing sediments, which have washed downstream to NY/NJ Harbor and beyond, are known to bioaccumulate in the food chain and may be one of several contaminants in Hudson River fin and shellfish, which are caught along the shores of Peekskill and Verplanck as a source of protein for subsistence, or for cultural or recreational reasons. The remediation of 40 miles of highly contaminated 'hotspots' of the Upper Hudson between Fort Edward and Troy began in May 2009 and after a year-long peer review process will resume in May 2011, with the intention of restoring the Hudson closer to its natural state before it received this massive contamination, allowing PCB levels in fish to drop to a safer level for human consumption (see Section 10, Angler Survey)

Municipal Sources

Municipal sources are POTWs that receive primarily domestic sewage from residential and commercial customers. Larger POTWs will also typically receive and treat wastewater from industrial facilities (indirect dischargers) connected to the POTW sewerage system. The types of

¹⁶⁵ U.S. EPA NPDES Permit Writers' Manual; U.S. Environmental Protection Agency, Office of Water, December, 1996; EPA-833-B-96-003, pp 1-28.

¹⁶⁶ *Ibid.*

pollutants treated by a POTW will always include conventional pollutants, and may include non-conventional pollutants and toxic pollutants depending on the unique characteristics of the commercial and industrial sources discharging to the POTW. The treatment provided by POTWs typically includes physical separation and settling (e.g., screening, grit removal, primary settling), biological treatment (e.g., trickling filters, activated sludge), and disinfection (e.g., chlorination, UV, ozone).¹⁶⁷

These processes produce the treated effluent (wastewater) and a biosolids (sludge) residual, which is managed under the Municipal Sewage Sludge Program. Some older POTWs have an additional concern of combined sewer overflow (CSO) systems that can release untreated effluent during storm events. CSOs were an economic way for municipalities to collect both sanitary sewage and storm water and are controlled under the NPDES program.¹⁶⁸

A number of municipalities have MS4s that are also subject to NPDES requirements. Specific NPDES program areas applicable to municipal sources are: the National Pretreatment Program, the Municipal Sewage Sludge Program, Combined Sewer Overflows (CSOs), and the Municipal Storm Water Program.¹⁶⁹

Non-Municipal Sources

Non-municipal sources, which include industrial and commercial facilities, are unique with respect to the products and processes present at the facility. Unlike municipal sources, at industrial facilities the types of raw materials, production processes, treatment technologies utilized, and pollutants discharged vary widely and are dependent on the type of industry and specific facility characteristics.¹⁷⁰

The operations at industrial facilities are generally carried out within a clearly defined plant area; thus, the collection systems are typically less complex than those for POTWs. Industrial facilities may have storm water discharges contaminated by manufacturing activities, contact with raw materials or product storage activities, and may have non-process wastewater discharges such as non-contact cooling water.¹⁷¹ The NPDES Program addresses these potential wastewater sources for industrial facilities. Residuals (sludge) generated by industrial facilities are not currently regulated by the NPDES Program. Specific NPDES program areas applicable to industrial sources are: Process Wastewater Discharges, Non-process Wastewater Discharges, and the Industrial Storm Water Program.

¹⁶⁷ Environmental Protection Agency, Office of Wastewater Management. Water Permitting 101, available here: http://cfpub.epa.gov/npdes/home.cfm?program_id=45.

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

¹⁷⁰ U.S. EPA NPDES Permit Writers' Manual; U.S. Environmental Protection Agency, Office of Water, December, 1996; EPA-833-B-96-003, pp 1-28

¹⁷¹ *Ibid.*

Types of Permits

A permit is typically a license for a facility to discharge a specified amount of a pollutant into a receiving water under certain conditions; however, permits may also authorize facilities to process, incinerate, landfill, or beneficially use sewage sludge.¹⁷² The two basic types of NPDES permits issued are individual and general permits.

An *individual permit* is a permit specifically tailored to an individual facility. Once a facility submits the appropriate application(s), the permitting authority develops a permit for that particular facility based on the information contained in the permit application (e.g., type of activity, nature of discharge, receiving water quality). The authority issues the permit to the facility for a specific time period (not to exceed five years) with a requirement that the facility reapply prior to the expiration date.¹⁷³

A *general permit* covers multiple facilities within a specific category. General permits may offer a cost-effective option for permitting agencies because of the large number of facilities that can be covered under a single permit.¹⁷⁴ General permits may only be issued to dischargers within a specific geographical area such as city, county, or state political boundaries; designated planning areas; sewer districts or sewer authorities; state highway systems; standard metropolitan statistical areas; or urbanized areas.

These permits allow the permitting authority to allocate resources in a more efficient manner to provide more timely permit coverage.¹⁷⁵

5.3 State Pollutant Discharge Elimination System (SPDES)

EPA is authorized under the CWA to directly implement the NPDES Program. EPA, however, may authorize States, Territories, or Tribes to implement all or parts of the national program. States, Territories, or Tribes applying for authorization may seek the authority to implement the base program and additional parts of the national program including: permitting of federal facilities; administering the National Pretreatment Program; and/or administering the Municipal Sewage Sludge Program.¹⁷⁶

New York State has a state program which has been approved by the EPA for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.¹⁷⁷ The program is designed

¹⁷² *Ibid.*

¹⁷³ *Ibid.*

¹⁷⁴ U.S. EPA. "Office of Wastewater Management. Water Permitting 101" http://cfpub.epa.gov/npdes/home.cfm?program_id=45.

¹⁷⁵ *Ibid.*

¹⁷⁶ *Ibid.*

¹⁷⁷ NYS Department of Environmental Conservation. "State Pollutant Discharge Elimination System." www.dec.ny.gov/permits/6054.html.

to eliminate the pollution of New York waters and to maintain the highest quality of water possible -- consistent with public health, public enjoyment of the resource, protection and propagation of fish and wildlife and industrial development in the state through a permit system.¹⁷⁸

5.4 Industrial Surface Water Pollution Sources in Peekskill and Adjacent Areas

Lafarge North America Inc.-Buchanan¹⁷⁹

In addition to previous discussion Lafarge's SPDES permit was recently renewed and modified on August 30, 2010 (effective date October 1, 2010) under the New York State Department of Environmental Conservation Division of Water's Environmental Benefit Permit Strategy. The permit renewal updated requirements and action levels for Whole Effluent Toxicity (WET) testing, updated outfall information and monitoring requirements for storm water discharges, incorporated a new schedule of compliance for addressing biological requirements (particularly for evaluating Best Technology Available or "BTA" for the cooling water intake), added new schedules of compliance for evaluating the existing quench water system and completion of storm water best management practices (BMPs), added a new schedule of compliance for investigating cement kiln dust (CKD) and landfill leachate for potential future treatment, and added new requirements for developing a Mercury Minimization Plan (MMP).

Meenan Oil Company

Meenan Oil Company (Facility) was granted an Article 17 Titles 7 & 8 Industrial SPDES for a surface discharge into Tonetta Brook.

Byram Concrete-Buchanan

Byram is producer and supplier of ready mixed concrete in Westchester and Putnam counties and the surrounding New York City metropolitan area. Byram's fleet includes mixer trucks that are Best Available Technology (BAT)-compliant required for all New York State projects.

Bear Mountain Bridge Maintenance Facility

This facility is an Automotive Repair Shop located in the Town of Stony Point that operates under an Article 17 Titles 7 & 8 Industrial SPDES permit. Under the limits set forth in the SPDES permit the Maintenance Facility is allowed to discharge treated storm and wash water from a vehicle maintenance garage on site into a ditch to the Hudson River.

¹⁷⁸ NYS Department of Environmental Conservation. "P/C/I State Pollutant Discharge Elimination System Permit Program: Introduction." www.dec.ny.gov/permits/6308.html.

¹⁷⁹ For a detailed narrative of the industrial processes taking place in this facility, see section 4.3.

Northern Westchester Joint Waterworks Catskill Aqueduct

Located in the Town of Cortlandt, this facility has an Article 17 Titles 7 & 8 Industrial SPDES permit to discharge surface water into the McGregory Brook Tributary.¹⁸⁰

On average, the Cortlandt Water District purchased 2.42 million gallons per day in 2001. Ten percent (10%) of which was purchased from the City of Peekskill, which then filters and treats raw water pumped from the Peekskill Hollow Brook to the City's Camp Field Reservoir. Both the City of Peekskill and the Northern Westchester Joint Waterworks operate a raw interchange pipeline to serve each other as emergency backup suppliers.¹⁸¹

Other Pollution Sources of Surface Water in the Peekskill Area

Other local facilities with SPDES Surface Water discharge permits in the area are: Doodletown Water Treatment Plant, Mobil 06-G6J, Wheelabrator Westchester L.P. (see Section 4.2), Westchester County Dept. of Environmental Facilities-Sprout Brook Ashfill (closed -- see Section 4.4), Lovett Solid Waste Management Facility, and the Arlo Lane Maintenance Facility.

5.5 Power Plants in Peekskill and Adjacent Areas as Sources of Water Pollution

Indian Point Energy Center (IPEC)

In addition to being a source of air pollution this facility is characterized as a toxic release and hazardous waste facility, it also contributes to water pollution. (See Sections 4.2, 4.4 and 6).

As was briefly indicated in Section 4.2, Entergy has submitted an application to the federal Nuclear Regulatory Commission (NRC) to renew the plant's license. As part of this process Entergy must obtain a certification from DEC that Indian Point's operation will not violate state water quality standards. This is known as a Section 401 Water Quality Certification of the federal Clean Water Act. Citing the plant's adverse impact on Hudson River fisheries, as well as the continuing leaks of radioactive waste into the groundwater and the Hudson River, the DEC determined that Indian Point's continued operation would violate those standards. According to NRC licensing requirements, the NRC cannot issue a license extension to a nuclear power plant unless the plant is certified by its host state.¹⁸²

On April 4, 2010 the DEC denied the 401 certificate. It determined that the continued use of Indian Point's antiquated once-through cooling system violates state standards, because it

¹⁸⁰ New York State Department of Environmental Conservation. SPDES Number: NY0106372.

¹⁸¹ The Town of Cortlandt. "Cortlandt Consolidated Water District Annual Water Supply Statement." www.townofcortlandt.com/cit-e-access/webpage.cfm?tid=20&tpid=2504

¹⁸² Riverkeeper. "Riverkeeper Hails New York's Decision to Deny Critical Water Certification for Indian." www.riverkeeper.org/news-events/news/stop-polluters/power-plant-cases/riverkeeper-hails-new-yorks-decision-to-deny-critical-water-quality-certificate-for-indian-point/ Point. April 3, 2010.

withdraws and discharges about 2.5 billion gallons of river water a day and causes the death of almost 1 billion aquatic organisms per year due to entrainment, impingement, and heat related, or thermal, impacts. Since its inception in 1966, Riverkeeper, together with its partners Scenic Hudson, Clearwater and NRDC, has been fighting to force the owners of Indian Point to use a closed-loop cooling system to protect Hudson River fisheries.¹⁸³

Additionally, the operation of Indian Point impinges shortnose sturgeon an endangered species and impinges and entrains the Atlantic sturgeon, a candidate threatened species under the Endangered Species Act.¹⁸⁴ The extinction and/or reduction in number of these fish affect the balance of the ecosystem possibly resulting in changes in water quality.

DEC also cited the radioactive contamination caused by leaks from the spent fuel pools at Indian Point as a reason for denying 401 certification. Nuclear waste storage pools at Indian Point have leaked tritium, strontium-90, cesium-137 and other radionuclides into the groundwater under the plant and the Hudson River since at least 2005. In 2005, Entergy discovered water leaking from a crack in the exterior of the Unit 2 Spent Fuel Pool (SFP). These radioactive substances have been linked to various forms of cancer. The radionuclides in the groundwater beneath Indian Point are also getting into the Hudson River.¹⁸⁵ Although both the NRC and Entergy have stated that no one is using the groundwater under the plant as a water supply, United Water of NY has proposed to construct a 10 million gpd desalination plant in Haverstraw Bay to provide water to Rockland County, with its intake just 3.5 miles to the southwest of Indian Point. An assessment of the fate and transport of the radioactive isotopes from the Indian Point leaks as discharges has not yet be performed.

Lovett Generating Station¹⁸⁶ (closed)

Conventional coal power plants, such as Lovett, produce waste which contains toxic substances -- including arsenic, mercury, chromium, and cadmium -- which can contaminate drinking water supplies and damage vital human organs and the nervous system. Ecosystems may also be affected -- sometimes severely or permanently -- by the disposal of coal plant waste.¹⁸⁷

Once the water used for cooling has cycled through the coal-fired power plant, it is released back into a lake, river, or ocean. This water is hotter than the water that receives it. This "thermal pollution" can decrease fertility and increase heart rates in fish. Typically, power plants also add chlorine or other toxic chemicals to their cooling water to decrease algae growth. These chemicals have been known to be released back into the environment.¹⁸⁸

¹⁸³ *Ibid.*

¹⁸⁴ New York State Department of Environmental Conservation. "DEC Position on Indian Point Relicensing" www.dec.ny.gov/permits/40237.html.

¹⁸⁵ Riverkeeper. "Riverkeeper Hails New York's Decision to Deny Critical Water Certification for Indian." *Op. cit.*

¹⁸⁶ See Section 4.4 for an account of the now closed facility.

¹⁸⁷ Union of Concerned Scientists: Citizens and Scientists for Environmental Solutions. "Environmental Impacts of Coal Power: Wastes Generated." www.ucsusa.org/clean_energy/coalvswind/c02d.html.

¹⁸⁸ *Ibid.*

Buchanan Electrical Substation¹⁸⁹

This facility, located in Broadway and Bleakley Avenues in the Village of Buchanan has a SPDES permit for an existing discharge of stormwater through an oil/water separator from the Buchanan Electrical Substation. The discharge enters an unnamed tributary to Lake Meahagh. Under the permit, the facility is required to maintain records and report data to verify compliance with the SPDES permit conditions and discharge limits.

This project is located in a Coastal Management area and is subject to the Waterfront Revitalization and Coastal Resources Act.¹⁹⁰

Mirant Bowline Point Generation Station

Bowline is located in West Haverstraw, approximately 16 miles from the City of Peekskill, on the western shore of the Hudson River. It consists of two existing units that burn either natural gas or #6 oil to produce a combined output of approximately 1,139 MW. Unit 1 began operation in September 1972 and Unit 2 began operation in May 1974. Using an open cycle cooling system, Bowline withdraws cooling water from the Hudson River through an intake structure located on a small embayment of the Hudson River known as Bowline Pond. The intake structure contains 6 circulating pumps with a combined capacity of 1,106 million gallons per day (MGD), trash racks with 3.5 inch openings between the bars, 6 conventional traveling screens with 3/8 inch mesh, and a pipe that returns fish and debris washed off the traveling screens back to Bowline Pond. Heated water is discharged into the Hudson River through a subsurface multiport diffuser located approximately 1,400 ft off shore in about 14 feet of water. (See Section 6 for information on this facility's toxic releases.)

Danskammer Generating Station

Danskammer is located on the shore of the Hudson River in the Town of Newburgh, New York, approximately 28 miles from the City of Peekskill, 0.5 miles (0.8 km) upstream of the larger oil-fired Roseton Generating Station. Danskammer units 1 and 2 burn oil (72 and 73.5 MWe nameplate capacity), whereas units 3 and 4 are coal-fired (147.1 and 239.4 MWe nameplate capacity). All four of these major units can also run on natural gas. Units 5 and 6 are small internal combustion engines of 2.7 MW nameplate capacity each. The station was built by Central Hudson Gas & Electric in the 1930s, and sold to Dynegy in the 1990s as part of electricity deregulation. It has been the target of a prolonged environmental lawsuit over its cooling system.¹⁹¹ (See Section 6 for information on this facility's toxic releases.)

¹⁸⁹ Article 17 Titles 7 & 8 Industrial SPDES Permit

¹⁹⁰ Brief explanation of WRCRA

¹⁹¹ "Existing Electric Generating Units in the United States, 2008" (Excel). Energy Information Administration, U.S. Department of Energy. 2008. www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html. Retrieved 2009-11-28.

5.6 Wastewater Facilities

Wastewater is mostly collected in sewers and directed towards wastewater treatment facilities for purification. The water is then discharged back into the environment or made ready for reuse. Since nature has its own capabilities to purify wastewater, the basic goal of wastewater treatment facilities is to facilitate the purification of the increased amount of wastewater generated by our growing population, for its safe discharge into waterways or groundwater, or, increasingly, for reuse. In fact, there are billions of gallons of wastewater produced every day.

Wastewater is used water, containing things such as feces, food scraps, oils, chemicals, and pollutants. It also includes storm runoff, which is the water that runs over paved surfaces and roofs before entering the sewer system (see Section 6).

Sewage disposal is of great concern to urban communities. Sewage may drain directly into major watersheds with minimal or no treatment. When untreated, sewage can have serious impacts on the quality of an environment and on the health of people. Pathogens can cause a variety of illnesses. Some chemicals pose risks even at very low concentrations and can remain a threat for long periods of time because of bioaccumulation in animal or human tissue.

Separate Sewer System

The City of Peekskill has a separate sewer system. In this type of system, residential and industrial wastewater flow into different pipes than stormwater. Stormwater is then treated separately and released, and sewage is then diverted to a wastewater treatment plant. In this type of system, residential wastewater and rain water flow into different drainage pipes causing less pressure to the wastewater treatment plant in times of heavy rain and reducing the amount of sewage water into waterbodies.

Combined Sewer System Overflows

Although Peekskill does not have a CSO it is relevant to include a discussion about this topic given the fact that it is a significant contributor of water pollution in the Hudson Valley region. More than 27 billion gallons of raw sewage and polluted stormwater discharge out of 460 combined sewage overflows (CSOs) into New York Harbor alone each year.

Combined sewer systems are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe. Most of the time, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. During periods of heavy rainfall or snowmelt, however, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow

occasionally and discharge excess wastewater directly to nearby streams, rivers, or other water bodies.¹⁹²

These overflows, called combined sewer overflows (CSOs), contain not only stormwater but also untreated human and industrial waste, toxic materials, and debris. They are a major water pollution concern for the approximately 772 cities in the U.S. that have combined sewer systems.

