PHILADELPHIA WATER DEPARTMENT

Annual CSO Status Report

2004

Chapter 94: Wasteload Management Report

March 31st, 2005

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Section 1 - Introduction

This report is submitted pursuant to meeting the requirements of NPSDES Permits #'s 0026662, 0026671, and 0026689; Part C, Section D: Reporting Requirements, b. Annual CSO Status Report. This section requires that the permittee submit an Annual CSO Status Report as part of the Chapter 94 Municipal Wasteload Management Report. The purpose of this report is to document the status and changes made to programs implemented by the City of Philadelphia Water Department (PWD), during calendar year 2004, to manage and reduce the combined sewer overflows (CSOs) permitted to discharge to waters of the Commonwealth of Pennsylvania.

The report is organized as follows: Section 2 Citywide Programs discusses the operational status of the combined sewer system and includes summaries of the frequency and volume of overflows for the past calendar year. In addition, Section 2 provides a summary of any changes made to the programs required by the United States Environmental Protection Agencies (US EPA's) Nine Minimum Controls (NMCs) and as described in the Phase I section of the Long Term CSO Control Plan (LTCP) approved September 18, 1997 The section updates capital programs that are conducted on a City-Wide basis and as such have benefits to all receiving waters. In contract, Sections 3 through 9 are watershed-specific and describe the status of the watershed management planning and capital project implementation occurring within each respective watershed listed in the CSO LTCP. Monitoring of CSO discharges and other performance-related information for each CSO system is also summarized by watershed. Section 10 provides the status of activities completed to advance the concept of the Watershed Technology Center as described in the CSO LTCP.

Section 2 - Citywide Programs

1.0 Phase I – Continued Implementation of the Nine Minimum Controls

In the first phase of the PWD's CSO strategy, and in accordance with its NPDES permits, the PWD submitted to the Pennsylvania Department of Environmental Protection on September 27, 1995, *CSO Documentation: Implementation of Nine Minimum Controls*. The nine minimum controls are low-cost actions or measures that can reduce CSO discharges and their effect on receiving waters, do not require significant engineering studies or major construction, and can be implemented in a relatively short time frame. In general, PWD's NMC program includes comprehensive, aggressive measures to maximize water quality improvements through the following measures:

1. Review and improvement of on-going operation and maintenance programs
2. Measures to maximize the use of the collection system for storage
3. Review and modification of PWD's industrial pretreatment program
4. Measures to maximize flow to the wastewater treatment facilities
5. Measures to detect and eliminate dry weather overflows
6. Control of the discharge of solid and floatable materials
7. Implementation of programs to prevent generation and discharge of pollutants at the source
8. Public Notification of CSO impacts
9. Comprehensive inspection and monitoring programs to characterize and report overflows and other conditions in the combined sewer system.

Changes made to any of the specific projects or programs put into place as a result of the NMC document are discussed in below.

1.1 Operation & Maintenance

Reference Philadelphia NMC Report, 9/27/95 Section 1 pp. 61-62. The operation and maintenance program is well established and any changes or modifications to existing programs are indicated in the sections below.

1.1.1 CSO Regulator Inspection & Maintenance Program

Annual summaries of the comprehensive and preventative maintenance activities completed in the combined sewer system over the past year are detailed in Appendix A and any changes are discussed below.

In response to the CSO compliance inspection performed by DEP in November 2002, PWD has committed to demonstrating an improved follow-up response to sites experiencing a DWO. PWD has instituted a policy of next day follow-up inspection at sites that experience a DWO. PWD will conduct an evaluation of the effectiveness of twice-weekly inspections.

Customized Regulator Inspection Forms
Start: 8/1/95 End: 12/31/2000 Status: Complete

1.1.2 Pumping Station Maintenance

Annual summaries of the Wastewater Pumping summaries are included in Appendix B for:

- Flows
- Station Outages
- Station Condition
- Pump Performance
- Pump Availability
- Maintenance Breakdown

Central Schuylkill Pumping Station (CSPS) Quarterly Grit Pocket Cleanings -
Start: 8/1/95 End: Status: Ongoing
Grit removal operations are performed at the Central Schuylkill Pumping on a periodic basis to maintain the capacity of the siphon.

WW Pumping Predictive Maintenance Program
Start: 8/1/1995 End: Status: Ongoing

Pump Station Emergency Backup Power
Start: 9/27/1995 End: 12/1/1999 Status: Complete
See pump station maintenance annual summaries in Appendix B for documentation of any pump station outages.

1.1.2 Sewer Cleaning Contracts
Start: 12/1/1995 End: Status: Complete

1.1.3 Inflow Prevention Program
Start: 8/1/1995 End: 6/4/1999 Status: Complete

Tide Gate Inspection and Maintenance Program
Summaries of the tide gate inspection and maintenance completed during calendar 2003 are found in Appendix A, which documents the locations where preventative maintenance was performed on the tide gates.

Emergency Overflow Weir Modification
Start: 11/7/1994 End: 6/4/1999 Status: Complete

1.2 Maximize In-System Storage

Reference Philadelphia NMC Report, 9/27/95 Section 2 pp. 1-15

1.2.1 Evaluate Real Time Control in LTCP
Start: 2/1/1996 End: 1/27/1997 Status: Complete

See section 2 City Wide Programs

1.2.2 Install Diversion Dams
Start: 8/1/1995 End: 6/30/1997 Status: Complete

1.3 Modify Pretreatment Program

Reference Philadelphia NMC Report, 9/27/95 Section 3 pp. 1-13

1.3.1 Phase I Implementation
Start: 8/1/1995 End: 2/1/1997 Status: Complete

Inventory Significant Non-Domestic
Start: 8/1/1995 End: 8/21/1995 Status: Complete

Guidance Memorandum
Start: 8/1/1995 End: 1/26/1996 Status: Complete

Develop Data Form for Annual Inspections
Start: 3/1/1996 End: 9/1/1997 Status: Complete

Pretreatment Inspections - 1st 50%
Start: 3/1/1996 End: 7/1/1996 Status: Complete

Asses SIU Wet Weather Monitoring
Start: 7/1/1996 End: 8/1/1997 Status: Complete

1st 50% of SIUs Reduce Discharge
Start: 10/1/1996 End: 1/1/1997 Status: Complete

Pretreatment Inspections - 2nd 50%
Start: 7/1/1996 End: 12/31/1996 Status: Complete

2nd 50% SIUs Reduce Discharge
Start: 1/1/1997 End: 12/31/1998 Status: Complete

1.3.2 Phase II Implementation
Start: 3/1/1997 End: Status: Ongoing

Report - Performance of Phase I Activities
Start: 3/1/1997 End: 3/31/1997 Status: Complete

Annual Pretreatment Inspections - Criteria
Start: 3/18/1997 End: Status: Ongoing

Inspections are ongoing using guidance criteria to evaluate wet weather pollution prevention efforts for those industries that may have batch operations within a continuous discharge. IWU is will continue to investigate combined sewer trunks to find the sources of the high strength wastes and then evaluate in detail the nature and timing of these particular discharges.

1.4 Maximize WPCP Flow

Reference Philadelphia NMC Report, 9/27/95 Section 4 pp. 28-42

The basic strategy of flow maximization, or Modified Regulator Plan (MRP) was to deliver more flow to the WPCPs more frequently, to enable greater pollutant removals. The results of the hydraulic modeling of the interceptor sewers under the flow maximization scenarios indicate that significantly higher rates of flow can be delivered to the WPCPs more frequently than under current conditions. To date, 100% of the projected flow increase associated with the Modified Regulator Plan has been implemented. Some additional modifications might be made in the future to prioritize certain overflows, or to reflect an improved understanding of the collection system dynamics as identified throughout the ongoing modeling work, but no additional capture is expected to result on a system wide basis.

1.4.1 POTW Stress Testing
Start: 9/1/1997 End: Status: Moved to Section 2.3 per CSO LTCP

1.4.2 Prelim Costs - NMC #4 Implementation
Start: 8/1/1995 End: 12/20/1995 Status: Complete

1.4.3 NE DD Modified Regulator Plan (MRP)
Start: 1/1/1996 End: 7/1/1998 Status: Complete

1.4.4 SW DD Modified Regulator Plan (MRP)
Start: 1/1/1996 End: 7/1/1998 Status: Complete

1.4.5 SE DD Modified Regulator Plan (MRP)
Start: 10/30/1995 End: 7/1/1998 Status: Complete

1.4.6 NMC 4 Implementation Costs (LTCP)
Start: 5/1/1996 End: 9/1/1996 Status: Complete

1.5 Eliminate Dry Weather Overflow (DWO)

Reference Philadelphia NMC Report, 9/27/95 Section 5 pp. 1-5

Dry weather discharges at CSO outfalls can occur in any combined sewer system on either a chronic (i.e., regular or even frequent) basis or on a random basis (i.e., as a result of unusual conditions, or equipment malfunction). Random dry weather discharges can occur at virtually any CSO outfall following sudden clogging by unusual debris in the sewer, structural failure of the regulator, or hydraulic overloading by an unusual discharge of flow by a combined sewer system user. Chronic dry weather discharges can and should be prevented from occurring at all CSO outfalls. Random discharges cannot be prevented, but they can and must be promptly eliminated by cleaning repair, and/or identification and elimination of any excessive flow and/or debris sources.

As documented in Section 1 of the NMC report, regular inspections and maintenance of the CSO regulators are performed throughout the City. These programs ensure that sediment accumulations and/or blockages are identified and corrected immediately to avoid dry weather overflows. The results of these efforts are reflected in the Department's Monthly CSO Status Report submitted to PADEP and EPA Region III and summarized on annual basis in this report. The detailed inspection report summaries are included in Appendix A. The implementation of a comprehensive monitoring network is an ongoing project to enhance PWD's ability to ensure high levels of protection against dry weather overflow. Based upon peer review of other CSO communities the present combination of the physical inspection and maintenance with comprehensive monitoring, the present program far exceeds the level of effort employed in other communities.

1.5.1 CSO Monitoring Network
Start: 8/1/1995 End: 12/31/2002 Status: Ongoing

The Philadelphia Water Department's continues to implement the expansion to the CSO Monitoring network and temporary monitoring programs to support planning for further CSO control projects and to minimizing dry weather overflows and tidal inflows. The CSO monitoring network contract has been closed out and difficulties encountered with the contractor have been resolved through legal process with the bonding company of the contractor. PWD will continue to review, replace, and update network equipment in order to continue to support the above functions. The new software systems for the remote equipment and the central computer are 95% complete. A final software contract to finish this work has been approved and will be instituted shortly with an estimated completion date of August 2003. The remote site equipment is various stages of completion and is currently being repaired, calibrated and/or installed in-house. See table 1.5.1 for status of the remote sites.

Table 1.5.1 Site Status Report for CSO Monitoring Network Implementation

MONITORING NETWORK - MONTHLY OPERATIONAL STATUS REPORT		
Month of:		**Jan-2005**
375 TOTAL of ALL NETWORK MONITORING SITES		
30 SITES NOT INSTALLED		
345 SITES INSTALLED		
Status of the 345 Installed Sites	44%	Operational
22 of 23 METERING CHAMBERS INSTALLED	80.1%	Operational
24 of 24 RAIN GAUGE SITES INSTALLED	79.6%	Operational
189 of 200 CSO SITES INSTALLED	35.1%	Operational
110 Priority Sites	43.6%	Operational
* Operational - The site data from all sensors is available on the server and is reasonably accurate		

1.5.2 WTP Residuals Management
Start: 12/15/1994 End: 12/31/1997 Status: Complete

The Department will continue to monitor the effectiveness of the operational changes to residuals management strategies, monitor for any adverse impacts on downstream CSOs, and report any DWOs in the monthly status reports.

1.5.4 Somerset Grit Chamber Cleaning
Start: 8/1/1995 End: Status: Ongoing

p. 30 SIAC - PWD regularly monitors the sediment accumulation in the grit trap at the origin of the Somerset Intercepting Sewer and in locations downstream to determine appropriate cleaning intervals for the girt trap and downstream interceptor. Driven by the monitoring program, the grit basin is cleaned periodically and debris quantities tracked to further refine the frequency of cleaning so as to maintain adequate capacity in the Somerset Intercepting sewer.

Somerset Grit Chamber cleaning details, specifically tonnage removed and dates of cleaning during 2004, are available upon request.

1.6 Solids and Floatables

Reference Philadelphia NMC Report, 9/27/95 Section 6 pp.1-12

The control of floatables and solids in CSO discharges addresses aesthetic quality concerns of the receiving waters. The ultimate goal of NMC No. 6 is, where feasible, to reduce, if not eliminate, by relatively simple means, the discharge of floatables and coarse solids from combined sewer overflows to the receiving waters. The initial phase of the NMC process has and will continue to focus on the implementation of, at a minimum, technology-based, non-capital intensive control measures.

The effectiveness of this minimum control and the evaluation of the potential need for other methods to more effectively control the discharge of solids and floatables from CSOs has been incorporated into the floatables monitoring and pilot evaluation project (T-4 Netting Facility below). That is, the need to control the discharge of solids and floatables, the degrees of control that will be necessary, and the determination of the controls that may be required, are intended to be an ongoing process throughout the development stage and the early implementation phases of the Long Term Control Plan.

1.6.1 Pilot Netting Facility

Start: 3/1/1996 End: 4/1/1997 Status: Complete

A pilot, in-line, floatables netting chamber was constructed as part of a sewer reconstruction project at CSO T-4 Rising Sun Ave. E. of Tacony Creek. The construction of the chamber was completed in March of 1997 and the netting system continues to operate. The quantity of material collected is weighed with each net change.

In 2004, fourteen net replacements were made (7 visits) collecting 1765 pounds of debris. Since the installation of the netting device, 102 nets have been replaced (51 visits) with an approximate total of 9552 pounds of debris captured (Appendix A). The City has compared the floatables removed from the net with other floatables control technologies employed. More specifically, on an area weighted basis the inlet cleaning program data suggests that street surface litter dominates the volume of material that can enter the sewer system. The pilot in-line netting system installed at T_4 has also been shown to capture debris on the same order as the WPCP influent screens indicating that effective floatables control needs to target street surface litter in order to effectively reduce the quantity of debris likely to cause aesthetic concerns in receiving streams.

1.6.2 Repair, Rehabilitation, and Expansion of Outfall Debris Grills

Start: 9/27/95 End: Status: Ongoing

Debris grills are maintained regularly at sites where the tide introduces large floating debris into the outfall conduit. This debris can then become lodged in a tide gate thus causing inflow to occur. Additionally, these debris grills provide entry restriction, and some degree of floatables control.

1.7 Pollution Prevention

Most of the city ordinances related to this minimum control are housekeeping practices that help to prohibit litter and debris from actually being deposited on the streets and within the watershed area. These include

litter ordinances, hazardous waste collection, illegal dumping policies and enforcement, bulk refuse disposal practices, and recycling programs. If these pollutant parameters eventually accumulate within the watershed, practices such as street sweeping and regular maintenance of catch basins can help to reduce the amount of pollutants entering the combined system and ultimately, the receiving water. Examples of these programs are ongoing and were presented in the NMC document. The City will continue to provide public information about the litter and stormwater inlets as part of its implementing this minimum control as well as continue to develop the following new programs.

From the moment the City of Philadelphia began providing water to its citizens there has been a need to create partnerships to protect the water supply. In our earliest days it was through the creation of Fairmount Park. Today we comply with state and federal regulations that require citizen participation. More importantly however, the Philadelphia Water Department through its Public Education Unit has for more than 18 years voluntarily reached the public through an aggressive education and community outreach program that serves as a model for utilities across the country. Through these programs, the Water Department raises public awareness and understanding of storm water problems and issues. Educational materials are distributed at these events and included in bill stuffers to over 460,000 households. In addition, the City continues to facilitate watershed stakeholder meetings to unify public participation in the surrounding counties and to address the issues pertaining to stormwater management on a watershed scale.

1.7.1 Billstuffers

Billstuffers are regularly produced by the Water Department as an educational tool for disseminating information pertaining to customer service and environmental issues. Specific billstuffers are designed on an annual basis for the CSO, Stormwater and Watershed Management programs to address the associated educational issues. These billstuffers reach over 500,000 water and wastewater customers. The environmental bill stuffers distributed in 2004 include:

- Waterwheel (April)
- Streets Department Curbside Recycling Program (May)
- Streets Recycling (August)
- In's & Out's of Sewer Inlets (Nov.)
- Trash & Recycling Schedule (Dec.)

Planned for 2005

- Waterwheel (Jan.)
- Streets Recycling (March)
- Streets Recycling (May)
- Water and Sewer Rates (June and July)
- Streets Recycling (August)
- Ins and Outs of Sewer Inlets/Proper Disposal of Grease (Oct.)
- Trash & Recycling Schedule (Dec.)

1.7.2 Waterwheel Watershed Newsletters

The Water Department's watershed newsletters are usually published on bi-annual basis and target specific information to the residents living within a particular watershed. In this manner, citizens can be kept

informed of departmental water pollution control initiatives specific to the watershed they live in. Newsletters issued in 2004 include:

Spring '04 Edition – This issue, in the form of a mailed newsletter, featured an update on the completion of the Tacony-Frankford River Conservation P, in addition to the department's source water protection plan and its annual drinking water quality data.

Fall '04 Edition – This issue, in the form of a billstuffer, outlined the differences between point and non-point pollution sources, and addressed ways, such as stormwater best management practices, to address these pollution sources. The issue also highlighted the stormwater benefit of trees, as outlined in the Delaware Valley Urban Ecosystem Analysis Report.

1.7.3 Comprehensive Education Materials

The following projects were initiated and/or completed in calendar year 2004:

- Watershed educational partnerships (continued from 1999) with Bodine High School, Edison-Faira High School, Fairmount Park, Phila. Recreation Dept., Academy of Natural Sciences, Lincoln High School, Turner Middle School, Senior Environmental Corps, and the Schuylkill Center for Environmental Education.
- Completion of the Technical Memos for water quality assessments (chemical, biological, physical) for the Tookany/Tacony-Frankford Watershed Partnership, facilitated by the Water Department and its consultant, the Pennsylvania Environmental Council.
- Recruitment of steering committee members for the Poquessing Creek River Conservation Plan and the completion of Year One studies and public outreach for the Pennypack Creek River Conservation. PWD and its partners have completed visual assessments and the data collection components of the Pennypack Creek and is planning for a number of outreach events in the spring 2005.
- The development of a website (www.phillywater.org/Partnerships) for the Poquessing Creek Watershed Partnership.
- The creation and distribution of a watershed video – The Stream That Binds Us" as a project of the Darby-Cobbs Watershed Partnership, funded by Growing Greener and produced by Greenworks.
- The completion of the Tacony-Frankford River Conservation Plan.

General Educational projects in calendar year 2004 - A great variety of public information materials concerning the CSO LTCP in relation to the watershed framework were developed as a result of the watershed partnerships and river conservation plans, including: fact sheets, press releases, tabletop exhibits, brochures, watershed surveys, websites, watershed walks, and presentation materials. Materials developed for a specific watershed are discussed in the Watershed Planning sections as appropriate.

Some of these publications/projects include:
WaterWheel - Issue 2 included with 2003 Water Quality Report (April/May 2004)
WaterWheel - Issue 2 to be included with 2004 Water Quality Report (April/May 2005)

Fairmount Water Works Interpretive Center: Water in Our World (printed several runs 5,000 each time distributed at the Center and other visitor centers and public areas - 2003 & 2004
Urban Eden for Urban Eating - featuring Somerton Tanks Farm (Flower Show 2004)
3rd Annual 2004 Southeastern Pennsylvania Coast Day & BYOB Fishing Event (contributed funds for brochure)
PWD Annual Report Fiscal Year 2004
(annual report features watershed/stormwater projects)

Clean Water Begins and Ends with You! Calendar Contest: distribution of calendars and SEPTA car cards featuring winning entries
Proper Disposal of Cooking Grease - targeting all food processing companies/vendors in Phila.
Guide for Hydrant Use & Street Water Discharges (best management practices for construction contractors) - in development by Industrial Waste.

Clean Water Begins and Ends With You! Drawing Calendar Contest - Awards Ceremony at the Fairmount Water Works Interpretive Center; Students' drawings were on display at the Center.

"If it ain't rain, keep it outta the drain" - paid advertising spots on TV and radio 2004
"If it ain't rain, keep it outta the drain" - videos and DVDs available for public
Clean Water Theater:
Clean Water Theater: videos and DVDs available for public distribution

3rd Annual 2004 Southeastern Pennsylvania Coast Day Event – September '04

Watershed Exhibits at EPA Information Center – May – July 2004

Return and Rededication of the Fisherman Statue - esplanade exhibit at Fairmount Water Works Interpretive Center

1.7.4 Citizen Advisory Committee (CAC) and other Partnership Projects

Water Quality Citizens Advisory Council
In 2001, the Water Quality CAC was formed from a merger of the Stormwater and the Drinking Water Quality CACs. Over the past few years, source water protection had become more of a concern for drinking water quality. The Drinking Water CACs focus has been drawn naturally toward non-point source pollution, a focus traditionally undertaken by the Stormwater CAC. Finally, this merging of the two CACs complemented the PWD's, DEP's and EPA's new approach to looking at and addressing water quality issues on a holistic basis. The Partnership for the Delaware Estuary facilitates CAC meetings. The committee consists of representatives from the following groups:

- AAA Mid-Atlantic
- Academy of Natural Sciences
- Bridesburg Civic Association
- Clean Water Action
- Cobbs Creek Community Environmental Education Center
- Collaborations, Inc.
- Delaware Estuary Program
- Delaware Valley Regional Planning Commission
- Fairmount Rowing Association
- Fairmount Water Works Interpretive Center
- Frankford United Neighbors
- Friends of the Manayunk Canal
- Friends of Pennypack Creek
- Friends of the Poquessing Creek
- Friends of Tacony Creek Park
- Friends of the Wissahickon
- Greater Phila. Chamber of Commerce
- Greenspace Alliance
- Manayunk Development Corp.
- Pennsylvania Gasoline Retailers & Allied Trades
- Pennsylvania Horticultural Society
- Philadelphia Canoe Club
- Philadelphia More Beautiful Committee
- PhilaPride
- Public Works Studio
- Riverkeeper Network
- Riverway Environmental Education Association
- School District of Philadelphia
- Schuylkill River Development Corp.
- TruGreen-Chemlawn

- Turner Construction
- Wawa Inc.

Clean Water Partners

Clean Water Partners is a project designed to reduce non-point source pollution from retail and commercial businesses that will be implemented in several commercial districts in Philadelphia and Chester Counties. The two-year pilot project was funded through a $72,000 Growing Greener grant to the Partnership for the Delaware Estuary, Philadelphia Water Department, Philadelphia Chinatown Development Corporation, Roxborough Green Space, Brandywine Valley Association, Chester County Water Resources Authority, Downingtown Chamber of Commerce, Exton Region Chamber of Commerce, and West Whiteland Township. Sixty businesses participated in the program's survey process for BMPs (15 in Exton, 23 in Roxborough and 22 in Chinatown). In 2004, the program began training local watershed groups and municipal officials. These community leaders then in turn work with businesses in their area to follow up with these companies in the future. The program has also developed a general handbook of nonpoint source pollution BMPs for retail business owners and fact sheets specific to restaurant BMPs and gas station/auto repair center BMPs. Also in 2004, the program began targeting restaurants and gas stations in University City. Site visits at these locations will take place in spring 2005.

"If it Ain't Rain, Don't Dump it Down the Drain":

PWD and DELEP, with the guidance of the CAC, produced a 30-second Public Service Announcement (PSA) in 2003 for TV on recycling used motor oil. For $20,000, 70 spots were purchased and 49 were donated. A matching print ad campaign was developed with funds from the William Penn Foundation, DELEP and PWD. The print campaign consists of bus backs and posters at train stations. Kathy O'Connell from WXPN's Kid's Corner did the voice over for the TV commercial and created a PSA for the radio PSA that was sent to 20 stations in the region. In 2004, videos of the PSA were made available to organizations and schools.

Manayunk Dog Waste Collection Program:

The Stormwater CAC continues its dog waste collection program. The Water Department, Fairmount Park Commission, Friends of the Manayunk Canal, Manayunk Development Corporation, and the Partnership for the Delaware Estuary partnered on the public outreach campaign to address this aspect of non-point source pollution. Signs and dog waste pick-up stations and bags are installed next to wastebaskets for disposals. In addition tip cards asking, "What's your doggy doo doing?" are distributed.

Annual Earth Day Service Project:

Community and watershed volunteers participated in the Water Department- and Stormwater CAC-sponsored annual Earth Day service project by installing storm drain curb markers throughout the City. Volunteers used the new curbmarkers developed by PWD and PA Coastal Zone Management Project to stencil the message "Yo!!! No Dumping! Drains to River!" beside a fish. By developing a more durable and easily applied curb marker, volunteers are able to cover more area. In spring and summer 2004, over 62 volunteer teams participated in the storm drain marking activity. Throughout these months, approximately 3,500 storm drains were marked in April and 1,700 more were decaled during the summer in the City of Philadelphia.

"Stormy Weather" *Video:*

The video focuses on individual responsibility as a critical success factor in improving storm water quality. The deleterious effects of storm water pollution on the physical and biological community in aquatic systems are addressed through various anti-litter messages, such as: litter control, responsible household and pet waste management, and the proper use of inlets. The video is distributed to schools, watershed organizations and interested civics. The video has been distributed to over 300 environmental groups, various citizen groups,

and schools, and has become a part of the environmental education curriculum for Delaware schools. The City's cable channel is showing the video twice a day.

"Clean Water Begins and Ends with You":
The Partnership for the Delaware Estuary, the PWD, and the PA Coastal Zone Management sponsored its third drawing contest for Philadelphia students grades K-12 in January. Students were required to draw an illustration that shows how Philadelphians can help prevent stormwater runoff pollution. First prize drawings were used to promote stormwater pollution prevention messages on SEPTA buses and in the creation of a "Clean Water Begins and Ends with You" calendar. In 2004, there were almost 1,400 drawings entered into the contest, with 40 schools participating. This year's award ceremony was held in March 2004.

Clean Water Theatre
Working in partnership with the Academy of Natural Sciences, the Partnership for the Delaware Estuary, the PWD CAC offered the Clean Water Theatre's "All Washed Up" program which uses local artists and musicians to engage public, private and parochial schools throughout the City of Philadelphia in becoming active and informed stewards of our environment. The setting of the 20 minute play is in an urban park that has a river running through it. The story is built around three characters (an old man who is the caretaker of the park and who had been a vaudeville song and dance man in his youth, and two teenagers – a boy and a girl) that explore the importance of environmental stewardship and clean water.

1.7.5 City-Wide Initiatives

Bio-Blitz:
One of our longest standing partnerships is with Fairmount Park who yearly holds an environmental fair in different neighborhood parks throughout the city. In 2003, the Cobbs Creek Community Environmental Education Center (CCCEEC) joined the Park and NLREEP in hosting Bio-Blitz in Cobbs Creek Park. Public Education staff had the opportunity to observe and talk to elementary, middle- and high-school student teams, as the teams assisted with the species count.

The species collected will be used in the development of the CCCEEC's environmental education programming. Public Education is also assisting CCCEEC with the development of their summer water curriculum to include PWD water resources/stormwater issues. In addition, CCCEEC is very interested in assisting PWD with its Cobbs Creek streambank restoration project and adopting the watershed management plan's proposed watershed indicators as a hands-on component to its curriculum. CCCEEC co-hosted a workshop for teachers in November 2003 to get their feedback on the PWD's proposed curriculum. PWD is also partnering with CCCEEC to develop a teacher's training program in the summer of 2004 on watershed education. Lastly, the CCCEEC has offered to use its site for a rain barrel demonstration/education project.

Educational Publications:
On of the Water Department's most successful community publications is the recently released student activity book (grades 3 – 8) "Let's Learn About Water." This publication develops the concepts of definition of a watershed, impact of non-point source pollution, and personal responsibility for protecting our water supply. It is in great demand by schools, communities and government officials. This book was developed with the Partnership for the Delaware Estuary and was funded in part through DEP Coastal Zone Management funds. Future editions will include descriptions and activities for various city watersheds. The curriculum has already been used in a number of middle schools to meet state required science-based credits.

Clean Streams Team – A Partnership between PWD and the Fairmount Park Commission:
In July 2003, the Philadelphia Water Department and the Fairmount Park Commission (FPC) initiated an exciting partnership that will improve the environmental quality of our precious City parks and streams.

The FPC has assumed responsibility for over 200 acres of land dedicated to the City for stormwater management purposes land that was, up until now, a mowing and landscaping maintenance burden for the Water Department. The FPC will use this land to further its vision of developing "watershed parks," creating natural connections between neighborhoods and existing park areas.

In exchange, the Water Department is fielding a Waterways Restoration Team (WRT) – a crew dedicated to removing large trash – cars, shopping carts, and other short dumped debris - from the 100 miles of stream systems that define our City neighborhoods. This crew will also restore eroded streambanks and streambeds around outfall pipes and remove sanitary debris at these outfalls. The Waterways Restoration Team will work in partnership with the FPC staff and the various Friends of the Parks groups to maximize resources and the positive impacts to our communities. This partnership focuses on the core strengths of our two agencies. The FPC will continue to improve landscape management of the City's parks and dedicated lands, while the Water Department will focus its efforts on water quality improvements, a mandate it has under its state and federal water quality related permits.

Waterways Restoration Team – FY '04 Performance Measurements

	Number of sites visited	No. of Sites requiring multiple days	Vol. of debris removed total (tons)	No. of cars	No. of tires	No. of Shopping carts	No. of Partner Projects
July 03	16	2	10	-	16	-	-
Aug. 03	21	6	8.48	1	49	39	-
Sept 03	5 *	2	.67	7	2	8	-
Oct. 03	17	4	22.87	-	15	21	-
Nov. 03	15	3	27.56	-	48	14	-
Dec. 03	10	2	14.92	-	38	36	-
Jan. 04	11	3	20.85	-	-	58	-
Feb. 04	16	3	26.49	4	236	6	5 - NLREEP
Mar. 04	16	3	65.73	26	89	13	1 - NLREEP, Streets, Police
April 04	19	2	41	3	32	18	2 - NLREEP, Parkwood Civic
May 04	11	2	16.51	-	16	24	2 - NLREEP, FOTP, FOPP
June 04	12	3	21.14	-	12	23	-
Total	**169**	**35**	**276.22**	**41**	**553**	**260**	**10**

In addition to the unbelievable amounts of trash that have been eliminated from our park and stream systems, the Waterways Restoration Team completed its first plunge pool restoration project at the CSO outfall at Crescentville and Adams Avenue

Northwest Watersheds Appreciation Day:
In November 2004, the Water Department participated in the fourth Annual "Northwest Watersheds Day" (formerly known as Monoshone Watershed Day). A full afternoon of activities included water quality testing, biological water quality assessments, watershed bus tours, guided walks of the watershed taking off from the grounds of the Unitarian Society of Germantown, and tours of the planned wetland restoration at Saylor's Grove.

Senior Citizen Corps (SEC):
The Water Department continues to work with the Senior Citizen Corps to address stormwater pollution problems and water quality monitoring programs for the Monoshone Creek, a tributary to the Wissahickon Creek and to the Tookany Creek. The SEC performs biomonitoring, collects water samples, and conducts physical assessments of the stream. The Water Department assists SEC efforts through the provision of municipal services, education about stormwater runoff and the department's Defective Lateral Program, and mapping services such as GIS. Meetings are held monthly. The Corps is also partnering with PWD on its Saylor Grove Wetland Demonstration Project, assisting with public education and outreach.

Fairmount Water Works:
The City's Stormwater Management and Source Water Protection programs are inherently linked, as surface water is the source of the city's drinking water supply. Through programs offered at the Interpretive Center, the City provides public education about the urban water cycle and the role of environmental stewardship through tours of the department's drinking and wastewater treatment plants. Students in Philadelphia and surrounding communities learn about stormwater pollution prevention through a series of educational activities, most notably the Summer Water Camp and Urban Ecology programs.

PWD Flower Show:
The PWD Public Affairs Division participates in the PA Horticultural Society's annual Flower Show each year to inform citizens of its biosolids products in addition to providing tips on how garden and home water conservation can provide a powerful tool for stormwater management at the residential level. The PWD Public Affairs Division participates in the PA Horticultural Society's annual Flower Show each year to inform citizens of its biosolids products in addition to providing tips on how garden and home water conservation can provide a powerful tool for stormwater management at the residential level.

Our 2004 exhibit highlighted the Somerton Tanks Farm located in Northeast Philadelphia. The display focused on the benefits to the environment such as conserving natural resources and reducing storm water runoff as well as improving the local economy. The theme for this year's display, "An Urban Eden for Urban Eating," featured a variety of vegetables and flowers which mirrored what was grown at the farm last season. Somerton Tanks Farm promotes Community Supported Agriculture (CSA) and is a non-profit, small scale farm on land owned by PWD. Vegetables and herbs are grown using a unique, intensive, high rotation farming system without the use of pesticides, herbicides or synthetic fertilizers. The Farm also provides farmer training programs so others can start farms in Philadelphia. The Oley Institute and their major funders, the Philadelphia Commerce Department and the Philadelphia Workforce Development Corporation, partnered with PWD to create this urban wonder that is sure to grow as abundantly as the produce.

1.8 Public Notification

As discussed in Section 7 of the above report, the Water Department had developed and will continue to develop a series of informational brochures and other materials about its CSO discharges and the potential

affect on the receiving waters. The brochures provide phone contacts for additional information. Also, the opportunity to recruit citizen volunteers to check or adopt CSO outfalls in their watersheds (i.e., notifying the PWD of dry weather overflows, etc.) will be explored through the watershed partnership framework. Brochures and other educational materials discuss the detrimental affects of these overflows and request that the public report these incidences to the department. In addition, the Water Department has enlisted watershed organizations to assist it with this endeavor. PWD will continue with this focus in 2005 to continue to raise the level of awareness in its citizens about the function of combined and stormwater outfalls through a variety of educational mediums. The watershed partnerships will also continue to be used for this type of education.

