FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CROTON WATER TREATEMENT PLANT AT THE EASTVIEW SITE

5.18. SOLID WASTE

5.18.1. Introduction

This section examines the production, management, and collection of current and future solid waste potentially generated at the Eastview Site, which is one of the alternative locations for the proposed Croton Water Treatment Plant (WTP). This site is located in the Town of Mount Pleasant, New York. A study area of one-mile surrounding the Eastview Site was utilized in conducting this analysis. The assessment also describes how solid waste is and would be managed in light of the *Solid Waste Management Plan, Westchester County Department of Environmental Facilities*[1]. The methodology used to prepare this analysis is presented in Section 4.18, Data Collection and Impact Methodologies, Solid Waste.

5.18.2. Baseline Conditions

The New York State Solid Waste Management Act of 1988 (updated in 1999-2000)[2] and the New York State Department of Environmental Conservation (NYSDEC) Regulations (Official Compilation of Codes, Rules and Regulations of the State of New York, NYCRR, Part 360-15)[3] establish a hierarchy of waste management techniques to minimize reliance on landfills by maximizing waste prevention and recycling. The State established a target goal of reducing waste by eight to ten percent, and having 40 percent of waste being recycled by 1997[4]. NYSDEC also maintains a comprehensive register of all permitted solid waste landfills within the State of New York. According to the Active Solid Waste Facility Register[5], there are no waste disposal facilities within the study area.

Westchester County's *Solid Waste Management Plan* is consistent with all state regulations and guidelines and focuses on waste reduction, recycling, and reuse. Under the State and County plans, the integrated solid waste management system has a goal of maximizing waste reduction, recycling, reuse, and energy recovery.

The Westchester County Department of Environmental Facilities, Division of Solid Waste serves as a resource for municipalities in the management of solid waste. The Westchester County Refuse Disposal District No. 1 consists of: solid waste transfer stations (Brockway Place Transfer Station, South Columbus Avenue Station, Thruway Transfer Station); Charles Point Resource Recovery Plant (a waste-to-energy plant in Peekskill, NY); a fleet of tractors and transfer trailers for waste hauling and recyclable containers for hauling recyclable materials; a

[1]Westchester Department of Environmental Facilities. 1996. http://www.westchestergov.com/envfacil/SWMIntroText.htm

[2] New York State Department of Environmental Conservation. 2000. New York State Solid Waste Management Plan: 1999-2000 Update. http://www.dec.state.ny.us/website/dshm/prgmngnt/2kupdte.pdf

[3] New York State Department of Environmental Conservation. November 24, 1999. Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York
6 NYCRR. http://www.dec.state.ny.us/website/regs/360v.htm.

[4] New York State Department of Environmental Conservation. 2002. http://www.dec.state.ny.us/website/dshm/sldwaste/index.htm

[5] New York State Department of Environmental Conservation. 2002. DEC Environnemental Navigator. http://www.dec.state.ny.us/website/imsmaps/decnav/viewer.htm?Title=DEC%20Environmental%20Navigator

landfill at Sprout Brook solely permitted for disposal of ash residue from the Charles Point Facility; a Material Recovery Facility (MRF); and various equipment for organic yard waste processing and transport.

The Westchester County Refuse Disposal District No. 1 is responsible for the transportation and disposal of Municipally Collected Solid Waste (MSW); municipal solid waste removal is provided to residential properties only; commercial and industrial properties are required to contract private haulers. In District No.1, 36 of Westchester County's 44 municipalities have entered into an Inter-municipal Agreement[6]. Under the agreement, the municipalities collect Municipal Solid Waste (MSW) and have committed to reducing the amount of solid waste disposed. Commercial organizations are not part of the agreement, but organizations with more than 100 employees are required to establish a similar solid waste management plan. Since 1985, the 36 municipalities have sent their solid waste to the Charles Point Resource Recovery Facility; this represents approximately 90 percent of the County's population. The Charles Point Facility has a permitted throughput capacity of 710,000 tons per year. Municipally generated solid waste delivered to the facility amounted to 666,025 in 2002 with private carters and direct haul waste composing the remaining balance. The facility has recently completed a major retrofit to meet the new Federal Clean Air standards.

In 1992 Westchester County adopted a Source Separation Law that developed an integrated solid waste management plan to fulfill the County's responsibility as a New York State designated planning unit. Under this law, the Material Recovery Facility (MRF) was established. The MRF received commingled recyclables from 35 municipalities (each municipality is responsible for handling, transportation and disposition of solid waste including yard waste and leaves). At the MRF, operators separate various market items. This facility provides the County with a cost effective method of waste management.