Enlightened communities are increasingly employing green stormwater practices to reduce the pressure on existing combined sewer infrastructure by diverting run-off to infiltrate into groundwater. Philadelphia's Triple Bottom Line and PlaNYC Sustainable Stormwater Plan are excellent examples.

Peekskill Sanitary Sewer District (SD) Sewage Treatment Plant (STP)

The Peekskill Sanitary sewage treatment plant, a county-owned facility located on Hallenbeck Road in Peekskill, is a sewerage system that releases its purified water into the Hudson River at a rate of 10 millions of gallons per day (mgp).¹⁹³ The effluent water is classified as SB, a classification describing its designated uses for marine fish, shellfish and wildlife habitat, shellfish harvesting, recreation, and industrial and other legitimate uses including navigation.¹⁹⁴

In 1997, residents of Peekskill formed the Citizens for Equal Environmental Protection (CEEP), who played an important role in preventing the diversion of Yorktown's sewage to the Peekskill STP based on Environmental Justice concerns. However, more recently new smaller diversions have been proposed for projects in Somers and other municipalities in the Croton Watershed -- in part because of protective regulations the NYC DEP has in a Memorandum of Understanding (MOU), also called a Memorandum of Agreement or (MOA), with municipalities in the Croton Watershed, which is an important reservoir for NYC's water supply. Since 1997 advanced tertiary treatment has been required of wastewater facilities within this critical watershed. In Spring 1998, the ten Westchester County Croton Watershed Communities (Bedford, Cortlandt, Lewisboro, Mt. Kisco, New Castle, North Castle, North Salem, Pound Ridge, Somers and Yorktown) passed municipal resolutions to cooperate with Westchester County in the development of a Croton Watershed Water Quality Protection Plan (the Croton Plan).

Buchanan Village Sewage Treatment Plant (STP)

The Village of Buchanan Sewage Treatment Plant releases one million gallons per day of treated effluent into the St. Joseph River. The plant is designed to remove 90% of the

¹⁹² U.S. EPA. "National Pollutant Discharge Elimination System (NPDES): Combined Sewer Overflows." http://cfpub.epa.gov/npdes/home.cfm?program_id=5.

¹⁹³ NYS Department of Environmental Conservation. "Consolidated Public Notice for SPDES Renewal." (2006). www.dec.ny.gov/enb2006/20061220/spdes.html.

¹⁹⁴ State of Connecticut Department of Environmental Protection. "Water Quality Standards and Classifications." www.ct.gov/dep/cwp/view.asp?a=2719&q=325620.

carbonaceous organic materials, suspended solids, and all phosphorous and ammonia nitrogen.¹⁹⁵

Another local wastewater treatment plant discharging water into local waters is the Highlands Sewer Improvement Area across the Hudson River in Orange County.

5.7 Environmental and Health Effects Associated with Exposure to Water Pollutants Produced by Local Facilities

Power Plants

Fish Entrainment and Entrapment Refer to Fish section

The two Indian Point reactors (IP-1 and IP-2) consume more than 2.5 billion gallons of Hudson River water daily – 2 million gallons per minute – in a cooling system that kills billions of fish, eggs, larvae and plant life adversely affecting the Hudson River ecosystem.

Thermal Pollution

The primary effects of thermal pollution are direct thermal shock, changes in dissolved oxygen, and the redistribution of organisms in the local community. Because water can absorb thermal energy with only small changes in temperature, most aquatic organisms have developed enzyme systems that operate in only narrow ranges of temperature. These stenothermic organisms can be killed by sudden temperature changes that are beyond the tolerance limits of their metabolic systems. The cooling water discharges of power plants are designed to minimize heat effects on local fish communities. However, periodic heat treatments used to keep the cooling system clear of fouling organisms that clog the intake pipes can cause fish mortality. A heat treatment reverses the flow and increases the temperature of the discharge to kill the mussels and other fouling organisms in the intake pipes.

Small chronic changes in temperature can also adversely affect the reproductive systems of these organisms and also make them more susceptible to disease. Cold water contains more oxygen than hot water so increases in temperature also decrease the oxygen-carrying capacity of water. In addition, raising the water temperature increases the decomposition rate of organic matter in water, which also depletes dissolved oxygen. These decreases in the oxygen content of the water occur at the same time that the metabolic rates of the aquatic organisms, which are dependent on a sufficient oxygen supply, are rising because of the increasing temperature (see also Section 9, Impacts on Fish and Wildlife.)

¹⁹⁵ City of Buchanan. "Wastewater Treatment." www.cityofbuchanan.com/article.php?id=40.

Wastewater Treatment Plants (WWTP)

Pathogens

High levels of pathogens may result from inadequately treated sewage discharges. Sewage pathogens have been linked to many illnesses, ranging from mild flu-like symptoms to serious disease, organ failure, and sometimes even death. The types of organisms that may be present in sewage, and the potential health effects associated with each, are described in the table below.¹⁹⁶

Viruses are believed to be the major cause of disease contracted through direct contact with sewage, and are responsible for gastroenteritis, hepatitis, respiratory illness, and other health problems. One of the most common, the Norwalk Virus, is representative of a heterogeneous group of viruses, also called small round structured viruses (SRSVs) or the Norwalk-like family of agents. Common names of the illness caused by the Norwalk and Norwalk-like viruses are viral gastroenteritis, acute nonbacterial gastroenteritis, food poisoning, and food infection.

The protozoan *Cryptosporidium parvum* causes cryptosporidiosis, a gastrointestinal disease that affects people and animals. Upon infection, this protozoan resides principally in the gastrointestinal tract and goes through its life stages as an intracellular parasite. In the intestines, it forms oocysts (similar to parasite eggs) that are shed in feces and which are the source of infection for new susceptible people.¹⁹⁷

Bacteria in sewage, such as *Escherichia coli* (*E. coli*) and enterococci, can cause many diseases and illnesses. Enterococci are bacteria that normally live in the bowel, intestines and digestive tracts of humans. The bacteria help to break down wastes in the body, but can cause urinary tract infections, wound infections and blood infections if they get out of their normal environment. Today, new strains of the bacteria, called VRE (Vancomycin Resistant Enterococcus), have developed a resistance gene to most antibiotics.¹⁹⁸ Since enterococci are found normally in the intestines, every time an antibiotic is taken, the bacteria are exposed. This resistance gene makes it very difficult for doctors to treat a VRE patient. Those most at risk from VRE are people who are already seriously ill.¹⁹⁹

Phosphorus

The effluent, the discharge from a WWTP, may contain higher levels of pollutants than the waterbody it is flowing into.²⁰⁰

¹⁹⁶ U.S. EPA. "Diseases Associated with Sewage." www.epa.gov/npdes/ssso/control/diseases.htm.

¹⁹⁷ *Ibid.*

¹⁹⁸ *Ibid.*

¹⁹⁹ *Ibid.*

²⁰⁰ Westchester County Department of Planning. "Westchester County Croton Watershed Water Quality Conditions Report For Development of the Comprehensive Croton System Water Quality Protection Plan in Westchester County." March 2002.

www.westchestergov.com/planningdocs/CrotonPlan/Appendix%20B%20Water%20Quality%20Conditions.pdf

Because phosphorus stimulates algal growth, when this growth is excessive, other aquatic forms of life are endangered. Algae blooms limit recreational use by reducing water clarity and aesthetic qualities. Factors that limit algal growth include available forms of nitrogen and phosphorus, sunlight, and temperature. Algae and other microorganisms in the water greatly affect dissolved oxygen. Under algae bloom conditions, the algae have a negative effect on reservoir fisheries because of periodic oxygen depletion associated with algae respiration and decomposition.²⁰¹

Chlorine

Chlorination remains the most common form of waste water disinfection in North America due to its low cost and long-term history of effectiveness. One disadvantage is that chlorination of residual organic material can generate chlorinated-organic compounds that may be carcinogenic or harmful to the environment. Residual chlorine or chloramines may also be capable of chlorinating organic material in the natural aquatic environment. Further, because residual chlorine is toxic to aquatic species, the treated effluent must also be chemically dechlorinated, adding to the complexity and cost of treatment.²⁰²

Effects of chlorine on human health and the environment depend on how much chlorine is present and the length and frequency of exposure. Effects also depend on the health of a person or condition of the environment when exposure occurs. Chlorine irritates the skin, the eyes, and the respiratory system. These effects are not likely to occur at levels of chlorine that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming small amounts of chlorine over long periods of time are not known. Some studies show that workers develop adverse effects from repeat inhalation exposure to chlorine, but others do not.²⁰³ Laboratory studies show that repeat exposure to chlorine in air can adversely affect the immune system, the blood, the heart, and the respiratory system of animals.²⁰⁴ Chlorine can also cause low level environmental harm but is especially harmful to organisms living in water and in soil.²⁰⁵

In an October 13, 2010 press release, County Legislator John G. Testa announced plans to upgrade the Peekskill Wastewater Treatment Plant. A multi-million dollar funding for a

²⁰¹ Shock and Pratt. "Phosphorus Effects on Surface Water Quality and Phosphorus TMDL Development." http://cropandsoil.oregonstate.edu/sites/default/files/WERA103/2003_proceedings/p211_Shock_PhosphorusTMDL1.pdf

²⁰² U.S. EPA. "Office of Pollution, Prevention, and Toxics: Chemicals in the Environment- Chlorine." (1994). www.epa.gov/chemfact/f_chlori.txt.

²⁰³ *Ibid.*

²⁰⁴ *Ibid.*

²⁰⁵ *Ibid.*

comprehensive program of upgrades at the Peekskill Wastewater Treatment Plant will allow the use and implementation of new technology and cost savings to the plant.²⁰⁶

Testa mentioned that there are two key programs, which will be undertaken. First, using bond funding of five million seven hundred forty eight thousand dollars (\$5,748,000) the plant will undergo a transition from the present use of chlorine bleach as a disinfectant and move to an ultraviolet disinfection technology. The use of this technology will elevate sanitary levels of effluent discharge in the Hudson River, and reduce use and cost of chemicals.²⁰⁷

A second initiative will bring upgrades to the plant's operational systems, including the roofing of the digester, which at age thirty-five has reached the end of its useful life. Bond funding in the amount of one million six hundred thousand dollars (\$1,600,000) will allow the replacement and upgrading of systems and process components associated with aeration, digester, and heating gas at the plant. Also to be installed are three new boilers and associated valves, piping and controls. The boiler upgrades will help reduce odors and provide for safe transmission of digester gas to be used on site as fuel in plant boilers, again reducing energy costs at the facility.²⁰⁸

6. TOXIC RELEASE FACILITIES

6.1 Emergency Planning and Community Right-to-Know Act (EPCRA) and the Toxic Release Inventory (TRI) Program

In 1984, a deadly cloud of methyl isocyanate killed thousands of people in Bhopal, India. Shortly after this incident, a serious chemical release took place at a plant in West Virginia. These events accelerated demands by industrial workers, communities, and public interest and environmental organizations for information on toxic chemicals being released outside of the facility.²⁰⁹

Against this background Congress enacted the Emergency Planning and Community Right-to-Know Act (EPCRA) in 1986. The Act's primary purpose is to inform communities and citizens of chemical hazards in their areas, it requires facilities in certain industries, which manufacture, process, or use significant amounts of toxic chemicals, to report annually on their releases of these chemicals. These reports contain information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management. Section 313 of the Act requires EPA and the States to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and make the data available to the public in the

²⁰⁶ John G. Testa, "Legislator Testa Announces Major Changes for Peekskill Wastewater Treatment Plant", Westchester County Board of Legislators." Westchester County Board of Legislators. October 13, 2010. Web. Dec 31, 2010. www.johntesta.com/In%20the%20Newsjt%20files/Testa_Sewer_Plant_Upgrades.pdf

²⁰⁷ *Ibid.*

²⁰⁸ *Ibid.*

²⁰⁹ U.S. EPA. "What is the Toxics Release Inventory Program." www.epa.gov/tri/triprogram/whatis.htm

Toxics Release Inventory (TRI).²¹⁰ Moreover, in 1990 Congress passed the Pollution Prevention Act which requires facilities to report additional data on waste management and source reduction activities to EPA under the TRI.²¹¹

The current TRI toxic chemical list contains 593 individually listed chemicals and 30 chemical categories, including three delimited categories containing 62 chemicals.²¹² Releases of approximately 650 chemicals and chemical categories covering about 23,000 industrial and federal facilities are required by law to be report annually to the EPA through the TRI program.²¹³ If the members of the three delimited categories are counted as separate chemicals then the total number of chemicals and chemical categories is 682.²¹⁴

On November 26, 2010, EPA finalized a rule, which was effective on November 26, 2010, to provide communities with additional information about toxic chemicals being released to the environment. This rule was the first expansion of the TRI program in decades, it added 16 chemicals to the TRI list of reportable chemicals. This action is part of EPA's ongoing efforts to examine the scope of TRI chemical coverage and provide more complete information on toxic chemical releases.²¹⁵

The chemical added by this rule have been classified as “reasonably anticipated to be a human carcinogen” by the National Toxicology Program (NTP) in their Report on Carcinogens (RoC) document.²¹⁶ Based on a review of available studies, EPA concluded that these 16 chemicals could cause cancer in humans and therefore meet the EPCRA section 313(d)(2)(B) statutory listing criteria. Four of the chemicals are being added to TRI under the polycyclic aromatic compounds (PACs) category. The PACs are of special concern because they are persistent, bioaccumulative, toxic (PBT) chemicals and as such, are likely to remain in the environment for a very long time, are not readily destroyed, and may build up or accumulate in body.²¹⁷

The TRI program empowers citizens, through information, to hold companies and local governments accountable in terms of how toxic chemicals are managed. The data often spurs companies to focus on their chemical management practices since they are being measured and made public.²¹⁸

²¹⁰ Reports must be submitted on or before July 1st each year and must cover activities that occurred at the facility during the previous calendar year.

²¹¹ *Ibid.*

²¹² Methyl mercaptan, hydrogen sulfide, and 2,2-dibromo-3-nitropropionamide are under administrative stays and are not currently reportable.

²¹³ U.S. EPA. “TRI Chemical List.” www.epa.gov/tri/trichemicals/index.htm.

²¹⁴ *Ibid.*

²¹⁵ U.S. EPA. “Addition of National Toxicology Program Carcinogens -- Final Rule.”

www.epa.gov/tri/lawsandregs/ntp_chemicals/final.html.

²¹⁶ *Ibid.*

²¹⁷ *Ibid.*

²¹⁸ U.S. EPA. “TRI for Communities.” (2010). www.epa.gov/tri/stakeholders/communities/index.htm

6.2 Toxic Release Inventory Facilities in the Peekskill Area

Facilities with ten or more full-time employees that process more than 25,000 pounds in aggregate, or use greater than 10,000 pounds of any one TRI chemical, are required to report releases annually.²¹⁹ Listed below are the toxic release facilities in the Peekskill area and the listed toxic chemicals that they release into the environment.²²⁰

Mirant Lovett Generating Station: Hydrochloric acid (1995 and after "acid aerosols" only), Sulfuric acid (1994 and after "acid aerosols" only), Barium compounds, Mercury compounds and Lead compounds. (See Sections 4.2 and 5.4 for more information about these facilities)

U.S. Camp Smith Training Site: Lead

Complementary Coatings Corp: Xylene (mixed isomers), certain glycol ethers, Ethylbenzene, Ethylene glycol, and Toluene

Gotham Ink Corporation: Toluene

BASF Peekskill Pigment Facility BASF: Hydrochloric acid (1995 and after "acid aerosols" only), Nitric acid, and Nitrate compounds

US Gypsum Corporation: Mercury and Lead

Other local facilities that report to the toxic inventory program are Wheelabrator (See sections 4.2, 4.4, and 5.4 to find more information on this facility's emissions), Lafarge (See Section 5.4, water pollution) and Indian Point (IP-1, IP-2), also a hazardous waste and solid waste facility, and contributors to surface water pollution and air pollution. (See Sections 4.2, 4.4 and 5.4).

Other Sources of Toxic Releases

Industries are not the only entities responsible for toxic chemical releases. Since the current reporting requirements apply only to industrial sources, sources of toxic chemicals from transportation, farming and households are not included. Additionally, thousands of new chemicals are studied each year and thousands are manufactured. This number exceeds the ability to test them all regarding possible toxic effects on people, plants or animals.²²¹

²¹⁹ U.S. EPA. "What is the Toxics Release Inventory Program." *Op. cit.*

²²⁰ According to the Peekskill area TOXMAP there are a total of 6 TRI facilities in the study area.

²²¹ TOXMAP: Environmental Health e-Maps. "Does TOXMAP show all sources of toxic chemicals released into or present in the environment?" *Op. cit.*

6.3 Environmental and Health Effects Associated with Exposure to Toxic Release Inventory Chemicals

Lead

Exposure to lead occurs when lead dust or fumes are inhaled or ingested via contaminated hands, food, water, cigarettes or clothing. There is no known safe level of exposure to lead—that is, there is no known amount of lead that is too small to cause the body harm.²²²

Lead entering the respiratory and digestive systems is released to the blood and, therefore, distributed throughout the body. More than 90% of the total body burden is accumulated in the bones, where it is stored. Lead in bones may be released into the blood, re-exposing organ systems long after the original exposure.²²³

Lead's toxic nature is well documented. It affects all organs and functions of the body to varying degrees. The frequency and severity of symptoms among exposed individuals depends upon the amount of exposure and the subject being affected. The list below includes some of the key lead-induced health effects.²²⁴

- Neurological Effects
- Peripheral neuropathy
- Fatigue / Irritability
- Impaired concentration
- Hearing loss
- Wrist / Foot drop
- Seizures
- Encephalopathy
- Gastrointestinal Effects
- Nausea
- Dyspepsia
- Constipation
- Colic
- Lead line on gingival tissue
- Reproductive Effects
- Miscarriages/Stillbirths
- Reduced sperm count & motility
- Abnormal sperm
- Heme Synthesis
- Anemia
- Erythrocyte protoporphyrin elevation
- Renal Effects
- Chronic nephropathy with proximal tubular damage
- Hypertension
- Arthralgia
- Myalgia

Take home lead (lead brought into the home and family vehicle on work clothes and equipment) can harm anyone who is exposed. Due to the fact that blood-borne lead crosses the placenta, a pregnant woman with an elevated blood lead level may expose her fetus to the toxic effects of lead. Children's exposure to lead is especially dangerous because it can cause learning problems and serious illness.²²⁵

Hydrochloric Acid

Hydrochloric acid is used in the production of chlorides, fertilizers, and dyes, in electroplating, and in the photographic, textile, and rubber industries. It is also for refining ore in the production of tin and tantalum, for pickling and cleaning of metal products, in removing scale from boilers, for the neutralization of basic systems, as a laboratory reagent, as a catalyst and solvent in

²²² http://en.wikipedia.org/wiki/Lead_poisoning

²²³ New York State: Department of Health. "Lead Exposure in Adults- A Guide for Health Care Providers." www.health.state.ny.us/publications/2584/.