In response to the compliance inspection performed by DEP in November 2002, PWD reviewed and revised our public notification program in areas that have a reasonable likelihood for primary contact recreation. As part of our watershed management program development, PWD examined recreational uses in the area waterways. As a result, the development and use of new notification practices are already underway for areas known to support contact recreation, namely the Upper Schuylkill River and in areas of Tacony Creek Park. Flyers were developed and directly distributed to people observed to be swimming in Tacony Creek. A recreational advisory has been completed for the Schuylkill River in conjunction with the Department's Water Quality Committee. This system's educational message will be similar to the marina programs as the advisories are based upon rainfall, CSOs and upstream influences on water quality.

PWD has also initiated an outreach, education, and notification program for marinas and personal watercraft that may be situated near CSO outfalls on the Delaware River. PWD will hold meetings with representatives from DEP's Coastal Non-Point Pollution program, the Partnership for the Delaware Estuary and administrators of similar programs in New Jersey to develop a host of educational and environmental management measures. Our proposed approach would entail conducting a survey of existing marinas and boat launches and their use profiles (personal, charter, open, closed craft, etc.). We would then initiate meetings with the individual marinas to implement site-specific notification mechanisms (brochure, flags, sign, etc.) that list precautions that should be exercised by those engaging in contact recreation within the marina and/or on the open water. In addition, these meetings would discus how the marina can adopt environmentally responsible operation and maintenance practices for personal and multi-purpose watercraft that are jointly supportive of safe contact recreation and the DEP Coastal Non-Point Pollution goals. Specifically, these would address the measures identified in the Marinas and Recreational Boating section of the DEP document titled Deliverables for Results-Based Funding Coastal Non-point Pollution (CNP) Specialist.

1.8.1 Other Public Notification Initiatives

The Water Department has developed and will continue to develop a series of informational brochures and other materials about its CSO discharges and the potential affect on the receiving waters, in addition to information regarding dry weather flows from its stormwater outfalls. The brochures provide phone contacts for additional information. Also, the opportunity to recruit citizen volunteers to check or adopt CSO outfalls in their watersheds (i.e., notifying the PWD of dry weather overflows, etc.) will be explored through the watershed partnership framework. Brochures and other educational materials discuss the detrimental affects of these overflows and request that the public report these incidences to the department. In addition, the Water Department has enlisted watershed organizations to assist it with this endeavor. The department continued with this focus in 2004 to raise the level of awareness in its citizens about the function of combined and stormwater outfalls through a variety of educational mediums. The watershed partnerships are primed for this kind of public/private effort to protect stream water quality. In addition, the department is working with Fairmount Park to install CSO signage (see below) at 20 of the most highly visible CSO outfalls (text will also be included in English and Spanish). Lastly, the department's Clean Streams Team will

investigate the feasibility of installing signage that can withstand nature and vandals at the department's outfalls

In The PWD, in partnership with the Delaware Estuary Program, initiated a best management practices education program for marinas. This program is designed to better educate and alert recreational users of the Delaware and Schuylkill Rivers regarding questionable water quality following rainstorms. The program will also provide tips and information to marina operators to ensure their practices are environmentally sound and consistent with the State BMP guidance for marinas in the coastal zone. To complement this effort, the PWD has also been working with other city agencies to devise a "Recreational River Rating System" for the Schuylkill River due to the number of recreational activities that occur on the river year around. This system's educational message will be similar to the marina programs as the advisories are based upon rainfall, CSOs and upstream influences on water quality.

1.9 Monitoring and Reporting

Reference Philadelphia NMC Report, 9/27/95 Section 9 pp. 1-3 and System Hydraulic Characterization Report, 6/27/95 Section 5, pp. 5-3.

Monitoring and characterization of CSO impacts from a combined wastewater collection and treatment system are necessary to document existing conditions and to identify water quality benefits achievable by CSO mitigation measures. The tables included in the following section represent the average annual CSO overflow statistics for calendar year 2004 as required in the NPDES Permit. The table has been reorganized to present overflows by the specific receiving water into which the CSOs from a given interceptor system discharge. In order to be consistent, the column headings are presented in the same format found in the System Hydraulic Characterization (SHC) and NMC Documentation. These statistics are also summarized in the Watershed Planning Section along with waterbody - specific monitoring programs that occurred in 2004.

1.9.1 Annual CSO Statistics (2004)

The estimated average annual frequency and volume statistics for calendar year 2003 are presented in the following Table.

COBBS CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency		CSO Volume (MG)	CSO Capture (%)	CSO Duration (hrs)
			Range per subsystem	Avg per subsystem	Range per subsystem	Range per subsystem	Range per subsystem
Cobbs Creek High Level	26	32	0 - 60	20	1414 - 1482	47% - 49%	0 - 313
Cobbs Creek Low Level	9	12	0 - 49	19	118 - 123	72% - 73%	0 - 192

DELAWARE RIVER 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency		CSO Volume (MG)	CSO Capture (%)	CSO Duration (hrs)
			Range per subsystem	Avg per subsystem	Range per subsystem	Range per subsystem	Range per subsystem
Upper Delaware Low Level	12	12	7 - 50	26	1067 - 1116	56% - 56%	10 - 238
Somerset	8	9	22 - 54	39	3960 - 4177	44% - 46%	55 - 300
Lower Delaware Low Level	27	27	7 - 54	34	3122 - 3249	56% - 57%	10 - 319
Oregon	5	6	1 - 50	36	1377 - 1423	36% - 37%	1 - 223
Lower Frankford Low Level	5	6	18 - 50	34	1251 - 1318	42% - 43%	46 - 246

PENNYPACK CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency		CSO Volume (MG)	CSO Capture (%)	CSO Duration (hrs)
			Range per subsystem	Avg per subsystem	Range per subsystem	Range per subsystem	Range per subsystem
Pennypack	5	5	15 - 48	26	94 - 99	65% - 65%	35 - 209

SCHUYLKILL RIVER 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency				CSO Volume (MG)			CSO Capture (%)			CSO Duration (hrs)		
			Range per subsystem			Avg per subsystem	Range per subsystem			Range per subsystem			Range per subsystem		
Central Schuylkill East Side	20	26	0	-	63	27	1394	-	1439	55%	-	57%	0	-	406
Central Schuylkill West Side	10	10	0	-	72	37	762	-	761	46%	-	46%	0	-	405
Lower Schuylkill East Side	7	9	7	-	53	38	852	-	884	50%	-	51%	11	-	299
Lower Schuylkill West Side	4	4	8	-	61	43	1283	-	1332	19%	-	20%	15	-	301
Southwest Main Gravity	2	2	7	-	50	29	2139	-	2261	60%	-	62%	8	-	259

TACONY CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency				CSO Volume (MG)			CSO Capture (%)			CSO Duration (hrs)		
			Range per subsystem			Avg per subsystem	Range per subsystem			Range per subsystem			Range per subsystem		
Tacony	16	16	4	-	55	35	4491	-	4747	37%	-	38%	4	-	315
Upper Frankford Low Level	12	12	11	-	54	35	445	-	461	56%	-	57%	23	-	276

2.0 Phase II – Capital Improvement Projects

The second phase of the PWD's CSO strategy is focused on technology-based capital improvements to the City's sewerage system that will further increase its ability to store and treat combined sewer flow, reduce inflow to the system, eliminate flooding due to system surcharging, decrease CSO volumes and improve receiving water quality. The recommended capital improvement program is the result of a detailed analysis of a broad range of technology-based control alternatives. The capital improvement plan encompasses the three major areas of the City that are affected by CSOs: the Northeast, Southeast and Southwest drainage districts. Table 2-1 provides a summary of the 17 capital projects described fully in *CSO Documentation – Long Term CSO Control Plan, January 1999*. A column has been added to this table that details the receiving water body that will benefit from the project. Lastly, the completion dates of the respective projects have been modified to be consistent with the Draft NPDES permits.

Table 2-1 Summary of Phase II Capital Projects

Watershed	Project Description	Capital Cost
City Wide Program	Establish Real Time Control (RTC) Center	$350,000
City Wide Program	Targeted Infiltration/Inflow Reduction Programs	$2,000,000
Schuylkill and Delaware	Solids & Floatables Control Program	$380,000
Pennypack	Integrate Water Quality Objectives into Flood Relief Programs	N/A
Pennypack	85% CSO Capture Pennypack Watershed (P-1 through P-5)	$230,000
Tacony - Frankford	RTC - Tacony Creek Park Storage (T-14)	$450,000
Tacony - Frankford	RTC - Rock Run Relief Sewer Storage (R-15)	$490,000
Delaware	Somerset Interceptor Sewer Conveyance Improvements	$300,000
Tacony - Frankford	Frankford Siphon Upgrade	$10,000
City Wide Program	RTC & Flow Optimization - Southwest Main Gravity Interceptor, Cobbs Creek Cut-off, and Lower Schuylkill West Side	$1,750,000
Schuylkill	RTC - Main Relief Sewer Storage (R-7 through R-12)	$650,000
Schuylkill	Eliminate Outfalls: Dobson's Run Phase I	$6,200,000
Schuylkill	Eliminate Outfalls: Dobson's Run Phase II	$7,000,000
Schuylkill	Eliminate Outfalls: Dobson's Run Phase III	$11,700,000
Schuylkill	Eliminate Main & Shurs Outfall (R-20)	$12,000,000
Schuylkill	Eliminate 32nd & Thompson Outfall (R-19)	$1,500,000
Darby - Cobbs	Cobbs Creek Low Level (CCLL) Conveyance Improvements	$440,000
Darby - Cobbs	Cobbs Creek Low Level (CCLL) Control Project	$2,500,000
City Wide Program	WPCP Wet Weather Treatment Maximization Program	$150,000
	Total Phase II Project Cost:	**$48,100,000**

This section presents the status of the capital improvement projects being implemented on a citywide basis.

2.1 I / I Reduction Projects

Start: 9/1/1998 End: Status: Ongoing – Annual

Reference Long Term CSO Control Plan p. 2-5.

Description: Opportunities exist to reduce CSO impacts by means of reducing the entry of stormwater runoff, rainfall-derived I/I, and groundwater infiltration into the sewer system. Appropriate measures will be identified, evaluated, and implemented, where appropriate and cost-effective. There are four basic approaches to CSO control through I/I reduction:

1) Reduce the entry of stormwater runoff (including perennial stream baseflow) into the combined sewer system by diverting streamflow directly to a receiving stream.

2) Reduce the entry of groundwater infiltration to the combined sewers, interceptor sewers, and/or upstream separate sanitary sewers.

3) Reduce the entry of rainfall-derived I/I from upstream sanitary sewer systems.

4) Monitor and study the tidal inflows from river levels exceeding emergency overflow weir elevations at tide gates.

Each of the above methods enables CSO reduction by effectively increasing the capacity in the intercepting sewers and WPCPs available for the capture and treatment of combined wastewater. Several opportunities have already been identified and are currently being evaluated. The estimated costs for the I/I reduction program as documented in the CSO LTCP is $2,000,000.

Environmental Benefits: Since I/I is relatively clean water that occupies conveyance and treatment capacity, eliminating it from the system frees up capacity for the relatively more concentrated combined wastewater. This reduces CSO discharges and enables greater pollutant capture throughout the combined sewer system. An additional benefit of reduced infiltration (and diversion of any perennial streamflow) is the reduction in the operating costs associated with continuously pumping and treating these flows.

Status: This program consists of a combination of investigative and corrective efforts geared at reducing extraneous flows into the combined sewer system.

2.1.1 Infiltration and Inflow Investigation

The PWD temporary flow-monitoring program initiated in July 1999, deployed portable flow meters throughout targeted Philadelphia sewershed areas to quantify wastewater flow through sanitary sewers and characterize the tributary sewersheds. The identification and quantification of rainfall dependent inflow/infiltration (RDII) into sanitary sewers contributing to the City of Philadelphia's service area is a key component in assessing potential reductions in combined sewer overflow (CSO) impacts.

The PWD Flow Characterization Study of 2002 included the quantification of wet and dry weather flows in separate sanitary sewers based on temporary flow monitoring data collected from 18 sites over the period from October 2000 through October 2001. Flow monitoring data was subjected to rigorous QA/QC procedures resulting in consistently good data quality over the monitoring period. Further analysis of the flow monitoring data was performed using hydrograph separation techniques in order identify the primary flow components. The results of this study include the quantification of base wastewater flow rates (BWWF), ground water infiltration / direct surface stream inflow rates (GWI/SWI), and rainfall dependant infiltration and inflow (RDII) expressed as a percentage of rainfall volume over the sewershed area (R-value).

The PWD temporary sewer flow-monitoring program during 2003 continued with the deployment of 7 sanitary sewer flow monitoring sites providing data suitable for RDII analysis and 3 combined sewer sites providing data for model calibration. RDII analysis and dry weather flow characterization was performed for these 7 sanitary sewer flow monitoring sites (4 in the NE sewer district, 2 in the SW sewer district, and 1 in the SE sewer district) with data collected over the period September 2002 through November 2003.

The PWD temporary sewer flow-monitoring program during 2004 continued with the deployment of 13 sanitary sewer flow monitoring sites providing data suitable for RDII analysis and 4 combined sewer sites providing data for model calibration. RDII analysis and dry weather flow characterization was performed for these 13 sanitary sewer flow monitoring sites (8 in the NE sewer district and 5 in the SW sewer district) with data collected over the period January 2004 through November 2004. In addition to the PWD temporary sewer flow-monitors, 17 sanitary sewer flow monitors were deployed, through a contract with CSL Services, Inc., at un-metered connections from outlying community service areas. RDII analyses and dry weather flow characterizations were performed on these additional 17 sanitary sewer flow monitoring sites with data collected over the period November 2004 through December 2004.

The temporary flow monitors will continue to be deployed during the spring of 2005 with redeployment in specific combined sewer project areas and separated sanitary areas of Philadelphia when enough data has been collected at each existing site.

2.1.2 Corrective Actions – Tide Inflow

The System Inventory and Characterization Report (SIAC) identified 88 CSOs influenced by the tides. Many of these sites have openings above the tide gate. During extreme high tides inflow into the trunk sewer can occur. During these events, significant quantities of additional flow can be conveyed to the treatment plant and thus reduce capacity for storm flow, as well as increasing treatment costs. Page 2-12 of the NMC report describes a program to install tide gates, or other backflow prevention structures, at regulators having an emergency overflow weir above the tide gate. This program was completed in June of 1999 and protected all openings up to 1.5' City Datum and resulted in significant inflow reductions. These reductions were estimated in the 1999 annual status report.

After further review, additional sites were targeted for inflow protection measures. Although situated at elevations significantly higher than extreme high tides, these additional sites were modified in 2001. Table 2.1.1 summarized the number of sites corrected.

Table 2.1.1 Status tide inflow protection project.

Drainage District	Total # Sites	# Completed
Northeast	21	21
Southwest	7	7
Southeast	6	6
Total	34	34

2.2 Real-Time Control Program

2.2.1 Establish Real Time Control Center

Start: 4/1/1998 End: 12/1/2003 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-4.

Description: A Real Time Control center (RTC) will be established at the Fox Street facility over the next 3 years. The ultimate goal for this center is to house a centralized RTC system that will allow telemetered commands to be sent to site-specific, automated controls located throughout the collection and treatment facilities. These signals may be transmitted based upon an optimized response to rainfall patterns and are intended to further enhance capture of CSO volume. Establishing a RTC center will enable PWD to provide 24-hr monitoring and eventually, control of key collection system facilities including automated CSO regulators, pump stations, and inter-district diversions.

An RTC facility also will provide the basis for improved management of many aspects of collector system operations, by centralizing collection and processing of data provided by the various automated functions (e.g., CSO monitoring, automated regulators, etc.). By use of RTC, flows are diverted or stored where capacity exists in the system. This function prevents wet-weather overflows prior to maximum use of available conveyance and/or storage capacities, thus allowing for prioritization of overflow locations based on hydraulic or pollutant load characteristics.

Status: The construction of the Real Time Control Center RTC building was completed in the summer of 2003. A contract to furnish the interior of the control room with computer displays, operator workstations, projection systems and large flat panel displays as well as all the associated hardware and networking will be completed and bid in the early summer of 2005. By fall of 2005, the room should be complete.

The details for the Decision Support System (DSS), which will provide a means for an operator to obtain information relevant to making control decisions in the event that the system is being operated in supervisory mode, are continuing to be designed. The DSS will provide an interface to many different kinds of information that currently exist within PWD, but are not currently available from a single interface. The scope of the DSS will focus on the identification of these relevant data sources and the construction of a "proof-of-concept" prototype DSS.

2.2.1 RTC – SWMG, CC, LSWS

Start: 7/1/1998 End: Status: In-Progress

Reference Long Term CSO Control Plan p. 2-13.

Description: A number of interrelated projects in the Southwest Drainage District (SWDD) were determined to enhance the operation of the high-level and low-level collection systems and consequently maximize capture and treatment of wet-weather flows at the SWWPCP. Each of the high-level interceptor systems that discharge to the SWWPCP can influence the hydraulic capacity and treatment rate of the other high-level interceptor systems, as they compete for capacity in the Southwest Main Gravity (SWMG) into the plant. Therefore, several integrated projects were proposed together to establish a protocol for prioritizing flow from each interceptor system. These projects will be defined and implemented in conjunction with a centralized real-time control (RTC) system (see 10.5.1 - *Real Time Control Center*). In addition, the RTC system will control the Triple Barrel reach of the SWMG, and will control the diversion from the SWMG to the Lower Schuylkill West Side Interceptor (LSWS), thereby enabling use of the full capacities of these interconnected conduits during wet-weather.

The individual projects that constitute the SWMG optimization program are: adding a RTC system with monitoring at approximately six locations and automated gate structures at seven locations, modifying the SWMG Triple Barrel sewer at 70th & Dicks St.; replacing the dry weather outlet (DWO) pipe and raising the dam at regulator C_17, modifying the regulators along the LSWS interceptor, and modifying the hydraulic

control point regulators along the SWMG to pass more flow to the LSWS. The total estimated cost for these projects is $1,750,000.

Status: During the first year of the project, Reid Crowther Consulting, Inc. set up an RTC model using SewerCAT software developed by Reid Crowther. Existing Stormwater Management Model (SWMM) data for the SWDD was imported into this model. Hydraulic conditions of the SWDD were assessed, current systems and practices were reviewed, and an RTC objective function was identified. Several technical approaches and operational modes were assessed, and an automatic system with the availability of supervisory control constitutes the present operating strategy. A technical memorandum was completed describing the facilities required for the implementation of RTC in the SWDD; an implementation plan has been developed and preliminary budget estimates were produced.

During the calendar year 2001, the SWDD RTC strategy was further refined and analyzed and a draft conceptual design memorandum was completed describing the RTC facilities, system strategies and objectives, cost estimates for RTC implementation, analysis of alternative scenarios, and work plan for the development of an RTC decision support system. The proposed RTC scenarios were modeled using the EXtended TRANsport (EXTRAN) component of SWMM and were quantified in terms of CSO volume estimates, impact on wet weather hydraulic grade lines (HGLs) and flows at selected locations, and costs/benefits.

The SWDD RTC conceptual design memorandum outlines recommendations for the modifications to the SWDD collection system in three phases. Phase I includes enlarging of the DWO pipe and raising the diversion dam at the C_17 regulator, modifying the operation of CSPS based on the level in the CCLL interceptor, and regulating inflows from S_27 to the SWMG using a DWO sluice gate under RTC. In addition, installation of a side-overflow weir at the West Barrel at the 70th & Dicks Triple Barrel and opening the East and Center Barrels open for dry weather flow is encompassed in Phase I of the RTC project. Phase II concentrates on decreasing overflows in the LSWS by enlarging the S_45 DWO pipe and regulating inflows using a computer-controlled DWO sluice gate. The strategy for Phase II also incorporates closing of DWO shutter gates at S_43 and S_47. The 3rd phase of the RTC conceptual design is enlargement of the S38 DWO pipe and regulating flows using a computer-controlled DWO gate.

Phase I and Phase II are still undergoing final design modifications and should be completed by the end of 2005.

2.3 WPCP Flow Optimization (Stress Testing)

Start: 1/1/1998 End: 5/1/2001 Status: Complete

Reference Long Term CSO Control Plan p. 2-17 – 2-21.

The plant stress-testing project established:

- Maximum and average flows that should be treated in various unit processes for current and future operations;
- Ranges of hydraulic, solids and BOD_5 loads that could be applied to the various unit processes and yet obtain maximum removal efficiencies in each unit process;
- Changes in plant processes and operations (such as increased loads, MLSS levels, changes in sludge wasting, return activated sludge (RAS) ratios, detention times, etc.) that would increase removal efficiencies; and

- Magnitudes of excess capacity, if any, in each unit operation of the plant (increased flow through plant process units) that could be achieved and still meet the discharge permit requirements for each plant.

The results of stress testing allow for a determination of existing and future optimum flows, loads, and operations of the various unit processes. The identification of choke points, deficiencies and unit process capacities are provided in the stress testing summary report that has been developed for each WPCP. Specific WPCP Capital Improvement Projects (CIP) have been identified as potential projects resulting from the findings of the stress testing which were provided as part of the summary reports. The actual need for additional CIPs, and the resulting prioritization of the CIPs and the budgeting, appropriation of monies, scheduling and actual implementation of the CIPs was accomplished within the context of the overall watershed approach to CSO abatement defined in the LTCP.

CH2MHill submitted the Final Reports for each of the three WPCPs on May 1, 2001. The reports provided the following information: project objectives and methodology, current performance, maximum instantaneous flow, current sustainable treatment capacity and potential upgrades. The report also included hydraulic and treatment throughput capacities for each plant process, capacity limiting factors, and the potential operating modifications or capital projects whose purpose would be to increase plant throughput. Recommended modifications or upgrades were prioritized and categorized into those potential projects that could be considered for either immediate implementation, resulting in enhanced treatment, or capital improvement projects that could also increase treatment capability but would require PWD expenditures. The various CIPs were also categorized by four treatment objectives including: process improvements, peak primary treatment capacity, peak secondary treatment capacity, and wet weather treatment capacity. This second categorization provided anticipated combined CIP costs for each of the treatment objectives as well as the peak treatment capacities.

2.4 Specialized Sewer Cleaning Projects

Mobile Dredging and Pumping Company continued to perform sewer cleaning work under Purchase Order # POXX04107108. Mobile was responsible for cleaning the following two sewer sites:

Packer Avenue at Delaware Avenue twin trunk sewers: The twin 6'-0" x 10'-0"sewers start at Intercepting Chamber D-72 and extend upstream 870 feet each. The total number of linear feet to be cleaned is 1,740.

Bristol Street / Duncan Street trunk sewers under I-95: The first trunk sewer starts at Intercepting Chamber F-13 located on Duncan Street and the second trunk sewer starts at chamber F-14 located on Bristol Street. Both of these pipes join downstream at a junction chamber. From the junction chamber, one pipe extends downstream to the Frankford Creek outfall. The length of this sewer is 2,100 linear feet.

The status of the sewer cleanings are as follows:

<u>Packer Avenue at Delaware Avenue twin trunk sewers</u>
This job started on August 25, 2003 and was completed on February 27, 2004. The total length of the section of this sewer that was cleaned was 1,740 linear feet. The total amount of debris removed from this sewer upon the completion of its cleaning was 747 Tons. The total cost that was paid to the contractor to clean this sewer was $168,832.20. The total bid to clean this sewer was $168,832.20.

<u>Bristol Street / Duncan Street trunk sewers under I-95</u>

This job started on November 24, 2003 and was still ongoing as of June 30, 2004. The total bid to clean this sewer is $196,305.30. The total length of this sewer that was cleaned by June 30, 2004 was 1,300 linear feet for a total cost of $116,479.80. The amount of grit/debris that was pulled out of this sewer was 373 Tons.

The following sewer sites are being investigated for possible sewer cleaning during 2005:

Upper Delaware Low Level Interceptor - limits are between Grant Avenue and the Frankford Siphon (5.4 miles). The average amount of grit / debris is 12 inches throughout the system (based on preliminary inspections) and the estimated costs based on past cleaning contracts ($2,253,914.10),

Central Schuylkill East Side Interceptor - scheduling dependant on design, bid and construction of 5 access manholes (approx. length – 6,700 ft at a cost of $596,970.00).

Cottman Avenue between Milnor and Wissinoming Streets (D-2) - scheduling dependant on design, bid and construction of 1 access manhole (approx. length – 450 ft at a cost of $6,651.00

2.5 Solids / Floatables Control Pilot Program

Start: 3/1/1996 End: 12/5/2003 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-6.

Description: This project involves the reduction in solids and floatable material to receiving waters, most notably the Delaware and Schuylkill Rivers, to improve water quality and aesthetics of surrounding parks and recreational areas. Although the NMCs and the projects contained herein increase system-wide capture of solids and floatables, implementation of additional measures will be examined in pilot projects. For example, the outfall at regulator T-4 was recently equipped with a floatables net trap which will capture floatables at this location. This installation will reduce the quantity of discharge at this location as well as provide data to support the floatables monitoring effort.

Additionally, PWD will pilot the use of a floatables skimming vessel to remove debris from targeted reaches of the Delaware and Schuylkill Rivers. It is proposed that a relatively small (20 to 30 foot) vessel be used for this pilot study at an estimated cost of up to $380,000.

Environmental Benefits: Reduction in floatables improves both water quality and aesthetics of receiving streams. The use of a skimmer vessel also allows for a mobile control program capable of managing debris at various locations, increasing the effectiveness of this control measure. In addition, the boat will be a visible control, and will increase the public awareness and education of floatables' impacts.

Pilot Netting Facility Operational Summary: A pilot netting facility at the T-4 outfall has been collecting debris from CSOs since April of 1997. In 2004, fourteen net replacements were made (7 visits) collecting 1765 pounds of debris. Since the installation of the netting device, 102 nets have been replaced (51 visits) with an approximate total of 9552 pounds of captured debris (Appendix A). The floatables removed from the net have been compared with other floatables control technologies employed by the City. More specifically, on an area weighted basis the inlet cleaning program data suggests that street surface litter dominates the volume of material that can enter the sewer system. The pilot in-line netting system installed at T_4 has been shown to capture debris on the same order as the WPCP influent screens indicating that effective floatables control in urban areas needs to control sources in addition to CSOs.

Skimming Vessel: During calendar year 2003, HydroQual, Inc., provided assistance in the evaluation of both skimmer vessel technologies and the individual vessels. The investigation identified the vendors able to

provide equipment suitable for use on the Schuylkill and Delaware Rivers. The analysis looked at the following factors: material handling, vessel speed, mobile offloading, seaworthiness, operations and maintenance costs, quiet operation, service area flexibility, capital costs, and life-cycle costs. Through the investigation, the PWD has determined that the front-end loader type vessel would be the most suitable for recovering floatable material within the service area.

The research identified only one front-end loader vessel that meets the City's programs needs, the Rover 12 produced by Hewitt Environmental. The PWD had requested that the Procurement Department purchase a Rover 12 from Hewitt Environmental. The vessel can be described as follows:

A 39-ft, front-end loader, single hull, shallow draft, debris skimming vessel with a hydraulically controlled grated bucket and a 5.6 cubic yard on-board hold equipped with a main diesel engine, Caterpillar Model 3056 205-hp. Four-blade, magnesium bronzed propeller housed in a stainless steel tube, 122 gallon fuel tank, and a fully enclosed, removable, aluminum cabin with heating and air conditioning. The water canon system is run with a 16 HP Mitsubishi Diesel Engine (150 gpm at 100 psi). Hydraulic pumps control the ballast control. The trailer is a Model YH-915XD (rated on-road 12 tons, off-road 15 tons) with electric/hydraulic brakes. Four marine grade stainless steel mooring bollards, four lifting hooks, 35 inch long galvanized anchor, and guard rails. Accessories include a hailer, radar, portable VHF, depth sounder, crew seat, AM/FM radio, and GPS plotter, warehouse supports, working lamps, a manually operated searchlight, a spare parts kit including 4 spare debris containment bins, 5 life jackets, a deluxe telescopic boat hook, and six inflatable heavy duty fenders. Includes operator and technical manuals, a 3-year or 3000-hr warranty on the Cummins engine, and operator training for 2 personnel for 5 days.

Status:
Fabrication - On June 18, 2004, the initial payment for the construction of the vessel was authorized by the PWD. A check in the amount of $77,158.50 was authorized.

On September 8, 2004 an invoice was sent from Hewitt Environmental in the amount of $180,036.50 representing thirty-five (35) percent of the vessel cost. In order to process this payment request, an inspection of the vessel was necessary.

Inspection - On December 17, 2004 the PWD sent a team to Rhode Island for a vessel inspection at Hewitt Environmental's contractors manufacturing facility - Blount Boats, Inc - 461 Water Street, Warren, RI 02885.

The inspection took place in the Blount shipyard. The inspection lasted about 2.5 hours and included weld inspections, review of the water testing performed on the hull, and a thorough visual inspection. Hewitt design engineers also performed a contract drawing review for the PWD representatives. (Figure 1).

Figure 1. Completion of Bare-Hull Component of Skimming Vessel as seen during December Inspection.

Delivery - Due to the unforeseen inspection delays, the PWD is now expecting a boat deliver in March of 2005. The cost of the vessel is still estimated at $515,000.

3.0 Phase III – Watershed-Based Planning and Management

3.1 Introduction

The third component of the City's CSO strategy involves a substantial commitment by the City to watershed planning to identify long term improvements throughout the watershed, including additional future CSO controls that will result in further improvements in water quality and, ultimately, the attainment of water quality standards. The need for this watershed initiative is rooted in the fact that insufficient physical, chemical and biological information currently exists on the nature and causes of water quality impairments, sources of pollution, and appropriate remedial measures. Because of this deficiency, it is currently impossible to determine what needs to be done for additional CSO control or control of other wet weather sources throughout the watershed. This deficiency, especially with respect to the effects of wet weather discharges and receiving water dynamics, is increasingly recognized nationwide and has led to a broader recognition of the need for watershed-based planning and management to properly define water quality standards and goals. The PWD believes that the National CSO Policy, state and federal permitting and water quality management authorities, cities, environmental groups, and industry, now recognize that effective long-term water quality management can be accomplished only through watershed-based planning.

Further, watershed planning is not only mandated by the CSO Policy and guidance documents, but also is consistent with the current Clean Water Act (CWA) and its regulations, as well as the priorities announced by EPA's Office of Water (See EPA's Watershed Approach Framework, Office of Water, June 1996). Therefore, as discussed in Section II and throughout this report, watershed-based planning and management must not only be fully embraced, but initiatives for development of watershed plans must be actively pursued by the City in cooperation with other stakeholders. This must be done not only to comply with the directions of the CWA, the CSO Policy, and other guidance, but more importantly, to define, prioritize and address the most important causes of non-attainment in the watersheds and to move toward attainment of water quality standards and achievement of beneficial uses.

At the same time, however, the City realizes that effective watershed planning is, even in its simplest form, quite difficult. Understanding the complex, interrelated chemical, biological, hydrologic and hydraulic processes that govern water quality is a very expensive, lengthy process that requires extensive, site-specific data and technical analyses. Establishing stakeholder groups, building consensus, articulating goals and objectives, assessing water quality and water quality impacts of point sources and a vast array of non-point sources, reviewing and possibly revising water quality standards to reflect wet weather processes in water bodies, establishing and implementing water quality based controls, evaluating their effectiveness and financing the cost of studies, design and implementation watershed-wide, requires extensive commitment and resources of a broad range of stakeholders. The process of watershed planning does not happen overnight. The City, nonetheless, is determined to reduce CSO discharges in the near term and undertake, in cooperation with other agencies and stakeholders, comprehensive watershed planning over the next several years.

In light of this commitment and consistent with the CSO LTCP, sections 3-9 describe the status of the various components of the initiative that PWD is undertake to initiate and support watershed-based planning in each of the watersheds within the PWD service area.

3.2 CSO Receiving Water Bodies and Their Watersheds

Water bodies receiving CSO discharges in the PWD service area include the Cobbs/Darby Creeks, the Pennypack Creek, the Tacony/Frankford Creeks, the Schuylkill River and the Delaware River. Although they do not have CSO discharges, the Wissahickon and Poquessing Creeks are important waterways within the PWD service area. These water bodies and the drainage area of the tributary watersheds served by combined sewers are shown in Figure 3-1. There are 178 point sources of CSO discharge from the PWD sewer system to these waterways. Table 3-1 below indicates the number of CSO point sources and the number of major separate stormwater outfalls on each waterway, as identified in the City's NPDES permits.

Table 3.2.1 CSO and Stormwater Point Source Discharges to Tributaries

Waterway	Number of CSO Point Sources	Number of Major Stormwater Outfalls
Delaware/Schuylkill Rivers (tidal)	100	30
Cobbs/Darby Creeks	38	3
Tacony/Frankford Creeks	32	35
Pennypack Creek	5	130
Schuylkill River (non-tidal)	3	32
Poquessing Creek	0	141
Wissahickon	0	63

3.3 Overview of Watershed Management Planning Work Scope

To meet the regulatory requirements and long-term goals of its CSO, stormwater, and drinking water source protection programs, PWD has embraced a comprehensive watershed characterization, planning, and management program. Watershed management fosters the coordinated implementation of programs to control sources of pollution, reduce polluted runoff, and promote managed growth in the city and surrounding areas, while protecting the region's drinking water supplies, fishing and other recreational activities, and preserving sensitive natural resources such as parks and streams.