5.18.2.1. Existing Conditions

5.18.2.1.1. Water Treatment Plant Site

The Eastview Site is located in the Town of Mount Pleasant, in Westchester County, New York. The Hammond House, a privately owned residence along the southern edge of the Eastview Site, is the only solid waste producer on-site. It currently is estimated to generate approximately 41 lbs/week of household solid waste.

5.18.2.1.2. Study Area

As described in Section 5.2, Land Use, Zoning, and Public Policy, the Eastview Site is surrounded to the north, east, and west by the Westchester County Valhalla Campus (Grasslands Reservation). Grasslands Reservation is a large landscaped campus containing medical facilities, transportation and public safety facilities, and a correctional complex (the Westchester County

[6] Westchester County Department of Environmental Facilities. 2002. Solid Waste Management. http://www.westchestergov.com/envfacil/SWMIntroText.htm.

Correctional Complex). Immediately south of the Eastview Site across Grasslands Road/Route 100C is an additional 66-acre City-owned parcel that contains densely wooded areas, wetlands, and brush cover. The City-owned parcel is bordered by the Cross Westchester Executive Park to the south and west and the Catskill Aqueduct and residences to the east. The Cross Westchester Executive Park is a corporate campus of modern commercial and industrial buildings.

On average, commercial properties can generated approximately 13lbs/week/employee (based on a 40-hour, five-day work week). A residential property generates approximately 41 lbs/week of solid waste. Educational facilities can generate approximately 1-2lbs/week per student and 13lbs/week per faculty or staff member. Correctional facilitates produce approximately 13 lbs/week of solid waste per inmate. Hospitals generate approximately 51 lbs/week of solid per bed.

The municipality would collect solid waste generated by residences in the study area while commercial and industrial properties are responsible for contracting with private haulers. Solid waste generated within the study area is transported to the Charles Point Resource Recovery Facility. Medical facilities separate their waste into two categories: regulated medical waste and ordinary waste. New York State Department of Health (NYSDOH) and NYSDEC regulate the generation, treatment, storage, transfer and disposal of these medical wastes.

5.18.2.2. Future Without the Project

The Future Without the Project conditions were developed for the anticipated peak year of construction (2008) and the anticipated year of operation (2010) for the proposed plant. The anticipated peak year of construction is based on the peak number of workers.

For each year, two scenarios are assessed: one in which the NYCDEP Catskill/Delaware Ultraviolet (UV) Light Disinfection Facility (Cat/Del UV Facility) would not be analyzed at the Eastview Site and another in which the Cat/Del UV Facility is included in the site analysis; specifically the Cat/Del UV Facility would be located in the southeastern area of the Mount Pleasant parcel. It should be noted that the Eastview Site is the only location under consideration for the Cat/Del UV Facility. The scenario without the Cat/Del UV Facility is included because that project has not yet received its necessary approvals and its inclusion or not would reflect major changes to the site. By the peak construction year, two additional NYCDEP projects could be located on the Eastview Site, namely a Police Precinct and possibly an Administration Building[7]. The Police Precinct may be located in the southwest corner of the Mount Pleasant parcel. The Administration Building is less certain; however, as the Eastview Site is one of several properties currently being evaluated for use as a possible site for that particular building. In addition to these projects, NYCDEP's Kensico-City Tunnel may be under construction at the Eastview Site starting in 2009. All of these NYCDEP projects are analyzed in this Final SEIS to the extent to which information is available. They are all separate actions from the proposed project and will undergo their own independent environmental reviews.

[7] This depends on the results of a siting evaluation which is currently ongoing. The siting decision will be evaluated and discussed as part of a separate independent environmental review.

5.18.2.2.1. Without Cat/Del UV Facility at Eastview Site

In the Future Without the Project, solid waste and source-separated recyclables would continue to be collected and disposed as in current conditions. It is anticipated that a minimal increase in solid waste produced at the Eastview Site through 2010 would result with the construction of the NYCDEP police precinct, the Kensico-City Tunnel (KCT), and the Administration Building. It is likely that the Eastview Site would be a major staging area for the KCT. With the construction of these facilities on the Eastview Site, additional solid waste would be generated. The NYCDEP would arrange for waste to be collected and disposed through a private hauler. The additional waste would be transported to the Charles Point Resource Recovery Facility; this increase to the facility is anticipated to be minimal and would likely not result in a significant adverse impact.