²²⁴ *Ibid.*

²²⁵ *Ibid.*

organic syntheses, and for hydrolyzing starch and proteins in the preparation of various food products.²²⁶

It is corrosive to the eyes, skin, and mucous membranes. Short-term inhalation and exposure may cause eye, nose, and respiratory tract irritation and inflammation, and pulmonary edema and irritation, lesions of the upper respiratory tract, and laryngeal, and have been reported in rodents acutely exposed by inhalation. Acute oral exposure may cause corrosion of the mucous membranes, esophagus, and stomach and dermal contact may produce severe burns, ulceration, and scarring in humans.

Long-term occupational exposure has been reported to cause gastritis, chronic bronchitis, dermatitis, and photosensitization in workers. Prolonged exposure to low concentrations may also cause dental discoloration and erosion. Chronic inhalation exposure has also been reported to cause hyperplasia of the nasal mucosa, larynx, and trachea. EPA has not classified hydrochloric acid for carcinogenicity.²²⁷

Mercury

Mercury is a naturally occurring element that is found in air, water and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Pure mercury is a liquid metal, sometimes referred to as quicksilver that volatilizes readily. It has traditionally been used to make products like thermometers, switches, and some light bulbs.²²⁸

In the United States, people are mainly exposed to methylmercury, an organic compound, when they eat fish and shellfish that contain methylmercury. Whether an exposure to the various forms of mercury will harm a person's health depends on a number of factors. People may be exposed to mercury in any of its forms under different circumstances. As stated by EPA, the factors that determine how severe the health effects are from mercury exposure include these:

- the chemical form of mercury;
- the dose;
- the age of the person exposed (the fetus is the most susceptible);
- the duration of exposure;
- the route of exposure -- inhalation, ingestion, dermal contact, etc.; and
- the health of the person exposed.²²⁹

No human data indicate that exposure to any form of mercury causes cancer, but the human data currently available are very limited. Mercuric chloride has caused increases in several types of tumors in rats and mice, and methylmercury has caused kidney tumors in male mice.

²²⁶ *Ibid.*

²²⁷ U.S. EPA. "Hydrochloric Acid (Hydrogen Chloride)." www.epa.gov/ttnatw01/hlthef/hydrochl.html.

²²⁸ U.S. EPA. "Mercury: Health Effects." www.epa.gov/hg/effects.htm.

²²⁹ *Ibid.*

Scientists only observed these health effects at extremely high doses, above levels that produced other effects. When EPA revised its Cancer Guidelines in 2005, the Agency concluded that neither inorganic mercury nor methylmercury from environmental exposures are likely to cause cancer in humans.²³⁰

High exposures to inorganic mercury have been found to cause damage to the gastrointestinal tract, lungs, the brain and the nervous system, and the kidneys. Both inorganic and organic mercury compounds are absorbed through the gastrointestinal tract and affect other systems via this route. However, organic mercury compounds are more readily absorbed via ingestion than inorganic mercury compounds. Symptoms of high exposures to inorganic mercury include: skin rashes and dermatitis, hair loss, mood swings, memory loss, mental disturbances, and muscle weakness.²³¹

7. LAND USE IMPACTS

Stormwater Runoff

Stormwater runoff is generated when precipitation from rain and snowmelt events flows over land or impervious surfaces and does not percolate or infiltrate into the ground. As the runoff flows over the land or impervious surfaces (paved streets, parking lots, building rooftops, compact soil), it accumulates debris, chemicals, sediment, fertilizers, dirt, pesticides, oil and grease, and many others on the way to our rivers, lakes, and coastal waters adversely affecting water quality if the runoff is discharged untreated.²³²

Stormwater pollution from point sources and non-point sources is a challenging water quality problem. As mentioned by EPA, unlike pollution from industry or sewage treatment facilities, which is caused by a discrete number of sources, stormwater pollution is caused by the daily activities of people everywhere.²³³ Stormwater runoff is one of the most common causes of water pollution.

Other Non-Point Sources (NPS) of Pollution

Non-point source pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. The term "non-point source" is defined to mean any source of water pollution that does not meet the legal definition of "point source" in Section 502(14) of the Clean Water Act.²³⁴

²³⁰ More technical information is available in volume V of the 1997 Mercury Study Report to Congress. Available here: U.S. EPA. "Mercury: Health Effects." www.epa.gov/hg/effects.htm.

²³¹ U.S. EPA. "Mercury: Health Effects." *Op. cit.*

²³² U.S. EPA. "NPDES: Stormwater Program." http://cfpub.epa.gov/npdes/home.cfm?program_id=6.

²³³ U.S. EPA. "NPDES: Stormwater Outreach Materials and Reference Documents."

<http://cfpub.epa.gov/npdes/stormwatermonth.cfm>.

²³⁴ U.S. EPA. "Polluted Runoff (Nonpoint Source Pollution): NPS Categories." www.epa.gov/owow_keep/NPS/categories.html.

The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.²³⁵ This term does not include agricultural storm water discharges and return flows from irrigated agriculture.

Unlike pollution from industrial and sewage treatment plants, nonpoint source (NPS) pollution comes from many diffuse sources. As mentioned above (see "Stormwater Runoff Section) NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.²³⁶

Non-point source pollution can include:

- Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas
- Oil, grease and toxic chemicals from urban runoff and energy production
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks
- Salt from road salting, irrigation practices and acid drainage from abandoned mines
- Bacteria and nutrients from livestock, pet wastes and faulty septic systems
- Atmospheric deposition and hydromodification

States report that non-point source pollution is the leading remaining cause of water quality problems.²³⁷ The effects of non-point source pollutants on specific waters vary and may not always be fully assessed. However, EPA has pointed out that these pollutants have harmful effects on drinking water supplies, recreation, fisheries and wildlife.²³⁸

Marinas and Boating

Marinas and recreational boating are very popular uses of coastal waters. The growth of recreational boating, along with the growth of coastal development in general, has led to an increased awareness of the need to protect the environmental quality of our waterways. Because marinas are located right at the water's edge, there is a strong potential for marina waters to become contaminated with pollutants generated from the various activities that occur at marinas—such as boat cleaning, fueling operations and marine head discharge—or from stormwater runoff from parking lots and hull maintenance and repair areas into marina basins.

The Coastal Zone Act Reauthorization Amendments of 1990, known as CZARA, require that EPA describe sets of management measures to be used for the control of pollution from various

²³⁵ U.S. EPA. "Polluted Runoff (Nonpoint Source Pollution): Basic Information." www.epa.gov/owow_keep/NPS/whatis.html.

²³⁶ *Ibid.*

²³⁷ U.S. EPA. "Polluted Runoff (Nonpoint Source Pollution): NPS Categories," *Op. cit.*

²³⁸ *Ibid.*

nonpoint sources, including marinas and recreational boating. States will incorporate these measures into their own non-point source pollution control programs to help achieve water quality standards.

Roads, Highways and Traffic

Runoff controls are essential to preventing polluted runoff from roads, highways and bridges from reaching surface waters. Erosion during and after construction of roads, highways and bridges can contribute large amounts of sediment and silt to runoff waters, which can deteriorate water quality and lead to fish kills and other ecological problems.²³⁹

Heavy metals, oils, other toxic substances and debris from construction traffic and spillage can be absorbed by soil at construction sites and carried with runoff water to lakes, rivers and bays.²⁴⁰



Sitting at the traffic light right after going through the Annsville Circle. Route 6 and Rt. 202 carry traffic to and from eastern Westchester County through Peekskill to Bear Mountain Bridge. Alternate routes can be made available and are very needed. www.flickr.com/photos/pixierella/3338800415/

Runoff control measures can be installed at the time of road, highway and bridge construction to reduce runoff pollution both during and after construction. Such measures can effectively limit the entry of pollutants into surface and ground waters and protect their quality, fish habitats and public health. Pesticides and fertilizers used along roadway rights-of-way and adjoining land can pollute surface waters and ground water when they infiltrate into soil or are blown by wind from the area where they are applied.

Table 8. Typical pollutants found in runoff from roads and highways.

	Pollutant	Source
Sedimentation	PM	Pavement wear, vehicles, atmosphere, maintenance activities
Nutrients	Nitrogen & Phosphorus	Atmosphere and fertilizer application
Heavy Metals	Lead	Residues from leaded gasoline from auto exhausts and tire wear
	Zinc	Tire wear, motor oil and grease

²³⁹ U.S. EPA. "Polluted Runoff (Nonpoint Source Pollution): Roads, Highways, and Bridges." www.epa.gov/owow_keep/NPS/roadshwys.html.

²⁴⁰ *Ibid.*

	Pollutant	Source
	Iron	Auto body rust, steel highway structures such as bridges and guardrails and moving engine parts
	Copper	Metal plating, bearing and brushing wear, moving engine parts, brake lining wear, fungicides and insecticides
	Cadmium	Tire wear and insecticides application
	Chromium	Metal plating, moving engine parts and brake lining wear
	Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, brushing wear, brake lining wear and asphalt paving
	Manganese	Moving engine parts
	Cyanide	Anti-caking compounds used to keep deicing salt granular
	Sodium, calcium & chloride	Deicing salts
	Sulphates	Roadway beds, fuel and deicing salts
Hydrocarbons	Petroleum	Spills, leaks, antifreeze and hydraulic fluids and asphalt surface leachate

Brownfields

A brownfield is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.²⁴¹ It is estimated that there are more than 450,000 brownfields in the United States. Cleaning up and reinvesting in these properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves, reduces blight, and takes development pressures off greenspaces and working lands, protects the environment and health of the communities.²⁴²

Nearly every community in New York State is affected by contaminated and abandoned properties, or brownfield sites. Left untouched, brownfields pose environmental, legal and financial burdens on a community and its taxpayers. However, after cleanup, these sites can

²⁴¹ U.S. EPA. "Brownfields and Land Revitalization." www.epa.gov/brownfields/mission.htm

²⁴² *Ibid.*

again become the powerful engines for economic vitality, jobs and community pride that they once were.²⁴³

Because the City of Peekskill is an old industrial city it is sprinkled with brownfields. The major ones are: the recently closed Karta Corporation property (See Section 4.4 for background information), the Corporate Drive Landfill site, and the Peekskill Landing, north of Riverfront Green. In general any of the parcels on Lower South Street would be considered brownfields, and are therefore eligible for Environmental Restoration Program (ERP) grants for the remediation and investigation of environmental contamination. These sites in the City of Peekskill are eligible for state assistance through the ERP because the City is not responsible for having caused the contamination.

Corporate Drive Landfill Site

The Corporate Drive Landfill closed in the mid-1970's. The site is located next to Annsville Creek, a scenic waterway popular with kayakers that leads into the Hudson River. The former landfill was used for the disposal of household and municipal solid waste, but not toxic materials, from the 1930's to 1974, when it was covered with two feet of soil, which was the requirement at that time.

In 2007 the City of Peekskill entered in a partnership with a private developer to cap the 11-acre municipal landfill and build the first Class A office space in decades. Although the project was approved by the city's planning commission on July 10, 2007 it has not materialized.

The City of Peekskill is now under a consent order from the NYSDEC, making the site ineligible for remediation funds from brownfields programs.

Croton Point Landfill

Another large landfill eight miles south of Peekskill, the 113-acre Croton Point Landfill, closed for operation in 1986 and was capped under a consent order between the NYSDEC and Westchester County. This county-owned landfill, which began operations in 1927, was closed in 1986 holding more than 10.4 million cubic yards of garbage. Situated on a peninsula on the Hudson River, the landfill was created within the boundaries of the 504-acre Croton Point Park (a siting decision that would not be allowed under current regulations).²⁴⁴

The closure involved filling the landfill with over 550,000 cubic yards of clean fill, installation of a landfill gas collection system, and covering the entire landfill with polyethylene liner, natural cover and other capping material. The project was completed in 1995 at a cost of \$40 million.

²⁴³ NYS Department of Environmental Conservation. "Environmental Cleanup and Brownfields." www.dec.ny.gov/chemical/brownfields.html.

²⁴⁴ Waste Age. "Westchester County Turns: Landfill Into Recreational Park." July 1, 1995. http://wasteage.com/mag/waste_new_york_county

The \$1 million leachate collection sewer system at the Croton Point Landfill transports leachate to the public sewer system through a series of pumping stations, gravity sewers and forcemains for treatment at the Ossining wastewater treatment plant.²⁴⁵

Peekskill Landing Site

During 2007, the City of Peekskill received \$1,294,606 in Environmental Restoration Program (ERP) grants to remediate the property located at 117, 109, 194 North Water Street. The property consists of four tax parcels, totaling approximately 4.7 acres located on the eastern shore of the Hudson River in the City of Peekskill, Westchester County. The site is bordered to the north and east by the Metro-North Railroad and to the south by the Peekskill Riverfront Green Park. With the exception of a deteriorating waterfront bulkhead and former dock area, there were no structures that occupied the site. Remnants of several foundations were located on the central and southern portions of the site. Historical activities included coal storage, foundry operations, stove works/metal manufacturing, plating, brick works, and boat maintenance/storage. These activities resulted in metal, semi-volatile organic compound (SVOC), and volatile organic compound (VOC) contamination in surface and subsurface soils.

The remedial program for this site was based on the findings of a site investigation, performed by the City of Peekskill. The investigation included test pitting, well installation, and geoprobe sampling. The media sampled were surface and subsurface soils, groundwater, and sediments. Low-level, localized VOC and SVOC groundwater contamination was found in the northern portion of the site. Low-level SVOC and low-level metals contamination was found in surface and subsurface soils throughout the site. The remedy selected in the March 2006 Record of Decision consisted of: further characterization in select areas (potential hot spots) which could require excavation and proper disposal; placement of a one-foot soil cover, underlain by a visible demarcation barrier such as a geotextile; an environmental easement restricting the site to passive recreation activities; a site management plan which specifies procedures to be followed during post-remedial, invasive activities (i.e. utility installations/maintenance); an inspection schedule; a groundwater monitoring plan; and a periodic certification that the in-place remedy is still effective and that on-site activities have not adversely affected the remedy.

The City of Peekskill entered into a co-ownership agreement with Scenic Hudson Land Trust, Inc. on July 31, 1998. Upon completion of the remedial program, the City developed the property into a waterfront park, which Scenic Hudson manages.

²⁴⁵ Dan Hendrick. Croton Point Landfill, A New Energy Source?. September 2005. www.savinengineers.com/environmental/portfolio.asp?ID=25.

8. PEEKSKILL HEALTH DATA

Health Assessment of the City of Peekskill as Compared to the Higher-Income, Lower-Minority Communities of the Towns of Cortlandt, Yorktown and Somers, and the Count of Westchester as a Whole.

8.1 Introduction

Any environmental justice assessment must consider the health status of the environmental justice community and the potential human health effects of current and increased environmental burdens. A population with a lower health status, whether the lower health status is caused by environmental or other factors, may be more vulnerable to the effects of increased environmental exposures.²⁴⁶

The NYS DEC and NYS DOH—through a joint Health Outcome Data Work Group (HODWG)—specified the criteria required to evaluate the health status of a community. The HODWG identified five medical conditions that should be included in an analysis of a community's health status:

- 1) respiratory diseases,
- 2) cardiovascular diseases,
- 3) cancer,
- 4) prenatal health, and
- 5) lead exposure

Health outcome data, both counts and rates, for these five health related events, are available from reliable, publicly available data sources at the zip code level, thus allowing for a focused analysis of a community's health status.

For this health assessment, we have compared the health outcome data for the City of Peekskill (10566)—our Community of Concern (COC)—to the health outcome data for the Towns of Cortlandt (10567), Yorktown (10598), and Somers (10589), and to Westchester County as a whole.

The U.S. Census 2000 reports that 35% of Peekskill residents are African American or Hispanic, as compared to 10% in the Town of Cortlandt, 11% in the Town of Yorktown, and 7% in the Town of Somers. In addition, 12% of Peekskill residents are living below the

²⁴⁶ Report of the Health Outcome Data Work Group, NYS DEC, NYS DO. www.dec.ny.gov/docs/permits_ej_operations_pdf/hodreport.pdf

poverty level, as compared to 3% in the Town of Cortlandt, 4% in the Town of Yorktown and 2% in the Town of Somers. Therefore, the City of Peekskill, a low-income, high minority community, is our COC.

We find that of the four communities, the City of Peekskill has the:

- highest rate of asthma emergency department (ED) visits and hospitalizations,
- highest rate for infants born weighing less than 2500 grams (5.5125 pounds).
- highest rate of elevated blood lead levels as a percentage of individuals screened

It is important to note that the health outcomes based on acute exposures, such as asthma or lead poisoning, may be more relevant to where people currently live than those, such as cancer, that are based on a more chronic exposure. Therefore, data based on acute exposures may be more relevant to an assessment of the impacts of current and future environmental burdens for the COC. The findings below offer greater detail.

8.2 Respiratory Diseases

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease²⁴⁷ includes bronchitis, chronic bronchitis, emphysema, asthma, bronchiectasis, and extrinsic allergic alveolitis. Of the four communities, Somers had the highest rate of hospital admissions²⁴⁸ due to chronic obstructive pulmonary disease with a rate of 29.61, followed by Peekskill with a rate of 21.48.²⁴⁹ (See Table 8.1.)

²⁴⁷ Chronic obstructive pulmonary disease (ICD 490-496)

²⁴⁸ Data Source: www.InfoShare.org

²⁴⁹ Hospital admissions data may be biased based on the availability of, or lack of, insurance coverage.