Coordination of these different programs has been greatly facilitated by PWD's creation of the Office of Watersheds (OOW). This organization is composed of staff from the PWD's planning and research, CSO, collector systems, laboratory services, and other key functional groups, allowing the organization to combine resources to realize the common goal of watershed protection. OOW is responsible for characterization and analysis of existing conditions in local watersheds to provide a basis for long-term watershed planning and management.

This section outlines the elements of the Phase III Watershed Planning Initiative as described in the PWD CSO LTCP. Watershed planning includes various task ranging from monitoring and resources assessment to technology evaluation and public participation. The following is a list of typical tasks and subtasks that generally describe the work elements in the watershed planning programs being developed.

General Activities

- Management and facilitation
- Public Participation and Information
- Funding Support

Step 1 Preliminary Reconnaissance Survey

- Data collection and assessment
- Preliminary water quality assessment
- Land use and resource mapping
- Inventory of point and non-point sources
- Definition of regulatory issues and requirements
- Preliminary biological habitat assessment
- Reconnaissance stream survey
- Preliminary problem assessment

Step 2 Watershed Work Plan and Assessment

- Monitoring, sampling and bioassessment
- QA/QC and data evaluation
- Watershed modeling
- Waterbody modeling
- Problem definition and water quality goal setting
- Technology evaluation
- Economic assessment and funding requirements
- Public Involvement / Watershed Partnership
- Development of *Watershed Management Plan*

Step 3 Watershed Plan Implementation

- Institutional arrangements
- Implementation programs
- Monitoring and measures of success

The elements to be included for each watershed under the present permit cycle are summarized in Table 3.3.1.

Table 3.3.1 Planning Component to be completed as part of the Watershed Planning initiative

Watershed	Preliminary Reconnaissance	Watershed Work Plan & Assessment
Delaware-Schuylkill Rivers (tidal)	Monitoring Only	
Cobbs-Darby Creeks	X	X
Tacony-Frankford Creeks	X	X
Pennypack Creek	X	
Schuylkill River (non-tidal)	X	
Poquessing Creek	X	
Wissahickon	X	

Activities for calendar 2003 have focused on integrating efforts in five major regulatory programs that contain significant elements related to watershed management plans to be developed under Step 2 for the Darby-Cobbs and Tacony-Frankford Watersheds and continuation of monitoring and reconnaissance studies for the remaining basins included in the CSO LTCP. These include: (1) the TMDL process to improve water quality on impaired streams and water bodies; (2) the Phase I and Phase II Stormwater Regulations to control pollution due to stormwater discharges from municipal stormwater systems; (3) PA Act 537 Sewage Facilities Planning to protect and prevent contamination of groundwater and surface water by developing proper sewage disposal plans; (4) the Storm Water Management PA Act 167 to address management of stormwater runoff quantity particularly in developing areas; and (5) EPA's Combined Sewer Overflow (CSO) Control Policy to minimize mixed sewage and stormwater overflowing directly into streams. Some of the data collection and analyses are common to more than one program; therefore, an integrated watershed management approach seeks to develop a cohesive single plan that effectively meets the requirements of each program.

Watershed planning includes various tasks, ranging from monitoring and resource assessment to technology evaluation and public participation. The scope and importance of each task varies for each watershed, depending on the site-specific factors such as the environmental features of the watershed, regulatory factors such as the need to revise permits or complete TMDLs, available funding, extent of previous work, land use, and the size and degree of urbanization of watershed. It is clear that significant savings can be achieved through coordination of the programs and the development of one comprehensive plan for a watershed that meets all five program needs. Sections 3-10 describe the status of the various components of the initiative that PWD has undertaken to advance watershed-specific capital program implementation and watershed-based planning in each of the watersheds within the PWD service area.

Section 3 - Darby-Cobbs Watershed

1.0 CSO Capital Improvement Projects

1.1 Cobbs Creek Low Level (CCLL) Control Project

Start: 6/1/1998 End: 5/1/2000 Status: Complete

1.2 Cobbs Creek Low Level (CCLL) Improvements

Start: 4/2/1998 End: 12/1/2000 Status: Complete

Reference Long Term CSO Control Plan p. 2-16.

Description: Inspections have revealed that grit has accumulated in the 30-inch Cobbs Creek Low-Level (CCLL) interceptor to a depth of approximately 12 inches. Grit buildup reduces the hydraulic capacity of the interceptor both by constricting its cross sectional area, and by increasing its frictional resistance. This project entails the removal of grit and debris along the entire 30-inch interceptor. The estimated cost for the project is $440,000.

Environmental Benefits: This project will reduce the frequency and volume of overflows to Cobbs Creek by restoring the conveyance capacity of the 30-inch Cobbs Creek interceptor between the 75th and Gray's Avenue chamber and the SWWPCP low level pumping station. When grit is removed from this interceptor segment, the model indicates that the capacity nearly doubles from 5.9 mgd to 15 mgd. This project results in a 50 MG volume reduction on an average annual basis.

Status: The grit buildup in the Island Avenue sewer from 75th and Wheeler Streets to the Southwest WPCP was identified to impede the hydraulic capacity of the Cobbs Creek Low Level Interceptor and will continue to be cleaned as a part of this project. The disposal of debris from these sewers was handled under the BRC grit screening disposal contract with Waste Management, Inc., at a budget of $155,000. The cleaning work on the Cobbs Creek Low Level (CCLL) Interceptor started on 5/3/00. In this project, a 2000-ft section of the Island Avenue sewer is located under Septa's Trolley tracks between Dicks Street and Lindbergh Avenue. The project encountered considerable delays during the work coordination process with SEPTA. SEPTA then agreed to shuttle a bus on Island Avenue between the hours of 9:00 PM and 4:00 AM for a period of two weeks starting 6/19/2000 in order to allow Mobile Dredging to perform the work. The project was completed in calendar 2000.

2.0 Watershed Management Planning

The following sections describe the progress that has been made in advancing the Darby-Cobbs Watershed Initiative. Detailed information on documenting the minutes of partnership meetings, reports produced, and other accomplishments are posted on the partnership web page at www.phillywater.org/Darby-Cobbs

2.1 Preliminary Reconnaissance Survey

With the final addition of a comprehensive biologic study described in section 2.1.2 during calendar 2001, the technical aspect of the Step 1 - Preliminary Reconnaissance Survey has been completed. The partnership meets on a regular basis to discuss the integration of numerous Federal, State, and local programs into a more comprehensive watershed management plan. In addition to the formation of an initial stakeholder body, significant progress was made towards developing the technical tools that comprise the preliminary reconnaissance survey as described in the CSO LTCP. The following technical documents comprise the preliminary reconnaissance survey:

- Historical Water Quality for The Darby and Cobbs Creeks Watershed
- Analysis of 1999 Monitoring Data for The Darby and Cobbs Creeks Watershed
- A screening Level Contaminant Loading Assessment for the Darby and Cobbs Creek Watershed
- Documentation of the Biological Assessment of the Cobbs Creek Watershed.

2.2 Watershed Work Planning & Assessment

The Philadelphia Water Department (PWD) has embarked on an ambitious program of watershed management for several creeks within the City limits. The first plan to be completed is for Cobbs Creek. A draft Cobbs Creek Integrated Watershed Management Plan will be completed by February 2004. The watershed plans are designed as integrated watershed planning efforts to address the objectives of several programs, including CSO Long Term Planning, Pennsylvania Stormwater Management programs, potential or existing TMDLs, River Conservation Plans, and Phase II Stormwater permits. PWD's Office of Watersheds (OOW) has carried out an extensive sampling and monitoring program to characterize conditions in the Cobbs Creek watershed.

The program is designed to document the condition of aquatic resources and to provide information for the planning process needed to meet regulatory requirements. The program includes hydrologic and water quality analysis, biological and habitat assessments, and fluvial geomorphological assessments of the entire length of Cobbs Creek and its major tributaries. A SWMM model was developed for the watershed that simulated the watershed response to storms for both the storm sewers as well as combined sewers. The model was used to assess current pollutant loading from CSOs and from stormwater water. The model has also been adapted to simulate a wide array of CSO controls and stormwater BMPs, including swales, green roofs, infiltration basins, porous pavement, and similar techniques. By simulating BMPs at various levels of implementation, graphs of urban BMP effectiveness in controlling CSOs and stormwater were developed and used to make watershed-specific recommendations on the needed degree of implementation and the selection of the most cost-effective approaches to meeting water quality and quantity objectives. The plan has resulted in a careful assessment of the potential for restoration of an urban stream. Proposed for implementation is an array of CSO controls, storm water BMPs, stream restoration measures, non-structural measures, and public education/participation programs. Implementation of the plan recommendations will be carried out in phases to allow for an adaptive management approach.

2.2.1 Watershed Partnership

The Darby-Cobbs Watershed Partnership was facilitated by the Philadelphia Water Department to create a framework for all stakeholders in the 75 square mile Darby-Cobbs watershed basin to work together to provide environmentally sound solutions to improve the water quality of Darby and Cobbs Creeks. Permit

holders, participating agencies, and community-based organizations are constructing this framework upon regulatory and voluntary activities. The Partnership itself is a public participation mechanism, and acts as a forum for participating members to work together to develop a watershed strategy that meets state and federal regulatory requirements and embraces the environmental/public sensitive approach to improve stream water quality and quality of life in communities.

As one of the first steps in defining its framework, the Partnership developed a mission statement: "To improve the environmental health and safe enjoyment of the Darby-Cobbs Watershed by sharing resources through cooperation of the residents and other stakeholders in the Watershed."

The Partnership formed a Public Participation Committee to ensure that the Partnership identifies and recruits representatives of the diverse array of stakeholders in this basin, including municipalities. Members of the Public Participation Committee include representatives of the following agencies/organizations: the Philadelphia Water Department, the Fairmount Park CAC, Fairmount Park Commission, Dove Communications, US Fish and Wildlife Service, Heinz National Wildlife Refuge Center, Pennsylvania Environmental Council (PEC), Cobbs Creek Community Environmental Education Center (CCCEEC), Delaware Creek Valley Association, DCNR, PA Department of Environmental Protection, Trail Boss Program, Delaware County Planning Department, EPA Region III, Delaware Riverkeeper Network, Academy of Natural Sciences, and the Men of Cobbs Creek.

Under the direction of the Partnership Steering Committee, the Partnership will evolve from one that was based upon a planning mandate to one that will focus on the implementation of the watershed management plan. During the summer of 2005, a variety of self-sufficient models will be explored.

Darby-Cobbs Watershed Partnership Meetings

- January 28, 2004 – The PA Environmental Council, Fairmount Park Commission and PWD hosted an Urban Stream Restoration Presentation at the Franklin Institute. Restoration expert Todd Moses, from Skelly and Loy, was the guest speaker. Members of the Darby-Cobbs Watershed Partnership were invited, in addition to other partnership members and government and city partner agencies.
- February 6, 2004 – PowerPoint presentation to the PA Food Merchants Association regarding the shopping carts found in Philadelphia streams. Members include Shop Rite and Acme. Goal of meeting was to promote a partnership to remove and prevent future dumping of shopping carts.
- June 21, 2004 – Cobbs Creek WMP Focus Group Meeting
- November 4, 2004 -- Cobbs Creek WMP Meeting – PowerPoint presentation on the Implementation Guidelines of the WMP.
- December 3, 2004 – Eastern Council of Governments Meeting – PowerPoint presentation on the WMP to garner support from the municipalities.

2.2.2 Define Preliminary Goals and Objectives

Early in the planning process, a series of project goals and objectives was developed in conjunction with the stakeholders. In general, **goals** represent consensus on a series of "wishes" for the watershed. A series of 10 project goals were established that represent the full spectrum of goals from all the programs relevant to the watershed (e.g. River Conservation Plan, TMDL programs, Act 167 Stormwater Plans etc.) A significant effort was made to consolidate the various goals into a single, coherent set that avoided overlap and was organized into clear categories.

Once the preliminary set of goals was developed, a series of associated **objectives** was developed. Objectives translate the "wishes" into measurable quantities; **indicators** are the means of measuring progress toward those objectives. This relationship is the critical link between the more general project goals and the

indicators developed to assess the watershed and to track future improvement. This process was incorporated in to the watershed management plan.

2.2.3 Data Analysis and Indicator Development

An important aspect of the WMP is to provide a basic description of existing conditions within the watershed and stream. To accomplish this, a series of indicators were developed that effectively represent the results of the data collection efforts and the extensive data analysis and modeling that took place as part of the planning effort. An indicator is a measurable quantity that characterizes the current state of one aspect of watershed health. Every indicator is directly linked to one or more project objectives. Thus, they monitor progress and achievement of objectives as management alternatives are implemented over time. This approach is modeled after the EFP2 program.

The indicators selected for their potential use both in assessing current conditions as well as assessing future progress in improving conditions are shown below:

The Land Use and Stream Health Relationship

Indicator 1: Land Use and Impervious Cover
Indicator 2: Streamflow
Indicator 3: Stream Channels and Aquatic Habitat
Indicator 5: Fish
Indicator 6: Benthos

Water Quality

Indicator 7: Effects on Public Health (Bacteria)
Indicator 8: Effects on Public Health (Metals and Fish Consumption)
Indicator 9: Effects on Aquatic Life (Dissolved Oxygen)

Pollutants and Their Sources

Indicator 10: Point Sources
Indicator 11: Non-point Sources

The Stream Corridor

Indicator 12: Riparian Corridor
Indicator 13: Wetlands and Woodlands
Indicator 14: Wildlife
Indicator 15: Flooding

Quality of Life

Indicator 16: Public Understanding and Community Stewardship
Indicator 17: School-Based Education
Indicator 18: Recreational Use and Aesthetics
Indicator 19: Local Government Stewardship
Indicator 20: Business and Institutional Stewardship
Indicator 21: Cultural and Historic Resources

2.2.4 Development and Screening of Management Options

Clear, measurable objectives also provided the guidance needed in developing **options** designed to meet the project goals. A management option is a technique, measure, or structural control that addresses one or more objectives (e.g., a detention basin that gets built, an ordinance that gets passed, and an educational program

that gets designed). The following example clarifies the difference between a goal, an objective, and a management option [think of a better one]:

Goal: Improve water quality

Objective: maintain dissolved oxygen levels above 5 mg/L

Management Option: decrease phosphorus loads from stormwater by infiltrating stormwater at specific locations

Lists of management options were developed to meet each of the goals and objectives established for the Cobbs Creek watershed. Some of the options could be eliminated as impractical for reasons of cost, space required, or other considerations. Only those options deemed feasible and practical were considered in the final list of management options. The list became the basis for assembling the complete Watershed Management Alternatives plan.

2.2.5 Monitoring and Field Data Collection

Watershed monitoring continued in 2003 to support the development of the watershed management plan and to update the current biological, chemical and physical indicator status. 2003 monitoring programs focused on developing a biologic and aquatic habitat baseline prior to the implementation of a stream habitat restoration and bank protection project in the Cobbs Creek. Additional biologic and chemical sampling will be completed in 2004 to support alternatives analysis for the management plan development.

Discrete Chemical Sampling

Philadelphia Water Department staff collected surface water grab samples at nine locations within Darby-Cobbs Watershed for chemical and microbial analysis (Figure 1). Sampling events were planned to occur at each site at weekly intervals for one month during three separate seasons. Actual sampling dates were as follows: "winter" samples collected 2/13/03, 2/20/03, 2/27/03, and 3/20/03; “spring” samples collected 3/27/03, 5/22/03, 5/29/03, 6/05/03, and 6/12/03; “summer” samples collected 8/14/03, 8/21/03, 8/28/03, and 09/04/03. A total of 117 discrete, or “grab” samples were taken. To add statistical power, additional discrete water quality samples from PWD's wet weather chemical sampling program were included in analyses when appropriate.

Sites DCC770, DCC455, DCC208, DCD1570, DCD1170, DCD765, DCI010 and DCN010 were included in PWD's baseline chemical assessment of Darby-Cobbs Watershed in 1999. Sites in the Tinicum sub-basin (DCM300 and DCS170) were sampled in 1999 but not in 2003. A single new site (DCD1660), located on Darby Creek upstream of its confluence with Ithan Creek, was added for 2003.

Discrete sampling was conducted on a weekly basis and was not specifically designed to target wet or dry weather flow conditions. Depending on which definition of "dry weather" was used (i.e., 48 hr interval or 72 hr interval), between 6-7 sampling events occurred during dry weather- this data is most pertinent to Target A of the Watershed Management Plan (Dry Weather water quality and aesthetics). Specifically addressed are indicators 7 and 8 - chemical and microbial constituents that are influential in shaping communities of aquatic systems or that are indicative of anthropogenic degradation of water quality in the watershed.

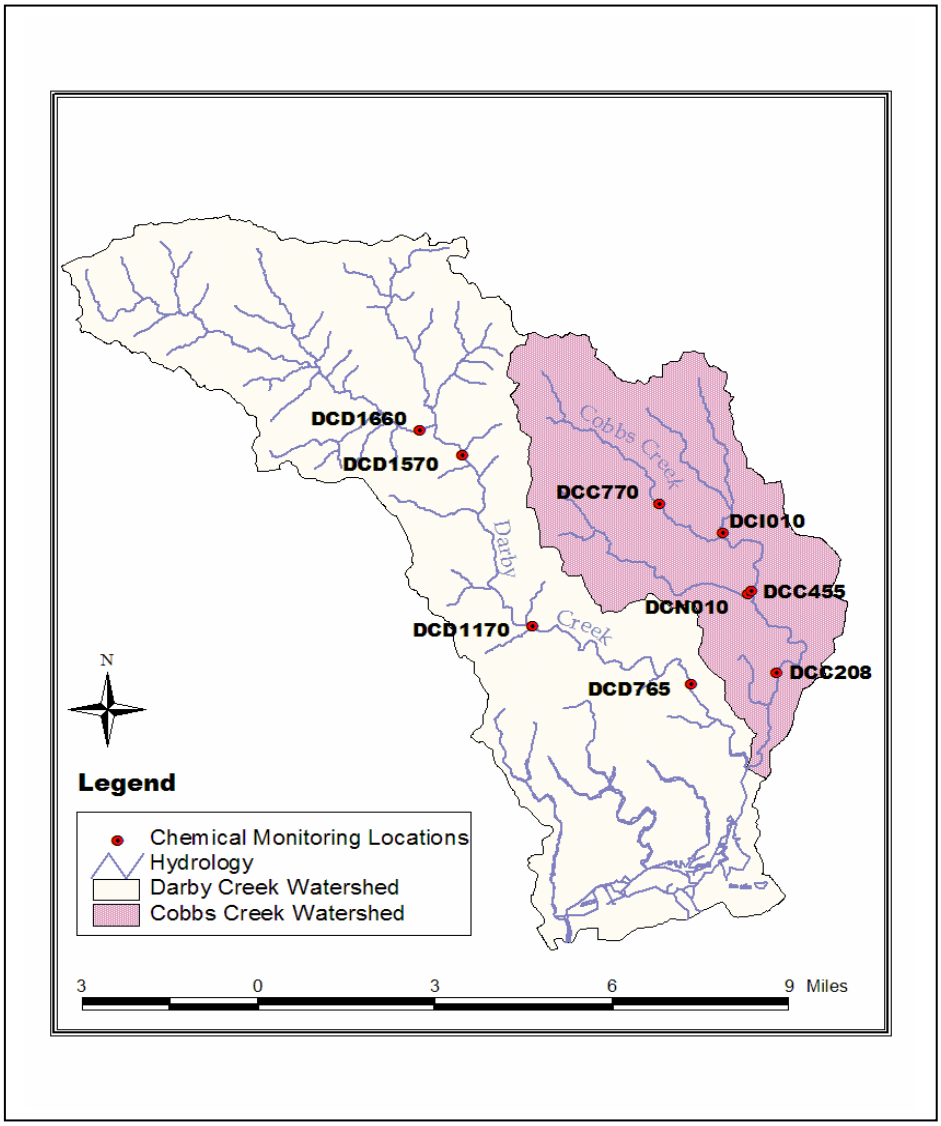


Figure 2. Discrete water quality stations in the Darby-Cobbs Watersheds (2003).

Wet Weather Targeted Sampling

Target C of the Watershed Management Plan addresses water quality in wet weather. Yet characterization of water quality at several widely spatially distributed sites simultaneously over the course of a storm event presents a unique challenge. Automated samplers (Isco, Inc.) stationed at five monitoring locations were used to collect samples during two runoff producing rain events in July and September 2003 (Figure 2).

The automated sampler system obviated the need for BLS team members to manually collect samples, thereby greatly increasing sampling efficiency. Automated samplers were equipped with vented in-stream pressure transducers that allowed sampling to commence beginning with a small (0.1ft.) increase in stage. Once sampling was initiated, a computer-controlled peristaltic pump and distribution system collected grab samples at 1 hr. intervals.

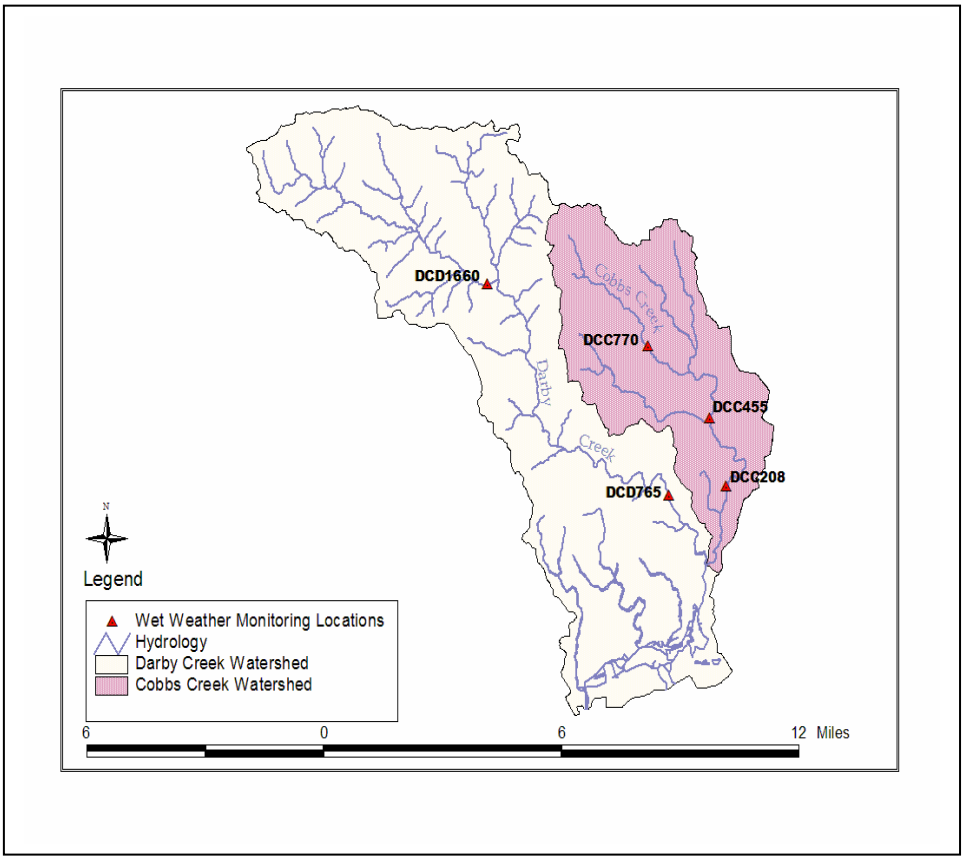


Figure 3. Wet-weather monitoring locations in Darby-Cobbs Watershed.

Use of automated samplers allows for a greater range of flexibility in sampling programs, including flow-weighted composite sampling based on a user defined rating curve, but stage discharge rating curves at these sites were poorly defined for larger flows. Though some difficulties were encountered due to a combination of mechanical failure, individual site characteristics, and/or vandalism, the one hour fixed interval was found to be generally satisfactory in collecting representative samples over a storm event. PWD continues to refine methods of sampling stormwater and experiment with alternative automated sampling programs.

RADAR Rainfall Data and Analysis

Because storm events are inherently variable and do not evenly distribute rainfall spatially or temporally, PWD contracted with Vieux and Associates, to obtain discretized measurements of rainfall intensity during storm events targeted by wet weather sampling. For each 15 minute interval, RADAR tower-mounted equipment measured high frequency radio wave reflection in the atmosphere above Darby Cobbs Watersheds (Figure 3).

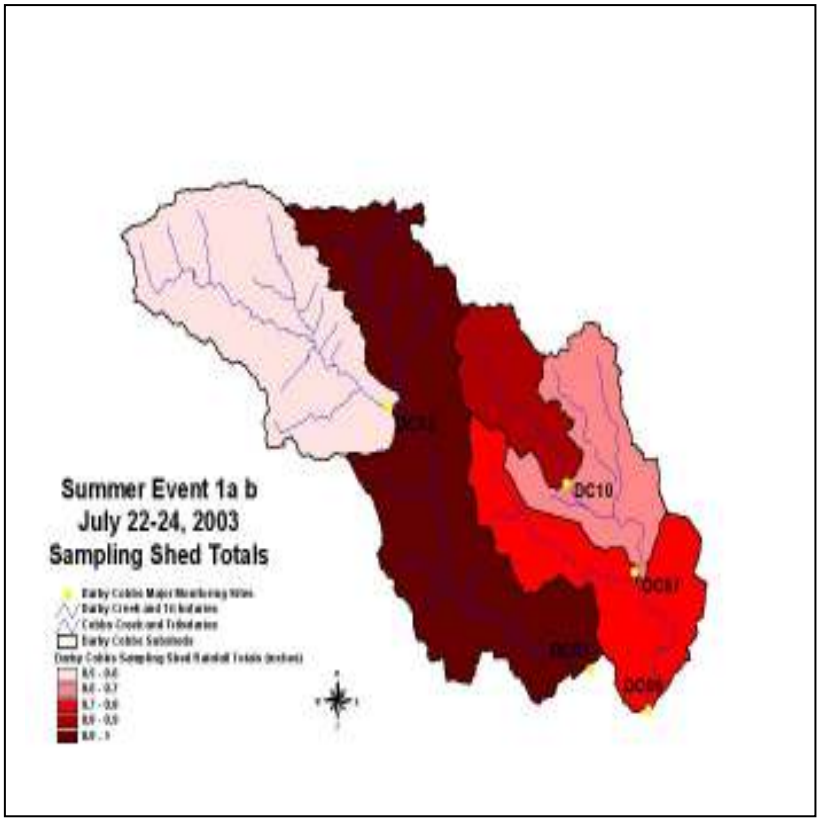


Figure 4. RADAR rainfall data collected in the Darby-Cobbs Watershed (July 22-July 24).

sampler, allows for more thorough analysis of water quality data, particularly in determining whether some areas or sub-sheds may have contributed more runoff than others.

This information was provided to PWD as a series of relative reflectivity measurements for individual blocks 1km2. The resulting grid allowed for the summing of relative rainfall intensity within the sub-shed served by each sampling site over the course of the storm. Individual intensity measurements were also graphed and arranged sequentially to produce animated time series rainfall accumulation graphics. This analysis, combined with data from the PWD rain gauge network and stream stage measurements logged by the automated

Biological Assessments and Analyses

Between 3/1/03-3/27/03, PWD staff conducted benthic and habitat assessments at sixteen (n=16) locations within the Darby-Cobbs Watershed (Figure 4). Using standard operating procedures developed by the EPA, samples were collected during late winter and analyzed in the laboratory. Similarly, between 6/1/03-7/1/03, PWD biologists conducted fish assessments at ten (n=10) locations. Tidal fish and habitat assessments were also performed at five (n=5) locations in the lower Darby Creek during 8/1/03-9/1/03.

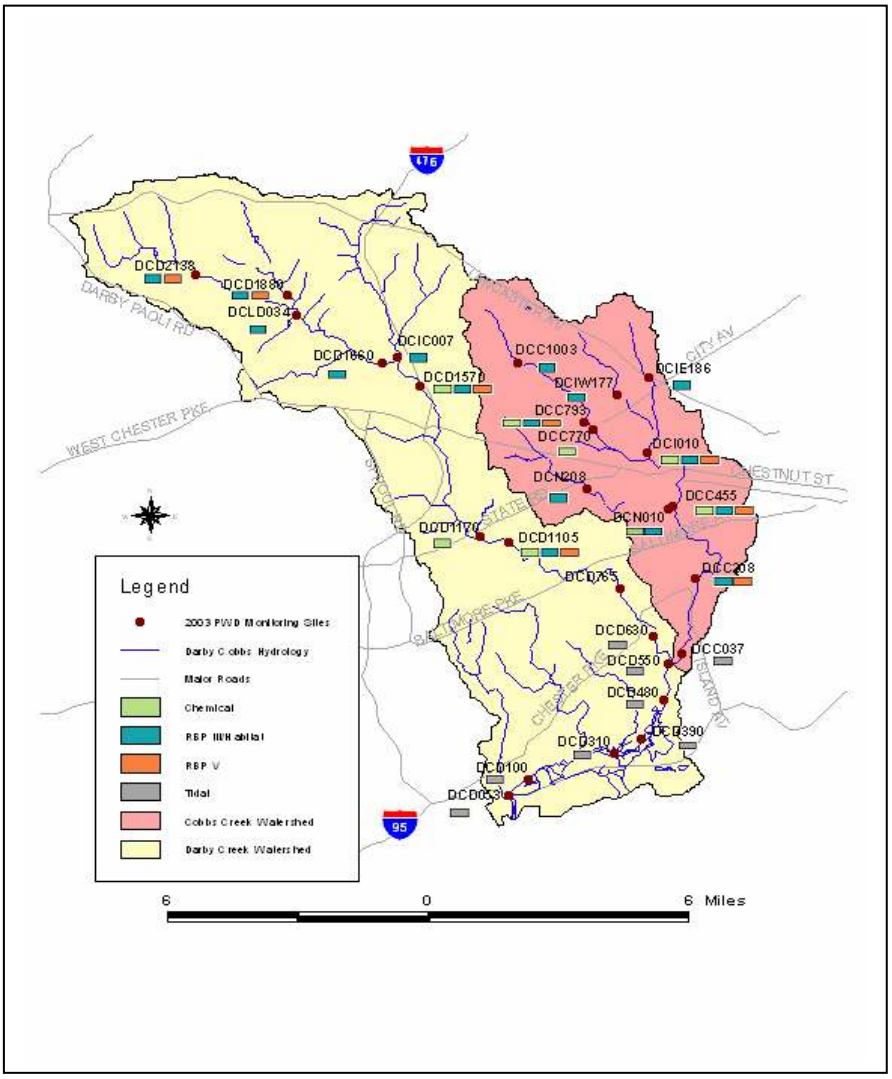


Figure 5. Biological and habitat monitoring locations in Darby-Cobbs Watershed.

2.2.6 Modeling

In most streams in the eastern US, stormwater flows can range from 30% of total annual streamflow in less-developed watersheds to over 70% in highly urbanized settings. Modeling of stormwater flows is, therefore, a critical component of a WMP. The model should, at a minimum, be built to provide storm-by-storm flows to the streams as well as estimates of pollutant loads carried by the stormwater reaching the streams. Working in partnership with PADEPs Act 167 Stormwater management Planning program, a Stormwater Management Model (SWMM) was built for the entire Cobbs Creek watershed. SWMM is a comprehensive set of mathematical models originally developed for the simulation of urban runoff quantity and quality in storm and combined sewer systems. The model splits the Cobbs creek watershed into 107 subwatersheds, and calculates flow and pollutant loading from each land use type within each of the subwatersheds. It simulates the hydraulics of combined sewers, the open channel of the creek itself, and the floodplain. Thus, the model is useful for simulation of stormwater runoff quantity and quality, combined sewer overflow, and streamflow. It is one tool for simulation and evaluation of watershed management alternatives. The model was calibrated by comparing stormwater runoff to estimated runoff, calculated through hydrograph

separation at USGS gauge 01475550, on Cobbs Creek upstream of the confluence with Darby Creek. Model simulations included:

- A simulation of existing conditions in which annual average flows were provided for various key points along the stream.
- Storm specific flows for storms of various return periods (1-year, 2-year, 5-year, 10-year, 25-year) at various key points along the stream
- Annual average pollutant loads for key pollutants found in stormwater. The list of pollutants includes nutrients such as nitrate and phosphorus, total suspended solids, heavy metals, BOD, and DO.

The model results were also critical for identifying areas where stormwater runoff or pollutant loads are particularly high and in need of control. Model flow results, in combination with the results of the fluvial geomorphic assessment, provide excellent tools for identifying areas of the watershed that are undergoing stormwater related stress.

2.2.7 Development and Evaluation of Management Alternatives

BMPs, stream restoration measures, stormwater and CSO management technologies, and public education measures must be combined into coherent, integrated management plan alternatives that address multiple objectives. In highly urbanized watersheds, however, it is very difficult to develop appropriate water quality, quantity, and habitat objectives. For Cobbs Creek, PWD's approach is to define three separate sets of objectives or targets, and recommend BMPs and programs to achieve each of the targets. Targets are defined here as groups of objectives that each focus on a different problem related to the urban stream system. They can be thought of as different parts of the overall goal of fishable and swimmable waters through improved water quality, more natural flow patterns, and restored aquatic and riparian habitat.

The three targets of watershed restoration for Cobbs Creek are:

- TARGET A: Dry Weather Water Quality and Aesthetics
- TARGET B: Healthy Living Resources
- TARGET C: Wet Weather Water Quality and Quantity

By defining clear and achievable targets, and designing the alternatives and implementation plan to address the targets simultaneously, the plan will have a much higher likelihood of success. It will also result in realizing some of the objectives within a relatively short time frame, providing positive incentive to the communities and agencies involved in the program to continue and expand their efforts. This approach will also result in more immediate benefits to the people living in the watershed than would an approach that attempts to meet all objectives completely in one implementation plan.