The Hammond House, the sole residence on the site, would still be privately owned, and would generate approximately 41 lbs/week of household solid waste. This solid waste would continue to be collected by the municipality as a private residence. Residential neighborhoods commercial and business establishments within the study area would continue to have solid waste collected and disposed as in current conditions.

5.18.2.2.2. With Cat/Del UV Facility at Eastview Site

In addition to the projects identified above, this scenario analyzes the solid waste of the Cat/Del UV Facility, which would be developed in the southeastern portion of the Mount Pleasant Parcel. By the anticipated year of operation (2010), the Cat/Del UV Facility would be operational as well. Solid waste generated would include employees-generated solid waste (e.g. paper, food, cardboard, aluminum, plastic, etc.) and waste generated as by product of the UV process (e.g. disposal of mercury in the UV lamps).

Employee solid waste was calculated by assuming that the anticipated solid waste generated for the 31 employees at the Cat/Del UV Facility is estimated to be approximately 426 pounds per week. Employee created solid waste was calculated using the *CEQR* Technical Manual generation rates. Weekday employees, who work 40 hours in a 5-day work week, would each generate approximately 13 lbs/week of solid waste. For the off-shift employees, this 13 lbs/week generation rate has been modified to 2.6 lbs/day/employee[8]. Of the 31 employees, the administration staff (during a Monday to Friday, 9AM to 5PM shift) consists of 4 employees that would generate a total of 52 lbs/week of solid waste. The maintenance staff consists of 10 employees that would be part-time dedicated (M-F) and would generate a total of 65 lbs/week[9] of solid waste. The operations staff that includes the day shift (7AM-3PM), afternoon shift (3PM-11PM), and night shift (11PM-7AM) are responsible for a 24 hour/7 day a week shift. The day shift and afternoon shift include 6 employees in each shift, generating approximately 218.4 lbs/week[10] of solid waste. The night shift that consists of 5 employees would generate 91

[8] 13 lbs/week/employee ÷ 5 days (8 hr shift/week) = 2.6 lbs/day (8 hr shift/employee); where 1 day equals an 8 hour shift.
[9] 10 employees x 2.6 lbs/ day/ employee x 2.5 days
[10] Number of shift employees x 2.6 lbs/day/employee x 7days

lbs/week[10] of solid waste. Therefore, the total solid waste generated during the day shift (M-F) and off-shifts would be 226.2 and 200.2 lbs/week, respectively. This volume of solid waste would be collected and transported off-site by a private hauler.

There would be a total of 9,408 UV lamps (168 lamps per unit x 56 units) at the Cat/Del UV Facility. The UV lamps would contain a small amount of mercury, about 0.15 grams in each lamp. Approximately 13.6 lamps per day would be changed and generated as waste at the proposed facility (9,408 lamps/694 days). A discussion on the UV lamp life at the Cat/Del UV Facility and the proposed Croton project is presented in the potential project impacts section below. The weekly quantity of mercury generated would be 0.032 lbs/week (14 lamps/day x 0.15 grams Hg x 7 days/week equals 14.7 grams/week). With the addition of the Cat/Del UV Facility lamps containing mercury at the Eastview Site, they would be hauled off-site to a USEPA Licensed Recycle Facility. This would be done under contract between the City and the private hauler.

By the anticipated year of peak construction (2008) for the proposed Croton project, the Cat/Del UV Facility would be in construction as well. Solid waste related to construction activities at the Cat/Del UV Facility includes: worker-generated solid waste, excavated material, and construction debris. The 480 construction workers at the site would generate 6,240 pounds per week of solid waste, assuming each worker generates 13 pounds of solid waste per week. This waste would be handled by the existing solid waste system and transported off-site by a private hauler.

Excavated material would consist of approximately 800,000 cubic yards (cy) from clearing of area for stockpiling and excavation of the main building footprint and water conduits. Of the 800,000 cy, up to 290,000 cy could be transported to the Kensico Reservoir to fill the Catskill and Delaware aerators, which are no longer in service. 130,000 cy of rock would be removed from the site; 67,000 cy would be considered unsuitable material and would be transported off-site for disposal by a contracted private hauler. The remaining excavated material on-site would be used as backfill for the area around the Cat/Del UV Facility and water conduits.

Additional excavated material would be generated as a byproduct of construction. This material would be highly variable in nature; it could include cardboard, wood, block, plastics, scrap steel and pipe wire. Approximately 40 cubic yards (cy) per week of construction debris would be generated on site. It would be kept in a 40 cy dumpster on-site and disposed of by a private hauler once a week. An estimated total of 10,400 cy of construction debris could be generated on-site over the 5-year construction period.