Table 8.1 Chronic Obstructive Pulmonary Disease (COPD) & Allied Conditions (490-496) Diagnosis - Hospital Admissions

COPD & Allied Conditions (490-496) Diagnosis - Average Hospital Admissions Over 2006 to 2008

Data Source: InfoShare.org

	New York State		Westchester		10566 – Peekskill		10567 – Cortlandt Manor		10589 – Somers		10598 - Yorktown Heights	
	Admission ('06-'08)	Rate	Admission ('06-'08)	Rate	Admission ('06-'08)	Rate	Admission ('06-'08)	Rate	Admission ('06-'08)	Rate	Admission ('06-'08)	Rate
Annual Population (2007)	19,297,729		949,041		25,600		20,912		8,218		30,119	
490-Bronchitis Nos	1,090	0.57	32	0.33	-	0.13	1	0.32	-	-	-	-
491-Chronic Bronchitis	23,243	12.04	921	9.71	22	8.46	13	6.22	13	15.41	22	7.19
492-Emphysema	720	0.37	43	0.45	-	-	-	-	1	1.22	2	0.66
493-Asthma	31,816	16.49	1,135	11.96	30	11.59	18	8.77	6	6.90	17	5.75
494-Bronchiectasis	665	0.34	42	0.44	2	0.78	-	0.16	1	1.22	1	0.44
495-Extrinsic Allergic Alveolitis	69	0.04	3	0.03	-	-	-	-	-	-	-	-
496-Chronic Airway Obstruction Nec	985	0.51	85	0.89	1	0.52	2	0.80	4	4.87	4	1.22
Totals: COPD (490-496)	58,588	30.36	2,260	23.82	55	21.48	34	16.26	24	29.61	46	15.27

Key:

Highest Rates

Source of 2007 population numbers: American Community Survey, 2005-2007, Table B01001.

Source of NYS Population numbers: www.health.state.ny.us/statistics/ny_asthma/ed/asthmaed6.htm

Rate per 10,000 Population

Death rates due to COPD vary by age groups, with Peekskill ranking highest for patients 75 to 84 years old. For this age group, the mortality rate for Peekskill of those suffering with COPD was higher than that for Westchester County's as a whole (see Table 8.2).

Peekskill followed Somers when comparing the overall rate of COPD hospitalizations. However, as seen in Table 8.2 below, Peekskill is on par with Somers when comparing rates of death due to this disease and with such few data points and small differences this finding may not be very significant.²⁵⁰

Table 8.2 Death due to chronic obstructive pulmonary disease by Age Category for 2001

Death due to chronic obstructive pulmonary disease by Age Category for 2001

Data Source: InfoShare.org

Area Name

	Westchester		10566 – Peekskill		10567 – Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality
< 1 yr	0	0.00%	0	0.00%	0	unknown	0	0.00%	0	0.00%
1-14 yr		0.00%	0	0.00%	0	unknown	0	0.00%	0	0.00%
15-24 yr		0.00%	0	0.00%	0	unknown	0	0.00%	0	0.00%
25-34 yr	2	0.03%	0	0.00%	0	unknown	0	0.00%	0	0.00%
35-44 yr		0.00%	0	0.00%	0	unknown	0	0.00%	0	0.00%
45-54 yr	3	0.04%	0	0.00%	0	unknown	0	0.00%	0	0.00%
55-64 yr	16	0.22%	0	0.00%	0	unknown	0	0.00%	1	0.31%
65-74 yr	68	0.94%	1	0.52%	0	unknown	2	1.27%	1	0.31%
75-84 yr	106	1.46%	4	2.09%	0	unknown	2	1.27%	2	0.63%
> 84 yr	91	1.25%	1	0.52%	0	unknown	1	0.63%	0	0.00%
Totals	286	3.94%	6				5		4	

Key: Highest Rates

²⁵⁰ Data Source: www.InfoShare.org

Asthma ²⁵¹

Peekskill has the highest rate of asthma-related emergency department (ED) visits²⁵², and the highest rate of asthma hospitalizations²⁵³. Peekskill has two to four times the rate of asthma ED visits than found in the other three communities (see Table 8.3) and has twice the rate of asthma hospitalizations as the Town of Yorktown (see Table 8.4).

Table 8.3 Asthma Emergency Department (ED) Visit Rate per 10,000 Population

Asthma Emergency Department (ED) Visit Rate per 10,000 Population

Source: 2006-2008 SPARCS Data as of December, 2009

Source of Data: www.health.state.ny.us/statistics/ny_asthma/index.htm

Age Group	10566 - Peekskill			10567 - Cortlandt Manor			10589+ - Somers			10598 - Yorktown Heights		
	ED Visits	Annual Population	Rate	ED Visits	Annual Population	Rate	ED Visits	Annual Population	Rate	ED Visits	Annual Population	Rate
0-4	63	1,722	122.0	35	1,513	77.1	5	333	50.1	30	1,928	51.9
5-14	100	3,556	93.7	35	2,980	39.1	6	758	26.4	47	3,933	39.8
15-17	19	1,126	56.2	27	1,176	76.5	5	345	48.3	8	1,571	17.0
18-64	426	16,140	88.0	114	12,702	29.9	19	3,842	16.5	124	17,909	23.1
65+	39	3,056	42.5	23	2,541	30.2	13	2,940	14.7	21	4,778	14.7
Total	647	25,600	84.2	234	20,912	37.3	48	8,218	19.5	230	30,119	25.5

+ - Less than or equal to 10 ED visits, therefore rate may not be stable (RSE>30%).

Key:

Highest Rates

²⁵¹ Asthma (ICD 493)

²⁵² www.health.state.ny.us/statistics/ny_asthma/index.htm

²⁵³ www.health.state.ny.us/statistics/ny_asthma/

Table 8.4 Asthma Hospital Discharge Rate per 10,000 Population

Asthma Hospital Discharge Rate per 10,000 Population

Source: 2006-2008 SPARCS Data as of December, 2009

Source of Data: www.health.state.ny.us/statistics/ny_asthma

Age Group	10566 – Peekskill			10567 – Cortlandt Manor			10589+ - Somers			10598 – Yorktown Heights		
	Hospital Discharge	Annual Population	Rate	Hospital Discharge	Annual Population	Rate	Hospital Discharge	Annual Population	Rate	Hospital Discharge	Annual Population	Rate
0-4	17	1,722	32.9	10	1,513	22.0		333	0.0	17	1,928	29.4
5-14	6	3,556	5.6	4	2,980	4.5	3	758	13.2	4	3,933	3.4
15-17		1,126	0.0	1	1,176	2.8	1	345	9.7		1,571	0.0
18-64	65	16,140	13.4	26	12,702	6.8	4	3,842	3.5	22	17,909	4.1
65+	23	3,056	25.1	23	2,541	30.2	18	2,940	20.4	19	4,778	13.3
Total	111	25,600	14.5	64	20,912	10.2	26	8,218	10.5	62	30,119	6.9

+ - Less than or equal to 10 ED visits, therefore rate may not be stable (RSE>30%).

Key:

Highest Rates

From 2006 through 2008, there were 18 asthma related deaths in Westchester County. However, due to the relatively low incidence of such deaths, these statistics were not available at the zip code level.

Table 8.5 Asthma - Deaths and Death Rates Per 1,000,000 Residents

Asthma Deaths and Death Rates by County for Hudson Valley Region

Asthma - Deaths and Death Rates Per 1,000,000 Residents

Source: 2006-2008 Vital Statistics Data as of February, 2010

Adjusted Rates Are Age Adjusted to The 2000 United States Population

Source: www.health.state.ny.us/statistics/ny_asthma/mort/ast0.htm

Region / County	Deaths			Population 2007	Crude Rate	Adjusted Rate
	2006	2007	2008			
Reg-6 Hudson Valley						
Sullivan	2	1	2	5	76,303	21.8
Orange	6	4	3	13	377,169	11.5
Dutchess	3	2	3	8	292,746	9.1
Rockland	4	2	2	8	296,483	9
Ulster	0	4	0	4	181,860	7.3
Westchester	3	7	8	18	951,325	6.3
Putnam	1	0	0	1	99,489	3.4
Region Total	19	20	18	57	2,275,375	8.4
New York State Total	241	232	241	714	19,297,729	12.3

Key: Highest Rate

8.3 Cardiovascular Diseases

Of the four communities, Peekskill had the second highest rate of Cardiovascular and other circulatory system disease²⁵⁴ hospitalizations and was slightly below the County rate. Somers had the highest rate of hospitalizations.

Table 8.6 Cardiovascular and Other Diseases of the Circulatory System (390-459) Diagnosis - Hospital Admissions

Cardiovascular and Other Diseases of the Circulatory System (390-459) Diagnosis - Hospital Admissions (Annual Average from 2006 - 2008)

Data Source: InfoShare.org

Annual Population (2007)	New York State		Westchester		10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate
19,297,729	425,321	220.4	949,041	18,087	25,600	187.9	20,912	345	8,218	378.8	30,119	180.1
Circulatory System (390-459)					Admissions (2006-'08)	Rate						
					481	165.0			311	542		

Source of 2007 population numbers: American Community Survey, 2005-2007, Table B01001.
 Source of NYS Population numbers: www.health.state.ny.us/statistics/ny_asthma/ed/asthmaed6.htm
 Rate per 10,000 Population
Key: Highest Rate

While the rate of hospitalizations for cardiovascular and other diseases was highest in Somers, followed by Peekskill, the death rate due to these diseases was lowest in Somers and highest in Peekskill. In fact, Peekskill's death rate due to these diseases was higher than that of the County average (see Table 8.7). These results point to the possibility that hospital admission data are skewed by the availability of insurance, or the lack of insurance and thus adequate health care in low-income communities.²⁵⁵

²⁵⁴ Data Source: www.InfoShare.org ICD 390-459, 2006, 2007, 2008
²⁵⁵ No statistics were reported for Cortlandt Manor.

Table 8.7 Death due to all Cardiovascular Disease by Age Category for 2001

Death due to all cardiovascular disease by Age Category for 2001

Data Source: InfoShare.org

Area Name	Westchester		10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality
< 1 yr	2	0.03%	0	0.00%	0	unknown	0	0.00%	0	0.00%
1-14 yr	1	0.01%	0	0.00%	0	unknown	0	0.00%	0	0.00%
15-24 yr	3	0.04%	0	0.00%	0	unknown	0	0.00%	0	0.00%
25-34 yr	11	0.15%	1	0.52%	0	unknown	0	0.00%	0	0.00%
35-44 yr	44	0.61%	1	0.52%	0	unknown	0	0.00%	3	0.94%
45-54 yr	89	1.23%	1	0.52%	0	unknown	0	0.00%	2	0.63%
55-64 yr	145	2.00%	3	1.57%	0	unknown	1	0.63%	2	0.63%
65-74 yr	369	5.08%	13	6.81%	0	unknown	6	3.80%	16	5.00%
75-84 yr	797	10.98%	25	13.09%	0	unknown	14	8.86%	27	8.44%
> 84 yr	1,411	19.44%	33	17.28%	0	unknown	33	20.89%	66	20.63%
Total	2,872	39.56%	77	40.31%		unknown	54	34.18%	116	36.25%

NOTE: All data values for Cortlandt were provided as 0, therefore this is not a valid dataset.

Key:

Highest Rates

The rate of hospital admissions for all diseases of the heart²⁵⁶, which include 29 specific medical conditions, was again highest in Somers, followed by Peekskill. Of the 29 individual conditions, 9 had too few hospitalizations to be reliably reported. Of the remaining 20 conditions, Peekskill's hospitalization rate exceeded that of County average for 12, and was highest across the four communities for 6 of the 20 diagnoses (see Table 8.7).

²⁵⁶ Data Source: www.InfoShare.org (ICD 390-398, 402, 404-429), 2006, 2007, 2008

Table 8.7 All Diseases of the Heart (390-398, 402, 404-429) Diagnosis - Hospital Admissions

All Diseases of the Heart (390-398, 402, 404-429) Diagnosis - Hospital Admissions; Data Source: InfoShare.org

	Westchester		10566 – Peekskill		10567 – Cortlandt Manor		10589 – Somers		10598 – Yorktown Heights	
	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate	Admissions (2006-'08)	Rate
Annual Population (2007)	949,041		25,600		20,912		8,218		30,119	
390-Rheumatic Fever	1	0.01	0	0.00	0	0.00	0	0.00	0	0.00
391-Rh. Fever w/heart Involvement	2	0.02	0	0.00	0	0.00	0	0.00	0	0.11
392-Rheumatic Chorea	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
393-Chronic Rheumatic Pericarditis	1	0.01	0	0.00	0	0.00	0	0.00	0	0.00
394-Diseases of Mitral Valve	12	0.13	0	0.00	0	0.00	0	0.00	1	0.22
395-Aortic Valve Disease	4	0.05	0	0.00	0	0.00	0	0.00	1	0.44
396-Disease of Mitral and Aortic Valve	42	0.44	2	0.78	1	0.32	1	1.62	2	0.55
397-Diseases of Endocardial Structure	2	0.02	0	0.00	0	0.00	0	0.00	0	0.00
398-Rheumatic Heart Disease	43	0.45	2	0.91	3	1.28	1	0.81	6	1.88
402-Htn Heart Disease	114	1.20	5	2.08	2	0.80	1	1.62	3	1.11
404-Hypertensive Heart/renal Disease	87	0.92	4	1.56	2	0.96	1	0.81	3	1.11
405-Secondary Hypertension	1	0.01	0	0.00	0	0.00	0	0.00	0	0.00
410-Acute Myocardial Infarction	1,392	14.67	57	22.27	38	18.33	23	27.99	52	17.15
411-Ischemic Heart Disease	190	2.00	4	1.43	2	0.80	3	3.65	4	1.22
412-Old Myocardial Infarction	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
413-Angina Pectoris	60	0.63	1	0.52	1	0.32	0	0.00	2	0.66
414-Chronic Ischemic Heart Disease	2,607	27.47	53	20.83	51	24.39	42	50.70	85	28.22
415-Acute Pulmonary Heart Disease	314	3.31	10	3.91	10	4.94	3	4.06	11	3.54
416-Chronic Pulmonary Heart Disease	33	0.35	1	0.26	1	0.48	1	1.62	1	0.33
417-Pulmonary Circulation Diseases	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
420-Acute Pericarditis	59	0.63	2	0.65	0	0.16	1	1.62	2	0.55
421-Acute and Subacute Endocarditis	57	0.60	1	0.26	1	0.64	0	0.41	2	0.66
422-Acute Myocarditis	4	0.05	0	0.13	0	0.00	0	0.00	0	0.11
423-Diseases of Pericardium	66	0.70	4	1.56	2	0.80	1	0.81	2	0.77
424-Diseases of Endocardium	283	2.99	8	2.99	6	2.71	6	7.30	11	3.76
425-Cardiomyopathy	58	0.61	3	1.30	2	0.80	1	1.22	2	0.77
426-Conduction Disorder	217	2.29	6	2.34	5	2.23	5	6.08	6	2.10

427-Cardiac Dysrhythmias	1,870	19.70	40	15.49	29	13.71	40	48.67	52	17.15
428-Heart Failure	2,032	21.41	55	21.35	34	16.10	33	40.56	53	17.49
429-III-defined Heart Disease	14	0.15	0	0.00	0	0.00	0	0.00	1	0.44
Totals	9,568	100.82	258	100.65	188	89.74	164	199.56	302	100.38

Key: Highest Rates Rate per 10,000 Population

Source of 2007 population numbers: American Community Survey, 2005-2007, Table B01001.

Source of NYS Population numbers: www.health.state.ny.us/statistics/ny_asthma/ed/asthmaed6.htm

Again, we find that when analyzing mortality rates for these conditions, Peekskill has the highest rate, and exceeds Westchester County's total percentage for this category. See Table 8.8.

Table 8.8 Death due to all Heart Disease by Age Category for 2001

Death due to all Heart Disease by Age Category for 2001

DataSource: Infoshare.org

Death due to all heart disease	Westchester		10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
	7,259	% of Total Mortality	191	% of Total Mortality	276	% of Total Mortality	158	% of Total Mortality	320	% of Total Mortality
< 1 yr	0	0.00%	0	0.00%	0	unknown	0	0.00%	0	0.00%
1-14 yr	1	0.01%	0	0.00%	0	unknown	0	0.00%	0	0.00%
15-24 yr	2	0.03%	0	0.00%	0	unknown	0	0.00%	0	0.00%
25-34 yr	6	0.08%	0	0.00%	0	unknown	0	0.00%	0	0.00%
35-44 yr	34	0.47%	1	0.52%	0	unknown	0	0.00%	3	0.94%
45-54 yr	72	0.99%	1	0.52%	0	unknown	0	0.00%	1	0.31%
55-64 yr	118	1.63%	1	0.52%	0	unknown	1	0.63%	1	0.31%
65-74 yr	299	4.12%	12	6.28%	0	unknown	6	3.80%	14	4.38%
75-84 yr	672	9.26%	21	10.99%	0	unknown	12	7.59%	22	6.88%
> 84 yr	1,165	16.05%	29	15.18%	0	unknown	31	19.62%	54	16.88%
Totals	2,369	32.64%	65				50		95	

Key:

Highest Rates

8.4 Cancer

Four categories of cancer were assessed for this study: 1) breast cancer, 2) lung cancer, 3) prostate cancer, and 4) colorectal cancer.²⁵⁷

Peekskill was below Westchester County's rate of diagnoses for breast, prostate and colorectal cancers and slightly above for lung cancer. Somers had the highest rate of diagnoses for all four of types of cancer. See Table 8.9.

Table 8.9 Cancers In Scope of Environmental Justice Project

Average Annual New Diagnosis for 2003 and 2007

Cancers In Scope of Environmental Justice Project - Average Annual New Diagnosis for 2003 and 2007

Data Source: NYS DOH Cancer Map (https://apps.nyhealth.gov/statistics/cancer/environmental_facilities/mapping/map/)

Westchester		10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
Female	490,186	Female	11,940	Female	9,421	Female	4,231	Female	15,806
Male	458,864	Male	12,469	Male	9,426	Male	3,739	Male	14,683
New Diagnosis (2003 - '07)	Rate	New Diagnosis (2003 - '07)	Rate	New Diagnosis (2003 - '07)	Rate	New Diagnosis (2003 - '07)	Rate	New Diagnosis (2003 - '07)	Rate
793	16.18	12.6	10.55	19.8	21.02	16.4	38.76	29.4	18.60
781	17.02	19.2	15.40	20.0	21.22	17.6	47.07	26.0	17.71
611	6.44	16.2	6.64	15.8	8.38	12.6	15.81	18.2	5.97
526	5.55	10.4	4.26	12.0	6.37	10.2	12.80	18.4	6.03

Key

Highest Rate

²⁵⁷ Data was obtained for the targeted cancers or group for the years 2003 through 2007 on the zip code and County level. The rate was calculated per 10,000 population. Data for the Town of Cortlandt was not provided under zip code 10567. In 2001, mortality data for the Town of Cortlandt was included with that of the City of Peekskill.