2.3 Public Involvement and Education

The Partnership formed a Public Participation Committee to ensure that the Partnership identifies and recruits representatives of the diverse array of stakeholders in this basin, including municipalities. Members of the Public Participation Committee include representatives of the following agencies/organizations: the Philadelphia Water Department, the Fairmount Park CAC, Fairmount Park Commission, Dove Communications, US Fish and Wildlife Service, Heinz National Wildlife Refuge Center, Pennsylvania Environmental Council (PEC), Cobbs Creek Community Environmental Education Center (CCCEEC), Delaware Creek Valley Association, DCNR, PA Department of Environmental Protection, Trail Boss Program, Delaware County Planning Department, EPA Region III, Delaware Riverkeeper Network, Academy of Natural Sciences, and the Men of Cobbs Creek.

The Water Department is supporting a number of public education initiatives in development by the Public Participation committee of the Darby-Cobbs Watershed Partnership, including: 1) the production and publicizing of the Watershed Status Report, 2) the development of a teachers training workshop funded by a Growing Greener grant, in which twenty middle- and high-school teachers participated in five Saturday workshops on lessons involving: watershed management, stormwater management, water quality, and ecological restoration. The final workshop was dedicated to the design of service-learning projects, 3) the development of a resident survey on watershed awareness and pollution-causing practices, and 4) the development in partnership with Green Works, of a video tour of the Darby-Cobbs Watershed, which became available in the Fall of 2002 and 5) A watershed-wide bus tour, geared to municipal officials, which was hosted in the Cobbs Creek Watershed in May 2003.

In 2003, the Partnership sponsored a number of workshops designed to develop a watershed management plan for the Cobbs sub-basin, including a presentation of the history of Cobbs Creek, developed by researcher Adam Levine, which was held at the CCCEEC in November 2003. All of these events and presentations are designed to engage the residents of the watershed in the development of the watershed management plan. This plan will serve as a template for all urban watersheds in our region. Workshops to date have focused on developing the goals and objectives of the watershed, a problem analysis session to support the goals, a review of the proposed methodology for the plan, and the introduction of the management concepts that will be developed to meet the plan's goals and objectives. In February 2004, the draft Executive Summary and draft management plan was presented to the Partnership's Steering Committee. PWD is currently revising these documents to incorporate Steering Committee suggestions.

The Public Participation and Education Committee's goal is to increase public understanding and encourage grassroots stewardship in the watershed. During 2003, the Public Participation Committee disseminated a 17 minute video titled, 'The Stream That Binds us," that has received rave reviews. The Partnership has been distributing these videos to schools, libraries, EACs (Lower Merion had the video featured on its local cable network). Additional outreach regarding the watershed management plan will occur in May 2003 with a guided bus tour of the Cobbs Creek watershed aimed at municipal officials. During the fall and winter of 2003, members of the Public Participation Committee developed a simple PowerPoint presentation to use at civic and community meetings, to inform residents about the watershed management plan. The presentation has been viewed by a variety of senior citizen, homeowners associations, community groups and municipal boards.

In 2003, the Partnership also focused on tackling the weighting of the goals that will help define the format of the Cobbs Creek Watershed Management Plan. This plan will be a model for an overall basin plan. The goals that Partnership stakeholders have selected include:

- Streamflow and Living Resources
- Stream Habitat and Aquatic Life
- Stream Channels and Banks
- Flooding
- Water Quality
- Pollutant Loads
- Stream Corridors
- Quality of Life
- Stewardship
- Coordination

The Partnership is currently in the process of revising the draft Executive Summary and Watershed Management Plan that it shared with the Partnership Steering Committee in February 2004. PWD's goal is to

have a revised draft plan ready for general Partnership review in June 2004. Updates on planning progress are posted regularly on the Partnership's website – www.phillywater.org. Got to "watershed partnerships" and then Darby-Cobbs Watershed Partnership.

Cobbs Creek Community Environmental Education Program:
PWD continues to work with the center in support of programs initiated by the Darby-Cobbs Watershed Partnership and stormwater pollution prevention programs sponsored by the PWD. Students participate in benthic macroinvertebrate assessment, fish collection techniques, and stream characterizations. The program, "home-based" at Turner Middle School in West Philadelphia, involves not only classroom education, but also service learning field work – stream study, trail development, butterfly garden – for Cobbs Creek and community. In addition, three students from Turner Middle school were chosen to perform a science project directed towards aquatic ecosystems and biological integrity of Cobbs Creek. Students were assisted by the Philadelphia Water Department's aquatic biologists and the students' project was then displayed at the Carver Science Fair at the Academy of Natural Sciences.

Watershed Tours:
The City continues to conduct watershed tours in Philadelphia's nine (9) watersheds (Tacony, Frankford, Poquessing, Pennypack, Wissahickon, Cobbs, Darby, Schuylkill, and Delaware) to further enhance the public's understanding and appreciation of watershed issues. Tour guides describe the watershed concept, point out natural and manmade stormwater features and infrastructure, anthropogenic impacts on receiving water quality, benthic and ichthyfaunal assessments, and watershed protection practices. Self-guided tour booklets for each watershed are under development (actually ready to publication but lacking a printing budget). Virtual website tours have been developed for the Tacony-Frankford watershed and the Mill Creek Watershed as prototypes for web-based tours.

3.0 Annual CSO Statistics

COBBS CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency		CSO Volume (MG)	CSO Capture (%)	CSO Duration (hrs)
			Range per subsystem	Avg per subsystem	Range per subsystem	Range per subsystem	Range per subsystem
Cobbs Creek High Level	26	32	0 - 60	20	1414 - 1482	47% - 49%	0 - 313
Cobbs Creek Low Level	9	12	0 - 49	19	118 - 123	72% - 73%	0 - 192

Section 4 - Tacony-Frankford Watershed

1.0 CSO Capital Improvement Projects

1.1 Frankford Siphon Upgrade

Start: 10/1/1997 End: 7/30/1997 Status: Complete

1.2 RTC - Rock Run Relief Sewer (R_15)

Start: 10/16/1998 End: 9/3/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-9 – 2-10.

Description: The Rock Run Relief Sewer provides flood relief to combined sewer areas upstream of regulator T_08 in the Northeast Drainage District (NEDD). Currently, CSOs discharge into the Tacony Creek at the Rock Run Relief Sewer outfall – an 11' by 14' sewer - during periods of moderate or greater rainfall. Installation of an inflatable dam in the Rock Run Relief Sewer allows for utilization of approximately 2.3 million gallons (MG) of in-system storage to retain combined flows during a majority of these wet weather events. The inflatable dam stores combined flows in the relief sewer until storm inflows have subsided and capacity exists in the Tacony Interceptor for conveyance of combined flows to the Northeast Water Pollution Control Plant (NEWPCP). This control technology provides an additional margin of protection against dry weather overflows while still maintaining flood protection for upstream areas. The estimated budget for this job is $490,000.

Environmental Benefits: This project will reduce the discharge of combined sewage into Tacony Creek, one of the more-sensitive water bodies exposed to CSO discharges in the City of Philadelphia. An average annual reduction in CSO volume of 190 MG/year, from 1040 to 850 MG/year, is achieved at the Rock Run Relief Sewer outfall through use of the available in-system storage volume. This represents a reduction of roughly 20% in the average annual volume of CSO and a significant reduction in the associated pollutants (bacteria and organic matter from untreated wastes, litter and other solid materials in both wastewater and stormwater runoff, etc.) discharged into Tacony Creek at this location, near Nedro Avenue and Hammond Street in Tacony Creek Park, an area where golfing and other recreational activities may occur. Since this project modifies an existing structure (the Rock Run Relief Sewer) rather than constructing a new one, it provides control very cost-effectively (unit cost for this storage is $0.14/gal versus roughly $6/gal for siting, design, and construction of a new storage structure).

Status: A design memorandum was completed that documents the expected environmental benefits of the Rock Run Relief Project, quantifies the flooding risks associated with the project, and documents the recommended control logic for the inflatable dam's operation and drain-down control. In support of this memorandum, several alternative control logics for the inflatable dam operation and drain-down gate were investigated to develop a logic that minimized the risks of flooding, increased Rock Run Relief storage utilization and eliminated adverse affects of the project at other CSO regulators on the Tacony Creek. A 120 million gallon (13%) reduction in average annual CSO volumes to the Tacony Creek, from the T_08 & R15 outfalls is expected through the implementation of this capital project.

In 2004, the engineering firm of Hatch Mott McDonald continued to prepare the bid documents. The final plans and specifications will be completed in February, 2005. The bidding of the project is anticipated in March or April of 2005, with a notice-to-proceed for construction in June.

1.3 RTC – Tacony Creek Park (T_14)

Start: 10/16/1998 End: 9/3/2004 Status: In-Progress

Reference - Long Term CSO Control Plan p. 2-8 – 2-9.

Description: The T_14 trunk sewer system conveys combined sewage from the largest combined sewershed in the PWD collection system. Currently, CSOs discharge into the Tacony Creek at the T_14 outfall – a 21' by 24' sewer - during periods of moderate or greater rainfall. Installation of an inflatable dam in the T_14 trunk sewer allows for utilization of approximately 10 million gallons (MG) of in-system storage to retain combined flows during a majority of these wet weather events. The inflatable dam stores combined flows in the trunk sewer until storm inflows have subsided and capacity exists in the Tacony Interceptor for conveyance of combined flows to the Northeast Water Pollution Control Plant (NEWPCP). This control technology provides an additional margin of protection against dry weather overflows and Tacony Creek inflows to the combined system while still maintaining flood protection for upstream areas. The estimated budget for this job is $450,000.

Environmental Benefits: This project will reduce the discharge of combined sewage into Tacony Creek, one of the more-sensitive water bodies exposed to CSO discharges in the City of Philadelphia. An average annual reduction in CSO volume of 750 MG/year, from 2,500 to 1,750 MG/year, is achieved at the T_14 outfall through use of the available in-system storage volume. This represents a reduction of roughly 30% in the average annual volume of CSO and a significant reduction in the associated pollutants (bacteria and organic matter from untreated wastes, litter and other solid materials in both wastewater and stormwater runoff, etc.) discharged into Tacony Creek at this location, near Juniata Park and Tacony Creek Park, an area where golfing and other recreational activities may occur. Since this project modifies an existing structure (the T_14 trunk sewer) rather than constructing a new one, it provides control very cost-effectively (unit cost for this storage is $0.03/gal versus roughly $6/gal for siting, design, and construction of a new storage structure).

Status: The engineering firm of O'Brien & Gere was selected in March of 2003 to prepare bid documents. During 2004, the firm continued work on these documents. The design specifications should be finalized in March, 2005, and bidding is expected in late April. Notice-to-proceed for construction is anticipated in June.

2.0 Watershed Management Planning

The following sections describe the progress that has been made in advancing the Tacony-Frankford Watershed Initiative. Detailed information on documenting the minutes of partnership meetings, reports produced, and other accomplishments are posted on the partnership web page at www.phillywater.org/Tacony-Frankford

The Philadelphia Water Department (PWD) has embarked on an ambitious program of watershed management for several creeks within the City limits. The second plan, now being developed, is for the Tacony-Frankford Creek watershed. The watershed plans are designed as integrated watershed planning efforts to address objectives of several programs, including CSO Long Term Planning, Pennsylvania Stormwater Management programs, potential or existing TMDLs, River Conservation Plans, and Phase II Stormwater permits. PWD's Office of Watersheds (OOW) has carried out an extensive sampling and monitoring program to characterize conditions in the Tacony-Frankford Creek watershed. The program is designed to document the condition of aquatic resources and to provide information for the planning process needed to meet regulatory requirements. The program included hydrologic and water quality analysis, biological and habitat assessments, and fluvial geomorphological assessments of the entire length of Tacony and Frankford Creek and its major tributaries.

2.1 Preliminary Reconnaissance Survey

During 2000-2001, the Philadelphia Water Department conducted preliminary biological assessments (Rapid Bioassessment Protocols III and V) and habitat assessments at seven locations (n=7) along the Tookany/Tacony-Frankford Watershed to investigate the various point and nonpoint source stressors. Biological and physical assessments were then compared to a representative site located in the French Creek Watershed, Chester County, Pennsylvania. Chemical data trends of the Tookany/Tacony-Frankford (2000-2001) generated by the Bureau of Laboratory Services were also analyzed. The aggregation of biological, physical and chemical information was utilized as a comprehensive tool to measure the degree of impairment and the major contributing stressors within each assessment site and at the watershed scale. Moreover, the preliminary reconnaissance (i.e., Phase I) report completed on 6/18/02 has served as a template for future monitoring in the Tookany/Tacony-Frankford Watershed.

2.2 Watershed Work Planning & Assessment

The draft watershed plan for the Tacony Frankford Creek was completed in December of 2004 and is undergoing revision to incorporate the stream assessment work being done as part of the Act 167 Stormwater Management plan being led by PWD.

2.2.1 Watershed Partnership

The PWD sponsored Tacony-Frankford Watershed kicked off with its first Partnership meeting on October 4, 2001. The Tacony-Frankford Watershed drains 29 square miles, or 20,900 acres in Philadelphia and Montgomery counties. It is, for the most part, a highly urbanized watershed with a large diverse population that includes portions of the inner city as well as wealthy suburban communities. This partnership, geographically less diverse than the Darby-Cobbs Watershed, was able to benefit from a number of organizations and groups that are already involved in neighborhood revitalization. Its members are anxious to tackle projects that will see immediate benefits. Members include:

<u>Tacony-Frankford Partnership</u>

- Philadelphia Water Department
- Fairmount Park Commission and the Natural Lands Restoration Project
- Pennsylvania Environmental Council
- Frankford Group Ministry
- Melrose Park Neighbors Association
- Friends of Tacony Park
- Edison High School
- Rohm and Haas Co.
- Senior Environmental Corps.
- Awbury Arboretum
- Frankford United Neighbors
- Frankford Style Community Arts
- PA Department of Environmental Protection
- US Environmental Protection Agency
- US Army Corps of Engineers
- Philadelphia Green
- Phila. Urban Resources Partnership
- Cheltenham Township

This Partnership has been modeled after the Darby-Cobbs Partnership in working structure and the technical documents generated. However, PWD envisions that more "hands-on" type projects will be encouraged and requested on a regular basis. To supplement the work of the Partnership and to further the development of a watershed management plan, the Water Department, Fairmount Park and the Frankford Group Ministry received a DCNR grant in October 2001 to develop a River Conservation Plan for the Philadelphia county portion of the Tacony-Frankford watershed. The Partnership has worked closely to coordinate this grant with the River Conservation Plan in its final draft on the Tookany Watershed in Montgomery County. Cheltenham Township, a Partnership member, is developing this RCP.

The creation and completion of a River Conservation Plan (RCP) for the Tacony-Frankford Watershed has provided the Partnership with an environmental and cultural planning inventory for a highly urbanized watershed with the ultimate goal to develop a holistic management plan that will facilitate restoration, enhancement and sustainable improvements in the watershed. The watershed management plan is due for completion in April 2005.

This Partnership is currently involved in the development of a 501(c)(3) separate entity that will embrace as its mission the implementation of the watershed management plan.

Tookany/Tacony-Frankford Watershed Partnership Meetings

- January 14, 2004 – TTF Structure Committee Meeting – The Structure Committee is an advisory subcommittee to the Partnership whose mission is to recommend an operational/management structure for a Partnership Board which will be charged with implementing the completed watershed management plan and river conservation plan.
- January 28, 2004 – The PA Environmental Council, Fairmount Park Commission and PWD hosted an Urban Stream Restoration Presentation at the Franklin Institute. Restoration expert Todd Moses, from Skelly and Loy, was the guest speaker. Members of the Tookany/Tacony-Frankford Watershed were invited, in addition to other partnership members and government and city partner agencies.
- February 4, 2004 - Meeting of the TTF Structure Committee at Awbury Arboretum.
- February 6, 2004 – PowerPoint presentation to the PA Food Merchants Association regarding the shopping carts found in Philadelphia streams. Members include Shop Rite and Acme. Goal of meeting was to promote a partnership to remove and prevent future dumping of shopping carts.
- February 18, 2004 – RCP Public meeting at Friends Hospital -- Participants were presented a draft of the RCP plan via a PowerPoint presentation and were provided with an opportunity, via a dot exercise, to note which of the recommended management options they favored. Copies of the plan's Executive Summary were also distributed..
- February 25, 2004 - Meeting of the TTF Structure Committee at Awbury Arboretum. Committee reviewing bylaws and structures of existing watershed organizations to select appropriate models.
- March 10, 2004 – Meeting of the TTF Public Participation and Technical Committees to bring members up to date on the progress of the Structure Committee. Also provided updates about the Tookany and Tacony RCPs.
- March 17, 2004 – Meeting of the TTF Structure Committee at Awbury Arboretum -- Discussion of model recommendations and next steps, e.g., pursuit of 501c3.
- April 21, 2004 – Meeting of Tookany/Tacony-Frankford Partnership at Curtis Hall. A PowerPoint presentation was provided of the draft Cobbs Creek Watershed Management Plan, to provide TTF members with a better sense of where the TTF plan will be going.
- May 24, 2004 – The RCP Team hosted the final public meeting for the Tacony-Frankford River Conservation Plan. The meeting was held at the site of a current outfall restoration project at Crescentville and Adams Avenue along Tacony Creek. Meeting agenda included: Distribution and review of RCP Executive Summary, Goals Review, Review of Fairmount Park Master Plan, Update

on the proposed Frankford Creek Master Plan, Update on the Tookany RCP, tour of the restoration project and a final ranking of goals.

- June 14, 2004 – Meeting of the TTF Partnership at Awbury Arboretum at 6 p.m. A PowerPoint presentation was provided to members which featured an update on the watershed management plan. Discussion focused on the problem analysis portion of the plan.
- July 29, 2004 – Meeting of the TTF Structure Committee to review the draft bylaws and management structure of the future partnership. Members also began brainstorming potential/ideal board members. Committee recommended revisions to bylaws and organization structure. The working subcommittee will follow up to incorporate suggested changes.
- August 4, 2004 – Meeting of the TTF Partnership. Agenda included general updates on the following: Tacony-Frankford RCP, Tookany RCP, Affects of August 1 Flooding on watershed, Structure Committee progress, and upcoming public events.
- October 16, 2004 – Third Annual Historic Wingohocking Tour was co-sponsored by PWD and the Mt. Airy Learning Tree, with participation from Awbury Arboretum and LaSalle University. This event, developed under the RCP to connect watershed residents on the "fringes" of the watershed to the Tacony Creek, is so popular that it has become an annual event.
- October 26, 2004 -- Focus Group WMP meeting -- This meeting was devoted to the development and screening of the Management Options. Partners also had the opportunity to view a presentation of the work done to date.

2.2.2 Monitoring and Field Data Collection

Fixed Interval Chemical Sampling

During the reporting period, Philadelphia Water Department (PWD) staff collected surface water grab samples at eight locations within Tacony-Frankford Watershed for chemical and microbial analysis (Figure 1). Sampling events were planned to occur at each site at weekly intervals for one month during three separate seasons. Actual sampling dates were as follows: "winter" samples collected 1/15/04, 1/22/04, 1/29/04, and 2/5/04; "spring" samples collected 4/21/04, 4/29/04, 5/6/04, and 5/13/04; "summer" samples collected 8/5/04, 8/12/04, 8/19/04 and 8/26/04. A total of 96 discrete samples, comprising 3552 chemical and microbial analytes, were collected and recorded during the 2004 assessment of the Tacony-Frankford Watershed.

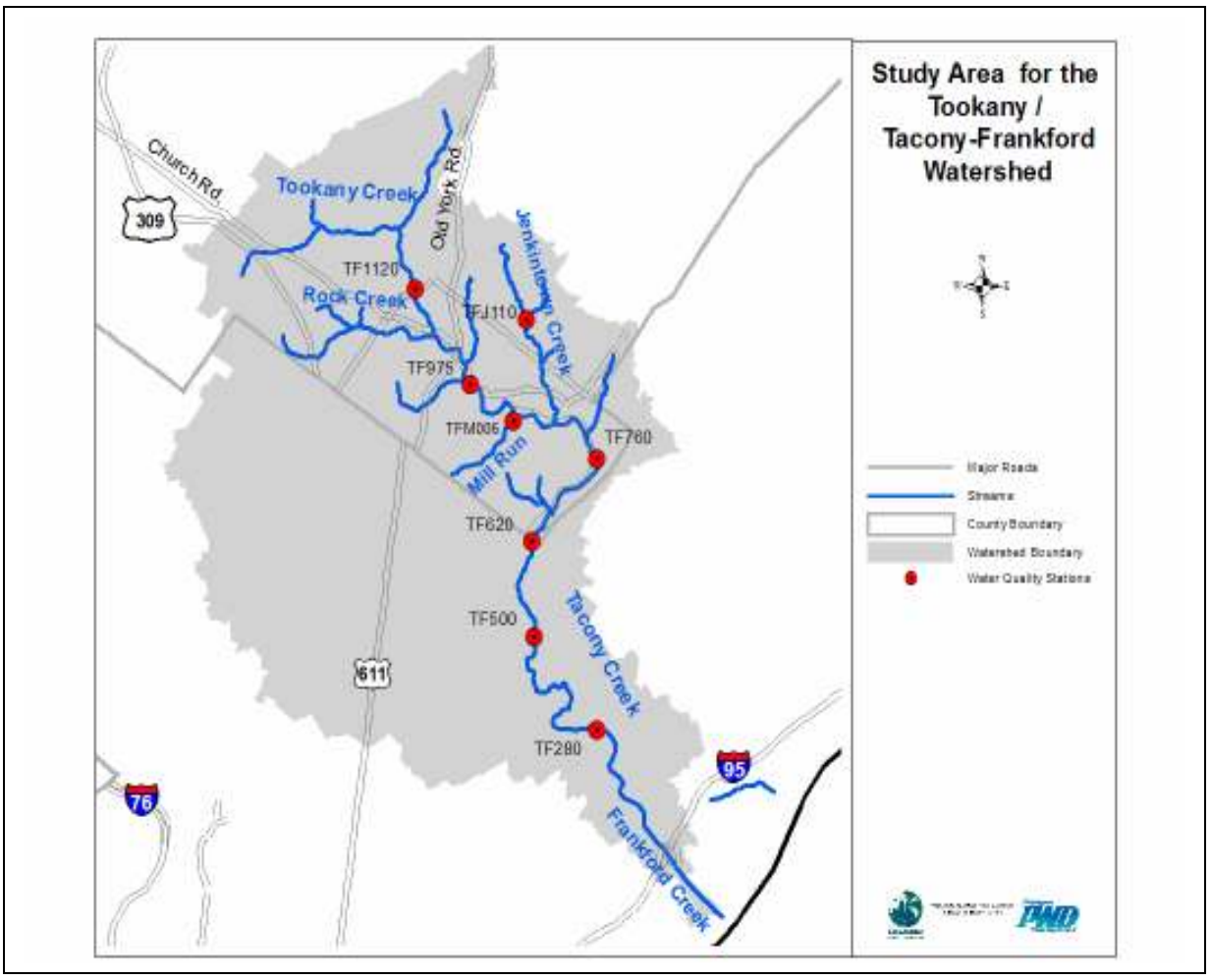


Figure 6. Discrete water quality stations in the Tacony-Frankford Watershed (2004).

Sites TF 280, TF 500, TF 620, TF 760, TF 975, TF 1120 and TFJ 110 were included in PWD's baseline chemical assessment of Tacony-Frankford Watershed in 2000. A single new site (TFM006), located on Mill Run and the Tacony Creek confluence was added for 2004.

Discrete sampling was conducted on a weekly basis and was not specifically designed to target wet or dry weather flow conditions. Depending on which definition of "dry weather" was used (i.e., 48 hr interval or 72 hr interval), between 6-7 sampling events occurred during dry weather- this data is most pertinent to Target A of the Watershed Management Plan (Dry Weather Water Quality and Aesthetics). Specifically addressed are indicators 7 and 8 - chemical and microbial constituents that are influential in shaping communities of aquatic systems or that are indicative of anthropogenic degradation of water quality in the watershed.

Wet Weather Targeted Sampling

Target C of the Watershed Management Plan addresses water quality in wet weather. Yet characterization of water quality at several widely spatially distributed sites simultaneously over the course of a storm event presents a unique challenge. Automated samplers (Isco, Inc.) stationed at six monitoring locations were used to collect samples during two runoff producing rain events on 7/7/04 and 8/30/04 (Figure 2).

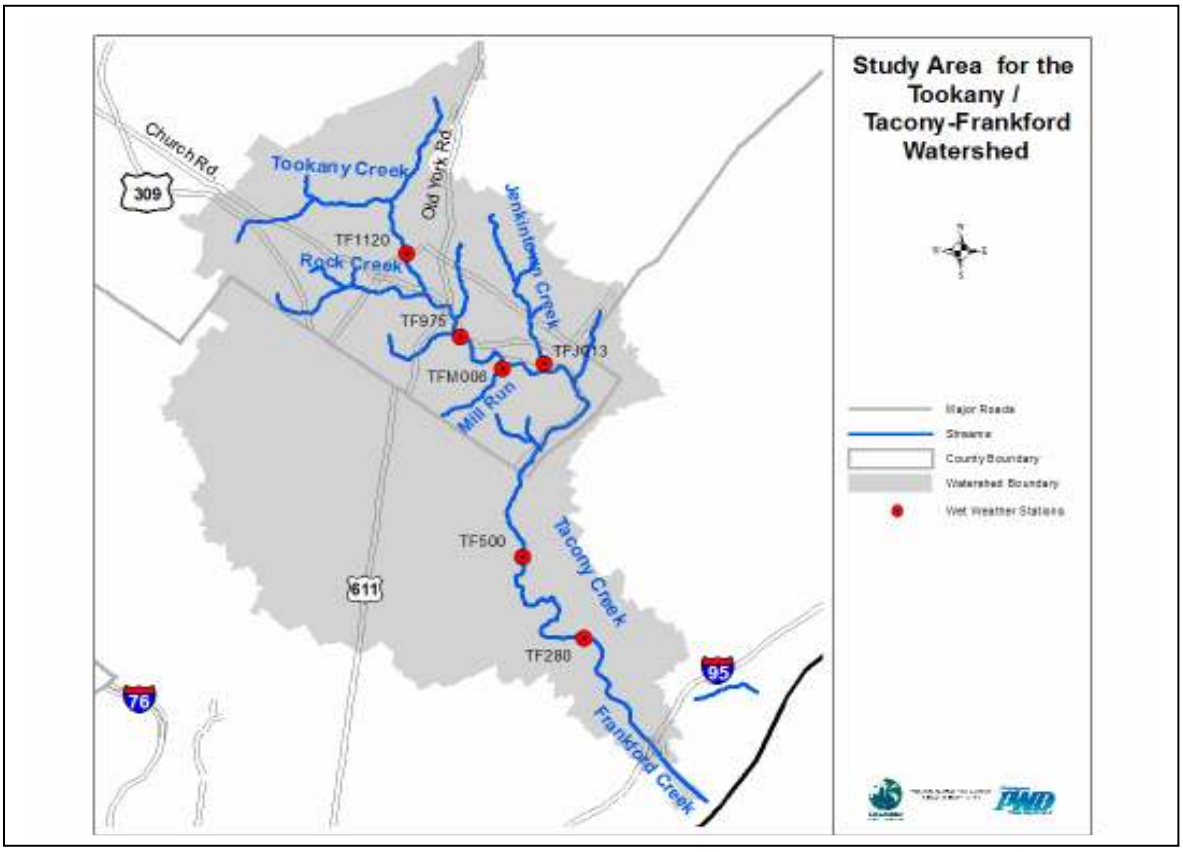


Figure 7. Wet-weather monitoring locations in Tacony-Frankford Watershed.

The automated sampler system obviated the need for BLS team members to manually collect samples, thereby greatly increasing sampling efficiency. Automated samplers were equipped with vented in-stream pressure transducers that allowed sampling to commence beginning with a small (0.1ft.) increase in stage. Once sampling was initiated, a computer-controlled peristaltic pump and distribution system collected grab samples at 1 hr. intervals.

Use of automated samplers allows for a greater range of flexibility in sampling programs, including flow-weighted composite sampling based on a user defined rating curve, but stage discharge rating curves at these sites were poorly defined for larger flows. Though some difficulties were encountered due to a combination of mechanical failure, individual site characteristics, and/or vandalism, the one hour fixed interval was found to be generally satisfactory in collecting representative samples over a storm event (Figure 3)

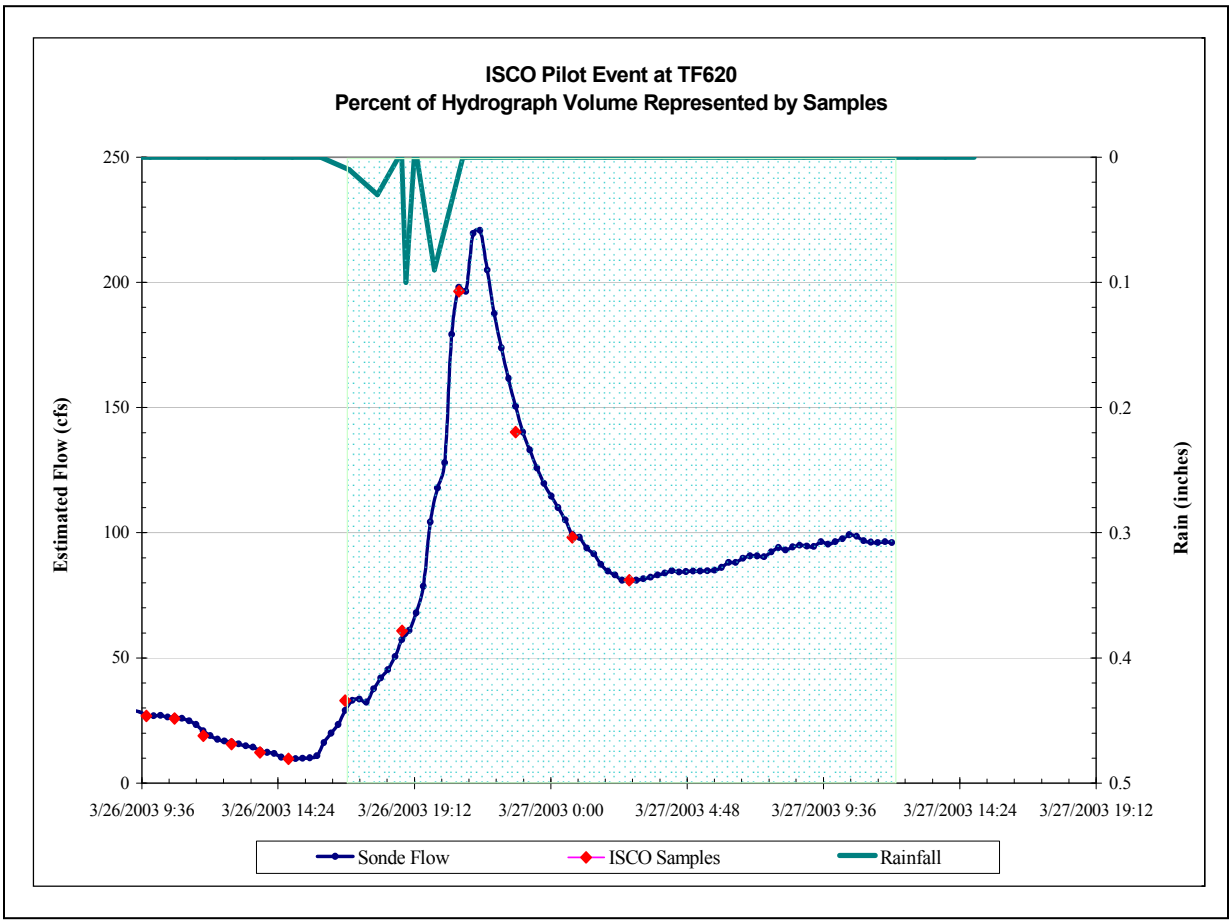


Figure 8. Example of sample collection times with respect to a wet weather event in the Tacony-Frankford Watershed (2003).

To date, PWD has successfully characterized nine storm events (n=9) in the Tacony-Frankford Watershed. PWD continues to refine methods of sampling stormwater and experiment with alternative automated sampling programs.

Biological Assessments and Analyses

Between 3/24/04 – 4/1/04, PWD staff conducted benthic and habitat assessments at twelve (n=12) locations within the Tacony-Frankford Watershed (Figure 4). Using standard operating procedures developed by the EPA, samples were collected during late winter and analyzed in the laboratory.