During construction and operation of the Cat/Del UV Facility, the Hammond House would still be a private residence, and would generate approximately 41 lbs/week of household solid waste[11]. This solid waste would continue to be collected by the municipality as a private residence. Residential neighborhoods commercial and business establishments within the study area would continue to have solid waste collected and disposed as in current conditions.

[11] NYCDEP is considering the possibility of moving the Hammond House as part of the Cat/Del UV Facility project (see Section 5.1). If this were done it would result in a small decrease in solid waste at the site.

5.18.3. Potential Impacts

5.18.3.1. Potential Project Impacts

If the proposed project were to be built at the Eastview Site, the anticipated year of operation for the proposed plant would be 2010. Therefore, potential project impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions without the Cat/Del UV Facility at the Eastview Site, and the Future Without the Project conditions with the Cat/Del UV Facility at the Eastview Site for the anticipated year of operation (2010).

5.18.3.1.1. Without Cat/Del UV Facility at Eastview Site

Potential impacts associated with the proposed plant include worker-generated solid waste, residual waste from the Dissolved Air Flotation (DAF) process, and waste related to disposal of Ultraviolet (UV) Light lamps. Worker created solid waste was calculated using the *CEQR* Technical Manual generation rates. The total number of employees has been estimated to be approximately 53. Of the 53 employees, a maximum of 41 would be weekday employees and 12 would be weekend (e.g. off-shift) employees (during a 8AM-4PM shift). Weekday employees, who work 40 hours in a 5-day work week, would each generate approximately 13 lbs/week of solid waste. For the off-shift employees, this 13 lbs/week generation rate has been modified to 2.6 lbs/day/employee[8]. Therefore, the anticipated worker-generated solid waste would be approximately 533 lbs/week Monday through Friday (8AM-4PM) and approximately 62.4 lbs/week[12] during the off-shifts Saturday and Sunday (8AM-4PM), totaling to approximately 595.4 lbs/ in a seven day week. This waste would be collected by a private hauler and brought to the Charles Point Resource Recovery Facility. The existing Westchester County Refuse Disposal District No. 1 would adequately handle this volume of solid waste. This quantity of waste would not exceed the maximum disposal capacity of the Charles Point facility. Therefore, no significant adverse impacts on the solid waste system would occur as a result of the employee-generated waste at the water treatment plant site.

The water treatment process would generate waste backwater from cleaning the filters. In turn, this backwater would be treated to form solids cake through settling, thickening, and then dewatering. The dewatered cake would consist of approximately 16 percent dry solids, including iron coagulant, clay, organic matter, and other natural particles. This material is not hazardous waste and could be disposed of in a sanitary landfill and used as landfill cover. Under average conditions the cake-like material would be generated at an average rate of 15,700 lbs/day dry weight. A private hauler would then transport the dewatered sludge cake to be used as landfill cover and/or other fill at another site located in or outside of New York State. Therefore, this recyclable material would not produce a significant adverse impact on the local solid waste collection system.

[12] 2.6 lbs/day (8 hr shift/employee) x 12 employees x 2 days (8hr shift) = 62.4 lbs for the 8AM-4PM Saturday and Sunday shifts.

The estimated total number of UV lamps to be contained in the proposed Croton project is estimated to be 960 lamps (48 lamps per unit multiplied by 20 units). As the useful life of a lamp diminishes, it would need to be replaced. According to the manufacturer's recommendations, the lamp life expectancy ranges between 10,000 and 12,000 hours. According to engineering estimates, each lamp should be changed roughly every 840 days (2.3 years). Approximately 1.14 lamps per day would be changed and generated as waste at the proposed facility (960 lamps/840 days). The lamps would contain a small amount of mercury, about 0.15 grams each. The weekly quantity of mercury generated would be 0.00264 lbs/week (1.14 lamps/day x 0.15 grams Hg x 7 days/week equals 1.2 grams/week). Lamps containing mercury would be removed to a US Environmental Protection Agency Licensed Recycling Facility. This would be done under contract between the City and the private hauler. Potential impacts of the mercury in the waste stream are described in the Hazardous Materials Section (Section 5.13).