²⁵⁸ ACS: American Community Survey (ACS) - an ongoing U.S. Census Bureau statistical survey sent to approximately 250,000 addresses monthly (or 3 million per year). It is the largest survey other than the decennial census that the Census Bureau administers.

There were a total of 12 deaths attributed to breast cancer for all four study areas. While we report the number of deaths by community and age group in Table 8.10, the numbers are too few to be used to calculate reliable rates.

Table 8.10 Death Due To Malignant Cancers In Breast By Age Category For 2001

Death Due To Malignant Neoplasms In Breast By Age Category For 2001

DataSource: Infoshare.org

Area Name Age Range	Westchester 7,259	10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights		% of Total Mortality	% of Total Mortality
		Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality	Total Mortality	% of Total Mortality		
< 1 yr-14 yr	-	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
15-24 yr	-	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
25-34 yr	-	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
35-44 yr	8	0	0.11%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
45-54 yr	19	0	0.26%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
55-64 yr	21	0	0.29%	0	0.00%	0	0.00%	0	0.00%	1	0.31%
65-74 yr	31	1	0.43%	1	0.52%	1	0.36%	1	0.63%	1	0.31%
75-84 yr	21	2	0.29%	2	1.05%	2	0.72%	2	1.27%	0	0.00%
> 84 yr	21	0	0.29%	0	0.00%	0	0.00%	0	0.00%	1	0.31%
										320	

Key:
Highest Rate

There were no reported deaths attributed to prostate cancer for any resident of Westchester County.

Mortality rates due to lung cancer were not reported by zip code. Mortality rates due to all respiratory cancers were highest in Peekskill for people 55 to 84 years old and significantly exceeded the County's percentage for those 55 to 64 and 75 to 84 years of age. Yorktown Heights had the highest percentages for 45 – 54 yr. and older than 84 yr. See Table 8.11.

Table 8.11 Death Due To Respiratory Cancers By Age Category For 2001

Death Due To Respiratory Neoplasms By Age Category For 2001

DataSource: Infoshare.org

Area Name	Westchester	7,259	% of Total Mortality	10566 - Peekskill	191	% of Total Mortality	10567 - Cortlandt Manor	276	% of Total Mortality	10589 - Somers	158	% of Total Mortality	10598 - Yorktown Heights	320	% of Total Mortality
< 1 yr-14 yr	-	-	0.00%	0	0.00%	0	n/a	0	0.00%	0	0.00%	0	0.00%	0	0.00%
15-24 yr	-	-	0.00%	0	0.00%	0	n/a	0	0.00%	0	0.00%	0	0.00%	0	0.00%
25-34 yr	-	-	0.00%	0	0.00%	0	n/a	0	0.00%	0	0.00%	0	0.00%	0	0.00%
35-44 yr	4	4	0.06%	0	0.00%	0	n/a	0	0.00%	0	0.00%	0	0.00%	0	0.00%
45-54 yr	28	28	0.39%	2	1.05%	0	n/a	0	0.00%	0	0.00%	4	1.25%	4	1.25%
55-64 yr	46	46	0.63%	5	2.62%	0	n/a	0	0.00%	0	0.00%	2	0.63%	2	0.63%
65-74 yr	109	109	1.50%	2	1.05%	0	n/a	0	0.00%	1	0.63%	3	0.94%	3	0.94%
75-84 yr	117	117	1.61%	4	2.09%	0	n/a	0	0.00%	1	0.63%	4	1.25%	4	1.25%
> 84 yr	40	40	0.55%	1	0.52%	0	n/a	0	0.00%	1	0.63%	4	1.25%	4	1.25%

Key:
Highest Rate

Colorectal cancer mortality data was not reported by zip code. Mortality rates due to all gastrointestinal cancers were highest in Peekskill for those aged 55 to 64 and 75 to 84. For these age groups, Peekskill's mortality rate due to gastrointestinal cancers was more than double the County's percentages. Somers had the highest percentages for 65-74 yr. and older than 84 years of age. See Table 8.12.²⁵⁹

²⁵⁹ Data for the Town of Cortlandt was not provided under zip code 10567. In 2001, mortality data for the Town of Cortlandt was included with that of the City of Peekskill.

Table 8.12 Death Due To Gastrointestinal Cancers By Age Category For 2001

Death Due To Gastrointestinal Neoplasms By Age Category For 2001

Data Source: Infoshare.org

Area Name	West-chester	% of Total Mortality	10566 - Peekskill	% of Total Mortality	10567 - Cortlandt Manor	% of Total Mortality	10589 - Somers	% of Total Mortality	10598 - Yorktown Heights	% of Total Mortality
Age Range	7,259		191		276		158		320	
<1 yr-24 yr	-	0.00%	0	0.00%	0	n/a	0	0.00%	0	0.00%
25-34 yr	1	0.01%	0	0.00%	0	n/a	0	0.00%	0	0.00%
35-44 yr	5	0.07%	0	0.00%	0	n/a	0	0.00%	0	0.00%
45-54 yr	29	0.40%	1	0.52%	0	n/a	0	0.00%	1	0.31%
55-64 yr	39	0.54%	3	1.57%	0	n/a	0	0.00%	0	0.00%
65-74 yr	91	1.25%	2	1.05%	0	n/a	2	1.27%	3	0.94%
75-84 yr	103	1.42%	7	3.66%	0	n/a	3	1.90%	2	0.63%
> 84 yr	81	1.12%	3	1.57%	0	n/a	4	2.53%	7	2.19%

Note: Unable to locate valid 2001 NYS Total Mortality data at this time

Key:

Highest Rate

For all malignant cancers, the City of Peekskill had the lowest mortality rates (2.6%), as compared to the Towns of Yorktown (5.0%) and Somers (6.3%), and to the County of Westchester (3.7%).²⁶⁰

²⁶⁰ Data for the Town of Cortlandt was not provided under zip code 10567. In 2001, mortality data for the Town of Cortlandt was included with that of the City of Peekskill.

Table 8.13 Death Due To All Malignant Cancers By Age Category For 2001

Death Due To All Malignant Neoplasms By Age Category For 2001

Data Source: InfoShare.org

Area Name Age Range	% of Total Mortality		10566 - Peekskill		10567 - Cortlandt Manor		10589 - Somers		10598 - Yorktown Heights	
	Westchester	Total	Peekskill	Total Mortality	Cortlandt Manor	Total Mortality	Somers	Total Mortality	Yorktown Heights	Total Mortality
7,259			191		276		158		320	
< 1 yr	1	0.01%	0	0.00%	0	0.63%	1	0.00%	0	0.00%
1-14 yr	-	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
15-24 yr	3	0.04%	0	0.00%	0	0.00%	0	0.00%	1	0.31%
25-34 yr	5	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
35-44 yr	24	0.33%	0	0.00%	0	0.00%	0	0.00%	1	0.31%
45-54 yr	108	1.49%	5	2.62%	0	0.00%	0	0.00%	7	2.19%
55-64 yr	185	2.55%	12	6.28%	0	0.63%	1	0.63%	9	2.81%
65-74 yr	347	4.78%	8	4.19%	0	5.06%	8	5.06%	11	3.44%
75-84 yr	419	5.77%	19	9.95%	0	6.96%	11	6.96%	19	5.94%
> 84 yr	268	3.69%	5	2.62%	0	6.33%	10	6.33%	16	5.00%

NOTE: All data values for Cortlandt were provided as 0, therefore this is not a valid dataset.

Key:

Highest Rate

8.5 Perinatal Health ²⁶¹

Peekskill's birth rate (18.9) is the highest, is twice that of Somers and the highest across all of the communities in this study. The rate is also higher than the Westchester County average. See Table 8.13.

²⁶¹ All data for the Perinatal Health section is from the Annual Data Book 2009. <http://health.westchestergov.com/images/stories/pdfs/Databook2009.pdf>

Percentage of infants with low birthweight: Peekskill had the highest rate for infants born weighing less than 2,500 grams (5.5125 pounds), which was lower than the County's rate by overall population, according to data provided by Westchester County on the municipality level for 2007 calculated per 1,000 population. However, the data provided by Cheryl Hunter-Grant, LMSW, Executive Director of Lower Hudson Valley Perinatal Network at Westchester Medical Center in Valhalla, shows significantly higher rates of low birthweight among African-Americans from Peekskill, even though Peekskill's overall numbers for low birthweight are lower than the County's. Peekskill also has high incidents of no or delayed prenatal care. These findings along with Peekskill's higher overall rate of infant deaths, are of great concern to the community.

Number and rate of infant deaths: There were 3 infant deaths in Peekskill in 2007 making it the highest occurrence in our study areas and the infant death rate per 1,000 live births of 7.1% is the highest percentage within our study areas and exceeds the County rate of 4.8%. (Note: There is potential statistical unreliability in this data due to the small numbers in this category.) Data was provided by Westchester County on the municipality level, 2007 was the data year used and the rate was calculated per 1,000 population.

Table 8.13 Percentage of Infants with Low Birthweight and Delayed or No Prenatal Care, by Municipality, Westchester County, 2007²⁶²

Health Planning Region and Municipality	Number of Births	Birth Rates (per 1,000 population)	% of Infants Born With		
			Low Birthweight ²⁶³	< 37 Weeks Gestation	Delayed or No Prenatal Care ²⁶⁴
<i>Westchester County</i>	11,857	12.8	8.4	10.4	26.3
<i>Northwest Segment</i>	1,769	12.6	7.3	7.6	22.9
<i>Cortlandt (TOV)</i>	309	10.8	7.1	7.8	15.5
Peekskill (C)	425	18.9	7.8	7.5	27.6
<i>Northeast Segment</i>	1,371	10.3	6.6	8.6	13.5
<i>Somers (T)</i>	152	8.3	4.6	9.9	8.2
<i>Yorktown (T)</i>	369	10.2	6.2	10.8	12

Key:

Highest Rates

Conversion:

1 Gram = 1 Pound X 0.002205
 2,500Grams = 5.5125 lbs.

²⁶² Data Source: Westchester County ANNUAL DATA BOOK 2009 (Table 62, p. 85)

²⁶³ Cases with no information on birthweight are excluded; acceptable birthweight range (350,6550).

²⁶⁴ Delayed or no prenatal care is defined as prenatal care begun at the second or third trimester, or no prenatal care throughout pregnancy. Those cases with incomplete information on prenatal care are excluded.

Table 8.14: Data provided by Cheryl Hunter-Grant, Lower Hudson Valley Perinatal Network via email July 21, 2009

		2004-2006 ³			2006 ^{4,5}			
		Peekskill	Cortlandt Manor	Somers	Yorktown	NYC	NYS (excl. NYC)	NYS (incl. NYC)
Low Birth Weight ¹	Total	8.1%	8.1%	9.1%	6.4%			
	White	7.5%	8.0%	9.3%	6.1%	7.5%	7.3%	7.3%
	African-American	16.6%	13.5%	0.0%	3.7%	11.3%	12.9%	11.7%
	Hispanic	6.5%	8.7%	3.7%	8.5%	8.2%	7.5%	8.0%
Healthy People 2010 Goal for Low Birth Weight = 5.0%								
Premature Birth ²	Total	9.6%	9.6%	9.3%	9.5%	12.9%	11.3%	12.1%
	White	11.2%	10.1%	9.5%	9.9%	--	--	--
	African-American	16.0%	18.9%	0.0%	7.4%	--	--	--
	Hispanic	7.2%	6.8%	3.7%	7.6%	--	--	--
Healthy People 2010 Goal for Premature Birth = 7.6%								

¹ Low birth weight defined as <2500 grams
² Premature birth defined as <37 weeks gestation
³ Vital statistics for Westchester County, 2004-2006. Data received from NYS Department of Health.
⁴ www.health.state.ny.us/nysdoh/vital_statistics/2006/, Tables 06a-06c
⁵ www.health.state.ny.us/nysdoh/vital_statistics/2006/, Table 11b. Racial/ethnic categories for premature birth not available from NYSDOH web pages.

Table 8.15 Total Number of Deaths and Infant Deaths, Death Rate and Infant Death Rate, Westchester County, 2007

Health Planning Region and Municipality	Number of Deaths	Number of Infant Deaths	Death Rate (per 100,000 population)	Infant Death Rate (per 1,000 live births)
Westchester County	6,805	57	736.9	4.8
Northwest Segment	1,074	7	763.5	4.0
Cortlandt (TOV)	289	1	1,008.0	3.2
Peekskill (C)	180	3	802.1	7.1
Northeast Segment	844	3	633	2.2
Somers (T)	193	0	1,052.0	0
Yorktown (T)	275	1	757.2	2.7

Key: Highest Rates

8.6 Lead Poisoning

Excessive Lead Levels in Children²⁶⁵: Peekskill had the highest rate for all unsafe screening levels. There were 26 instances where testing found a child with a blood level greater than or equal to 10 micrograms per deciliter, 6 of these were greater than or equal to 20 mpd. The percentage of total tests identifying excessive blood levels for Peekskill children is higher than the County percentage but closer to the percentage for the Northwest section of Westchester County. Data was provided by Westchester County on the municipality level, percentage was calculated from the number of tests given and broken down by test levels. Years 2006, 2007 and 2008 were used.

Table 8.16 Childhood Lead Poisoning Prevention Program: Total of Tests Conducted, Test Results by Blood Lead Level, & Number of Initial Screen Tests by Municipality, Westchester County, 2006-2008 Averaged

Childhood Lead Poisoning Prevention Program: Total of Tests Conducted, Test Results by Blood Lead Level, & Number of Initial Screen Tests by Municipality, Westchester County, 2006-2008 Averaged

Data Source: ANNUAL DATA BOOKS from 2007, 2008, 2009

Health Planning Region and Municipality	Total Tests (3 yr avg)	<10 (3 yr avg)	Percent of Total Tests	10-14 (3 yr avg)	Percent of Total Tests	15-19 (3 yr avg)	Percent of Total Tests	20+ (3 yr avg)	Percent of Total Tests	UC (Inconclusive)	Initial Screen Tests	Percent > 10
Westchester Cty	32,088	31,339	97.7%	432	1.3%	136	0.4%	179	0.6%	2	30,893	2.3%
Northwest	4,280	4,147	96.9%	62	1.4%	31	0.7%	40	0.9%	0	4,112	3.1%
Cortlandt (TOV)	568	562	99.1%	3	0.5%	1	0.2%	1	0.2%	0	558	0.9%
Peekskill (C)	787	761	96.7%	15	1.9%	5	0.7%	6	0.7%	0	755	3.3%
Northeast	2625	2606	99.3%	13	0.5%	3	0.1%	2	0.1%	0	2592	
Somers (T)	321	320	99.8%	0	0.1%	0	0.0%	0	0.1%	0	319	0.2%
Yorktown (T)	664	659	99.2%	4	0.6%	1	0.1%	1	0.1%	0	657	0.8%

Key:

Highest Rates

²⁶⁵ Data Source: ANNUAL DATA BOOKS 2007 (p77), 2008 (p93), 2009 (p184) http://health.westchestergov.com/index.php?option=com_content&view=article&id=1572&Itemid=100054

Table 8.17 Number of Households by Year Structure Built, Westchester County, 2000 and 2005-2007

Number of Households by Year Structure Built, Westchester County, 2005-2007

Data Source: Westchester County ANNUAL DATA BOOK 2009 (Table 26, p40)

	Total	2005 or later	% of Bldgs	2000-2004	% of Bldgs	1990-1999	% of Bldgs	1980-1989	% of Bldgs
2005-2007 ACS2	Total								
Total Population	358,346	2,016	0.6%	10,179	2.8%	16,870	4.7%	26,470	7.4%
Northwest	51,940	393	0.8%	1,449	2.8%	3,460	6.7%	5,173	10.0%
Cortlandt Town	14,714	79	0.5%	307	2.1%	823	5.6%	1,493	10.1%
Peekskill	9,526	76	0.8%	279	2.9%	913	9.6%	901	9.5%
Northeast	--	--	--	--	--	--	--	--	--
Somers Town	7,854	196	2.5%	626	8.0%	1077	13.7%	1,852	23.6%
Yorktown Town	13,294	17	0.1%	419	3.2%	1414	10.6%	1,831	13.8%

	1970-1979	% of Bldgs	1960-1969	% of Bldgs	1950-1959	% of Bldgs	1940-1949	% of Bldgs	1939 or earlier	% of Bldgs
Total Population	36,646	10.2%	51,660	14.4%	70,242	19.6%	34,388	9.6%	109,875	30.7%
Northwest	5,516	10.6%	7,787	15.0%	10,667	20.5%	3,157	6.1%	14,338	27.6%
Cortlandt Town	1,672	11.4%	2,541	17.3%	3,790	25.8%	963	6.5%	3,046	20.7%
Peekskill	1,238	13.0%	1,229	12.9%	1,501	15.8%	539	5.7%	2,850	29.9%
Northeast	--	--	--	--	--	--	--	--	--	--
Somers Town	1,631	20.8%	817	10.4%	559	7.1%	328	4.2%	768	9.8%
Yorktown Town	1,794	13.5%	3,119	23.5%	2,977	22.4%	424	3.2%	1,299	9.8%
	% pre-1960	% 1960-1979	% post-1980	% w/ likely lead contamination						
Total Population	59.9%	24.6%	15.5%	84.5%						
Northwest	54.2%	25.6%	20.2%	79.8%						
Cortlandt Town	53.0%	28.6%	18.4%	81.6%						
Peekskill	51.3%	25.9%	22.8%	77.2%						
Northeast	0.0%	0.00%	0.0%	0.0%						
Somers Town	21.1%	31.2%	47.8%	52.2%						
Yorktown Town	35.4%	37.0%	27.7%	72.3%						

Age of Housing Stock²⁶⁶: The age of the housing stock can give some indication of potential sources of lead exposure. 51.3% of Peekskill's housing was built prior to 1960 when there were no restrictions for lead in paint and 25.9% between 1960 and 1979. Lead restrictions were mandated in 1978. The age of the housing stock is an important factor for exposure risk as is the amount of home renovation, repair and painting that takes place within a community. A 1997 analysis conducted by the NYSDOH indicated that home renovation, repair, and painting (RRP) activities were important sources of lead exposure among children with BLLs >20 µg/dL in NY State (excluding New York City) during 1993--1994²⁶⁷. Therefore, there is a potential for somewhat less than 77% of Peekskill's housing stock to have paint containing some amount of lead in its construction and care. Data was provided by Westchester County on the municipality level and was broken out by decades, therefore there is not a way to isolate post restriction data from the 1970's, and percentage was calculated from the number of existing building. Another source of lead can be lead pipes or lead-containing solder in aging plumbing.