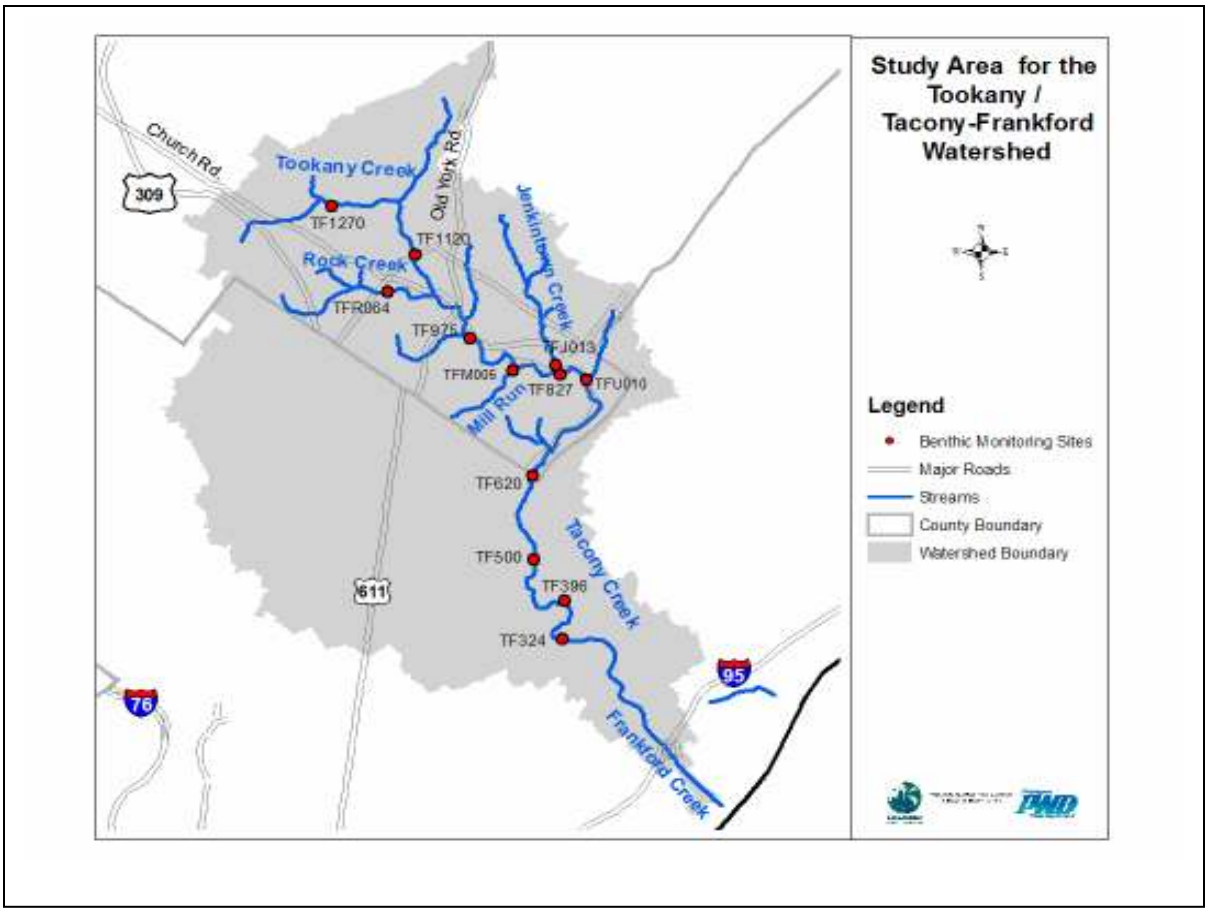


Figure 9. Benthic and habitat monitoring locations in the Tacony-Frankford Watershed

Fish Assessments

Similarly, between 6/2/04-6/16/04, PWD biologists conducted fish assessments at seven (n=7) locations within Tacony-Frankford Watershed (Figure 5). Standard operating procedures, developed by the EPA and refined by the USGS, were used to assess fish community health at the watershed-scale. In addition, tidal fish assessments were also performed at two (n=2) locations in the lower Frankford Creek between 8/1/04 – 8/8/04 (Figure 6).

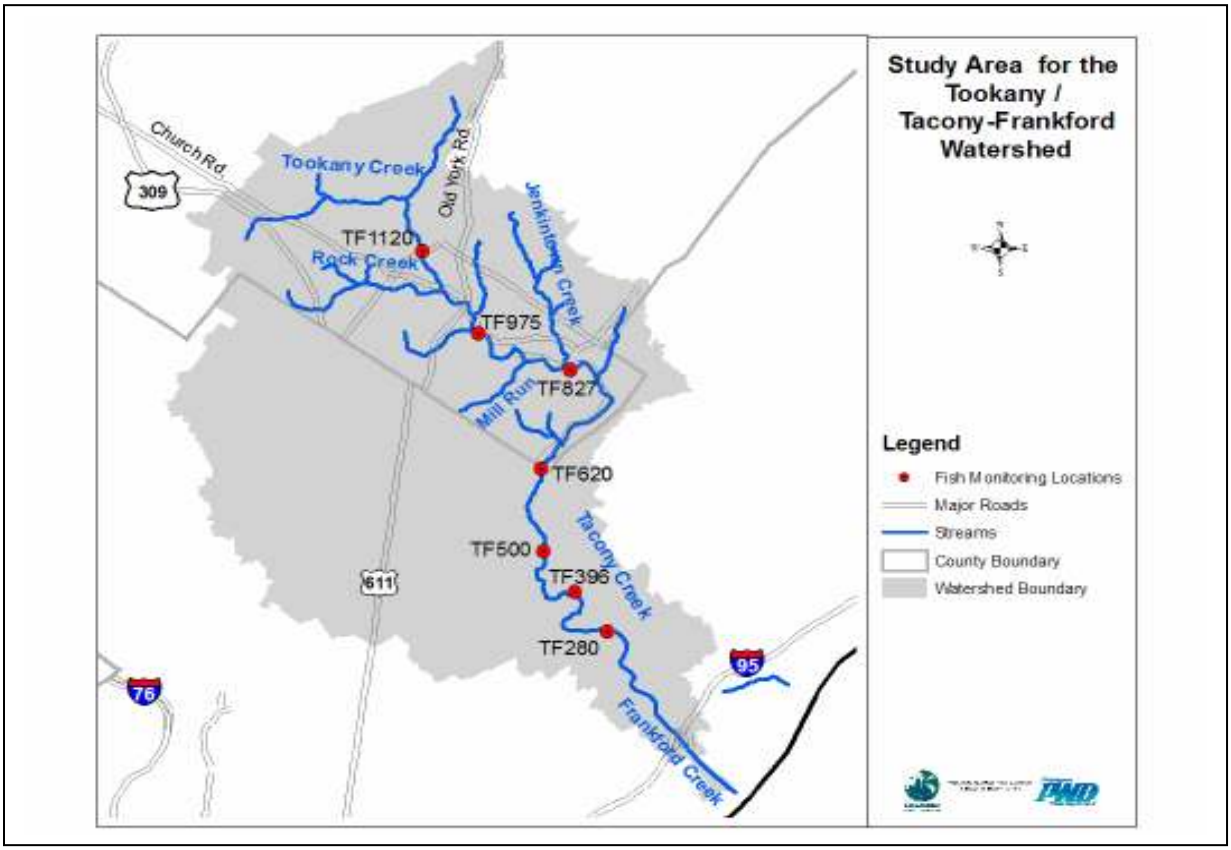


Figure 10. Fish monitoring locations in Tacony-Frankford Watershed (2004).

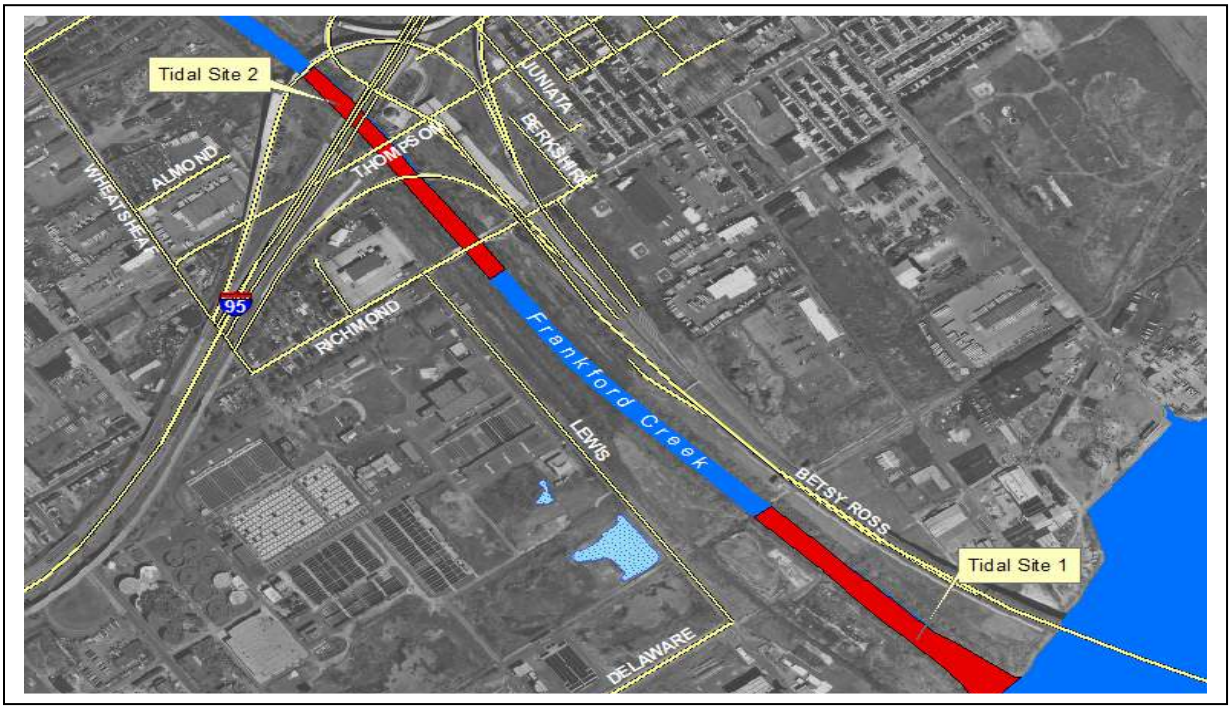


Figure 11. Tidal monitoring locations in lower Frankford Creek (2004).

Algae Assessments

Replicate algae samples were collected from TF280and TF620 on the Tacony-Frankford Creek (TFC) on 6 occasions in August and September 2004 to determine the biomass of benthic algae in terms of chlorophyll a (chl a), spatial variation in biomass within and between sites, the scouring effects of high flows, and algal accrual rates following a high flow event (Figure 7). The goals of the project were to explain patterns in dissolved oxygen (DO) concentrations at base flow, and during and following high flow events. The study indicated spatial differences in mean chl a concentrations between sites but consistent temporal patterns. Main results include:

Dissolved oxygen profiles of the 2 sites during the study period showed that mean daily DO concentration at TF280 was typically in the order of 6mg/l with daily minimum and maximum concentrations generally ±1.5 mg/m^2. At TF620, mean daily DO concentrations were approximately 8 mg/l with daily minimum and maximum concentrations in the order of ±1mg/l.

Chlorophyll a concentrations were consistently significantly greater at TF620 than at TF280 with mean concentrations ranging from 29.8 (±3.79) to 88.5 (±11.0) mg/m^2 at TF280, and from 108.5 (±14.8) to 127.9 (±12.8) mg/m^2 at 620. Mean chl a concentration at TF500 sampled 19 August 2004 was 34.9 (± 6.9) mg/m^2.

Mean chl a at the TF620 site on 8 September 2004 was significantly lower (49.8 ± 6.5 mg/m^2) than on other sampling dates. This is possibly due to seasonal changeover in benthic algal community structure (summer die-off).

Algal accrual rates during the first 5 days following an artificial scouring experiment were similar to accrual rates on non-scoured rocks for each site. The average daily accrual rate for TF280 and TF620 was 8.36 ±1.30 mg/m^2 and 16.7 ± 4.34 mg/m^2, respectively. The accrual rate at TF620 of non-scoured rocks was 11.7

mg/m². During days 5-9 of the experiment, both sites lost biomass with an average daily loss rate of 1.73 (± 0.99) mg/m² at TF280 and 4.56 (± 1.31) mg/m² at TF620. The mean daily accrual rate of non-scoured rocks at TF280 during this time period was 8.96 mg/m² and 2.48 mg/m² at TF620.

Among the factors affecting algal biomass discussed above, grazing, nutrients, current velocity, and scouring disturbances are likely the most important in driving algal communities in the TFC. Differences in algal community structure between the two sites are likely the result of differential nutrient conditions, grazing pressures, and disturbance regimes. Light may also play a factor in explaining site differences (especially when data from TF500 is considered).

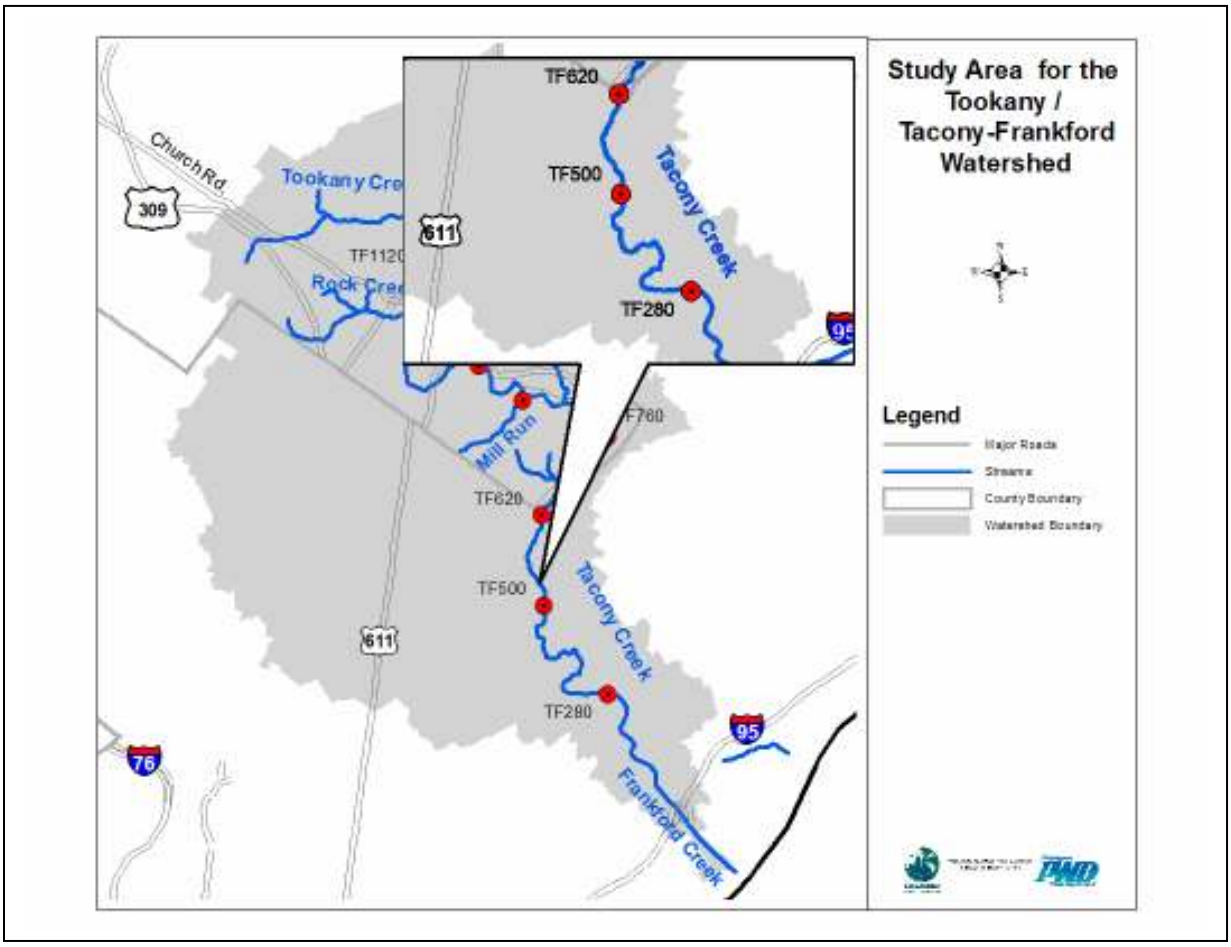


Figure 12. Algae monitoring stations on Tacony-Frankford Creek.

2.2.6 Modeling

A SWMM model is being updated and calibrated for the watershed that can simulate the watershed response to storms for both the storm sewers as well as combined sewers. The model will be used to assess current pollutant loading from CSOs and from stormwater water. The model will also be used to test a wide array of CSO controls and stormwater BMPs, including swales, green roofs, infiltration basins, porous pavement, and similar techniques. By simulating BMPs at various levels of implementation, graphs of urban BMP effectiveness in controlling CSOs and stormwater will be developed and used to make watershed-specific

recommendations on the needed degree of implementation and the selection of the most cost-effective approaches to meeting water quality and quantity objectives.

2.2.7 Development and Evaluation of Management Alternatives

BMPs, stream restoration measures, stormwater and CSO management technologies, and public education measures must be combined into coherent, integrated management plan alternatives that address multiple objectives. In highly urbanized watersheds, however, it is very difficult to develop appropriate water quality, quantity, and habitat objectives. For Tacony Creek, PWD's approach is to define three separate sets of objectives or targets, and recommend BMPs and programs to achieve each of the targets. Targets are defined here as groups of objectives that each focus on a different problem related to the urban stream system. They can be thought of as different parts of the overall goal of fishable and swimmable waters through improved water quality, more natural flow patterns, and restored aquatic and riparian habitat.

The three targets of watershed restoration for Tacony Creek are:

- TARGET A: Dry Weather Water Quality and Aesthetics
- TARGET B: Healthy Living Resources
- TARGET C: Wet Weather Water Quality and Quantity

By defining clear and achievable targets, and designing the alternatives and implementation plan to address the targets simultaneously, the plan will have a much higher likelihood of success. It will also result in realizing some of the objectives within a relatively short time frame, providing positive incentive to the communities and agencies involved in the program to continue and expand their efforts. This approach will also result in more immediate benefits to the people living in the watershed than would an approach that attempts to meet all objectives completely in one implementation plan.

2.3 Public Involvement and Education

Watershed Tours:

The City continues to conduct watershed tours in Philadelphia's nine (9) watersheds (Tacony, Frankford, Poquessing, Pennypack, Wissahickon, Cobbs, Darby, Schuylkill, and Delaware) to further enhance the public's understanding and appreciation of watershed issues. Tour guides describe the watershed concept, point out natural and manmade stormwater features and infrastructure, anthropogenic impacts on receiving water quality, benthic and ichthyfaunal assessments, and watershed protection practices. Self-guided tour booklets for each watershed are under development (actually ready to publication but lacking a printing budget). Virtual website tours have been developed for the Tacony-Frankford watershed and the Mill Creek Watershed as prototypes for web-based tours.

3.0 Annual CSO Statistics

TACONY CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency				CSO Volume (MG)			CSO Capture (%)			CSO Duration (hrs)		
			Range per subsystem			Avg per subsystem	Range per subsystem			Range per subsystem			Range per subsystem		
Tacony	16	16	4	-	55	35	4491	-	4747	37%	-	38%	4	-	315
Upper Frankford Low Level	12	12	11	-	54	35	445	-	461	56%	-	57%	23	-	276

Section 5 - Pennypack Watershed

1.0 CSO Capital Improvement Projects

1.1 85% CSO Capture – Pennypack Watershed

Start: 2/1/1996 End: 9/7/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-8.

Description: Addressing CSO discharges to Pennypack Creek is a high priority for the CSO Program and is mainly a result of the proximity of the CSO to a smaller receiving stream which enters the Delaware just below the Baxter WTP intake structure. This project will enable capture of 85% of the combined sewer flow in all five Pennypack (PP) CSO basin areas while maintaining existing overall system-wide CSO capture on an average annual basis by modifying the PP, UDLL and LFLL regulators. It was determined that an increase in capacity of approximately 20 cfs was required for the PP interceptor to achieve 85% capture (consistent with the "presumptive" CSO control target defined in national CSO policy). The construction project entails construction of new dry weather outlet (DWO) conduit at 3 of the Pennypack CSO regulators. In addition, the diversion dam height at four PP regulator locations will be raised. Lastly, modifications at twelve Brown & Brown type and automated regulators along the UDLL and LFLL interceptors will be completed in order to provide the required capacity in the UDLL interceptor. These actions will result in 85% CSO capture in the Pennypack watershed. The projected budget for this project is $230,000.

Environmental Benefits: This project will significantly reduce the CSO discharge into Pennypack Creek. The average annual volume of CSO is reduced by 91 MG, from 130 to 58 MG. This represents a reduction of roughly 55% in the average annual volume of CSO and the associated pollutants (bacteria and organic matter from untreated wastes, litter and other solid materials in both wastewater and stormwater runoff, etc.) discharged into Pennypack Creek between Frankford Avenue and the Delaware River. Additionally, this project protects a small stream surrounded by public parkland where recreational activities occur.

1.1.1 Regulator Modifications (P1-P4)

Start: 11/18/1998 End: 9/7/2004 Status: In-Progress

The hydrologic and hydraulic computer models developed by the PWD for the CSO Program were applied to determine new dry weather outlet (DWO) pipe diameters and diversion dam heights necessary to achieve 85% capture of combined flows in the Pennypack basins. A preliminary site plan for the CSO regulator modifications necessary to achieve 85% capture of Pennypack combined flows was completed. Additional monitoring was performed to verify model representations of wet weather inflows in the Pennypack interceptor.

Status: A preliminary site plan was developed for the construction of new CSO regulator chambers at P_1, P_2 and P_4. Model analyses in 1999 refined initial estimates of regulator modifications including new DWO pies and diversion dam heights at these three chambers. In 2000, PWD staff finalized the project's design memorandum and site plans documenting chamber modification specifics that allow for 85% capture of combined flows in the Pennypack basins while maintaining existing levels of CSO capture in the Northeast Low Level System.

The final designs for the new CSO regulator chambers and DWO pipes were completed in 2004. The design plans and specifications were forwarded to Projects Control the first week of January. The project was bid in April and won by METRO for a total of $1,709,334.00. All submittals have been approved and construction

is under way. The new DWO (dry weather overflow) pipes have been installed in Frankford Avenue and the installation of the gates is underway. The Contractor is getting ready to commence work at the other locations.

1.1.2 Integrate Water Quality Programs with Storm Flood Relief (WQ & SRF) - Sheffield Ave.
Start: 2/1/1996 End: 6/31/2000 Status: Complete

Reference Long Term Control Plan on page 2-6.

Description: There are several flood relief projects defined and currently in various stages of implementation. However, these projects have been developed to better manage the relatively high flows associated with larger, less frequent events. CSO control is primarily concerned with lower, more frequent flows. There is a potential opportunity to realize multiple benefits from the flood relief projects by expanding the scope of these projects to address both storm flood relief and CSO control objectives. Generally this will require adjusting the design of the individual projects to manage both low and high flows, resulting in the dual benefit of CSO control and flood relief. For example, it may be possible to use a new flood relief sewer to provide storage of low flows for CSO control and conveyance of high flows for flood control. The costs for implementing CSO controls in flood relief projects will be defined on a case-by-case basis.

Environmental Benefits: The specific benefits that accrue will be defined on a case-by-case basis.

Status: The Sheffield Ave. Relief sewer project was undertaken as a demonstration project to examine the process by which the Department could utilize the existing flood relief sewer planning process to gain increased CSO benefit. Design level modeling of the Sheffield and Cottman Avenue sewershed was undertaken from the period from 2/1/1996 to 12/13/1996. The storage and treatment requirements to achieve the 85% capture objective were determined in conjunction with the DWO conduit re-sizing to be completed as part of project 10.3.2 Regulator Modifications (P_1 – P_4) from 12/16/1996 to 3/7/1997. The treatment rates and storage volumes required to achieve 85% capture were used to evaluate diversion structure and regulator alternatives from 3/10/1997 to 7/11/1997. Design specifications were developed from 7/14/1997 to 6/1/1998. The contract was awarded to Lisbon Contractor Inc., at a cost of $5,630,462. This project is now complete.

2.0 Watershed Management Planning

2.1 Preliminary Reconnaissance Survey

The preliminary reconnaissance survey for the Pennypack Creek have been completed. Specifically the physical, chemical, and biologic assessment was completed in calendar year 2002 with a comprehensive report completed in 2003.

2.2 Watershed Work Planning & Assessment

2.2.1 Watershed Partnership

The PWD and its partners – the Fairmount Park Commission, the Friends of Pennypack Park, the Friends of Fox Chase Farms, the Pennypack Ecological Trust and the Montgomery County Planning Commission – received notice in Summer 2002 that it was awarded a grant from DCNR to develop a river conservation plan for the Pennypack Creek Watershed – Philadelphia, Montgomery and Bucks Counties.

In the Fall 2002, team members toured various sections of the watershed to gain a better understanding of its current physical topography and condition. Also, the team developed a Request for Proposals for a consultant to lead the data collection and public outreach components of the plan, under the guidance of the RCP team. The consultant, F.X. Browne, Inc. was selected to oversee both the data collection and public outreach components of the RCP and began this work in the Fall 2003. In January 2004, the first RCP Steering Committee took place and a public outreach schedule and suggested public workshops were discussed and planned for the spring. During 2004, a number of public outreach and education events took place, including:

- Neighborhood and community meetings
- Citizen survey
- Key Person interviews
- April 2004 Sheep Shearing Day at Fox Chase Farms
- July 2004 Wildlife Habitat Walk
- Sept. 2004 Watershed Awareness Festival
- Sept. 2004 Water Quality Workshop
- November 2004 Homeowner's Conservation Workshop

Data collection has been ongoing with a goal to complete a data summary review by February '05.

2.3 Public Involvement and Education

River Conservation Plan

The PWD, along with its partners, is involved in the development of a River Conservation Plan (RCP) for the Pennypack Creek Watershed. This plan is being funded by a grant from DCNR. The team members selected a consultant, F.X. Browne, to lead the project. A steering committee has been assembled and the first Steering Committee meeting was held in January. The consultant has begun the data collection work and has begun to develop public information materials. Public outreach activities are also being planned throughout the watershed such as clean-ups, events, and public meetings.

Watershed Tours

The City continues to conduct watershed tours in Philadelphia's nine (9) watersheds (Tacony, Frankford, Poquessing, Pennypack, Wissahickon, Cobbs, Darby, Schuylkill, and Delaware) to further enhance the public's understanding and appreciation of watershed issues. Tour guides describe the watershed concept, point out natural and manmade stormwater features and infrastructure, anthropogenic impacts on receiving water quality, benthic and ichthyfaunal assessments, and watershed protection practices. Virtual website tours have been developed for the Tacony-Frankford watershed and the Mill Creek Watershed as prototypes for web-based tours.

3.0 Annual CSO Statistics

PENNYPACK CREEK 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency		CSO Volume (MG)	CSO Capture (%)	CSO Duration (hrs)
			Range per subsystem	Avg per subsystem	Range per subsystem	Range per subsystem	Range per subsystem
Pennypack	5	5	15 - 48	26	94 - 99	65% - 65%	35 - 209

Section 6 – Wissahickon Creek Watershed

2.0 Watershed Management Planning

2.1 Preliminary Reconnaissance Survey

The preliminary reconnaissance survey for the Wissahickon Creek has been completed. Specifically the physical, chemical, and biologic assessment was completed in calendar year 2002 with a comprehensive report completed in 2002.

Section 7 – Poquessing Creek Watershed

2.0 Watershed Management Planning

2.1 Preliminary Reconnaissance Survey

Most elements of the preliminary reconnaissance survey for the Poquessing Creek have been completed. Specifically the physical, chemical, and biologic assessment was completed in calendar year 2002 with a comprehensive report completed in 2002.

2.2 Watershed Work Planning & Assessment

2.2.1 Watershed Partnership

In 2004, the PWD, along with its partners, the Fairmount Park Commission and the Friends of Poquessing Creek, were awarded a state river conservation plan grant for the Poquessing Creek Watershed. At the end of 2004, the RCP team interviewed a number of potential consultants to assist with the data collection and public outreach for this plan.

Section 8 – Delaware River Watershed

1.0 CSO Capital Improvement Projects

1.1 Somerset Interceptor Cleaning

Start: 11/1/1997 End: 1/21/1998 Status: Complete

1.2 Inflow Reduction

Start: End: Status: Complete

2.0 Watershed Management Planning

PWD continues to support the analysis and management of CSO discharges to the Delaware Estuary by participating in committee meetings, sampling, and contributing to the development of source track down and various monitoring programs. Specifically during 2003, PWD has actively supported the PCB TMDL for the Delaware.

Past reports from the DRBC regarding general water quality monitoring and specific monitoring for wet weather impacts suggest that fecal coliform standards are being met in the main stem estuary in the Philadelphia region most of the time. [1] DRBC indicated that further work on Bacteria Total Maximum Daily loads that might be required would occur in 2005. Past studies have shown dissolved oxygen concentrations in the Estuary are largely unaffected by CSO contributions. [2] As a result, monitoring and planning priorities continue to focus on the tributaries.

3.0 Annual CSO Statistics

DELAWARE RIVER 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency			CSO Volume (MG)			CSO Capture (%)			CSO Duration (hrs)		
			Range per subsystem		Avg per subsystem	Range per subsystem			Range per subsystem			Range per subsystem		
Upper Delaware Low Level	12	12	7	-	50	26	1067	-	1116	56%	-	56%	10	-	238
Somerset	8	9	22	-	54	39	3960	-	4177	44%	-	46%	55	-	300
Lower Delaware Low Level	27	27	7	-	54	34	3122	-	3249	56%	-	57%	10	-	319
Oregon	5	6	1	-	50	36	1377	-	1423	36%	-	37%	1	-	223
Lower Frankford Low Level	5	6	18	-	50	34	1251	-	1318	42%	-	43%	46	-	246

[1] Santoro, E., Draft Delaware Estuary Monitoring Report, November 1999.
[2] Hydroqual, Inc., Task 3.0 Evaluation of Wet Weather Impacts, 1999

Section 9 – Schuylkill River

1.0 CSO Capital Improvement Projects

1.1 RTC – Main Relief Sewer

Start: 8/1/1999 End: 6/15/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-13 – 2-14.

Description: The Main Relief Sewer provides flood relief to combined sewer areas in all three of PWD's drainage districts (Northeast, Southeast and Southwest). The Main Relief Sewer discharges to the Schuylkill River at Fairmount Park, a highly visible recreational area. Currently CSO is released into the river at the Main Relief Sewer outfalls during periods of moderate or greater rainfall. There exists within the single large (13.5' by 13.5' box) sewer above these outfalls a potential storage volume of approximately 4.0 million gallons (MG), and during all but the largest rainfalls most or all of this volume is available to store the overflow that otherwise discharges to the river. However, in order to use this 4.0 MG of storage, an inflatable dam is required in the box sewer just above the Main Relief Sewer outfalls to the Schuylkill River. This dam will reduce CSO discharges to the Schuylkill River by utilizing the relief sewer's in-system storage. This control technology provides an additional margin of protection against dry weather overflows while still maintaining flood protection for upstream communities. The inflatable dam maintains the stored flow in the relief sewer and a new connecting sewer drains the stored flow to an existing, nearby interceptor. The projected cost for this project is $650,000.

Environmental Benefits: This project will reduce the discharge of combined sewer overflow (CSO) into the Schuylkill River. An average annual reduction in CSO volume of 50 MG/year is expected at the Main Relief Sewer outfalls through use of the available in-system storage volume. This represents a reduction of approximately 70% in the average annual volume of CSO and a significant reduction in the associated pollutants (bacteria and organic matter from untreated wastes, litter and other solid materials in both wastewater and stormwater runoff, etc.) discharged into the Schuylkill River at this location, within Fairmount Park, at the historic Fairmount Water Works. Since this project modifies an existing structure (the Main Relief Sewer) rather than constructing a new one, it provides control very cost-effectively (unit cost for this storage is $0.10/gal versus roughly $6/gal for siting, designing, and constructing a new storage structure).

Status: In November of 2003, the project was advertised and bid. The bid was awarded in mid-December to Ross Arrco for an amount of $1,029,919. All submittals were approved and construction began in June, 2004. A tide gate was installed to hold back the river and the Contractor has begun installing the air piping inside the sewer. The concrete pad for the inflatable dam will be installed shortly and the rubber for the inflatable dam is now on site.

1.2 Elimination / Consolidation of Outfalls - Main & Shurs

Start: 9/4/1998 End: 12/24/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-15.

Description: The relief overflow at R_20 (Main Street and Shurs Lane) was constructed due to chronic flooding during wet weather. High flow in the Upper Schuylkill East Side (USES) Interceptor, caused by infiltration and inflow from separate sanitary areas, reduces the available capacity at R_20. Currently, overflows occur during periods of relative high rainfall. Preliminary estimates indicate that a 2.0 MG of storage would be required under current conditions to eliminate R_20. However, given the sensitivity of the

project design to inflow and infiltration (I/I), further evaluation of I/I (see *Targeted Infiltration and Inflow Studies*) and available sewer capacity is required in order to refine the indicated facility size. The estimated cost (prior to design and land acquisition) for this project is $12,000,000.

Environmental Benefits: An average annual reduction in CSO volume of 10 MG is achieved by eliminating the R_20 overflow.

Status: During 2004, the Engineering firm of Hazen & Sawyer continued their work to further evaluate the storage details and to prepare the bid documents for this project. The extensive engineering modeling continued and the tank size and location was finalized. Ongoing meetings are taking place with the business and neighborhood groups to address concerns raised over parking and traffic congestion in the area sited for the tank. No date for final design and specs can be estimated until the community concerns are adequately addressed.

1.3 Elimination / Consolidation of Outfalls - 32nd & Thompson

Start: 4/1/1998 End: 9/15/2003 Status: Complete

Reference Long Term CSO Control Plan p. 2-15.

Description: Structure R_19 (32nd and Thompson) is a storm relief chamber located on a trunk sewer chamber that flows to structure R_12 (Pennsylvania Ave. & Fairmount Ave). Due to flat conduit slopes and resulting low flow velocities, the trunk has experienced sediment and grit accumulation across 75% to 90% of its cross-section between R_19 and R_12. Flow Control Unit has operated a temporary monitor in the overflow conduit at R_19 for approximately one year. In this time, there have been six recorded wet-weather overflows. Inspections indicated this sewer is difficult to clean and the historical records indicated there might be structural deficiencies. Therefore this sewer will be reconstructed at a steeper grade.

Once the sewer is reconstructed, it will be monitored. Model runs currently indicate that a reconstructed sewer will have sufficient capacity to eliminate all overflows from this site. Grit accumulation will be monitored at this location and cleaning will be scheduled as needed. Subsequently R_19 will be bulkhead and removed from service. The estimated cost for this project is $1,500,000.