The UV lamp life for the Croton UV system (840 days) would be longer than the UV lamp life of the Catskill/Delaware UV Disinfection Facility (694 days). The difference in UV lamp life is a result of the differences in the average to maximum flow ratios of the two facilities. The UV systems are designed with enough lamps to treat up to the maximum flow. At average flow conditions, not all the UV lamps would be powered at once, or the power to the UV lamps would be less. Decreasing the number of UV lamps powered at once or decreasing the power to all the lamps increases the UV lamp life. The Cat/Del UV Facility is designed for 2,020 mgd with an average flow of approximately 1,310 mgd yielding a flow ratio of 1.5. The Croton UV system is design to treat maximum flow of 290 mgd with an average flow of approximately 144 mgd, yielding a flow ratio of 2.0. By comparing the two UV systems each with lamps guaranteed for 10,000 hours, when multiplied by the flow ratios, it follows that the Croton UV system lamps would last longer than the Cat/Del UV Facility lamps.

As stated above, this increase to the local solid waste collection system is anticipated to be minimal and would likely not result in a significant adverse impact.

5.18.3.1.2. With Cat/Del UV Facility at Eastview Site

As noted above, the Cat/Del UV Facility may be located at the Eastview Site in the Future Without the Project. The incremental effects of solid waste from operation of the proposed Croton project would be the same in the Future With the Project regardless of whether the Cat/Del UV Facility is operating at the Eastview Site. Therefore, no significant adverse solid waste impact to the regional solid waste disposal system is anticipated.

5.18.3.2. Potential Construction Impacts

If the proposed project were to be built at the Eastview Site, the anticipated year of peak construction for the proposed plant would be 2008 for workers and 2006 for trucks. Therefore, potential construction impacts have been assessed by comparing the Future With the Project conditions against the Future Without the Project conditions without the Cat/Del UV Facility at the Eastview Site and the Future Without the Project conditions with the Cat/Del UV Facility at the Eastview Site for the years 2006 and 2008.

5.18.3.2.1. Without Cat/Del UV Facility at Eastview Site

At the water treatment plant site, the construction generated solid waste would potentially be produced from worker generated solid waste, excavation, and miscellaneous construction debris. The maximum number of construction employees needed on-site has been determined to be 652, each generating approximately 13 lbs/week of solid waste. This volume of solid waste would be collected and transported off-site by a private hauler. The waste would be handled by the existing solid waste system and would not result in a significant increased of waste to be handled by the existing system. Therefore, no significant adverse impacts on the solid waste system would occur as a result of the employee-generated waste during construction activities.

The main treatment building, including the raw water pumping station, would have a footprint area of 262,000 sq. ft. In constructing these structures with the appropriate tunneling would require the excavation of approximately 577,000 cubic yards (cy) of earth and solid rock. Of the 577,000 cy approximately 545,000 cy would be transported off-site for disposal. Making up the total excavated material would be 30,000 cy for site preparation; 170,000 cy for the main treatment building; 120,000 cy of soil and 2,000 cy of solid rock for the Delaware Aqueduct Shaft 19 tunnel connection; 77,000 cy of soil and 48,000 cy of solid rock for the raw water pumping station; 66,000 cy of tunnel muck for the raw water tunnel connection; 60,000 cy of tunnel muck for the treated water tunnel connection; and 4,000 cy of tunnel muck for the short tunnel connecting the raw water pump station to the raw water tunnel at the bottom of the construction access shaft. Of the 170,000 cy of material excavated for the main treatment building approximately 30,000 cy would be stockpiled on-site for use as fill during construction activities. Therefore, approximately five percent of the amount of solid waste generated during excavation would be recycled on-site. The earth and rock solid waste would be collected and transported off-site by a private hauler, who could put the remainder of the material to a variety of uses, such as clean fill.

Additional solid waste would be generated as a byproduct of construction. This material would be highly variable in nature; it would include concrete forms, packaging, scraps of pipe, ductwork, sheetrock, electrical materials, and concrete block used for some interior walls. This amount of waste would be added to the worker-generated waste described above. The increase in solid waste generated from construction activities would be minimal. It is anticipated that the solid waste produced by construction workers would not result in a significant adverse impact on local or regional solid waste streams. Increases to the local solid waste collection system as a result of construction of other NYCDEP proposed projects at the Eastview Site are also anticipated to be minimal and would likely not result in a significant adverse impact on local or regional solid waste streams.

5.18.3.2.2. With Cat/Del UV Facility at Eastview Site

As noted above, the Cat/Del UV Facility may be located at the Eastview Site in the Future Without the Project. The incremental effects of solid waste from construction of the proposed Croton project would be the same in the Future With the Project regardless of whether the Cat/Del UV Facility is under construction at the Eastview Site. Therefore no significant adverse solid waste impact to the regional solid waste disposal system is anticipated.