8.7 Emerging Issues Requiring Further Research

Manufactured Chemicals found in the Environment (Pharmaceuticals, Industrial)

A new area of concern has been the detection of manufactured chemicals in local waters. A study done in Westchester²⁶⁸ determined wastewater treatment plants are discharging pharmaceuticals, industrial chemicals and personal care products into surface waters where some contaminant levels are significant and others substances are not. Further studies need to be done to determine the impact of these manufactured chemicals on the health of humans and wildlife.^{269 270 271}

²⁶⁶ Data Source: ANNUAL DATA BOOKS 2009 (p40)

²⁶⁷ Children with Elevated Blood Lead Levels Related to Home Renovation, Repair, and Painting Activities--NYS, 2006—2007
www.cdc.gov/mmwr/preview/mmwrhtml/mm5803a3.htm

²⁶⁸ Survey of the New York City Watershed for the Presence of Pharmaceuticals, by Lloyd Wilson, Patrick O'Keefe, Patrick Palmer, Robert Sheridan, Robert Briggs and Thomas King; Center for Environmental Health, NYS Department of Health, Troy, NY; Wadsworth Center for Laboratories and Research, NYS Department of Health, Albany, NY

²⁶⁹ Dr. Kenneth Spaeth, Director, Occupational and Environmental Medicine Center, North Shore University Hospital, Hofstra School of Medicine
²⁷⁰ ANNUAL DRINKING WATER QUALITY REPORT FOR 2009, CITY OF PEEKSKILL, WATER DEPARTMENT

²⁷¹ www.cityofpeekskill.com/sites/default/files/AWQR_2009.pdf
Pharmaceuticals and Endocrine Disrupting Compounds in U.S. Drinking Water, Mark J. Benotti, Rebecca A. Trenholm, Brett J. Vanderford, Janie C. Holady, Benjamin D. Stanford, Shane A. Snyder, Applied Research and Development Center, Southern Nevada Water Authority, P.O. Box 99954, Las Vegas, Nevada 89193-9954 October 13, 2008.

Diabetes

The national increase in rates of diabetes and the resultant personal health risks and the burden on local health care resources could also be a factor to evaluate within an Environmental Justice consideration. Also, early research has shown a possible connection to exposure to environmental chemicals in the development of diabetes and obesity.²⁷²

Body burdens on newborns

New medical research has shown that the placental blood barrier does not prevent chemical contaminants from reaching the developing fetus and that they can have significant impacts on its current health and the future health of the person.²⁷³

8.8 Conclusions

Health data that compares Peekskill to surrounding communities indicates that Peekskill has unusually high rates of asthma, including emergency room visits and hospitalizations, respiratory cancers, death due to cardiovascular disease, a high birth rate, with high incidents of low birth weight, especially in African-American babies, and the highest infant death rate in the county – all of which underscore the need for excellent programs such as the Lower Hudson Valley Perinatal Network and the Youth Fellows peer education program it sponsors. Compared to surrounding communities and Westchester County as a whole, Peekskill also has the highest rate of lead poisoning, with 77% of its housing stock built in the days when lead-based paint was widely used. These findings indicate that Peekskill has a low health status and that its population may be more vulnerable to additional exposure to pollutants in the environmental.

²⁷² National Toxicology Program, Department of Health and Human Services Workshop: Role of Environmental Chemicals in the Development of Diabetes and Obesity, January 2011 <http://cerhr.niehs.nih.gov/evals/diabetesobesity/index.html>

²⁷³ See Attachment 6

9. Fish and Wildlife Impacts

9.1 Impacts on Fish and Other Aquatic Species

Background of the Hudson River Estuary Program: During the 1960s and 70s, public concern for the protection of the Hudson's fisheries led to the passage of the 1979 Hudson River Fisheries Management Act. In 1987, recognizing that conservation of the river's fish, habitats and ecosystem requires a broader, multi-disciplinary approach, the fisheries law was replaced by the Hudson River Estuary Management Act, found in Section 11-0306 of the New York State Environmental Conservation Law. This act directed DEC to develop a plan and program for the conservation of the estuary-the tidal portion of the river from the Troy dam south to the Verrazano Narrows and its associated shore lands.

Entrapment, Impingement and Thermal Pollution: Multiple types of water pollution by nuclear plants have caused the fishery's decline in the Hudson River. As mentioned in Section 5, thermal pollution from Indian Point and other power plants, destroy countless fish and eggs. The waterfront power plants engaged in the Hudson River Settlement Agreement suck in millions of, and in the case of Indian Point, 2.5 billion gallons of river water each day to cool their equipment. The sheer volumes of water necessary to meet the HRSA plants' cooling requirements are enormous. Together, Indian Point, Roseton, and Bowline are authorized to withdraw 1.69 trillion gallons per year for cooling water, and they discharge 220 trillion BTU of waste heat per year. The temperature of once-through cooling water is raised between 15 degrees and 18 degrees F, depending on the plant, or a weighted average of 16.2 degrees F.²⁷⁴

NYS DEC assesses the number of fish entering water intakes pipes (entrapment) each year at the Indian Point nuclear power plant.²⁷⁵ They found over 1.2 billion fish eggs and larvae enter these intake pipes each year, including bay anchovy, striped bass, and Atlantic tomcod, with the vast majority dying during the process.²⁷⁶ Another 1.18 million fish per year become trapped against intake screens (impingement) and are killed or injured.²⁷⁷

As part of its application to the federal Nuclear Regulatory Commission (NRC) to renew the plant's license for an additional twenty years, Entergy Corporation, the owner of Indian Point Nuclear Power Plant, must obtain a certification from the NYS DEC that the plant's operation will not violate state water quality standards, pursuant to Part 401 of the Federal Clean Water Act ("CWA") and 6 NYCRR Parts 608 (Use and Protection of Waters) and 621 (Uniform Procedures) for a Water Quality Certification (WQC).²⁷⁸ In April 2010 NYS DEC denied Entergy's WQC application, citing the plant's adverse impact on Hudson River fisheries, as well as the continuing leaks of radioactive waste into the groundwater and the Hudson River, noting

²⁷⁴ NYS DEC www.dec.ny.gov/docs/permits_ej_operations_pdf/FEISHRPP6.pdf

²⁷⁵ Clearwater, "Hudson River Fish Need Your Letters of Support-Action Alert." Hudson River Sloop Clearwater. 2010. Clearwater, Web. 13 Jan 2010. www.clearwater.org/fishhelp/news.html.

²⁷⁶ *Ibid.*

²⁷⁷ *Ibid.*

²⁷⁸ NYS DEC www.dec.ny.gov/permits/63150.html

that Indian Point's continued operation would violate these standards.²⁷⁹ The Supreme Court of New York State has ruled in favor of Riverkeeper and the Department of Environmental Conservation (and dismissed Entergy's petition to overturn the DEC's decision, stating that "In accordance with the Clean Water Act (CWA), facilities with cooling water intake structures must utilize the "best technology available" to minimize adverse environmental impacts.²⁸⁰ In this case BTA is closed-cycle cooling.

In addition waste discharged into the river, such as PCB's from General Electric's upriver Hudson Falls and Ft. Edward plants, stormwater runoff, and under-treated wastewater discharged from sewage treatment plants all contribute to fishery decline. An increase in invasive zebra mussels take an extra toll on fish habitats by removing plankton that are an important food source, and commercial ocean fishing for larger species killing Hudson River fish as bycatch, also takes its toll.

As a result of these multiple impacts Hudson River fish are in dire straits. In fact, this year shad fishing was banned and the river shad festivals were shadless. Shad is just one of 10 species that have declined since the 1970s -- others are alewife, blueback herring, tomcod, bay anchovy, rainbow smelt, hogchoker, white catfish, weakfish and white perch. These results are representative of conditions on other coastal rivers, which spells trouble for ocean fisheries that - are already severely depleted because of over-fishing (see Attachment 18).²⁸¹



The Hudson alone is a major spawning ground and nursery for Atlantic fish. Another cause of fish decline is thermal pollution related to global warming. Since the 1960s the river temperature at Poughkeepsie, 80 miles north of New York City, has risen 3.6 degrees C. That might not seem like much, but it has a big impact on fish because it decreases dissolved oxygen in the water, upon which they depend -- less dissolved oxygen equals fewer fish.²⁸²

NYS DEC Estuary Program projects are helping to manage and restore key species such as striped bass and bald eagles, protect key habitats such as submerged aquatic vegetation (SAV -- underwater grass beds) and tidal wetlands, and conserve critical plants, animals and habitats in the river basin landscape.²⁸³

²⁷⁹ Riverkeeper, www.riverkeeper.org/news-events/news/stop-polluters/power-plant-cases/riverkeeper-hails-new-yorks-decision-to-deny-critical-water-quality-certificate-for-indian-point/

²⁸⁰ Riverkeeper, "NY State Supreme Court Affirms that Indian Point Adversely Impacts Fish." Riverkeeper. 2010. C&G Partners/Aldenta, Web. 18 Jan 2010. www.riverkeeper.org/news-events/news/stop-polluters/power-plant-cases/ny-state-supreme-court-affirms-that-indian-point-adversely-impacts-fish/

²⁸¹ Sullivan, Ned. "Hudson River Fish in Startling Decline." The Daily Green. 24 May 2008. www.thedailygreen.com/living-green/blogs/easy-tips/hudson-river-fish-5502401.

²⁸² Sullivan, Ned. "Backyard Matters: Hudson River Fish in Startling Decline." Scenic Hudson-Your Valley. Your Voice. Your Future. 24 May 2008. Scenic Hudson, Web. 14 Jan 2010. www.scenichudson.org/aboutus/blogs/backyardmatters/may08

²⁸³ NYSDEC, "Hudson River Estuary Program." New York State Department of Environmental Conservation. 2010. NYSDEC, Web. 18 Jan 2010. www.dec.ny.gov/lands/4920.html.

License Requirements: Prior to October 2009, no license was required on the main stem of the Hudson River downstream of the Troy Dam. As of October 2009 fishing licenses are now required on the entire length of the Hudson River, on its tributaries, and on all bodies of water in the state of NY.

- Fishing downstream from the Tappan Zee Bridge, is considered fishing in the marine and coastal district and requires a recreational marine fishing license.
- Fishing upstream from the Tappan Zee Bridge, for non-migratory fish (such as largemouth bass, smallmouth bass, catfish, carp, walleye, and perch), requires a fishing license.
- Fishing upstream from the Tappan Zee Bridge for "migratory fish from the sea" (such as striped bass, American shad, hickory shad, blueback herring, or alewife), requires a recreational marine fishing license.
- Fishing in the tributaries to the Hudson, subject to tidal flow, requires a recreational marine license.
- Between the Troy Dam and Hudson Falls there is a "catch and release" restriction due to higher PCB levels.
- Fishing in lakes, streams, and ponds requires a plain fishing license.
- Fishing in reservoirs requires a special New York City license, since the reservoirs are owned by the city.

Use of Circle Hooks for Sport Fishing (catch and release): If an angler plans to use natural baits for striped bass, the use of circle hooks will increase the percentage of fish that are hooked in the mouth, decreasing hooking mortality in released fish. This recommendation may become a requirement.

9.2 Fish Advisories

As discussed in Section 9, Hudson River Fish Advisories Outreach Project is an educational initiative of the NYS Department of Health (NYSDOH). The Fish Advisory extends from Hudson Falls (50 miles north of Albany) to the southern tip of the Battery in Manhattan. The following guidelines are a condensed version of a complete health advisory for the Capital District, Hudson River, New York Harbor, the fresh water on Long Island and marine waters on NYS. For more detailed information and advice on eating fish please consult Health Advisories: Chemicals in Sportfish and Game available from the Health Department by calling 1-800-458-1158.

Fish Consumption Advisories: According to the NYSDOH, women of childbearing years and children under 15 shouldn't eat fish caught in the Hudson River at all.²⁸⁴ Women of

²⁸⁴ Riverkeeper, "Hudson River PCBs." Riverkeeper. 2010. C&G Partners/Aldenta, Web. 19 Jan 2010. www.riverkeeper.org/campaigns/stop-polluters/contaminated-sites/pcbs/.

childbearing age are at special risk from eating contaminated fish.²⁸⁵ During pregnancy and when breast-feeding, chemicals such as PCBs, dioxins, and mercury may be passed through the placenta to the baby.²⁸⁶ This may harm the baby's growth and development.

- People are especially advised not to eat white catfish, gizzard shad or channel catfish; do not eat crab hepatopancreas ("tomalley" or "green stuff") or crab cooking liquid.
- Some species that can be eaten once a month by males over 15 years of age and women that are no longer of childbearing age include: Atlantic needlefish, bluefish, brown bullhead, carp, goldfish, largemouth bass, rainbow smelt, smallmouth bass, striped bass, walleye, white perch.
- All other species can be eaten once a week, including blue crab meat.²⁸⁷

But the question that immediately arises is: How do we most responsibly address the problem of fish consumption from the Hudson River by low income communities where fish may be a vital source of food for a family's diet? Unfortunately, as documented by the 2010 Peekskill Angler Survey (see Section 9), many people are unaware of the problems of contaminated fish or may ignore the problem altogether. For some, these fish have been a part of their culture for generations. However, for people who do eat Hudson River fish there are some guidelines to mitigate this problem:

- Choose fish not mentioned in the health advisories - those fish have generally lower contaminant levels.
- Choose smaller fish (of legal size) to eat. Smaller fish are younger and have lower contaminant levels than larger and older fish.
- Prepare fish according to DOH guidelines.

Terrestrial wildlife was not addressed in this study, except that PEJC members noted that deer are increasingly becoming a nuisance in Peekskill, as elsewhere, due to conflicts secondary to habitat loss and reduction in predators. Deer are particularly a problem in forested areas because if they overbrowse the understory a healthy succession cannot occur.

A recommendation for further study would be to perform a biodiversity assessment of Peekskill's undeveloped areas, farms and parkland.

²⁸⁵ NYSDEC and NYSDOH. "Eating Sport Fish." James A. Cannavino Library, Marist College. New York State Department of Environmental Conservation and New York State Department of Health, Web. 19 Jan 2010. <http://library.marist.edu/diglib/EnvSci/archives/fisherie/nysec-snap/ny%20state%20-%20eating%20sport%20fish.html>.

²⁸⁶ Cogeneris sprl, . "Scientific Facts on PCBs." Greenfacts - Facts on Health and the Environment. 05 Oct 2009. GreenFacts, Web. 19 Jan 2010. www.greenfacts.org/en/pcbs/index.htm.

²⁸⁷ NYSDOH, "2009-2010 Health Advisories on Eating Sportfish--New York City Area, Rockland and Westchester Counties and Long Island, including Marine Waters of New York State." www.ny.gov. Sep 2009. New York State Department of Environmental Conservation and New York State Department of Health, Web. 19 Jan 2010. www.health.state.ny.us/environmental/outdoors/fish/down_state_advisories.htm.

10. Angler Survey of Peekskill Waterfront – 2010



10.1 Introduction

The Hudson River is a significant asset to its shoreline communities in many ways. It can also be a hidden source of harm. As discussed in other sections of this report, there have been and still are many avenues for pollution and contaminants to be introduced into the river's ecosystem. Some of the contaminants (such as raw sewage) are short-term in that they can be flushed out by the river's tidal activity and shear volume. However, some, such as PCBs²⁸⁸, are persistent and remain present in the river bottom until they are removed. PCBs, most of which were discharged into the Hudson River from 1947-1977 from two General Electric plants located in Hudson Falls and Ft. Edward, were used as a dielectric fluid to insulate electrical transformers and capacitors. After they were banned in 1977, PCBs continued to leak into the Hudson River and spread throughout its ecosystem. PCBs are hydrophobic ("water hating") chemicals, which adhere to fine particles and organic matter in an attempt to move out of water. They then settle on the river floor adhered to sediments, but regularly find their way into the water column through various river bottom and shoreline disruptions. The Hudson River is a very turbulent system and over time PCBs have moved downstream, creating a 200-mile Superfund site, which is only now being remediated at the source in the Upper Hudson. PCBs move from the water and sediments into the bodies of the aquatic organisms and then bioaccumulate in their predators, moving up the food chain in increasingly higher concentrations. PCBs are lipophilic ("fat loving") and are retained in the animal's fatty tissue for its entire lifetime. Angling,²⁸⁹ the catching of fish, crabs and other edible river species, is a common way humans and the products of the river intersect and therefore is a major pathway by which people become contaminated with the hazardous material, which scientific studies have verified to cause a variety of health disorders, including cancer, neurological disturbances

²⁸⁸ Agency for Toxic Substances and Disease Registry, "Toxic Substances Portal - PCBs " www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=26

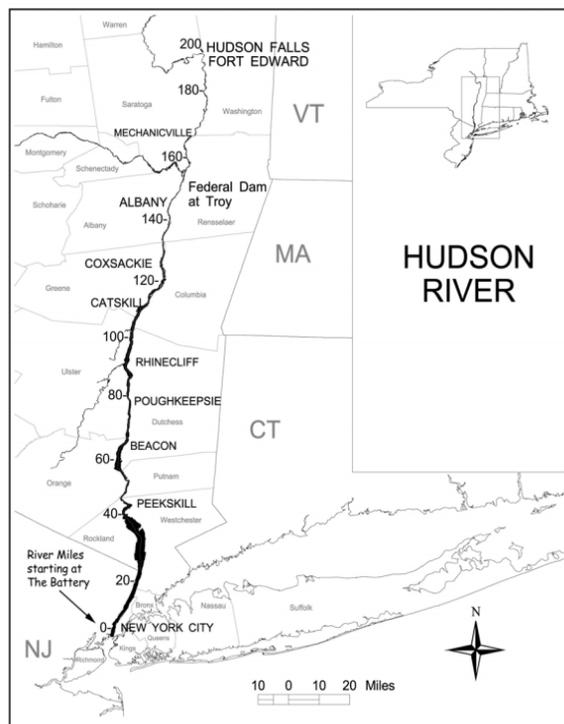
²⁸⁹ The term "angling" refers to any fishing activity not of a commercial nature. Thus angling can denote a purely recreational activity as well as fishing specifically to acquire needed food (subsistence angling). H R A S, March 1993, p5

and endocrine disruptions. EPA has characterized exposure through fish consumption as the most significant pathway of human exposures to Hudson River PCBs.²⁹⁰ Therefore, it is important to get as clear a picture as possible of:

- 1) how and where people are angling in the Hudson River in the Peekskill area,
- 2) what they do with their catch, and
- 3) how informed they are about the potential health risks that eating contaminated fish or crabs can cause.