Environmental benefits: This project will eliminate one of the City's CSO overflows, resulting in 0.5 MG reduction of overflow volume on an average annual basis.

Status: Construction at this site commenced in the summer of 2003 and was completed in October of 2003.

1.4 Elimination / Consolidation of Outfalls - Stokely & Roberts (R_ 22)

1.4.1 Stokely & Roberts (R_ 22) - Dobson's Run Phase I

Start: 5/1/1996 End: 10/4/1998 Status: Complete

Reference Long Term CSO Control Plan p. 2-14 – 2-15.

Description: Temporary dams were installed in the Dobson's run storm sewer. Flow was diverted to the Wissahickon High Level interceptor at Stokely St. & Roberts Ave. through hydraulic control point R_22, and to the Upper Schuylkill East Side interceptor at South Ferry Road and Kelly Drive through CSO S_01T. The LTCP includes a $6,500,000 program of sewer construction in the upper reaches that will allow R_22 to be

removed from service. Two additional phases of the project will eliminate branch-sewer contributions of sanitary sewage from S_01T at an estimated cost of $18,700,000.

Environmental Benefits: This project will eliminate two of the City's intercepting chambers and will completely eliminate CSO overflows, resulting in a 173-MG reduction of overflow volume on an average annual basis.

Status: This project entails the reconstruction of the storm and sanitary sewer from Wissahickon Ave. to Roberts Ave. and elimination of the overflow chamber located at Stokely & Roberts (R_22). The contract was awarded to A.P. Construction and construction commenced on 7/18/1996. The construction, including the elimination of the R_22 chamber, was completed on 10/4/1998 at a total cost of $7,040,000. (The estimated construction cost was $ 5.8 million).

1.4.2 Kelly Drive (S_01T) - Dobson's Run Phase II
Start: 6/1/1997 End: 1/8/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-14 – 2-15.

Phase II of the Dobson's Run Reconstruction consists of the sewer reach from Henry Ave. to Kelly Drive and eliminates branch sewer contributions of sanitary sewage from reaching temporary CSO S_01T. In order to take advantage of economies of scale, design work for Phase II and III of Dobson's Run has been combined into one project because both phases involve tunneling.

Bid documents were completed and forwarded to the PWD's Project Control Unit in November of 2004. The City has started the condemnation process to secure the last remaining ROW (right-of-way) required for commencement of construction. It is anticipated that bidding will take place sometime in the spring of 2004. The estimated cost of this project is approximately 25 million dollars.

1.4.3 Kelly Drive (S_01T) - Dobson's Run Phase III
Start: 7/1/2001 End: 1/8/2004 Status: In-Progress

Reference Long Term CSO Control Plan p. 2-14 – 2-15.

Phase III will eliminate all CSO discharge from occurring at S_01T and has been combined with Phase II for contract development and bid purposes. See Above.

2.0 Watershed Management Planning

2.1 Preliminary Reconnaissance Survey

A comprehensive, watershed-based, Source Water Assessment was complete by PWD in conjunction with PA DEP and other watershed stakeholders for the Schuylkill River Basin above Fairmount Dam. The information generated satisfies the elements of the Step 1 - Preliminary Reconnaissance Survey outline. Even though Step 2 Watershed Planning and Assessment is not specifically called for in the CSO long term control plan, the integrated programs philosophy allowed for progress to be made towards a comprehensive watershed plan through the Source Water Assessment program efforts. The following elements of the Step 2 process were included in the Source Water Assessment for the Schuylkill River:

- Monitoring, sampling and bioassessment
- QA/QC and data evaluation
- Watershed modeling
- Problem definition and water quality goal setting
- Technology evaluation
- Public Involvement

The Source Water Assessment Program reports, information, and updates can be accessed at http://www.schuylkillswa.org/

2.2 Watershed Work Planning & Assessment

Protocol Development Support - Biologic Assessments in Tidal Waters

During spring and summer months of calendar year 2003, PWD scientists continued biological assessments along tidal and non-tidal portions of the Schuylkill River. Studies were focused on assessing the biotic integrity of migratory and resident fish species and to provide qualitative information on the efficiency of the existing fish passage structure located at Fairmount Dam. Using a boat electrofisher, biologists collected fish species during 20-minute interval passes (4 passes per assessment). Lengths, weights, presence of DELTA (i.e., deformities, lesions, tumors and anomalies), and catch-per-unit-effort (CPUE) were recorded. A total of 20 days were recorded over the course of the two seasons. Results from the continued bioassessment will serve as a baseline for future monitoring projects along the tidal and non-tidal portions of the Schuylkill and other waterways.

2.3 Public Involvement and Education

The following Public Outreach Activities were conducted in calendar 2003 in the Schuylkill River Watershed:

Manayunk Canal Clean Up:
The Friends of the Manayunk Canal, local citizens and the Water Department teamed up in the early evening of July 10, 2002 to assist with the removal of debris that had collected in the Lock Street Dam since Hurricane Floyd. Volunteers removed logs, construction lumber, and other debris, transforming a public eyesore into the charming vista it was meant to be. The project was a component of the ongoing partnership among the Friends Group, the Manayunk Development Corporation (MDC), and local schools to teach students and citizens the -importance of non-point source pollution control. To keep the locks clean, PWD installed a boom in November 2002 and trained staff from MDC to remove the floating materials with nets. MDC is maintaining records on amount and nature of trash removed to assist PWD with a canal trash study that has continued throughout 2003. Since that time, the Water Department has continued to work with MDC to keep the locks clean and the boom clear. In 2003 and continuing into 2004, PWD is working with MDC and Fairmount Park to improve the water quality of the canal between Cotton and Lock Streets, and plans to install temporary aerators while a more permanent aeration design is completed. PWD has also begun public outreach with selected stakeholders regarding its planned storage basin under the Venice Island parking lot.

Manayunk Dog Waste Collection Program:
The Stormwater CAC continues its dog waste collection program. The Water Department, Fairmount Park Commission, Friends of the Manayunk Canal, Manayunk Development Corporation, and the Partnership for the Delaware Estuary partner on the public outreach campaign to address this aspect of non-point source pollution. Signs and dog waste pick-up stations and bags are installed next to wastebaskets for disposals. In addition tip cards asking, "What's your doggy doo doing?" are distributed.

Schuylkill Center for Environmental Education (SCEE):
The PWD's long-term relationship with SCEE involves a state Growing Greener Grant. SCEE has developed, with the support of PWD and the nationally acclaimed Earthforce, a children's environmental program, a water curriculum for the children of the Shawmont School in Roxborough. The Growing Greener grant provides for the expansion of water messages, specifically around stormwater runoff, to the wider community surrounding the school. The PWD's Public Education Unit, who will be supporting the grant with publications, tours, and community presentations, will also have the opportunity to assess the effectiveness of our outreach and messages with a "control" group of approximately 30,000 citizens. In addition, SCEE is also a participating member of PWD's Schuylkill River Source Water Protection Implementation Advisory Committee, specifically assisting with public education and outreach regarding watersheds and land-based best management practices for stormwater. They are also teaming up with the Senior Environmental Corps to create a Junior Corps to share in water quality monitoring and mentoring. Lastly, the SCEE has committed to an installation of a green roof on a portion on their building. PWD's Office of Watersheds will partner with SCEE to measure the performance of this roof as a stormwater management tool.

Mill Creek Community:
PWD's Office of Watersheds and Public Education Unit has continued its relationship with the Sulzberger Middle School and the Mill Creek Coalition, through a Growing Greener Grant, to plan and discuss the redevelopment of vacant land for stormwater BMP implementation. Curriculum, activities and materials developed for this important PWD outreach are replicable by the department for communities and watersheds throughout the city. In addition, PWD has continued to work with students and teachers at the school to refine the educational function of the outdoor classroom constructed in the summer of 2001. A rain gauge was installed in the vegetative drainage swale to allow the students to measure the porosity of the swale in addition to measuring rainfall via a rain barrel on the site. Also, a teacher's training was held at the outdoor classroom in May 2003 for new teachers on how to maintain the site and use it as a curriculum component. The school's summer program continued to maintain and use the site. In August and September 2003, two additional sites were retrofitted to include stormwater management – a large vacant lot at 4804 Fairmount Avenue (regarding, tree groves and infiltration) and a small community park at 5059 Reno Street (renewed park with a biofilter detention basin).

Sulzberger Middle School Teacher Training:
In January 2002, the Philadelphia Water Department Office of Watersheds contracted with Earth Force, a national Environmental Education organization to provide a teacher training workshop for ten teachers at Sulzberger Middle School. Earth Force helped teachers plan how they could integrate watershed education into their existing courses.

Teachers were also given a written script describing the Best Stormwater Management Practices at the Outdoor Classroom and a Site Maintenance manual for teachers to use to maintain the plantings at the site. The students have given tours of the classroom to the community and to staff from PWD's wastewater treatment facilities. A tour for the DEPs Watershed Specialists was conducted on September 19, 2002.

Watershed Tours:

The City continues to conduct watershed tours in Philadelphia's nine (9) watersheds (Tacony, Frankford, Poquessing, Pennypack, Wissahickon, Cobbs, Darby, Schuylkill, and Delaware) to further enhance the public's understanding and appreciation of watershed issues. Tour guides describe the watershed concept, point out natural and manmade stormwater features and infrastructure, anthropogenic impacts on receiving water quality, benthic and ichthyfaunal assessments, and watershed protection practices. Self-guided tour booklets for each watershed are under development (actually ready to publication but lacking a printing budget). Virtual website tours have been developed for the Tacony-Frankford watershed and the Mill Creek Watershed as prototypes for web-based tours.

3.0 Annual CSO Statistics

SCHUYLKILL RIVER 2004 CSO Statistics

Interceptor	# of point sources	# of structures	Frequency				CSO Volume (MG)			CSO Capture (%)			CSO Duration (hrs)		
			Range per subsystem			Avg per subsystem	Range per subsystem			Range per subsystem			Range per subsystem		
Central Schuylkill East Side	20	26	0	-	63	27	1394	-	1439	55%	-	57%	0	-	406
Central Schuylkill West Side	10	10	0	-	72	37	762	-	761	46%	-	46%	0	-	405
Lower Schuylkill East Side	7	9	7	-	53	38	852	-	884	50%	-	51%	11	-	299
Lower Schuylkill West Side	4	4	8	-	61	43	1283	-	1332	19%	-	20%	15	-	301
Southwest Main Gravity	2	2	7	-	50	29	2139	-	2261	60%	-	62%	8	-	259

Section 10 - Watershed Technology Center

During 2004, PWD continued to explore funding opportunities and institutional arrangements pursuant to advancing the concept of a sustainable watershed technology center as described in the CSO LTCP. Funding has been secured to implement the Urban Watershed Institute at the Fairmount Water Works Interpretive Center. During the watershed planning studies for each of the above watersheds, PWD has and will continue to supply technical resources towards completing watershed management plans and creating virtual versions of these and other resources on the World Wide Web. Web pages are up and running for the Darby-Cobbs Creek, Tacony-Frankford Creek, Pennypack, and Schuylkill River watersheds with Poquessing and Wissahickon expected to be added this year. Technical reports, event calendars, discussion forums, water quality data, photo libraries, GIS maps, and other technical resources are available for these watersheds via the following link http://www.phila.gov/water/owp.html

Appendix A – Flow Control CSO Maintenance Summaries

PWD FLOW CONTROL UNIT

COMBINED SEWER OVERFLOW MAINTENANCE

CALENDAR YEAR 2004

PART 1 | **PHILADELPHIA WATER DEPARTMENT** | **Section 1**

DRY WEATHER STATUS | **WASTE AND STORM WATER COLLECTION**

REPORT | **FLOW CONTROL UNIT** | **June 2004**

COLLECTOR	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Totals
UPPER PENNYPACK - 5 UNITS													
INSPECTIONS	29	17	20	22	10	25	10	10	25	16	15	15	214
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	1	0	1	0	0	0	0	0	2	3	6	17
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	36	46	42	66	19	56	24	24	53	37	36	30	469
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	2	6	2	11	1	4	2	2	5	1	3	3	42
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	29	30	28	23	22	35	18	16	28	26	20	12	287
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	3	5	3	0	3	2	1	5	4	1	4	1	32
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	35	41	30	57	25	45	24	21	40	30	35	23	406
DISCHARGES	0	0	0	0	0	1	0	0	0	0	1	0	2
BLOCKS CLEARED	1	8	1	3	4	2	7	5	6	4	4	6	51
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	67	70	71	59	37	86	52	40	82	51	52	82	749
DISCHARGES	0	0	1	0	0	0	0	0	0	1	0	0	2
BLOCKS CLEARED	4	2	5	2	3	7	1	4	5	7	6	9	55
SOMERSET - 9 UNITS													
INSPECTIONS	34	28	25	26	20	31	28	21	40	27	23	32	335
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	6	5	8	2	3	4	7	4	8	0	3	3	53
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	169	112	189	193	150	154	143	122	138	119	136	112	1737
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	10	9	9	4	7	16	5	4	8	12	1	5	90
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	89	84	116	90	94	133	124	106	121	118	120	111	1306
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	14	2	7	8	6	1	1	5	5	1	6	60
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	30	37	36	48	37	43	32	43	39	37	31	32	445
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	2	8	8	1	4	2	2	2	2	6	2	39
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	40	42	40	49	33	39	37	42	46	42	47	64	521
DISCHARGES	0	0	0	0	0	0	0	0	1	0	0	0	1
BLOCKS CLEARED	1	2	2	2	2	2	2	0	3	0	0	3	19
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	60	44	52	75	55	65	45	64	65	65	68	55	713
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	6	10	10	0	2	8	5	12	8	8	5	5	79
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	26	29	31	33	30	30	22	24	25	27	33	30	340
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	6	6	2	1	1	1	1	2	4	8	2	38
COBBS CREEK HIGH LEVEL - 23 UNITS													
INSPECTIONS	167	93	149	113	101	132	100	92	112	115	91	93	1358
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	2	13	4	9	5	1	5	8	19	3	0	0	69
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	64	67	67	54	56	68	45	56	59	54	48	53	691
DISCHARGES	0	0	0	0	1	0	0	0	0	0	0	0	1
BLOCKS CLEARED	4	2	4	2	1	1	0	8	8	1	1	0	32
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	57	65	60	69	49	69	45	57	89	54	83	64	761
DISCHARGES	0	0	0	1	0	0	0	0	0	0	1	0	2
BLOCKS CLEARED	0	0	0	1	0	0	0	0	1	1	1	0	4
TOTALS / MONTH for 201 REGULATOR UNITS													Totals
TOTAL INSPECTIONS	932	805	956	977	738	1011	749	738	962	818	838	808	10332
TOTAL DISCHARGES	0	0	1	1	1	1	0	0	1	1	2	0	8
TOTAL BLOCKS CLEARED	51	85	64	54	41	58	39	56	84	51	46	51	680
AVER. # of INSP. / BC	18	9	15	18	18	17	19	13	11	16	18	16	16
DISC / 100 INSPECTIONS	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.1

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
UPPER PENNYPACK 5 NEWPC UNITS															
P01	6	4	4	3	2	5	2	2	5	3	3	3	42	3.5	8.7
P02	6	4	4	4	2	5	2	2	5	3	3	3	43	3.6	8.5
P03	7	3	4	5	2	5	2	2	5	3	3	3	44	3.7	8.3
P04	5	3	4	4	2	5	2	2	5	4	3	3	42	3.5	8.7
P05	5	3	4	6	2	5	2	2	5	3	3	3	43	3.6	8.5
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	5	6	4	7	3	5	2	2	5	3	3	3	48	4.0	7.6
D03	4	4	5	6	2	5	2	2	5	3	3	3	44	3.7	8.3
D04	4	4	4	6	2	6	2	2	4	2	3	3	42	3.5	8.7
D05	5	4	4	5	2	5	2	2	5	3	3	3	43	3.6	8.5
D06	4	4	3	5	2	4	2	2	5	3	3	3	40	3.3	9.1
D07	2	4	4	5	1	4	2	2	5	3	3	3	38	3.2	9.6
D08	2	4	3	6	2	6	2	2	5	3	3	2	40	3.3	9.1
D09	2	4	3	5	1	5	2	2	4	3	3	2	36	3.0	10.1
D11	2	3	3	4	1	4	2	2	4	3	3	2	33	2.8	11.1
D12	2	3	3	5	1	4	2	2	3	4	3	2	34	2.8	10.7
D13	2	3	3	5	1	4	2	2	4	3	3	2	34	2.8	10.7
D15	2	3	3	7	1	4	2	2	4	4	3	2	37	3.1	9.9
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	6	8	5	4	4	5	3	4	5	5	5	2	56	4.7	6.5
F14	5	4	4	4	4	6	3	3	5	5	3	2	48	4.0	7.6
F21	4	3	4	3	3	5	3	2	5	4	3	2	41	3.4	8.9
F23	5	6	5	4	4	7	3	2	4	4	3	2	49	4.1	7.4
F24	5	5	5	5	4	7	3	2	4	4	3	2	49	4.1	7.4
F25	4	4	5	3	3	5	3	3	5	4	3	2	44	3.7	8.3
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	5	4	3	6	3	5	4	2	4	4	4	2	46	3.8	7.9
F04	5	4	3	6	3	5	4	2	5	4	3	2	46	3.8	7.9
F05	4	4	3	7	3	7	2	2	6	4	4	2	48	4.0	7.6
F06	3	5	3	6	3	4	2	1	4	4	3	2	40	3.3	9.1
F07	3	4	3	6	3	4	2	2	4	3	3	2	39	3.3	9.4
F08	3	4	3	6	2	4	2	4	4	3	3	2	40	3.3	9.1
F09	3	4	3	5	2	8	2	2	4	2	3	2	40	3.3	9.1
F10	3	3	3	5	2	3	2	2	3	2	3	5	36	3.0	10.1
F11	3	1	3	5	2	2	2	2	3	2	6	2	33	2.8	11.1
F12	3	8	3	5	2	3	2	2	3	2	3	2	38	3.2	9.6
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	3	8	4	5	4	5	5	5	8	3	3	4	57	4.8	6.4
T03	6	6	5	4	4	6	4	3	6	3	4	5	56	4.7	6.5
T04	5	5	8	6	4	6	4	4	6	3	5	5	61	5.1	6.0
T05	5	4	4	4	3	6	3	3	5	3	3	5	48	4.0	7.6
T06	5	4	4	4	3	6	3	3	5	3	3	5	48	4.0	7.6
T07	5	4	4	4	3	4	3	2	5	3	2	5	44	3.7	8.3
T08	6	6	3	4	4	8	5	5	8	5	4	7	65	5.4	5.6
T09	3	4	4	4	2	7	3	2	5	3	4	7	48	4.0	7.6
T10	6	5	9	4	4	7	3	2	5	4	4	6	59	4.9	6.2
T11	5	4	6	4	1	8	4	2	5	5	5	7	56	4.7	6.5
T12	4	4	5	4	1	6	4	2	6	4	4	7	51	4.3	7.2
T13	5	7	8	4	2	6	3	2	6	4	4	6	57	4.8	6.4
T14	5	5	3	4	1	5	4	2	7	4	4	7	51	4.3	7.2
T15	4	4	4	4	1	6	4	3	5	4	3	6	48	4.0	7.6

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
SOMERSET LOW LEVEL 9 NEWPC UNITS															
D17	4	3	3	3	3	3	3	3	4	4	2	2	37	3.1	9.9
D18	4	3	3	3	2	4	3	2	4	3	2	3	36	3.0	10.1
D19	4	3	3	3	3	5	3	2	4	3	2	3	38	3.2	9.6
D20	5	3	2	3	2	4	3	2	4	3	2	3	36	3.0	10.1
D21	5	3	3	3	2	3	3	2	4	3	2	3	36	3.0	10.1
D22	2	3	2	4	2	3	3	2	5	2	3	3	34	2.8	10.7
D23	3	3	2	2	2	3	3	2	5	3	3	4	35	2.9	10.4
D24	3	3	2	2	2	3	3	2	5	3	3	3	34	2.8	10.7
D25	4	4	5	3	2	3	4	4	5	3	4	8	49	4.1	7.4
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	5	3	7	8	5	6	5	5	6	4	5	5	64	5.3	5.7
D38	5	3	7	8	5	6	5	4	5	4	5	5	62	5.2	5.9
D39	5	3	6	9	5	6	4	3	5	4	5	4	59	4.9	6.2
D40	3	3	5	6	4	5	3	3	5	4	4	4	49	4.1	7.4
D41	3	3	5	6	5	5	4	3	5	4	4	4	51	4.3	7.2
D42	3	3	5	6	3	5	4	3	4	4	4	3	47	3.9	7.8
D43	3	3	5	6	3	5	4	3	4	4	4	3	47	3.9	7.8
D44	4	4	7	9	2	5	2	3	4	4	4	3	51	4.3	7.2
D45	7	4	7	9	5	5	6	4	5	4	5	5	66	5.5	5.5
D46	6	4	8	7	6	5	6	4	5	4	5	3	63	5.3	5.8
D47	5	4	8	9	4	5	4	4	4	4	5	3	59	4.9	6.2
D48	7	5	8	9	7	6	6	5	4	5	4	4	70	5.8	5.2
D49	5	4	6	5	4	5	6	4	4	4	4	3	54	4.5	6.8
D50	8	5	6	6	6	5	6	5	4	6	4	4	65	5.4	5.6
D51	6	4	7	5	5	4	6	4	5	4	4	4	58	4.8	6.3
D52	6	4	7	5	4	4	5	4	4	4	4	4	55	4.6	6.6
D53	5	4	5	4	3	4	4	3	4	4	4	4	48	4.0	7.6
D54	5	4	5	4	3	4	4	4	4	3	4	4	48	4.0	7.6
D58	9	5	7	7	6	4	4	3	4	4	6	4	63	5.3	5.8
D61	7	4	6	6	6	4	4	4	4	3	4	3	55	4.6	6.6
D62	6	4	6	6	7	4	4	4	4	3	4	3	55	4.6	6.6
D63	9	4	6	7	6	4	4	4	4	3	4	3	58	4.8	6.3
D64	5	2	6	6	5	4	4	4	4	3	4	3	50	4.2	7.3
D65	6	3	6	4	5	4	4	4	5	3	4	3	51	4.3	7.2
D66	6	3	6	4	4	4	4	4	4	4	4	3	50	4.2	7.3
D67	4	3	5	4	3	5	5	4	4	4	4	3	48	4.0	7.6
D68	6	4	5	6	5	5	5	3	4	3	4	3	53	4.4	6.9
D69	3	3	4	5	5	4	4	5	4	3	4	3	47	3.9	7.8
D70	4	3	4	5	4	5	4	4	4	3	4	3	47	3.9	7.8
D71	4	2	5	4	5	5	4	4	4	3	4	3	47	3.9	7.8
D72	4	2	4	4	5	6	4	3	4	3	4	3	46	3.8	7.9
D73	4	2	4	3	4	5	4	3	4	3	4	3	43	3.6	8.5
D75	1	1	1	1	1	1	1	1	0	0	0	0	8	0.7	45.6
TOTAL	399	344	405	446	283	432	299	254	406	306	317	306	4197		
I /D/C	6.6	5.7	6.7	7.3	4.7	7.1	4.9	4.2	6.7	5.0	5.2	5.0			
UP	29	17	20	22	10	25	10	10	25	16	15	15	214	3.6	8.5
UDLL	36	46	42	66	19	56	24	24	53	37	36	30	469	3.3	9.5
LFC	29	30	28	23	22	35	18	16	28	26	20	12	287	4.0	7.7
LFLL	35	41	30	57	25	45	24	21	40	30	35	23	406	3.4	9.1
FHL	67	70	71	59	37	86	52	40	82	51	52	82	749	4.5	6.9
SLL	34	28	25	26	20	31	28	21	40	27	23	32	335	3.1	9.9
LDLL	169	112	189	193	150	154	143	122	138	119	136	112	1737	4.4	8.0

4 TOTAL DISCHARGES FOR NE & SE DISTRICTS DTR = DAYS TO RETURN TO SITE

0.3 AVERAGE DISCHARGES PER MONTH I/D/C = INSPECTIONS PER DAY PER CREW

8.3 AVER. DAYS BEFORE RETURNING TO SITE I/D = INSPECTIONS PER DISCHARGE

5.7 AVER. INSPECTIONS PER DAY PER CREW

June 2004 | CSO REGULATING CHAMBER DISCHARGE | NEWPC & SEWPC PLANT REGULATORS | PAGE 4

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01	0	0	0	0	0	0	0	0	0	0	0	0	0
P02	0	0	0	0	0	0	0	0	0	0	0	0	0
P03	0	0	0	0	0	0	0	0	0	0	0	0	0
P04	0	0	0	0	0	0	0	0	0	0	0	0	0
P05	0	0	0	0	0	0	0	0	0	0	0	0	0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	0	0	0	0	0	0	0	0	0	0	0	0	0
D03	0	0	0	0	0	0	0	0	0	0	0	0	0
D04	0	0	0	0	0	0	0	0	0	0	0	0	0
D05	0	0	0	0	0	0	0	0	0	0	0	0	0
D06	0	0	0	0	0	0	0	0	0	0	0	0	0
D07	0	0	0	0	0	0	0	0	0	0	0	0	0
D08	0	0	0	0	0	0	0	0	0	0	0	0	0
D09	0	0	0	0	0	0	0	0	0	0	0	0	0
D11	0	0	0	0	0	0	0	0	0	0	0	0	0
D12	0	0	0	0	0	0	0	0	0	0	0	0	0
D13	0	0	0	0	0	0	0	0	0	0	0	0	0
D15	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13	0	0	0	0	0	0	0	0	0	0	0	0	0
F14	0	0	0	0	0	0	0	0	0	0	0	0	0
F21	0	0	0	0	0	0	0	0	0	0	0	0	0
F23	0	0	0	0	0	0	0	0	0	0	0	0	0
F24	0	0	0	0	0	0	0	0	0	0	0	0	0
F25	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03	0	0	0	0	0	0	0	0	0	0	0	0	0
F04	0	0	0	0	0	0	0	0	0	0	0	0	0
F05	0	0	0	0	0	0	0	0	0	0	0	0	0
F06	0	0	0	0	0	0	0	0	0	0	0	0	0
F07	0	0	0	0	0	0	0	0	0	0	0	0	0
F08	0	0	0	0	0	0	0	0	0	0	0	0	0
F09	0	0	0	0	0	1	0	0	0	0	0	0	1
F10	0	0	0	0	0	0	0	0	0	0	0	0	0
F11	0	0	0	0	0	0	0	0	0	0	1	0	1
F12	0	0	0	0	0	0	0	0	0	0	0	0	0
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	0	0	0	0	0	0	0	0	0.00	0
T03	0	0	0	0	0	0	0	0	0	0	0	0	0
T04	0	0	0	0	0	0	0	0	0	0	0	0	0
T05	0	0	0	0	0	0	0	0	0	0	0	0	0
T06	0	0	0	0	0	0	0	0	0	0	0	0	0
T07	0	0	0	0	0	0	0	0	0	0	0	0	0
T08	0	0	0	0	0	0	0	0	0	0	0	0	0
T09	0	0	0	0	0	0	0	0	0	0	0	0	0
T10	0	0	0	0	0	0	0	0	0	0	0	0	0
T11	0	0	0	0	0	0	0	0	0	1	0	0	1
T12	0	0	0	0	0	0	0	0	0	0	0	0	0
T13	0	0	1	0	0	0	0	0	0	0	0	0	1
T14	0	0	0	0	0	0	0	0	0	0	0	0	0
T15	0	0	0	0	0	0	0	0	0	0	0	0	0

	NO OF DISCHARGES IN DISTRICT												TOTAL
UP	0	0	0	0	0	0	0	0	0	0	0	0	0
UDLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LFC	0	0	0	0	0	0	0	0	0	0	0	0	0
LFLL	0	0	0	0	0	1	0	0	0	0	1	0	2
FHL	0	0	1	0	0	0	0	0	0	1	0	0	2
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17	0	0	0	0	0	0	0	0	0	0	0	0	0
D18	0	0	0	0	0	0	0	0	0	0	0	0	0
D19	0	0	0	0	0	0	0	0	0	0	0	0	0
D20	0	0	0	0	0	0	0	0	0	0	0	0	0
D21	0	0	0	0	0	0	0	0	0	0	0	0	0
D22	0	0	0	0	0	0	0	0	0	0	0	0	0
D23	0	0	0	0	0	0	0	0	0	0	0	0	0
D24	0	0	0	0	0	0	0	0	0	0	0	0	0
D25	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	0	0	0	0	0	0	0	0	0	0	0	0	0
D38	0	0	0	0	0	0	0	0	0	0	0	0	0
D39	0	0	0	0	0	0	0	0	0	0	0	0	0
D40	0	0	0	0	0	0	0	0	0	0	0	0	0
D41	0	0	0	0	0	0	0	0	0	0	0	0	0
D42	0	0	0	0	0	0	0	0	0	0	0	0	0
D43	0	0	0	0	0	0	0	0	0	0	0	0	0
D44	0	0	0	0	0	0	0	0	0	0	0	0	0
D45	0	0	0	0	0	0	0	0	0	0	0	0	0
D46	0	0	0	0	0	0	0	0	0	0	0	0	0
D47	0	0	0	0	0	0	0	0	0	0	0	0	0
D48	0	0	0	0	0	0	0	0	0	0	0	0	0
D49	0	0	0	0	0	0	0	0	0	0	0	0	0
D50	0	0	0	0	0	0	0	0	0	0	0	0	0
D51	0	0	0	0	0	0	0	0	0	0	0	0	0
D52	0	0	0	0	0	0	0	0	0	0	0	0	0
D53	0	0	0	0	0	0	0	0	0	0	0	0	0
D54	0	0	0	0	0	0	0	0	0	0	0	0	0
D58	0	0	0	0	0	0	0	0	0	0	0	0	0
D61	0	0	0	0	0	0	0	0	0	0	0	0	0
D62	0	0	0	0	0	0	0	0	0	0	0	0	0
D63	0	0	0	0	0	0	0	0	0	0	0	0	0
D64	0	0	0	0	0	0	0	0	0	0	0	0	0
D65	0	0	0	0	0	0	0	0	0	0	0	0	0
D66	0	0	0	0	0	0	0	0	0	0	0	0	0
D67	0	0	0	0	0	0	0	0	0	0	0	0	0
D68	0	0	0	0	0	0	0	0	0	0	0	0	0
D69	0	0	0	0	0	0	0	0	0	0	0	0	0
D70	0	0	0	0	0	0	0	0	0	0	0	0	0
D71	0	0	0	0	0	0	0	0	0	0	0	0	0
D72	0	0	0	0	0	0	0	0	0	0	0	0	0
D73	0	0	0	0	0	0	0	0	0	0	0	0	0
D75	0		0	0	0	0	0	0	0	0	0	0	0

													TOTAL DISC
	0	0	1	0	0	1	0	0	0	1	1	0	4

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
UP	0	0	0	0	0	0	0	0	0	0	0	0	0
UDLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LFC	0	0	0	0	0	0	0	0	0	0	0	0	0
LFLL	0	0	0	0	0	1	0	0	0	0	1	0	2
FHL	0	0	1	0	0	0	0	0	0	1	0	0	2
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01	0	0	0	0	0	0	0	0	0	0	2	1	3
P02	0	0	0	0	0	0	0	0	0	0	1	1	2
P03	2	0	0	1	0	0	0	0	0	0	0	2	5
P04	2	1	0	0	0	0	0	0	0	2	0	2	7
P05	0	0	0	0	0	0	0	0	0	0	0	0	0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	1	1	0	1	1	1	0	0	1	0	0	0	6
D03	0	1	1	1	0	1	0	0	0	0	0	0	4
D04	1	0	1	2	0	2	0	1	1	0	1	2	11
D05	0	0	0	0	0	0	0	0	0	0	0	0	0
D06	0	1	0	2	0	0	0	1	1	0	0	0	5
D07	0	2	0	1	0	0	0	0	0	0	0	0	3
D08	0	1	0	2	0	0	0	0	1	1	1	0	6
D09	0	0	0	0	0	0	1	0	0	0	0	0	1
D11	0	0	0	0	0	0	0	0	0	0	0	0	0
D12	0	0	0	0	0	0	0	0	0	0	0	1	1
D13	0	0	0	2	0	0	0	0	1	0	1	0	4
D15	0	0	0	0	0	0	1	0	0	0	0	0	1
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13	1	2	0	0	0	0	0	0	0	0	2	0	5
F14	2	0	0	0	1	1	1	2	3	0	1	1	12
F21	0	0	0	0	0	0	0	0	0	0	0	0	0
F23	0	2	1	0	1	1	0	2	0	1	1	0	9
F24	0	0	1	0	1	0	0	1	1	0	0	0	4
F25	0	1	1	0	0	0	0	0	0	0	0	0	2
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03	0	1	0	1	0	0	0	1	0	0	1	0	4
F04	0	0	0	0	0	0	1	1	0	1	0	0	3
F05	1	0	0	0	2	1	1	1	3	2	1	2	14
F06	0	1	0	0	0	0	0	0	0	0	0	0	1
F07	0	0	0	0	0	0	2	1	1	0	0	1	5
F08	0	0	0	0	0	0	0	0	0	0	0	0	0
F09	0	1	0	0	1	1	1	1	2	0	1	0	8
F10	0	0	1	2	1	0	1	0	0	0	0	3	8
F11	0	0	0	0	0	0	0	0	0	0	1	0	1
F12	0	5	0	0	0	0	1	0	0	1	0	0	7
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	1	0	0	0	0	1	2	1	1	6
T03	0	1	0	0	1	0	0	0	0	0	0	0	2
T04	1	0	2	1	0	2	0	1	1	0	2	1	11
T05	0	0	0	0	0	0	0	0	0	1	0	1	2
T06	0	0	0	0	0	0	0	0	0	0	0	0	0
T07	0	0	0	0	0	0	1	0	1	0	1	0	3
T08	0	0	0	0	0	1	0	2	1	1	1	2	8
T09	0	0	0	0	0	0	0	0	0	1	0	0	1
T10	1	0	1	0	1	1	0	0	0	0	0	0	4
T11	1	0	1	0	0	2	0	0	0	2	0	2	8
T12	0	0	0	0	0	0	0	0	0	0	0	0	0
T13	0	1	1	0	1	0	0	1	1	0	0	0	5
T14	1	0	0	0	0	0	0	0	0	0	0	0	1
T15	0	0	0	0	0	1	0	0	0	0	1	2	4