10.2 Background

In 1991 and 1992, Hudson River Sloop Clearwater conducted a survey of 336 anglers up and down the Hudson River. The “Hudson River Angler Survey”, an in-depth report on the practices of Hudson River anglers, environmental issues of the river, contamination of the River’s fish, governmental advisories regarding fish consumption and effectiveness of said advisories, was released in March of 1993. Another angler survey was done in 1996 as a joint effort between the State of New York Department of Health and the Agency for Toxic Substances and Disease Registry to assess Hudson River anglers’ exposure to PCBs,²⁹¹ which will be referenced in this report as the ATSDR study. The 2010 Peekskill Angler Survey, of a smaller scope, focused on the Peekskill waterfront from Verplanck to Annsville Creek, was conducted in the spring, summer and fall of 2010 as part of the



Community-Based Environmental Justice inventory sponsored by a grant from the NYS Department of Environmental Conservation Office of Environmental Justice using a revised version of the 1993 survey (see Attachment 10). In an additional effort to understand the extent of exposure risks Hudson River communities face, a survey team from Dutchess County Cornell Cooperative Extension is interviewing women at health clinics to determine if they or their family are consuming wild caught fish or crabs and, if yes, how the food is prepared. This survey is being conducted under the auspices of *Eat Smart New York* and through a grant from the Hudson River Fish Advisory Outreach Project²⁹², a multi-year initiative of the New York State Department of Health (NYSDOH) with the goal that all anglers and others who eat fish from the Hudson River will understand and follow the New York State fish advisories. The project area extends from Hudson Falls to the New York City Battery.

²⁹⁰ Hudson River Sloop Clearwater, “Hudson River Angler Survey”, March 1993, p5

²⁹¹ NYSDOH and Agency for Toxic Substances and Disease Registry, “Hudson River PCBs”, 1998 www.atsdr.cdc.gov/hac/pha/pha.asp?docid=213&pg=2#F1

²⁹² www.health.ny.gov/environmental/outdoors/fish/hudson_river/advisory_outreach_project/

10.3 Methods

The 2010 Hudson River Angler Survey, with a focus on the Peekskill area, was conducted by several teams of trained volunteers with some help from Clearwater staff members. Most volunteers were members of the Unitarian Universalist Fellowship of Croton, Briarcliff and Ossining, along with interested others from Peekskill and Cold Spring. Volunteers located likely fishing locations along Peekskill's Hudson River shoreline, which became the primary focus areas. A map and directions to many of these sites are shown in Attachment AS1. On May 15, volunteers were trained by the world-renowned Angler Survey specialist, Professor Joanna Burger, PhD, MA of Rutgers University, to follow best practices on locating, approaching and engaging anglers in the interview process which consisted of volunteers reading the survey questions and recording the angler's responses. Copies of the English and of the Spanish versions of the survey can be found in Attachments 9-A and 9-B, along with instructions (Att. 11) and accompanying materials (Att. 12-13). Active surveying began in June with the final five surveys collected in October. Seven survey locations were within the Peekskill study area where 68 persons agreed to participate and seven declined; five sites were in neighboring areas where eight anglers responded to the questions and were included in this analysis. In the instances where anglers declined to be interviewed, some demographic data were obtained and used.



Table 10-1: Survey Numbers and Site Breakdown

Municipality	Site Code	Site	Number of Surveys
Within Study Area			
Declined Interview			
Peekskill	7	Fleishman Pier - Charles Point Pier Park	3
Peekskill	2	Jan Peek Bridge	2
Peekskill	5	Riverfront Green Park	2
			7
Agreed to Interview			
Peekskill	12	Annsville Circle	6
Peekskill	7	Fleishman Pier - Charles Point Pier Park	26
Peekskill	2	Jan Peek Bridge	13
Peekskill	6	Marina (South Corner), Peekskill Yacht Club	1
Peekskill	5	Riverfront Green Park	7
Peekskill		Unidentified Peekskill Location	2
Verplanck	10	King Marina	1
Town of Cortland Manor	11	Steamboat Landing	12
			68

Outside of Study Area (Table 10-1 continued)			
Out of Area			
Agreed to Interview			
Croton	n/a	Croton Landing	3
Croton	n/a	Croton Point	1
Croton	n/a	Croton Waterfront	1
Newburgh	n/a	Newburgh	2
Unknown	n/a	Unknown	1
			8
Total Who Agreed to Interview			76
Total Number Engaged With			83

Surveys were collected, entered into a Microsoft Access database, the data were refined and statistics produced and incorporated into this report. Dr. Joanna Burger provided support for the data processing and analysis.

10.4 Results and Discussion

Demographics

Of the survey population, the most common income bracket reported was \$10,000-25,000 and the single person household was the most common household size.

37% identified themselves as from a Hispanic country for their ethnic identity, 46% Caucasian, 4% Asian, 5% African American, 2% were from other groups and 6% did not provide an answer to this question.

The survey was conducted in English 76% of the time and Spanish 24%.

Table 10-2: Race / Ethnic Background of All Anglers Engaged & Language of Survey

Race / Ethnic Background	English Survey	Spanish Survey	Total	% of Total
No Answer	5		5	6%
Asian	3		3	4%
Black - African American	4		4	5%
Caucasian	38		38	46%
Hispanic	11	20	31	37%
Other	2		2	2%
Grand Total	63	20	83	

Notes:

This includes those who agreed to be interviewed and those who declined; 15 countries were referenced, 5 different languages given as first languages

Of the respondents at the sites within the catchment area, 47% were residents of the area. Visitors ranged from neighboring communities to Brooklyn, NY, Lodi, NJ and Connecticut.

Table 10-3: % Residents vs. Visitors for Surveys Done Within Catchment Area

Within Catchment Area	Resident Y/N	Count	%
Yes	Resident	35	47%
Yes	Visitor	34	45%
Yes	Unknown	6	8%
Total		75	

What brings people to the River?

The most common purpose given for their activity that day was for fun, recreation and enjoyment (71%). The second most popular reason was to acquire food for themselves, families and/or friends (49%).

Table 10-4: Peekskill Angler Survey - Reasons for Activity

Reasons Given (can be more than one per person)	Times Given	% of Answers based on # of surveys
Recreation / Fun / Enjoyment	54	71%
Food	37	49%
Social - Time with Family or Friends	10	13%
Relaxation	10	13%
To Enjoy the Outdoors	6	8%
Something To Do	5	7%
Curiosity	3	4%
Easy access to River and parking	2	3%
Give to friends	2	3%
Peace and quiet	2	3%
Tradition	1	1%
For bait	1	1%
Food for cats	1	1%
Self Reliance	1	1%
Solitude	1	1%
No Answer	2	3%

136

Fish Consumption in regards to DEC Health Advisories ^{293, 294}

NYS DOH has prepared several versions of the Hudson River Health advisory in English and Spanish (see Attachments 14-A&B, 15-A&B and 16). However, survey responses indicate that:

- 32% of anglers and 53% of the people they share their catch with were not following the DEC fish advisories for a combined average of 47% noncompliance.
- 20% do seem to follow the health advisories.
- The data could not identify the behavior pattern for 33% of this dataset.

For the noncompliance,

- 35% of all noncompliance exceeded recommended amounts of consumption,
- 21% were women of childbearing age,
- 32% were children younger than 15 years of age eating catch from the Hudson
- 12% were persons eating species for which the DEC and the DOH highly recommend zero consumption.

Table 10-5: Fish Consumption and DEC Advisory
Compliance Risk

Follows DEC Advisories	Angler	% of Anglers	Shared With	% of Shared	% of Combined
No	16	32%	68	53%	47%
Yes	15	30%	21	16%	20%
Unknown	19	38%	40	31%	33%
Total	50		129		
Grand Total			179		

Noncompliant Behavior

Advisory Not Followed	Consumers	% of Total	% of Noncompliance
Exceeds Limits	29	16%	35%
Do-Not-Eat Species	10	6%	12%
Too young	27	15%	32%
Childbearing Age	18	10%	21%
Total	84		

²⁹³ NYS Department of Health. "Chemicals in Sportfish and Game: 2010-2011 Health Advisories", p.21, www.health.ny.gov/environmental/outdoors/fish/docs/fish.pdf

²⁹⁴ NYS Department of Health and Hudson River Fish Advisory Outreach Project. "Hudson River Health Advice on Eating Sportfish: 2009-2010", www.health.ny.gov/environmental/outdoors/fish/hudson_river/docs/hudson_river_eating_advice.pdf

Several questions were asked to attempt to get the details needed to determine how safe people’s consumption habits really were. Of the anglers themselves and the people they listed as sharing their catch, there were 179 persons or groups listed. Some of these groups were identified as “neighbors” or “co-workers.” It is unknown how many neighbors were receiving catch from the Hudson River, so each group was counted as one reported unit. Also, when two species were shared, the person or persons were listed once for each species, increasing the overall count in this category.

Table 10-6: Health Advisories 2010-2011 (NYS DOH) ²⁹⁵			
<u>Women under 50 years and children under 15 years:</u> Don't eat any fish from the waters listed below. <u>All others:</u> Should follow the advice listed below.			
Location (chemical(s) of concern)	Don't Eat	Eat up to One Meal per Month	Eat up to Four Meals per Month
South of Catskill (PCBs in fish and cadmium, dioxin and PCBs in crabs)	Channel catfish, Gizzard shad, White catfish, Crab hepatopancreas and crab cooking liquid*	Atlantic needlefish, Bluefish, Brown bullhead, Carp, Goldfish, Largemouth bass, Rainbow smelt, Smallmouth bass, Striped bass, Walleye, White perch	All other fish species Blue crab meat (six crabs per meal)

*NYS DOH strongly recommends **not eating** the soft "green stuff" (mustard, tomalley, liver or hepatopancreas) found in the body section of crabs and lobsters from any waters because cadmium, PCBs and other contaminants concentrate there. As contaminants are transferred to cooking liquid, you should also discard crab or lobster cooking liquid.

NYS DEC regulations prohibit:

- The harvest/possession of American eel for food
- Taking American shad from the Hudson, East and Harlem Rivers and New York State marine waters

Uses of Risk-Reducing Cooking and Cleaning Techniques ²⁹⁶

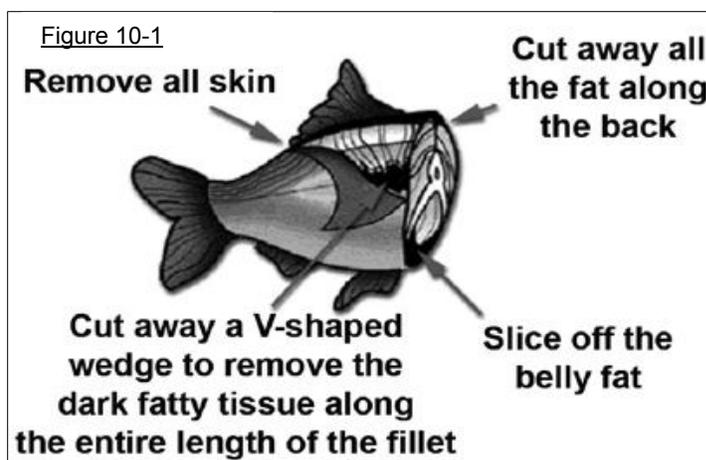
Anglers’ understanding of ways to reduce risk was not high. Of those who ate their catch:

- 41% reported that they always ate the whole animal; only approximately one quarter punctured or removed the skin, filleted their catch or trimmed off fat as recommended (shown in the figure below).

²⁹⁵ www.health.ny.gov/environmental/outdoors/fish/docs/fish.pdf, p21

²⁹⁶ NYS Department of Health. “Chemicals in Sportfish and Game: 2010-2011 Health advisories”, p.2

It is encouraging that the majority does not make soup or ceviche with their catch and very few reuse the cooking oil. Below is NYS DOH diagram of correct methods to prepare fish to reduce exposure:



Awareness and Effectiveness of Health Advisories²⁹⁷

- 46% were aware there were official health advisory warnings. Of this group, 37% gave information indicating a good understanding of the advisories, 17% had an inadequate knowledge and the degree of understanding could not be determined for 46% of them.
- 21% of the anglers who answered the question thought eating any crabs or fish they caught would pose no health risk; 21% thought there would be a slight risk.
- 67% thought the Hudson River was only slightly polluted, 12% thought it was not at all polluted and 16% thought it to be quite polluted.
- The most popular belief is that the fish they are catching are not contaminated (42%), 20% think that fish contamination is the case, and 31% do not know.
- An even higher percentage do not believe there is a health risk (49%), while 25% do not know. 19% accurately believe there is a health risk in eating their catch.
- The survey did not mention any pollutants by name but PCBs were directly referred to by 9 respondents; mercury²⁹⁸ by 3. Some people were aware of wastewater treatment issues, the Indian Point nuclear power plant on the Hudson and stormwater problems.

²⁹⁷ NYS Department of Health and Hudson River Fish Advisory Outreach Project. "Hudson River Health Advice on Eating Sportfish: 2009-2010"

²⁹⁸ Agency for Toxic Substances and Disease Registry, "Toxic Substances Portal - Mercury"
www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=24

10.5 Observations

Health Advisory Signage

Three anglers reported seeing advisory signs at Verplanck, Jan Peek and Cold Spring (which is outside the study area) but none were observed by the volunteers. This indicates that, where posted, signs are noticed.

Volunteers

There was a high level of commitment to the Environmental Justice efforts from the volunteers involved with this effort. They were very concerned the protocol of the survey did not allow for active education on the DEC health advisories²⁹⁹ and have volunteered to go back to some of the same sites for educational outreach only at a later date.

Timing

To reach more people future educational outreach efforts and/or conducting additional surveys should begin early in the spring during the Striped Bass run, which is a very popular draw to the River.³⁰⁰

Additional Language Skills Needed

It was very helpful there were several bilingual volunteer survey takers who were fluent in Spanish and English. But in addition to these two languages, there were significant numbers of anglers of other ethnic groups, such as Chinese, Korean and Polish for whom translation was not available. Future efforts should attempt to recruit people who speak the languages most predominant in the outreach communities.³⁰¹

Conscious Disregard Of Advisories

Old timers seemed to have the attitude that “I have eaten them for X years and look at me, I’m OK.” Most of them were aware of the limits on the allowable numbers and related dangers.³⁰²

Broader Educational Outreach

Include information about the Hudson River PCB cleanup as part of future health advisory signage or educational efforts along the riverfront.³⁰³

²⁹⁹ Email communication dated December 7, 2010 from Daria Gregg, Croton Unitarian Universalist Fellowship

³⁰⁰ *Ibid*

³⁰¹ *Ibid*

³⁰² *Ibid*

³⁰³ *Ibid*

Educational Outreach to Ethnic Communities

Health Advisories in the lower Hudson are just that – advisory, but not mandatory. NYS DOH is responsible for providing education about health advisories in both sections of the River. In the Upper Hudson, there is a catch-and-release requirement, for which DEC is the enforcement agency. After spending significant time in the field speaking with anglers and observing conditions, one of the groups³⁰⁴ came to the realization that there seemed to be a lack of signage, education and enforcement along the waterfront at the times and locations where Hispanic anglers were most commonly found, and there was concern among some long-term non-Hispanic anglers that the Hispanic population was not following DEC regulations on catch limits.

Survey Tool

There are a significant number of people on the river crabbing. Some adjustments to the next version of the survey, including specifying the removal of hepatopancreas (which people think of as “green stuff”, mustard, tomalley or liver) could capture even more meaningful data. Another recommendation is to keep a log of how many people were fishing at the site during the time the surveyor is there, how many were interviewed, how many declined or were unable to be interviewed and for what reason, and how many were not approached.

Comparison with 1993 Clearwater Angler Survey Report and the 1996 ATSDR studies

Although the 2010 Peekskill Angler Survey was not as comprehensive, it is interesting to note that many of the same issues and concerns have persisted over this 14-year time span. One significant difference is that the ATSDR study³⁰⁵ stated “In both surveys, more than 90% of anglers said they were fishing for recreation or other similar reasons, and only 6-7% of anglers said they were fishing for food”. 27% of the 2010 survey respondents stated obtaining food as at least one of the reasons they were on the Hudson that day. All three studies reported consumption limits were exceeded, highly contaminated species were consumed and the most vulnerable segments of the population, children and women of child-bearing age are eating fish and crabs from the Hudson.. It is also still not clear what is the best way to address this knowledge gap, particularly with the minority communities who can have language, cultural and distrust issues that make it harder to do effective outreach.

10.6 Recommendations Related to Results

- While some of the survey respondents were informed and knowledgeable, there is still a lot of misunderstanding about the state of the Hudson River and the life within it. More

³⁰⁴ *bid*

³⁰⁵ NYSDOH and Agency for Toxic Substances and Disease Registry, “Hudson River PCBs”, 1998 www.atsdr.cdc.gov/hac/pha/pha.asp?docid=213&pg=2#F1

public education would be an important tool in helping the citizens who enjoy the Hudson River and those who do rely on it as a source of food for themselves and their families to protect themselves from the mostly now hidden health risks existing in the environment.