28.33 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17	1	2	1	0	1	0	1	1	0	0	1	0	8
D18	0	1	1	0	0	1	1	0	2	0	0	0	6
D19	2	1	0	0	1	2	1	1	2	0	0	0	10
D20	2	1	1	1	0	1	1	1	3	0	1	1	13
D21	0	0	1	0	0	0	1	0	1	0	0	0	3
D22	0	0	0	1	0	0	0	0	0	0	0	0	1
D23	0	0	1	0	0	0	1	0	0	0	0	0	2
D24	0	0	1	0	0	0	0	0	0	0	0	0	1
D25	1	0	2	0	1	0	1	1	0	0	1	2	9
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	1	1	0	0	1	0	0	2	2	1	0	1	9
D38	1	1	0	1	1	0	0	0	0	2	0	1	7
D39	0	1	0	2	1	1	0	0	0	1	0	1	7
D40	0	0	0	0	0	1	0	0	2	0	0	0	3
D41	0	0	0	0	0	1	0	0	1	1	0	0	3
D42	0	0	0	0	0	0	0	0	0	0	0	0	0
D43	0	0	0	0	0	0	0	0	0	0	0	0	0
D44	1	2	1	0	0	0	0	0	1	1	0	1	7
D45	1	1	1	0	0	0	0	0	0	0	0	1	4
D46	1	0	1	0	0	0	0	0	0	0	0	0	2
D47	0	0	1	1	0	1	0	0	0	0	0	0	3
D48	0	1	1	0	0	1	0	0	0	1	0	0	4
D49	0	0	0	0	0	1	0	0	0	0	0	0	1
D50	1	0	0	0	1	2	1	0	0	1	0	0	6
D51	1	0	0	0	1	1	0	0	0	2	0	0	5
D52	0	0	0	0	0	0	0	0	0	1	0	0	1
D53	0	0	0	0	0	0	0	0	0	0	0	0	0
D54	0	0	0	0	0	0	0	0	0	0	0	0	0
D58	0	1	1	0	1	1	1	0	0	0	1	0	6
D61	1	0	1	0	1	1	1	0	0	0	0	0	5
D62	0	0	1	0	0	1	0	0	1	0	0	0	3
D63	2	1	0	0	0	0	0	0	0	0	0	0	3
D64	0	0	0	0	0	0	0	0	0	0	0	0	0
D65	0	0	1	0	0	0	0	0	0	0	0	0	1
D66	0	0	0	0	0	0	0	0	0	0	0	0	0
D67	0	0	0	0	0	1	1	0	0	0	0	0	2
D68	0	0	0	0	0	0	0	0	0	0	0	0	0
D69	0	0	0	0	0	1	0	2	0	0	0	0	3
D70	0	0	0	0	0	1	0	0	1	0	0	0	2
D71	0	0	0	0	0	0	0	0	0	0	0	0	0
D72	0	0	0	0	0	1	1	0	0	1	0	0	3
D73	0	0	0	0	0	0	0	0	0	0	0	0	0
D75	0		0	0	0	0	0	0	0	0	0	0	0
													TOTAL
	30	36	28	23	21	35	23	24	36	27	24	33	340

UP	4	1	0	1	0	0	0	0	0	2	3	6	17
UDLL	2	6	2	11	1	4	2	2	5	1	3	3	42
LFC	3	5	3	0	3	2	1	5	4	1	4	1	32
LFLL	1	8	1	3	4	2	7	5	6	4	4	6	51
FHL	4	2	5	2	3	7	1	4	5	7	6	9	55
SLL	6	5	8	2	3	4	7	4	8	0	3	3	53
LDLL	10	9	9	4	7	16	5	4	8	12	1	5	90

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS															
S05	6	5	10	8	6	9	9	6	7	7	7	6	86	7.2	4.2
S06	6	5	10	7	6	9	8	6	7	7	7	6	84	7.0	4.3
S07	6	5	10	7	7	9	8	6	8	7	7	6	86	7.2	4.2
S08	6	5	7	7	7	7	8	6	7	7	7	6	80	6.7	4.6
S09	6	5	8	4	7	8	8	6	7	6	7	6	78	6.5	4.7
S10	5	5	7	4	5	7	8	6	7	5	7	6	72	6.0	5.1
S12	6	6	7	5	6	7	8	6	7	6	4	7	75	6.3	4.9
S12A	6	6	7	5	6	7	8	6	7	6	4	7	75	6.3	4.9
S13	6	6	7	4	6	7	8	6	7	7	6	7	77	6.4	4.7
S15	5	5	7	5	6	7	8	6	7	6	7	7	76	6.3	4.8
S16	6	5	6	4	6	7	7	5	7	6	7	6	72	6.0	5.1
S17	5	5	4	4	4	7	6	5	7	6	7	6	66	5.5	5.5
S18	4	4	4	4	5	7	5	6	6	5	7	6	63	5.3	5.8
S19	4	4	5	6	3	7	5	7	6	8	8	7	70	5.8	5.2
S21	3	4	4	4	4	7	5	6	6	8	8	5	64	5.3	5.7
S23	4	3	4	4	4	8	5	7	6	7	6	5	63	5.3	5.8
S25	2	3	4	4	3	7	5	6	6	7	8	7	62	5.2	5.9
S26	3	3	5	4	3	6	5	4	6	7	6	5	57	4.8	6.4
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS															
S31	6	5	4	8	7	6	6	6	6	6	5	5	70	5.8	5.2
S35	6	5	3	8	6	5	6	6	6	5	3	5	64	5.3	5.7
S36	1	2	3	2	2	2	2	2	2	2	3	2	25	2.1	14.6
S36A	5	5	3	6	3	5	3	5	5	5	3	5	53	4.4	6.9
S37	1	2	4	2	2	3	2	2	2	2	1	2	25	2.1	14.6
S42	4	5	5	7	5	8	4	8	6	5	5	4	66	5.5	5.5
S42A	3	5	5	7	4	7	3	7	5	6	5	4	61	5.1	6.0
S44	1	2	5	2	2	2	2	2	2	3	1	2	26	2.2	14.0
S46	3	6	4	6	6	5	4	5	5	3	5	3	55	4.6	6.6
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS															
S01	4	4	6	5	5	6	4	6	6	5	5	7	63	5.3	5.8
S02	4	4	6	5	5	6	4	6	6	5	5	7	63	5.3	5.8
S03	4	4	6	4	5	6	5	6	5	5	5	7	62	5.2	5.9
S04	5	6	4	6	3	5	5	3	5	5	6	10	63	5.3	5.8
S11	5	4	3	5	3	4	1	2	4	3	5	6	45	3.8	8.1
S14	4	5	3	6	3	3	4	4	4	4	5	6	51	4.3	7.2
S20	5	5	4	6	3	3	4	5	8	5	4	7	59	4.9	6.2
S22	4	5	4	6	3	3	5	5	4	5	6	7	57	4.8	6.4
S24	5	5	4	6	3	3	5	5	4	5	6	7	58	4.8	6.3
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS															
S27	5	5	2	7	5	2	4	7	6	6	7	4	60	5.0	6.1
S28	5	5	2	6	5	5	3	5	6	6	7	5	60	5.0	6.1
S30	5	4	3	6	4	5	4	7	6	6	7	3	60	5.0	6.1
S34	5	3	3	6	4	4	4	7	6	4	7	5	58	4.8	6.3
S39	5	3	3	6	4	5	5	6	8	4	7	5	61	5.1	6.0
S40	5	3	3	7	2	5	1	4	3	4	3	4	44	3.7	8.3
S43	7	4	3	7	3	5	6	6	5	5	6	4	61	5.1	6.0
S47	6	3	3	6	3	5	5	6	5	5	6	4	57	4.8	6.4
S50	9	7	17	13	13	15	7	8	10	13	9	12	133	11.1	2.7
S51	8	7	13	11	12	14	6	8	10	12	9	9	119	9.9	3.1
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS															
S32	6	7	7	9	8	8	7	7	7	7	9	8	90	7.5	4.1
S33	6	7	8	8	8	8	6	6	7	7	9	8	88	7.3	4.1
S38	8	8	9	8	8	7	4	6	6	6	8	8	86	7.2	4.2
S45	6	7	7	8	6	7	5	5	5	7	7	6	76	6.3	4.8

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS															
C01	6	4	7	4	3	6	5	4	5	5	4	4	57	4.8	6.4
C02	6	4	7	4	3	6	5	4	5	5	4	4	57	4.8	6.4
C04	8	4	7	5	5	6	5	4	5	5	4	3	61	5.1	6.0
C04A	8	4	7	5	5	6	5	5	4	5	4	3	61	5.1	6.0
C05	11	4	6	8	5	6	5	4	5	5	4	4	67	5.6	5.4
C06	11	7	7	8	6	6	4	4	5	6	4	4	72	6.0	5.1
C07	11	6	7	8	6	5	4	4	5	5	4	4	69	5.8	5.3
C09	9	5	6	6	6	6	3	4	5	5	4	4	63	5.3	5.8
C10	8	4	6	6	5	5	3	4	5	5	4	4	59	4.9	6.2
C11	5	3	6	5	4	5	4	4	4	5	4	3	52	4.3	7.0
C12	5	3	5	5	4	5	4	3	4	3	4	4	49	4.1	7.4
C13	5	2	5	5	3	5	3	3	4	3	4	4	46	3.8	7.9
C14	7	7	6	7	7	6	4	4	6	6	3	4	67	5.6	5.4
C15	5	5	6	4	6	6	3	5	6	6	4	5	61	5.1	6.0
C16	5	4	6	4	6	6	3	4	6	6	4	5	59	4.9	6.2
C17	5	4	6	2	6	5	4	4	5	5	4	4	54	4.5	6.8
C31	8	3	7	3	3	6	6	4	5	5	4	5	59	4.9	6.2
C32	7	4	7	4	3	6	4	4	4	5	4	4	56	4.7	6.5
C33	8	3	7	3	3	6	6	4	5	5	4	4	58	4.8	6.3
C34	8	3	7	4	3	6	6	4	5	5	4	4	59	4.9	6.2
C35	7	3	7	4	3	6	5	4	5	5	4	4	57	4.8	6.4
C36	7	3	7	4	3	6	5	4	5	5	4	4	57	4.8	6.4
C37	7	4	7	5	3	6	4	4	4	5	4	5	58	4.8	6.3
COBBS CREEK LOW LEVEL 13 SWWPC UNITS															
C18	8	6	6	5	6	6	4	5	5	5	5	4	65	5.4	5.6
C19	7	7	6	4	6	6	3	4	5	4	4	4	60	5.0	6.1
C20	6	4	5	3	8	7	2	4	4	4	4	4	55	4.6	6.6
C21	6	3	5	3	6	7	4	4	4	4	4	4	54	4.5	6.8
C22	6	3	5	3	4	6	4	4	4	4	4	4	51	4.3	7.2
C23	7	6	5	4	4	6	4	4	5	5	4	3	57	4.8	6.4
C24	6	7	7	5	5	5	4	5	5	4	4	5	62	5.2	5.9
C25	5	6	6	5	4	5	4	5	5	4	4	5	58	4.8	6.3
C26	5	5	5	6	4	4	4	5	5	4	3	5	55	4.6	6.6
C27	5	5	5	5	4	4	3	5	5	4	3	5	53	4.4	6.9
C28A	1	5	4	4	2	4	3	4	4	4	3	3	41	3.4	8.9
C29	1	5	4	4	2	4	3	4	4	4	3	4	42	3.5	8.7
C30	1	5	4	3	1	4	3	3	4	4	3	3	38	3.2	9.6
TOTAL	476	396	491	462	406	510	405	427	467	458	438	438	5374		
I /D/C	5.2	4.3	5.4	5.1	4.4	5.6	4.4	4.7	5.1	5.0	4.8	4.8			
CSES	89	84	116	90	94	133	124	106	121	118	120	111	1306	6.0	5.1
LSES	30	37	36	48	37	43	32	43	39	37	31	32	445	4.1	8.8
CSW	40	42	40	49	33	39	37	42	46	42	47	64	521	4.8	6.4
SWMG	60	44	52	75	55	65	45	64	65	65	68	55	713	5.9	5.7
LSW	26	29	31	33	30	30	22	24	25	27	33	30	340	7.1	4.3
CCHL	167	93	149	113	101	132	100	92	112	115	91	93	1358	4.9	6.2
CCLL	64	67	67	54	56	68	45	56	59	54	48	53	691	4.4	7.0

2 TOTAL DISCHARGES IN SW DISTRICT

0.2 AVERAGE DISCHARGES PER MONTH

6.2 AVER. DAYS BEFORE RETURNING TO SITE

4.9 AVER. INSPECTIONS PER DAY PER CREW

DTR = DAYS TO RETURN TO SITE

I/D/C = INSPECTIONS PER DAY PER CREW

I/D = INSPECTIONS PER DISCHARGE

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05	0	0	0	0	0	0	0	0	0	0	0	0	0
S06	0	0	0	0	0	0	0	0	0	0	0	0	0
S07	0	0	0	0	0	0	0	0	0	0	0	0	0
S08	0	0	0	0	0	0	0	0	0	0	0	0	0
S09	0	0	0	0	0	0	0	0	0	0	0	0	0
S10	0	0	0	0	0	0	0	0	0	0	0	0	0
S12	0	0	0	0	0	0	0	0	0	0	0	0	0
S12A	0	0	0	0	0	0	0	0	0	0	0	0	0
S13	0	0	0	0	0	0	0	0	0	0	0	0	0
S15	0	0	0	0	0	0	0	0	0	0	0	0	0
S16	0	0	0	0	0	0	0	0	0	0	0	0	0
S17	0	0	0	0	0	0	0	0	0	0	0	0	0
S18	0	0	0	0	0	0	0	0	0	0	0	0	0
S19	0	0	0	0	0	0	0	0	0	0	0	0	0
S21	0	0	0	0	0	0	0	0	0	0	0	0	0
S23	0	0	0	0	0	0	0	0	0	0	0	0	0
S25	0	0	0	0	0	0	0	0	0	0	0	0	0
S26	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31	0	0	0	0	0	0	0	0	0	0	0	0	0
S35	0	0	0	0	0	0	0	0	0	0	0	0	0
S36	0	0	0	0	0	0	0	0	0	0	0	0	0
S36A	0	0	0	0	0	0	0	0	0	0	0	0	0
S37	0	0	0	0	0	0	0	0	0	0	0	0	0
S42	0	0	0	0	0	0	0	0	0	0	0	0	0
S42A	0	0	0	0	0	0	0	0	0	0	0	0	0
S44	0	0	0	0	0	0	0	0	0	0	0	0	0
S46	0	0	0	0	0	0	0	0	0	0	0	0	0
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01	0	0	0	0	0	0	0	0	0	0	0	0	0
S02	0	0	0	0	0	0	0	0	0	0	0	0	0
S03	0	0	0	0	0	0	0	0	0	0	0	0	0
S04	0	0	0	0	0	0	0	0	0	0	0	0	0
S11	0	0	0	0	0	0	0	0	0	0	0	0	0
S14	0	0	0	0	0	0	0	0	0	0	0	0	0
S20	0	0	0	0	0	0	0	0	1	0	0	0	1
S22	0	0	0	0	0	0	0	0	0	0	0	0	0
S24	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	0	0	0	0	0	0	0	0	0	0	0	0	0
S28	0	0	0	0	0	0	0	0	0	0	0	0	0
S30	0	0	0	0	0	0	0	0	0	0	0	0	0
S34	0	0	0	0	0	0	0	0	0	0	0	0	0
S39	0	0	0	0	0	0	0	0	0	0	0	0	0
S40	0	0	0	0	0	0	0	0	0	0	0	0	0
S43	0	0	0	0	0	0	0	0	0	0	0	0	0
S47	0	0	0	0	0	0	0	0	0	0	0	0	0
S50	0	0	0	0	0	0	0	0	0	0	0	0	0
S51	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	0	0	0	0	0	0	0	0	0	0	0	0	0
S33	0	0	0	0	0	0	0	0	0	0	0	0	0
S38	0	0	0	0	0	0	0	0	0	0	0	0	0
S45	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS													
C01	0	0	0	0	0	0	0	0	0	0	0	0	0
C02	0	0	0	0	0	0	0	0	0	0	0	0	0
C04	0	0	0	0	0	0	0	0	0	0	0	0	0
C04A	0	0	0	0	0	0	0	0	0	0	0	0	0
C05	0	0	0	0	0	0	0	0	0	0	0	0	0
C06	0	0	0	0	0	0	0	0	0	0	0	0	0
C07	0	0	0	0	0	0	0	0	0	0	0	0	0
C09	0	0	0	0	0	0	0	0	0	0	0	0	0
C10	0	0	0	0	0	0	0	0	0	0	0	0	0
C11	0	0	0	0	0	0	0	0	0	0	0	0	0
C12	0	0	0	0	0	0	0	0	0	0	0	0	0
C13	0	0	0	0	0	0	0	0	0	0	0	0	0
C14	0	0	0	0	0	0	0	0	0	0	0	0	0
C15	0	0	0	0	0	0	0	0	0	0	0	0	0
C16	0	0	0	0	0	0	0	0	0	0	0	0	0
C17	0	0	0	0	0	0	0	0	0	0	0	0	0
C31	0	0	0	0	0	0	0	0	0	0	0	0	0
C32	0	0	0	0	0	0	0	0	0	0	0	0	0
C33	0	0	0	0	0	0	0	0	0	0	0	0	0
C34	0	0	0	0	0	0	0	0	0	0	0	0	0
C35	0	0	0	0	0	0	0	0	0	0	0	0	0
C36	0	0	0	0	0	0	0	0	0	0	0	0	0
C37	0	0	0	0	0	0	0	0	0	0	0	0	0
COBBS CREEK LOW LEVEL 13 SWWPC UNITS													
C18	0	0	0	0	0	0	0	0	0	0	0	0	0
C19	0	0	0	0	0	0	0	0	0	0	0	0	0
C20	0	0	0	0	1	0	0	0	0	0	0	0	1
C21	0	0	0	0	0	0	0	0	0	0	0	0	0
C22	0	0	0	0	0	0	0	0	0	0	0	0	0
C23	0	0	0	0	0	0	0	0	0	0	0	0	0
C24	0	0	0	0	0	0	0	0	0	0	0	0	0
C25	0	0	0	0	0	0	0	0	0	0	0	0	0
C26	0	0	0	0	0	0	0	0	0	0	0	0	0
C27	0	0	0	0	0	0	0	0	0	0	0	0	0
C28A	0	0	0	0	0	0	0	0	0	0	0	0	0
C29	0	0	0	0	0	0	0	0	0	0	0	0	0
C30	0	0	0	0	0	0	0	0	0	0	0	0	0
													TOTAL DISC
	0	0	0	0	1	0	0	0	1	0	0	0	2

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
CSE	0	0	0	0	0	0	0	0	0	0	0	0	0
LSE	0	0	0	0	0	0	0	0	0	0	0	0	0
CSW	0	0	0	0	0	0	0	0	1	0	0	0	1
SWG	0	0	0	0	0	0	0	0	0	0	0	0	0
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	0	0	0	0	0	0	0	0	0	0	0	0
CCLL	0	0	0	0	1	0	0	0	0	0	0	0	1

	NO OF DISCHARGES IN DISTRICT												TOTAL
CSE	0	0	0	0	0	0	0	0	0	0	0	0	0
LSE	0	0	0	0	0	0	0	0	0	0	0	0	0
CSW	0	0	0	0	0	0	0	0	1	0	0	0	1
SWG	0	0	0	0	0	0	0	0	0	0	0	0	0
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	0	0	0	0	0	0	0	0	0	0	0	0
CCLL	0	0	0	0	1	0	0	0	0	0	0	0	1

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05	1	2	0	0	0	0	1	0	0	0	0	0	4
S06	0	2	0	1	0	0	0	0	0	0	0	0	3
S07	0	0	0	0	1	1	0	0	0	1	0	0	3
S08	1	3	0	2	2	2	0	0	0	0	1	1	12
S09	0	0	0	0	1	0	0	0	0	0	0	0	1
S10	0	0	0	0	1	0	0	0	0	0	0	0	1
S12	0	3	1	1	0	0	0	0	0	0	0	1	6
S12A	0	1	0	0	0	0	0	0	0	0	0	1	2
S13	0	1	0	0	0	0	0	0	0	0	0	1	2
S15	0	1	0	1	1	1	0	1	0	0	0	1	6
S16	1	0	0	0	1	0	0	0	1	1	0	0	4
S17	0	0	0	0	0	0	0	0	1	0	0	0	1
S18	0	0	0	0	1	0	0	0	0	0	0	0	1
S19	1	0	0	2	0	0	0	0	1	2	0	1	7
S21	0	0	0	0	0	0	0	0	2	1	0	0	3
S23	0	0	0	0	0	2	0	0	0	0	0	0	2
S25	0	0	1	0	0	0	0	0	0	0	0	0	1
S26	0	1	0	0	0	0	0	0	0	0	0	0	1
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31	0	0	1	0	0	1	0	0	0	0	0	0	2
S35	0	1	1	2	0	1	0	0	0	1	1	0	7
S36	0	0	0	0	0	0	0	0	0	0	1	0	1
S36A	0	0	1	2	0	1	0	0	0	0	2	0	6
S37	0	0	1	0	0	0	0	0	0	0	0	0	1
S42	0	0	0	1	0	1	0	1	1	1	0	1	6
S42A	0	0	2	2	0	0	1	0	1	0	0	0	6
S44	0	0	2	0	0	0	0	0	0	0	0	0	2
S46	0	1	0	1	1	0	1	1	0	0	2	1	8
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01	0	0	0	0	0	0	0	0	0	0	0	0	0
S02	0	0	0	0	0	0	0	0	0	0	0	0	0
S03	0	0	0	0	0	0	0	0	0	0	0	1	1
S04	1	0	1	1	1	2	2	0	0	0	0	2	10
S11	0	2	0	1	1	0	0	0	0	0	0	0	4
S14	0	0	1	0	0	0	0	0	0	0	0	0	1
S20	0	0	0	0	0	0	0	0	2	0	0	0	2
S22	0	0	0	0	0	0	0	0	1	0	0	0	1
S24	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	1	0	0	0	0	0	0	1	0	0	0	0	2
S28	0	2	0	0	0	0	1	0	0	0	1	0	4
S30	0	0	0	0	0	0	0	2	0	0	0	0	2
S34	1	0	0	0	0	0	1	0	1	0	1	0	4
S39	0	1	0	0	0	0	1	2	3	0	0	0	7
S40	0	0	0	0	0	0	0	0	0	0	0	0	0
S43	0	0	0	0	0	0	1	0	0	0	0	0	1
S47	0	0	0	0	0	0	1	0	2	1	0	0	4
S50	2	4	5	0	1	6	0	3	1	4	2	3	31
S51	2	3	5	0	1	2	0	4	1	3	1	2	24
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	1	2	2	1	0	0	0	1	1	2	1	1	12
S33	1	1	2	0	1	0	1	0	0	2	2	1	11
S38	2	0	1	1	0	1	0	0	1	0	2	0	8
S45	0	3	1	0	0	0	0	0	0	0	3	0	7

28 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS													
C01	0	0	0	0	0	0	0	0	1	1	0	0	2
C02	0	0	0	0	0	0	0	0	0	0	0	0	0
C04	0	0	0	1	0	0	0	0	1	0	0	0	2
C04A	0	0	0	0	0	0	0	2	0	0	0	0	2
C05	0	1	0	2	0	0	0	0	2	0	0	0	5
C06	1	4	0	1	0	0	0	0	1	0	0	0	7
C07	1	2	0	1	0	0	0	1	2	0	0	0	7
C09	0	1	0	1	2	0	2	1	0	0	0	0	7
C10	0	0	0	2	1	0	1	0	1	0	0	0	5
C11	0	0	0	1	0	0	0	0	1	0	0	0	2
C12	0	1	0	0	0	0	0	0	1	0	0	0	2
C13	0	0	0	0	0	0	0	0	0	0	0	0	0
C14	0	3	3	0	2	1	1	0	0	0	0	0	10
C15	0	1	0	0	0	0	0	0	0	0	0	0	1
C16	0	0	0	0	0	0	0	0	1	0	0	0	1
C17	0	0	0	0	0	0	0	0	0	0	0	0	0
C31	0	0	0	0	0	0	0	1	1	1	0	0	3
C32	0	0	0	0	0	0	0	0	0	0	0	0	0
C33	0	0	0	0	0	0	0	1	1	0	0	0	2
C34	0	0	0	0	0	0	0	0	0	0	0	0	0
C35	0	0	0	0	0	0	1	1	2	0	0	0	4
C36	0	0	1	0	0	0	0	1	1	1	0	0	4
C37	0	0	0	0	0	0	0	0	3	0	0	0	3
COBBS CREEK LOW LEVEL 13 SWWPC UNITS													
C18	1	0	0	0	0	0	0	0	2	0	0	0	3
C19	2	0	0	0	0	0	0	1	1	0	0	0	4
C20	0	0	1	0	1	0	0	2	2	0	0	0	6
C21	0	0	0	0	0	0	0	0	1	0	0	0	1
C22	0	0	0	0	0	0	0	0	0	0	0	0	0
C23	0	0	0	0	0	0	0	0	0	1	0	0	1
C24	0	0	1	2	0	0	0	1	0	0	0	0	4
C25	0	1	0	0	0	1	0	1	0	0	1	0	4
C26	0	0	0	0	0	0	0	0	1	0	0	0	1
C27	1	1	0	0	0	0	0	1	1	0	0	0	4
C28A	0	0	0	0	0	0	0	0	0	0	0	0	0
C29	0	0	1	0	0	0	0	1	0	0	0	0	2
C30	0	0	1	0	0	0	0	1	0	0	0	0	2
													TOTAL
	21	49	36	30	20	23	16	32	47	23	21	18	336

CSE	4	14	2	7	8	6	1	1	5	5	1	6	60
LSE	0	2	8	8	1	4	2	2	2	2	6	2	39
CSW	1	2	2	2	2	2	2	0	3	0	0	3	19
SWG	6	10	10	0	2	8	5	12	8	8	5	5	79
LSW	4	6	6	2	1	1	1	1	2	4	8	2	38
CCHL	2	13	4	9	5	1	5	8	19	3	0	0	69
CCLL	4	2	4	2	1	1	0	8	8	1	1	0	32

June 2004 **RELIEF SEWER MONTHLY INSPECTION**

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	2	3	3	3	2	3	2	2	4	2	4	5	35
R2	2	3	3	3	2	3	2	2	4	2	4	5	35
R3	2	3	3	4	2	3	2	2	4	2	3	5	35
R4	2	3	3	3	2	3	2	2	4	2	3	3	32
R5	2	3	3	3	2	3	2	2	4	1	3	4	32
R6	2	3	3	3	1	3	2	2	4	2	3	4	32
MAIN RELIEF SEWER													
R7	2	2	2	2	1	2	3	2	5	2	5	3	31
R8	2	2	2	3	1	2	2	2	4	2	5	2	29
R9	2	2	2	3	1	2	2	2	4	2	5	2	29
R10	2	2	2	3	1	2	2	2	4	2	5	2	29
R11	2	3	2	3	1	2	1	2	5	2	4	2	29
R11A	2	3	2	3	1	2	1	2	5	2	4	2	29
R12	2	3	2	3	1	3	1	2	4	2	4	2	29
WAKLING RELIEF SEWER													
R13	2	2	2	2	2	3	1	2	2	2	2	2	24
R14	2	2	2	3	2	3	1	2	2	2	2	2	25
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	1	2	2	2	3	3	1	2	3	2	2	2	25
OREGON AVE RELIEF SEWER													
R16	1	2	3	2	2	3	3	3	3	3	3	1	29
R17	12	2	3	2	2	3	3	3	3	3	3	1	40
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	2	2	2	2	3	3	2	2	2	3	2	2	27
32ND ST RELIEF SEWER													
R19	2	2	2	2	2	3	1	3	3	1	2	2	25
MAIN STREET RELIEF SEWER													
R20	1	2	2	2	3	3	1	2	2	2	2	2	24
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	2	3	2	2	3	3	2	3	3	3	3	2	31
TEMPORARY REGULATOR CHAMBER													
R22													
R23	1	2	2	2	2	3	1	2	2	1	3	2	23
ARCH ST RELIEF SEWER													
R24	2	3	2	2	2	2	2	2	3	2	3	1	26
16TH & SNYDER													
R25	2	3	2	4	2	2	2	3	4	2	2	2	30
GRANT & STATE RD. RELIEF													
R26	1	3	2	3	3	2	1	2	2	3	2	2	26
TOTAL	57	65	60	69	49	69	45	57	89	54	83	64	761
AVER	2.1	2.4	2.2	2.6	1.8	2.6	1.7	2.1	3.3	2.0	3.1	2.4	2.3

RELIEF SEWER MONTHLY DISCHARGE

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	0	0	0	0	0	0	0	0	0	0	1	0	1
R2	0	0	0	0	0	0	0	0	0	0	0	0	0
R3	0	0	0	1	0	0	0	0	0	0	0	0	1
R4	0	0	0	0	0	0	0	0	0	0	0	0	0
R5	0	0	0	0	0	0	0	0	0	0	0	0	0
R6	0	0	0	0	0	0	0	0	0	0	0	0	0
MAIN RELIEF SEWER													
R7	0	0	0	0	0	0	0	0	0	0	0	0	0
R8	0	0	0	0	0	0	0	0	0	0	0	0	0
R9	0	0	0	0	0	0	0	0	0	0	0	0	0
R10	0	0	0	0	0	0	0	0	0	0	0	0	0
R11	0	0	0	0	0	0	0	0	0	0	0	0	0
R11A	0	0	0	0	0	0	0	0	0	0	0	0	0
R12	0	0	0	0	0		0	0	0	0	0	0	0
WAKLING RELIEF SEWER													
R13	0	0	0	0	0	0	0	0	0	0	0	0	0
R14	0	0	0	0	0	0	0	0	0	0	0	0	0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	0	0	0	0	0	0	0	0	0	0	0	0	0
OREGON AVE RELIEF SEWER													
R16	0	0	0	0	0	0	0	0	0	0	0	0	0
R17	0	0	0	0	0	0	0	0	0	0	0	0	0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	0	0	0	0	0	0	0	0	0	0	0	0	0
32ND ST RELIEF SEWER													
R19	0	0	0	0	0	0	0	0	0	0	0	0	0
MAIN STREET RELIEF SEWER													
R20	0	0	0	0	0	0	0	0	0	0	0	0	0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCH ST RELIEF SEWER													
R24	0	0	0	0	0	0	0	0	0	0	0	0	0
16TH & SNYDER													
R25	0	0	0	0	0	0	0	0	0	0	0	0	0
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	1	0	0	0	0	0	0	1	0	2
UNITS	0	0	0	1	0	0	0	0	0	0	1	0	

June 2004 **RELIEF SEWER MONTHLY BLOCKS CLEARED** PAGE 7

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	0	0	0	0	0	0	0	0	0	0	1	0	1
R2	0	0	0	0	0	0	0	0	0	0	0	0	0
R3	0	0	0	1	0	0	0	0	0	0	0	0	1
R4	0	0	0	0	0	0	0	0	0	0	0	0	0
R5	0	0	0	0	0	0	0	0	0	0	0	0	0
R6	0	0	0	0	0	0	0	0	0	0	0	0	0
MAIN RELIEF SEWER													
R7	0	0	0	0	0	0	0	0	0	0	0	0	0
R8	0	0	0	0	0	0	0	0	0	0	0	0	0
R9	0	0	0	0	0	0	0	0	0	0	0	0	0
R10	0	0	0	0	0	0	0	0	0	0	0	0	0
R11	0	0	0	0	0	0	0	0	0	0	0	0	0
R11A	0	0	0	0	0	0	0	0	0	0	0	0	0
R12	0	0	0	0	0	0	0	0	0	0	0	0	0
WAKLING RELIEF SEWER													
R13	0	0	0	0	0	0	0	0	0	0	0	0	0
R14	0	0	0	0	0	0	0	0	0	0	0	0	0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	0	0	0	0	0	0	0	0	0	0	0	0	0
OREGON AVE RELIEF SEWER													
R16	0	0	0	0	0	0	0	0	0	0	0	0	0
R17	0	0	0	0	0	0	0	0	0	0	0	0	0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	0	0	0	0	0	0	0	0	0	0	0	0	0
32ND ST RELIEF SEWER													
R19	0	0	0	0	0	0	0	0	0	0	0	0	0
MAIN STREET RELIEF SEWER													
R20	0	0	0	0	0	0	0	0	0	0	0	0	0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	0	0	0	0	0	0	0	0	1	1	0	0	2
TEMPORARY REGULATOR CHAMBER													
R22													0
R23	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCH ST RELIEF SEWER													
R24	0	0	0	0	0	0	0	0	0	0	0	0	0
16TH & SNYDER													
R25	0	0	0	0	0	0	0	0	0	0	0	0	0
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	1	0	0	0	0	1	1	1	0	4
AVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