- NYSDOH signs need to be posted, especially along the Peekskill waterfront, where-ever there is access for the public to fish. The NYSDOH Health Advisory Signs relevant to the Peekskill area (applies to South of Rip Van Winkle Bridge at Catskill including NYC Harbor waters, Harlem River, East River to Throgs Neck Bridge, the Kills and Upper Bay to Verranzano Narrows Bridge) are:



English language sign:

www.health.ny.gov/environmental/outdoors/fish/hudson_river/docs/hudson_river_sign.pdf

Spanish language sign:

www.health.state.ny.us/es/environmental/outdoors/fish/hudson_river/docs/hudson_river_sign.pdf

- Find effective ways to increase conservation awareness by reaching out to ethnic communities to improve their understanding of what the catch limits are and the conservation reasons for limiting the type and number of fish taken from the Hudson.
- Follow up with those who were surveyed by contacting the persons who provided contact information and having volunteers go to the active angler sites to speak to them in person.
- More significant outreach needs to be done within the ethnic communities of Peekskill. Churches and community groups could become powerful allies in this effort particularly to get the word out on the dangers of eating the fish and crabs, especially to children

and women of child bearing age. NYSDOH does have advisories in Spanish as shown below which can help this effort, but there are no materials in other languages relevant to the Peekskill area.

- Existing Spanish Language Advisories:
 - Consejos de salud sobre el consumo de pescados producto de la pesca deportiva en el Río Hudson 2009 – 2010
www.health.state.ny.us/es/environmental/outdoors/fish/udson_river/docs/udson_river_eating_advice.pdf
 - Recomendaciones de Salud Para el Consumo de la Pesca Deportiva
www.health.state.ny.us/es/environmental/outdoors/fish/docs/down_state_advisories.pdf
 - Proyecto Educativo sobre Consumo de Pescado en el Rio Hudson
www.health.state.ny.us/es/environmental/outdoors/fish/udson_river/advisory_outreach_project/index.htm
- Suggest alternative, safer locations in northern Westchester County to fish.
- To create jobs and a local source of safe fish, the feasibility of setting up an aquaculture industry should be explored.
- Language was sometimes a barrier in getting complete survey data so the public education would need to find some way to address the needs of the non-English speakers.
- The River is a significant source of enjoyment for many of the people surveyed so improving water quality and increasing water access would also benefit this population.



11. FINDINGS AND RECOMMENDATIONS

11.1 Findings

The City of Peekskill and its surrounding area has a number of unique physical and demographic characteristics that make it highly vulnerable to the risks of climate change. Based on 2000 Census data, Peekskill is predominately a community of color consisting of multi-ethnic populations, with the median household income found in the areas of high black and Hispanic demographics. Covering an area of approximately 4.5 square miles, Peekskill is burdened with one hazardous waste handler and two hazardous and solid waste facilities all housed in a predominantly Hispanic populated area. This report focused on four major and minor air pollutants, 17 industrial and municipal surface water pollution sources and five toxic release sites (see Table 1). The neighborhoods within a 12.5-mile radius of downtown Peekskill (an area of 491 square miles) are home to at least:

- 2 hazardous waste handler,
- 7 hazardous waste facilities,
- 19 solid waste facilities,
- 27 major and minor air pollutants,
- 87 industrial surface water sites,
- 20 municipal surface water sites,
- 15 toxic release facilities,
- 47 hazardous waste handlers, and
- 23 toxic release sites.³⁰⁶

The majority of toxic release sites, hazardous waste, solid waste facilities and wastewater facilities are located in predominantly black communities (see Attachment 2).

Any one of these facilities alone may cause minor impacts to surrounding communities, but collectively the impact is likely to be more significant due to cumulative and potentially synergist effects. The Westchester County Waste-to-Energy Incinerator (also called the Resource Recovery facility or RESCO) at Charles Point is a known source of dioxins, benzofurans, heavy metals and other emissions. The Frit Pit, now closed, was the disposal site for ash from the Charles Point incinerator and may cause impacts to the nearby Sprout Creek, which flows into Annsville Creek just north of Peekskill, and then into the Hudson River. The Peekskill Sanitary Sewer District (SD) Sewage Treatment Plant (STP), discharges effluent into the Hudson River and odors have been reported as a frequent problem. The NDL Hazardous Waste Site, operated by NDL Organization, is listed as a Hudson Hazardous Waste (HW) Facility, Inc. and the Karta Transfer Station, a Solid Waste Facility, are major sources of contamination to local population. The BASF Corp. Peekskill Pigments Plant on Lower South St. includes approximately 40 buildings located on approximately 15 acres of land; it produces pigments

³⁰⁶ Data provided to Hudson River Sloop Clearwater and Skidmore GIS team by NYS DEC Office of Environmental Justice; is on file at Clearwater.

consisting primarily of titanium-coated mica and iron oxide coated mica, as well as bismuth oxychloride products. This facility has a Title V permit to emit limited quantities of chemical and volatile organic compounds (VOCs). Because of these toxic releases, it is listed as both Hudson Air State Facility (ASF) and an ATV Facility. The City of Peekskill is currently in the process of planning to green the South Street Industrial Park, where several of these facilities are located.

As discussed, the Hudson River is a 200-mile PCB Superfund site. In addition, water and sediments in the Peekskill area are contaminated with low levels of tritium, strontium-90 and other radioactive isotopes that have been discharged or leaked from Indian Point Nuclear Power Facility in Buchanan. Indian Point also causes significant fish kill due to impingement and entrainment in a once-through cooling system and thermal pollution. There are also four fossil fuel power plants near Peekskill: Bowline in Haverstraw (which alternates between oil and natural gas), and the Lovett plant (which burned coal and is now closed) in Tompkins Cove; north of these are Danskammer and Roseton in the Newburgh area, causing similar impacts to fish as those from Indian Point, plus releasing carbon, particulate and other air emissions. Overall, 94 facilities in Peekskill report to EPA regarding possible or actual toxics in processing, manufacturing, handling, transportation or waste disposal.

Beyond current and historic toxic or hazardous releases to air, water and soil from industry, energy and waste facilities, there are also issues of traffic emissions, as well as releases from Sewage Treatment Plants that include pharmaceuticals, caffeine and a host of chemicals that can disrupt endocrine function in humans and aquatic species.

Health data that compares Peekskill to surrounding communities indicates that Peekskill has unusually high rates of asthma, including emergency room visits and hospitalizations, respiratory cancers, death due to cardiovascular disease, a high birth rate, with high incidents of low birth weight, especially in African-American babies, and the highest infant death rate in the county. Peekskill also has a high rate of lead poisoning, with 77% of its housing stock built in the days when lead-based paint was widely used. These findings indicate that Peekskill has a low health status and that its population may be more vulnerable to additional exposure to pollutants in the environment

In addition, data gathered from the the 2010 Peekskill Angler Survey shows that 49% of the respondents reported that obtaining food was at least one of the reasons they were fishing in the Hudson; recreation and relaxation were others. As in earlier studies fish consumption limits were exceeded and contaminated species are being consumed, including by the most vulnerable segments of the population, children and women of childbearing age. People who are eating fish and crabs from the Hudson do so either because they were unaware of or disregarded health advisories.

11.2 Recommendations

The following recommendations were the results of an interactive process between CEEP, Clearwater and the members of the Peekskill Environmental Justice Council that coincided with development of the CBEJI. While awaiting detailed information on pollution sources and health data, the group focused much of their attention to preserving Peekskill's assets and resources and creating a more sustainable future. Some of the ideas may have seemed very idealist or unattainable, but with focused research it is likely that most are achievable – especially if funding and other resources can be found. Next steps will include prioritizing and looking for funding.

Because Clearwater now has EPA Environmental Justice Small Grant funding to continue to work with the Council with an emphasis on climate justice and CEEP is increasingly organized and empowered, this effort will continue.

Preserving Environmental Assets and Resources

- Protect clean water and clean air, or restore where degraded
- Protect trees and forests (especially useful for water quality and carbon sequestration); hire a botanist to investigate the current state of the trees in and surrounding Peekskill
- Assure riverfront access, including Riverfront Green Park on Peekskill Bay.
- Other parks include Tompkins Park (with a new dog park) and Fort Hill Park, Depew Park adjacent to Blue Mountain Reservation and a number of smaller neighborhood parks.
- Develop a watershed assessment, evaluate stream monitoring efforts as a measure of stream quality and create a watershed management plan.
- Promote watershed awareness and protection; work with Peekskill Middle School teacher, John Cooley, on this and other school projects.
- Assess and protect the creeks that run through Peekskill, including Annsville Creek, although it is currently silted in (possible recommendation to restore), the Hollow Brook, Peekskill's MacGregory and Dickey Brooks and other unnamed brooks. Also lakes and ponds, including Lake Mitchell.
- Protect Camp Field Reservoir that supplies the water filtration plant, and its surrounding watershed. Protection of Peekskill's watershed is both key and difficult as the watershed that drains into the reservoir is completely outside of Peekskill's municipal boundaries, located in the Towns of Cortlandt, Yorktown and portions of Putnam County.



The majestic Riverfront Park creates a haven for the community. *Photo by travel pod.com*

- Map the wetlands, beyond existing federal and state maps, which need to be field verified; there are also a number of natural springs in Peekskill.
- Peekskill has already mapped its outfalls as part of MS4 compliance
- Continue the charrette work that was done regarding greening the South St. Industrial Park; prioritize its recommendations and move toward their implementation.
- "How Green Is Your Town" report card – follow up and support implementation of these recommendations.
- Utilize Green Infrastructure to reduce stormwater flow and improve water quality; identify potential projects and funding.
- Find funding to install solar panels atop the James Street Garage/Police Station (climate mitigation)
- Hold educational programs that reach out to new members of the Peekskill community, especially the expanding Hispanic population; Chamber of Commerce is interested in cosponsoring this effort.



Riverfront Park, Peekskill. Photo by *Thehistorytrekker.com*

Farmland Protection

- Consider possible opportunities for preserving any remaining undeveloped farmland in Peekskill, including the Corlese Farm and the Borbely Farm on Frost Lane.
- Channel effort toward creating a Community Supported Agriculture (CSA) farm, with farmer selling excess produce and other products at local farmers market or NYC Green Market; create a solar-powered community farm. Organic products are the fastest growing and most lucrative sector in the agricultural sector, and local farms promote food security. Tim Lundquist of the Bluebird Group has developed a model for green building development at edges of farmland with homeowners association who can provide a basis for CSA; the existing Frost Lane development could become a ready-made homeowners' CSA.
- More frequent and better advertising of local farmers' markets.
- Have a year-round Farmers Market (indoors monthly in winter).
- Create community gardens in accessible locations, especially in the urban areas to provide green space and nutritious food.

Preventing or Mitigating Pollution Impacts and Other Environmental Burdens

Traffic

- Expansion of Rt. 9 may be detrimental to air and water quality.
- Traffic, especially of trucks and tractor trailers on Main St. (Rt. 6, 202, 35) passing through downtown Peekskill, the only route to points east, adds to the noise pollution and the releasing of diesel fumes,



Intersection of Main St. and Division St. in downtown Peekskill. Photo taken by *Charles Napoli*

especially exacerbated by idling at stop lights. In the summer, diesel fumes along South St. are especially high. A study in Harlem showed that fumes would rise from 500 to 800 ppb when a truck passed air quality monitors. To give a context to these numbers, rural areas typically have a reading of 270 ppb.

- Find alternate routes to downtown traffic. Peekskill, Yorktown and Cortlandt have been meeting to try to come up with a solution to provide an alternative East-West corridor that relieves some of the burden on Peekskill and promotes fairness; this may involve allowing trucks to use the Bear Mountain Extension. Find out what NYS DOT's future regional transportation plans are (the City of Peekskill Planning Department has a traffic study that includes some of this information).
- Establish bike lanes to promote sustainable transportation and recreational uses of roadways
- Support and find funding for a solar-powered trolley to reduce traffic in downtown
- Install roundabouts to prevent stopping and unnecessary idling (use pervious pavement)

Health

- Given the pattern of disproportionate perinatal problems in Peekskill, the need for excellent programs such as the Lower Hudson Valley Perinatal Network and the Youth Fellows peer education program it sponsors is very high in Peekskill.
- Continue to problem-solve ways to reduce exposures and to promote health through good nutrition, exercise and education.
- Support and work with existing agencies that are providing care and education.

Angler Survey

The findings of the 2010 Peekskill survey indicate insufficient awareness of and/or compliance with Health Advisories regarding Hudson River fish consumption:

- Provide better education and outreach, especially bilingual brochures and signage.
- Coordinate a program specifically focused on obtaining and posting signage along the waterfront from Verplanck to Peekskill, including the Annsville Creek.
- Use volunteers from 2010 Angler Survey to do active outreach in the 2011 fishing season; coordinate with Dutchess CCE and other efforts; recruit additional volunteers, especially bilingual youth to help with this effort. Area churches may be willing to help if information is provided.

Other

- Test indoor air quality
- Verify GIS map of pollution sources; add GPS photos; add assets and resources; utilize local GIS volunteers or college interns. Perform a GIS comparison assessment of pollution sources in Peekskill vs. surrounding communities and Westchester County as a whole; compare also with Yonkers, Haverstraw and other EJ communities – using a methodology similar to that utilized for the health data comparisons in this report.
- Address growing deer population
- Prevent or mitigate the spread of invasive species such as plants and insects

- Flooding problems: can be severe during and after torrential downpours; storm sewer covers can actually become dislodged with water rushing out. This may become worse as climate change worsens.

More generally, the final CBEJI recommends that the Planning Board and Town Boards in Peekskill and surrounding communities consult this report whenever land use proposals arise in the study area and in the planning process.

12. CONCLUSION

“Environmental justice is not an issue we can afford to relegate to the margins. It has to be part of our thinking in every decision we make.” ~ Lisa Jackson, Administrator, United States Environmental Protection Agency, 2009.

Environmental justice can be furthered by adopting policies to encourage and facilitate public participation in decisions, clean energy programs to improve efficiency and clean energy deployment, and targeted programs that ensure environmental justice communities are included in the transition to a clean energy economy.

Increasing opportunities for public participation in the decision making process would allow for greater transparency in agency decision making, and would reduce the likelihood that communities will be excluded from the decision making process. Fair and meaningful public involvement would include, among other things, availability of information, continual transparency, and early consultation and collaboration.

Encouraging and facilitating community involvement improves communication and embraces problem solving techniques that foster strong and trustworthy relationships between the community, regulatory agencies, and industries in the energy sector. Greater involvement in the decision making process increases community confidence in agency decisions and ensures that potential problems and possible solutions are addressed early in the process. Increased community involvement provides greater potential for addressing community concerns in siting decisions before disputes arise, improves agency relations with communities throughout the state, and helps communities move towards environmental equity.

When siting new facilities, assessing disproportionate health risks and environmental impacts could help identify overburdened communities and help develop measures to avoid or mitigate potential impacts in these communities. As mentioned in the Environmental Justice Issue Brief, this could be achieved by:

- (a) enhancing siting and permitting processes to require a comprehensive environmental and cumulative impact review;
- (b) improving emissions criteria to reduce health and environmental risks to burdened populations; and
- (c) providing early and consistent public participation in siting decisions.

13. List of Attachments to Peekskill Community-Based Environmental Justice Inventory

- Attachment 1: NYS DEC Potential Environmental Justice Areas (PEJA) for Westchester County
Attachment 2: Citizens for Equal Environmental Protection (CEEP): Map of Disparate Treatment of Low-Income, Minority Communities in Westchester Country, NY

Attachment 3: Major Sources of Pollution within a 12.5-mile radius of downtown Peekskill

- Attachment 3-A: Satellite image of Peekskill Study Area
Attachment 3-B: Percent Non-White Population and Median Household Income by Census Block Group, Peekskill NY
Attachment 3-C: Percent Non-White Population by Census Block Group, Peekskill NY
Attachment 3-D: Percent Non-White Population with facilities by Census Block Group, Peekskill NY
Attachment 3-E: Close up, Percent Non-White Population with facilities by Census Block Group, Peekskill NY
Attachment 3-F: Percent Black Population by Census Block Group, Peekskill NY
Attachment 3-G: Percent Black Population with facilities by Census Block Group, Peekskill NY
Attachment 3-H: Percent Hispanic Population by Census Block Group, Peekskill NY
Attachment 3-I: Median Household Income by Census Block Group, Peekskill NY
Attachment 3-J: Median Household Income with facilities by Census Block Group, Peekskill NY
Attachment 3-K: Percent Non-White Population and Median Household Income by Census Block Group, Peekskill, NY
Attachment 3-L: Percent Non-White Population and Median Household Income with Percent Population with a Bachelor's Degree, by Census Block Group, Peekskill, NY
Attachment 3-M: Percent Population without a High School Degree by Census Block Group, Peekskill NY
Attachment 3-N: Percent Population with a Bachelor's Degree by Census Block Group, Peekskill NY
Attachment 3-O: Percent Population with a Bachelor's Degree with facilities by Census Block Group, Peekskill NY
Attachment 3-P: Map showing 25-Mile Radius Centered on Peekskill, NY
Attachment 4: Principles of Environmental Justice
Attachment 5: CEEP Map of Asthma Rates by Zip Code
Attachment 6: Body Burden on Newborns

Peekskill Angler Survey – 2010

- Attachment 7: Peekskill Waterfront Area Directions by Daria Gregg
Attachment 8: Map of Angler Survey Study Area
Attachment 9: Peekskill Angler Survey 2010 Questionnaire in English (9-A), Spanish (9-B)
Attachment 10: Original Questionnaire from Clearwater's 1993 Angler Survey
Attachment 11: Angler Survey Instructions
Attachment 12: CATCH CLEAN & COOK card in English (12-A) and Spanish (12-B)
Attachment 13: Follow-up Information Card in English (13-A) and Spanish (13-B)
Attachment 14: NYS DOH Hudson River Health Advice on Eating Sportfish 2009-2010 in English (14-A) and Spanish (14-B) -- flyer
Attachment 15: NYS DOH Hudson River Health Advice on Eating Sportfish 2009-2010 in English (15-A) and Spanish (15-B) – foldable
Attachment 16: Hudson River Fish Advisories: Downstream of Hudson Falls
Attachment 17: Alternative Fishing Sites – research by Jeanette Gould
Attachment 18: Hudson River Fish In Trouble