June 2004 MISCELLANEOUS SITE INSPECTIONS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST	1	2	2	2	3	3	1	2	2	2	3	2	25
SOMERSET GRIT LEVEL	3	4	2	3	3	2	2	3	4	3	3	2	34
(H-20) 70th & Dicks	2	3	3	3	2	3	2	2	3	3	4	3	33
CCLL CONTROL PIPE @ ISLAND AVE.	1	5	4	4	2	4	3	4	4	4	3	3	41
RHOM & HAAS FLAP GATE	2	3	3	4	1	4	2	2	4	3	3	2	33
DROP SWIRL ON CSE COLLECTOR	1	3	5	4	3	3	2	3	5	2	3	2	36
UPPER DARBY OVERFLOW	4	4	2	4	1	4	2	4	5	3	3	3	39
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	7	9	8	9	9	6	8	4	5	5	7	14	91
O & ERIE DIVERSION GATE	1	1	2	2	1	4	1	2	2	3	2	2	23
T-04 NET REPLACEMENTS	JUL. 31, 2003	N/A	26-03", 2003	DC. 19, 2003	N/A	), 2002	N/A	N/A	7,2004	1,2004			11
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	8	8	9	8	6	9	5	4	6	5	3	7	78
T-088-01-CFD-02 PITTVILLE ST. SC]	8	8	9	8	4	6	5	4	5	6	2	5	70
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	7	7	9	9	6	7	5	4	6	5	2	6	73
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	6	7	10	8	5	6	4	4	5	5	1	5	66
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	7	8	9	8	6	7	5	6	6	5	3	6	76
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	7	8	8	8	6	8	5	4	6	5	5	6	76
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	5	7	7	7	5	4	3	4	5	4	3	4	58
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	4	7	7	7	6	4	3	4	5	4	3	4	58

June 2004 MISCELLANEOUS SITE DISCHARGES

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST													
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks										0			
CCLL CONTROL PIPE @ ISLAND AVE.	0	0	0	0	0	0	0	0	0	0	0	0	0
RHOM & HAAS FLAP GATE													
DROP SWIRL ON CSE COLLECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	0	0	2	0	0	0	0	0	0	0	1	5	8
O & ERIE DIVERSION GATE													
T-04 NET WEIGHT	282 LBS.		440 LB	175 LBS.		175 LBS.		135 lbs.			210 LB	260 lbs.	
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	0	0	0	0	1	0	0	0	0	0	0	0	1
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	0	0	0	0	0	0	0	0	0	0	0	0
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	1	0	0	0	0	0	0	0	0	0	0	0	1
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	0	0	0	0	0	0	0	0	0	0	0	0	0
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	0	0	0	0	0	0	0	0	0	0	0	0	0
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	0	0	0	0	0	0	0	0	0	0	0	0	0
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	0	0	0	0	0	0	0	0	0	0	0	0	0

June 2004 MISCELLANEOUS SITE BLOCKAGES CLEARED

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST	0	0	0	0	0	0	0	0	0	0	0	0	
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks	0	0	0	0	0	0	0	0	0	0	0	0	
CCLL CONTROL PIPE @ ISLAND AVE.	0	0	0	0	0	0	0	0	0	0	0	0	0
RHOM & HAAS FLAP GATE													
DROP SWIRL ON CSE COLLECTOR	0	0	0	0	0	0	0	0	0	0	0	0	0
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	1	0	2	0	0	1	0	1	0	1	1	8	15
O & ERIE DIVERSION GATE	0	0	0	0	0	4	0	0	0	0	0	0	
T-04 NET ****													
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	0	0	0	0	0	0	0	0	0	2	1	0	3
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	4	4	0	1	1	0	0	1	1	4	1	3	20
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	0	0	1	0	0	0	1	0	0	0	0	2
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	3	0	1	1	0	0	0	1	0	1	0	1	8
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	0	0	1	0	0	0	1	1	2	1	1	1	8
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	0	0	0	0	0	0	0	0	1	0	0	0	1
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	0	0	0	0	0	0	0	0	0	0	0	0	0
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	0	0	0	0	0	0	0	0	0	0	0	0	0

FY2004 Dry Weather Discharges

Discharge Observed		Discharge Stopped		Last Inspection						
DateDO	TimeDO	DateDS	TimeDS	DateLI	TimeLI	SiteID	Collector	TypeUnit	Location	Comment
09/06/03	11:10 AM	09/06/03	12:00 PM	09/04/03	02:25 PM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek.	Wood debris lodged in slot caused a discharge
10/08/03	12:00 PM	10/08/03	01:40 PM	09/01/03	12:00 PM	R-03	THOMAS RUN	DAM	56th St. & Spruce St. (South)	Two bottles and some rags caused a blockage at the diversion.
11/21/03	10:00 AM	11/21/03	01:10 PM	11/18/03	01:35 PM	C-20	CCLL	DAM	65th St. & Cobbs Creek. Parkway	Rags, grit & rope got tangled in DWO clean out manhole.
12/10/03	08:25 AM	12/10/03	09:40 AM	12/09/03	01:00 PM	F-09	LFLL	WH-S	Frankford Ave. N or Frankford Creek.	Leaves and debris blocking connecting line from trunk to the regulator.
03/10/04	09:00 AM	03/11/04	12:00 PM	03/09/04	01:20 PM	S-20	CSW	B & B	NNW of South St. (Behind Penn Stad.)	A large piece of plywood stuck under orifice plate caused water to back up and discharge. This CSO is on SEPTA property next to the RR tracks which they have to make safe before giving us access. The delay in clearing this discharge was due to communications and coordination failures with the SEPTA Supervisors on 3/10/04. Proper communications channels and procedures are now in place to respond sooner.
04/15/04	01:45 PM	04/15/04	02:45 PM	04/13/04	12:00 PM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek.	Piece of terra cotta pipe and brick in slot box blocked the flow.
05/07/04	09:19 AM	05/07/04	11:05 AM	04/26/04	10:15 AM	F-11	LFLL	WH-S	Paul St. S of Vandyke St.	A large plastic bag of clothing was stuck in the mouth of the regulator.
05/18/04	01:05 PM	05/18/04	01:50 PM	05/06/04	02:25 PM	R-01	--------	DAM	56th St. & Locust St.	Unit was blocked with wood, rags & debris.

PART 1 | **PHILADELPHIA WATER DEPARTMENT** | **Section 1**

DRY WEATHER STATUS | **WASTE AND STORM WATER COLLECTION**

REPORT | **FLOW CONTROL UNIT** | **January 2005**

COLLECTOR	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Totals
UPPER PENNYPACK - 5 UNITS													
INSPECTIONS	15	17	22	7	11	19	18	0	0	0	0	0	109
DISCHARGES	0	2	0	0	0	0	0	0	0	0	0	0	2
BLOCKS CLEARED	2	3	4	1	2	1	0	0	0	0	0	0	13
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	25	27	40	18	42	44	34	0	0	0	0	0	230
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	3	2	7	1	6	6	3	0	0	0	0	0	28
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	21	20	13	13	25	18	15	0	0	0	0	0	125
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	6	2	1	1	2	2	2	0	0	0	0	0	16
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	34	39	23	25	36	22	25	0	0	0	0	0	204
DISCHARGES	0	1	1	1	0	0	0	0	0	0	0	0	3
BLOCKS CLEARED	4	7	4	1	1	2	3	0	0	0	0	0	22
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	65	91	40	33	48	61	56	0	0	0	0	0	394
DISCHARGES	3	2	0	0	0	0	0	0	0	0	0	0	5
BLOCKS CLEARED	7	9	2	3	4	3	3	0	0	0	0	0	31
SOMERSET - 9 UNITS													
INSPECTIONS	59	61	32	16	22	37	43	0	0	0	0	0	270
DISCHARGES	0	0	1	0	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	9	8	8	3	0	1	1	0	0	0	0	0	30
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	133	129	109	116	135	171	117	0	0	0	0	0	910
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	7	5	4	17	7	11	4	0	0	0	0	0	55
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	102	140	109	76	121	95	120	0	0	0	0	0	763
DISCHARGES	0	1	0	0	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	3	10	2	1	3	3	4	0	0	0	0	0	26
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	33	45	25	35	40	44	37	0	0	0	0	0	259
DISCHARGES	0	1	0	1	1	0	0	0	0	0	0	0	3
BLOCKS CLEARED	3	9	4	7	4	11	1	0	0	0	0	0	39
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	37	45	37	40	38	45	40	0	0	0	0	0	282
DISCHARGES	0	0	0	2	0	0	0	0	0	0	0	0	2
BLOCKS CLEARED	0	3	0	5	0	2	0	0	0	0	0	0	10
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	62	70	57	55	51	66	41	0	0	0	0	0	402
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	8	10	7	6	6	10	5	0	0	0	0	0	52
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	32	30	32	20	32	29	31	0	0	0	0	0	206
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	3	9	7	8	8	6	0	0	0	0	0	45
COBBS CREEK HIGH LEVEL - 23 UNITS													
INSPECTIONS	80	143	94	78	107	84	80	0	0	0	0	0	666
DISCHARGES	0	3	1	0	0	0	1	0	0	0	0	0	5
BLOCKS CLEARED	8	5	14	1	1	1	1	0	0	0	0	0	31
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	39	41	62	40	39	58	27	0	0	0	0	0	306
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	3	1	9	1	1	0	0	0	0	0	0	0	15
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	40	46	35	55	53	70	32	0	0	0	0	0	331
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTALS / MONTH for 201 REGULATOR UNITS													Totals
TOTAL INSPECTIONS	777	944	730	627	800	863	716	0	0	0	0	0	5457
TOTAL DISCHARGES	3	10	3	4	1	0	1	0	0	0	0	0	22
TOTAL BLOCKS CLEARED	67	77	75	55	45	62	33	0	0	0	0	0	414
AVER. # of INSP. / BC	12	12	10	11	18	14	22	n/a	n/a	n/a	n/a	n/a	14
DISC / 100 INSPECTIONS	0.4	1.1	0.4	0.6	0.1	0.0	0.1						0.4

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
UPPER PENNYPACK 5 NEWPC UNITS															
P01	3	3	3	0	2	4	4						19	2.7	11.2
P02	3	3	3	0	2	4	4						19	2.7	11.2
P03	3	3	5	3	3	4	4						25	3.6	8.5
P04	3	5	5	1	1	4	3						22	3.1	9.7
P05	3	3	6	3	3	3	3						24	3.4	8.9
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	3	3	6	4	4	4	3						27	3.9	7.9
D03	3	3	5	4	4	6	3						28	4.0	7.6
D04	3	3	5	1	4	4	4						24	3.4	8.9
D05	3	2	5	1	4	4	2						21	3.0	10.1
D06	2	2	4	1	4	5	3						21	3.0	10.1
D07	2	2	4	1	4	3	2						18	2.6	11.8
D08	2	2	4	1	3	3	3						18	2.6	11.8
D09	2	2	2	1	3	3	3						16	2.3	13.3
D11	2	2	2	1	3	3	3						16	2.3	13.3
D12	1	2	1	1	3	3	3						14	2.0	15.2
D13	1	2	1	1	3	3	3						14	2.0	15.2
D15	1	2	1	1	3	3	2						13	1.9	16.4
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	3	3	3	3	5	3	2						22	3.1	9.7
F14	4	3	2	2	4	2	2						19	2.7	11.2
F21	2	3	2	2	4	3	2						18	2.6	11.8
F23	6	4	2	2	4	3	3						24	3.4	8.9
F24	4	4	2	2	4	5	4						25	3.6	8.5
F25	2	3	2	2	4	2	2						17	2.4	12.5
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	3	4	2	3	4	2	3						21	3.0	10.1
F04	3	4	2	3	3	2	2						19	2.7	11.2
F05	3	2	2	2	3	2	2						16	2.3	13.3
F06	4	3	2	2	3	2	3						19	2.7	11.2
F07	4	3	2	1	3	2	2						17	2.4	12.5
F08	3	3	2	2	3	2	2						17	2.4	12.5
F09	5	8	4	6	5	5	4						37	5.3	5.8
F10	5	6	3	2	6	2	3						27	3.9	7.9
F11	2	3	2	2	3	1	2						15	2.1	14.2
F12	2	3	2	2	3	2	2						16	2.3	13.3
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	4	6	3	2	3	4	4						26	3.7	8.2
T03	4	5	3	2	3	4	4						25	3.6	8.5
T04	4	6	3	2	3	6	4						28	4.0	7.6
T05	4	5	3	2	3	4	4						25	3.6	8.5
T06	4	4	3	2	3	4	4						24	3.4	8.9
T07	3	4	3	2	3	5	4						24	3.4	8.9
T08	5	4	4	2	3	6	4						28	4.0	7.6
T09	7	6	3	3	3	5	4						31	4.4	6.9
T10	7	7	3	4	4	4	4						33	4.7	6.4
T11	10	12	3	3	4	4	4						40	5.7	5.3
T12	3	9	3	3	4	4	4						30	4.3	7.1
T13	4	13	3	2	4	4	4						34	4.9	6.3
T14	3	5	2	2	4	4	4						24	3.4	8.9
T15	3	5	1	2	4	3	4						22	3.1	9.7

11 TOTAL DISCHARGES FOR NE & SE DISTRICTS — DTR = DAYS TO RETURN TO SITE

1.6 AVERAGE DISCHARGES PER MONTH — I/D/C = INSPECTIONS PER DAY PER CREW

#DIV/0! AVER. DAYS BEFORE RETURNING TO SITE — I/D = INSPECTIONS PER DISCHARGE

5.3 AVER. INSPECTIONS PER DAY PER CREW

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
SOMERSET LOW LEVEL 9 NEWPC UNITS															
D17	5	5	3	2	2	4	5						26	3.7	8.2
D18	5	5	3	2	2	4	5						26	3.7	8.2
D19	9	9	5	3	4	4	5						39	5.6	5.5
D20	9	8	8	2	3	4	5						39	5.6	5.5
D21	4	5	3	0	2	4	5						23	3.3	9.3
D22	5	5	2	1	2	4	5						24	3.4	8.9
D23	4	5	2	1	2	4	5						23	3.3	9.3
D24	4	5	2	1	2	4	4						22	3.1	9.7
D25	14	14	4	4	3	5	4						48	6.9	4.4
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	6	6	2	5	4	8	4						35	5.0	6.1
D38	6	5	2	4	4	5	4						30	4.3	7.1
D39	4	4	3	2	3	6	4						26	3.7	8.2
D40	0	4	2	6	4	5	5						26	3.7	8.2
D41	4	3	3	3	3	5	4						25	3.6	8.5
D42	3	4	2	3	2	6	4						24	3.4	8.9
D43	3	4	2	3	2	6	4						24	3.4	8.9
D44	4	5	3	1	4	8	5						30	4.3	7.1
D45	10	7	5	6	6	5	4						43	6.1	4.9
D46	6	4	4	3	4	5	4						30	4.3	7.1
D47	4	4	4	3	4	5	4						28	4.0	7.6
D48	7	6	5	4	4	5	4						35	5.0	6.1
D49	6	4	4	3	5	5	4						31	4.4	6.9
D50	5	4	6	5	6	5	4						35	5.0	6.1
D51	4	3	5	3	5	5	4						29	4.1	7.3
D52	4	4	4	3	5	5	4						29	4.1	7.3
D53	4	4	3	3	5	5	4						28	4.0	7.6
D54	4	4	4	3	5	5	3						28	4.0	7.6
D58	5	5	7	3	7	8	4						39	5.6	5.5
D61	4	4	2	3	4	5	3						25	3.6	8.5
D62	4	3	4	3	4	5	3						26	3.7	8.2
D63	4	4	4	5	5	5	4						31	4.4	6.9
D64	4	3	3	4	5	5	3						27	3.9	7.9
D65	4	3	4	5	4	5	3						28	4.0	7.6
D66	3	3	3	4	4	5	3						25	3.6	8.5
D67	2	3	4	5	4	5	3						26	3.7	8.2
D68	2	3	3	3	4	5	3						23	3.3	9.3
D69	2	4	3	2	4	5	3						23	3.3	9.3
D70	4	5	2	6	4	5	4						30	4.3	7.1
D71	3	4	2	4	3	5	3						24	3.4	8.9
D72	4	3	3	4	4	5	3						26	3.7	8.2
D73	4	3	2	2	4	4	2						21	3.0	10.1
D75	0	0	0	0	0	0	0						0	0.0	#####
TOTAL	352	384	279	228	319	372	308	0	0	0	0	0	2242		
I /D/C	5.8	6.3	4.6	3.7	5.2	6.1	5.1	0.0	0.0	0.0	0.0	0.0			
UP	15	17	22	7	11	19	18	0	0	0	0	0	109	3.1	9.9
UDLL	25	27	40	18	42	44	34	0	0	0	0	0	230	2.7	11.8
LFC	21	20	13	13	25	18	15	0	0	0	0	0	125	3.0	10.4
LFLL	34	39	23	25	36	22	25	0	0	0	0	0	204	2.9	11.2
FHL	65	91	40	33	48	61	56	0	0	0	0	0	394	4.0	7.8
SLL	59	61	32	16	22	37	43	0	0	0	0	0	270	4.3	7.6
LDLL	133	129	109	116	135	171	117	0	0	0	0	0	910	3.9	#####

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01	0	0	0	0	0	0	0						0
P02	0	0	0	0	0	0	0						0
P03	0	0	0	0	0	0	0						0
P04	0	2	0	0	0	0	0						2
P05	0	0	0	0	0	0	0						0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	0	0	0	0	0	0	0						0
D03	0	0	0	0	0	0	0						0
D04	0	0	0	0	0	0	0						0
D05	0	0	0	0	0	0	0						0
D06	0	0	0	0	0	0	0						0
D07	0	0	0	0	0	0	0						0
D08	0	0	0	0	0	0	0						0
D09	0	0	0	0	0	0	0						0
D11	0	0	0	0	0	0	0						0
D12	0	0	0	0	0	0	0						0
D13	0	0	0	0	0	0	0						0
D15	0	0	0	0	0	0	0						0
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13	0	0	0	0	0	0	0						0
F14	0	0	0	0	0	0	0						0
F21	0	0	0	0	0	0	0						0
F23	0	0	0	0	0	0	0						0
F24	0	0	0	0	0	0	0						0
F25	0	0	0	0	0	0	0						0
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03	0	0	0	0	0	0	0						0
F04	0	0	0	0	0	0	0						0
F05	0	0	0	0	0	0	0						0
F06	0	0	0	0	0	0	0						0
F07	0	0	0	0	0	0	0						0
F08	0	0	0	0	0	0	0						0
F09	0	1	1	1	0	0	0						3
F10	0	0	0	0	0	0	0						0
F11	0	0	0	0	0	0	0						0
F12	0	0	0	0	0	0	0						0
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	0	0	0	0						0
T03	0	0	0	0	0	0	0						0
T04	0	0	0	0	0	0	0						0
T05	0	0	0	0	0	0	0						0
T06	0	0	0	0	0	0	0						0
T07	0	0	0	0	0	0	0						0
T08	0	0	0	0	0	0	0						0
T09	0	0	0	0	0	0	0						0
T10	0	0	0	0	0	0	0						0
T11	2	1	0	0	0	0	0						3
T12	0	0	0	0	0	0	0						0
T13	1	1	0	0	0	0	0						2
T14	0	0	0	0	0	0	0						0
T15	0	0	0	0	0	0	0						0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17	0	0	0	0	0	0	0						0
D18	0	0	0	0	0	0	0						0
D19	0	0	0	0	0	0	0						0
D20	0	0	0	0	0	0	0						0
D21	0	0	0	0	0	0	0						0
D22	0	0	0	0	0	0	0						0
D23	0	0	0	0	0	0	0						0
D24	0	0	0	0	0	0	0						0
D25	0	0	1	0	0	0	0						1
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	0	0	0	0	0	0	0						0
D38	0	0	0	0	0	0	0						0
D39	0	0	0	0	0	0	0						0
D40	0	0	0	0	0	0	0						0
D41	0	0	0	0	0	0	0						0
D42	0	0	0	0	0	0	0						0
D43	0	0	0	0	0	0	0						0
D44	0	0	0	0	0	0	0						0
D45	0	0	0	0	0	0	0						0
D46	0	0	0	0	0	0	0						0
D47	0	0	0	0	0	0	0						0
D48	0	0	0	0	0	0	0						0
D49	0	0	0	0	0	0	0						0
D50	0	0	0	0	0	0	0						0
D51	0	0	0	0	0	0	0						0
D52	0	0	0	0	0	0	0						0
D53	0	0	0	0	0	0	0						0
D54	0	0	0	0	0	0	0						0
D58	0	0	0	0	0	0	0						0
D61	0	0	0	0	0	0	0						0
D62	0	0	0	0	0	0	0						0
D63	0	0	0	0	0	0	0						0
D64	0	0	0	0	0	0	0						0
D65	0	0	0	0	0	0	0						0
D66	0	0	0	0	0	0	0						0
D67	0	0	0	0	0	0	0						0
D68	0	0	0	0	0	0	0						0
D69	0	0	0	0	0	0	0						0
D70	0	0	0	0	0	0	0						0
D71	0	0	0	0	0	0	0						0
D72	0	0	0	0	0	0	0						0
D73	0	0	0	0	0	0	0						0
D75	0	0	0	0	0	0	0						0

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL DISC
	3	5	2	1	0	0	0	0	0	0	0	0	11

NO OF DISCHARGES IN DISTRICT													TOTAL
UP	0	2	0	0	0	0	0	0	0	0	0	0	2
UDLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LFC	0	0	0	0	0	0	0	0	0	0	0	0	0
LFLL	0	1	1	1	0	0	0	0	0	0	0	0	3
FHL	3	2	0	0	0	0	0	0	0	0	0	0	5
SLL	0	0	1	0	0	0	0	0	0	0	0	0	1
LDLL	0	0	0	0	0	0	0	0	0	0	0	0	0

NO OF UNITS IN DISTRICT BLOCKED													TOTAL
UP	0	1	0	0	0	0	0	0	0	0	0	0	1
UDLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LFC	0	0	0	0	0	0	0	0	0	0	0	0	0
LFLL	0	1	1	1	0	0	0	0	0	0	0	0	3
FHL	2	2	0	0	0	0	0	0	0	0	0	0	4
SLL	0	0	1	0	0	0	0	0	0	0	0	0	1
LDLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01	0	0	0	0	0	0	0						0
P02	0	0	0	0	0	0	0						0
P03	1	1	1	0	1	1	0						5
P04	1	2	1	0	0	0	0						4
P05	0	0	2	1	1	0	0						4
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	0	0	0	0	0	0	0						0
D03	1	0	1	1	2	2	1						8
D04	1	0	1	0	2	0	0						4
D05	0	0	0	0	0	0	1						1
D06	1	0	1	0	1	2	0						5
D07	0	0	1	0	0	0	0						1
D08	0	1	1	0	0	1	1						4
D09	0	0	0	0	0	0	0						0
D11	0	1	1	0	0	0	0						2
D12	0	0	0	0	1	1	0						2
D13	0	0	1	0	0	0	0						1
D15	0	0	0	0	0	0	0						0
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13	0	0	0	1	1	0	1						3
F14	2	2	1	0	1	1	0						7
F21	0	0	0	0	0	0	0						0
F23	4	0	0	0	0	1	1						6
F24	0	0	0	0	0	0	0						0
F25	0	0	0	0	0	0	0						0
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03	0	0	1	0	0	1	0						2
F04	0	0	0	0	0	0	0						0
F05	2	2	0	0	0	1	1						6
F06	0	0	0	0	0	0	1						1
F07	0	1	1	0	0	0	1						3
F08	0	0	0	0	0	0	0						0
F09	0	3	1	1	0	0	0						5
F10	1	0	1	0	1	0	0						3
F11	0	1	0	0	0	0	0						1
F12	1	0	0	0	0	0	0						1
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	1	1	2	0	1						5
T03	0	0	0	0	0	0	0						0
T04	0	1	0	0	0	1	0						2
T05	0	0	0	0	0	0	0						0
T06	0	0	1	0	0	0	0						1
T07	0	0	0	0	0	0	0						0
T08	1	1	0	1	1	1	1						6
T09	1	0	0	0	1	0	0						2
T10	1	0	0	0	0	0	0						1
T11	3	2	0	0	0	1	0						6
T12	0	2	0	0	0	0	0						2
T13	1	2	0	1	0	0	0						4
T14	0	0	0	0	0	0	0						0
T15	0	1	0	0	0	0	1						2

27.86 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17	0	1	0	1	0	0	0						2
D18	0	0	1	0	0	0	0						1
D19	2	4	4	1	0	0	1						12
D20	0	1	1	0	0	0	0						2
D21	0	0	0	0	0	0	0						0
D22	0	0	0	0	0	0	0						0
D23	0	0	0	0	0	0	0						0
D24	0	0	0	0	0	0	0						0
D25	7	2	2	1	0	1	0						13
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	1	1	0	3	0	2	0						7
D38	0	0	0	2	0	0	0						2
D39	0	0	0	1	0	0	1						2
D40	2	0	0	2	0	0	0						4
D41	0	0	0	0	0	0	1						1
D42	0	0	0	0	0	0	0						0
D43	0	0	0	0	0	0	0						0
D44	0	0	1	0	0	2	0						3
D45	1	1	0	0	2	0	0						4
D46	0	0	0	0	0	0	0						0
D47	0	0	0	1	0	0	0						1
D48	1	0	0	0	0	0	0						1
D49	0	0	0	0	0	0	0						0
D50	0	0	0	1	0	1	0						2
D51	0	0	0	0	0	0	0						0
D52	1	0	0	0	0	0	0						1
D53	0	0	0	0	0	0	0						0
D54	0	0	0	0	0	0	0						0
D58	1	1	0	0	1	3	0						6
D61	0	0	0	0	0	0	0						0
D62	0	0	0	1	0	0	1						2
D63	0	0	1	1	0	0	1						3
D64	0	0	0	0	1	0	0						1
D65	0	1	0	0	1	2	0						4
D66	0	0	0	1	0	0	0						1
D67	0	0	0	1	0	0	0						1
D68	0	0	0	0	0	1	0						1
D69	0	0	0	0	0	0	0						0
D70	0	0	0	2	1	0	0						3
D71	0	0	0	0	0	0	0						0
D72	0	1	2	1	1	0	0						5
D73	0	0	0	0	0	0	0						0
D75	0	0	0	0	0	0	0						0

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
	38	36	30	27	22	26	16	0	0	0	0	0	195

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UP	2	3	4	1	2	1	0	0	0	0	0	0	13
UDLL	3	2	7	1	6	6	3	0	0	0	0	0	28
LFC	6	2	1	1	2	2	2	0	0	0	0	0	16
LFLL	4	7	4	1	1	2	3	0	0	0	0	0	22
FHL	7	9	2	3	4	3	3	0	0	0	0	0	31
SLL	9	8	8	3	0	1	1	0	0	0	0	0	30
LDLL	7	5	4	17	7	11	4	0	0	0	0	0	55

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS															
S05	6	14	6	5	5	5	9						50	7.1	4.3
S06	6	8	6	5	7	5	9						46	6.6	4.6
S07	6	8	6	5	7	5	8						45	6.4	4.7
S08	5	8	6	5	7	5	6						42	6.0	5.1
S09	6	8	6	5	7	5	9						46	6.6	4.6
S10	6	8	4	3	7	5	8						41	5.9	5.2
S12	6	9	8	4	7	5	9						48	6.9	4.4
S12A	6	9	8	4	7	5	9						48	6.9	4.4
S13	6	8	5	4	7	6	8						44	6.3	4.8
S15	6	8	6	4	7	5	7						43	6.1	4.9
S16	6	7	6	4	7	5	6						41	5.9	5.2
S17	6	8	6	4	6	5	6						41	5.9	5.2
S18	6	6	5	4	7	5	6						39	5.6	5.5
S19	5	7	7	4	7	4	4						38	5.4	5.6
S21	5	7	6	4	7	6	4						39	5.6	5.5
S23	5	6	6	4	6	7	4						38	5.4	5.6
S25	5	6	6	4	6	6	4						37	5.3	5.8
S26	5	5	6	4	7	6	4						37	5.3	5.8
LOWER SCHUYLKILL EAST SIDE 9 S															
S31	6	7	3	4	8	6	6						40	5.7	5.3
S35	4	6	2	6	5	6	6						35	5.0	6.1
S36	2	3	1	2	1	2	1						12	1.7	17.7
S36A	3	3	3	5	4	6	6						30	4.3	7.1
S37	2	3	3	2	1	2	1						14	2.0	15.2
S42	5	9	4	5	9	8	6						46	6.6	4.6
S42A	4	7	4	4	6	6	6						37	5.3	5.8
S44	2	3	3	2	2	2	1						15	2.1	14.2
S46	5	4	2	5	4	6	4						30	4.3	7.1
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS															
S01	5	5	5	8	6	5	4						38	5.4	5.6
S02	5	5	5	3	5	5	4						32	4.6	6.7
S03	3	4	5	3	5	5	4						29	4.1	7.3
S04	4	6	4	5	4	5	5						33	4.7	6.4
S11	3	5	3	3	2	5	3						24	3.4	8.9
S14	4	5	3	4	4	5	5						30	4.3	7.1
S20	5	5	4	4	4	5	5						32	4.6	6.7
S22	4	5	4	6	4	5	5						33	4.7	6.4
S24	4	5	4	4	4	5	5						31	4.4	6.9
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS															
S27	6	7	6	5	5	5	3						37	5.3	5.8
S28	6	6	6	5	5	5	3						36	5.1	5.9
S30	5	5	4	5	3	5	3						30	4.3	7.1
S34	4	4	4	5	4	5	2						28	4.0	7.6
S39	4	6	3	4	4	4	2						27	3.9	7.9
S40	3	4	3	3	4	4	1						22	3.1	9.7
S43	4	5	3	4	4	4	2						26	3.7	8.2
S47	4	5	3	4	4	5	2						27	3.9	7.9
S50	17	16	13	12	9	18	13						98	14.0	2.2
S51	9	12	12	8	9	11	10						71	10.1	3.0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS															
S32	7	8	7	6	9	7	8						52	7.4	4.1
S33	10	8	8	6	9	7	10						58	8.3	3.7
S38	7	7	10	5	7	7	6						49	7.0	4.3
S45	8	7	7	3	7	8	7						47	6.7	4.5

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS															
C01	3	4	3	3	6	3	4						26	3.7	8.2
C02	3	4	3	3	5	3	4						25	3.6	8.5
C04	3	4	3	2	5	2	4						23	3.3	9.3
C04A	3	4	3	3	5	3	4						25	3.6	8.5
C05	3	5	3	3	5	3	4						26	3.7	8.2
C06	4	9	6	7	5	5	5						41	5.9	5.2
C07	3	12	6	5	5	4	4						39	5.6	5.5
C09	4	12	5	5	5	6	5						42	6.0	5.1
C10	4	11	6	4	5	6	3						39	5.6	5.5
C11	5	5	3	3	5	4	3						28	4.0	7.6
C12	3	4	3	3	5	4	3						25	3.6	8.5
C13	3	4	3	3	3	4	3						23	3.3	9.3
C14	4	5	8	4	3	4	3						31	4.4	6.9
C15	2	5	5	3	3	4	3						25	3.6	8.5
C16	3	5	5	3	3	4	3						26	3.7	8.2
C17	3	5	5	3	3	4	3						26	3.7	8.2
C31	4	6	4	3	5	3	3						28	4.0	7.6
C32	3	5	3	3	5	3	3						25	3.6	8.5
C33	4	6	3	3	5	3	3						27	3.9	7.9
C34	4	6	3	3	5	3	3						27	3.9	7.9
C35	4	6	3	3	5	3	3						27	3.9	7.9
C36	4	10	4	3	5	3	3						32	4.6	6.7
C37	4	6	4	3	6	3	4						30	4.3	7.1
COBBS CREEK LOW LEVEL 13 SWWPC UNITS															
C18	3	4	6	3	3	4	3						26	3.7	8.2
C19	3	4	7	3	3	4	3						27	3.9	7.9
C20	3	3	5	3	3	5	2						24	3.4	8.9
C21	3	3	4	3	3	5	1						22	3.1	9.7
C22	3	3	6	4	3	5	2						26	3.7	8.2
C23	3	3	4	3	3	6	2						24	3.4	8.9
C24	3	3	5	5	3	4	2						25	3.6	8.5
C25	3	3	5	4	3	5	2						25	3.6	8.5
C26	3	3	5	3	3	5	2						24	3.4	8.9
C27	3	3	6	3	3	5	2						25	3.6	8.5
C28A	3	4	3	2	3	4	2						21	3.0	10.1
C29	3	3	3	2	3	4	2						20	2.9	10.6
C30	3	2	3	2	3	2	2						17	2.4	12.5
TOTAL	385	514	416	344	428	421	376	0	0	0	0	0	2884		
I /D/C	4.2	5.6	4.6	3.8	4.7	4.6	4.1	0.0	0.0	0.0	0.0	0.0			
CSES	102	140	109	76	121	95	120	0	0	0	0	0	763	6.1	5.1
LSES	33	45	25	35	40	44	37	0	0	0	0	0	259	4.1	9.2
CSW	37	45	37	40	38	45	40	0	0	0	0	0	282	4.5	6.9
SWMG	62	70	57	55	51	66	41	0	0	0	0	0	402	5.7	6.5
LSW	32	30	32	20	32	29	31	0	0	0	0	0	206	7.4	4.2
CCHL	80	143	94	78	107	84	80	0	0	0	0	0	666	4.1	7.6
CCLL	39	41	62	40	39	58	27	0	0	0	0	0	306	3.4	9.2

11 TOTAL DISCHARGES IN SW DISTRICT — DTR = DAYS TO RETURN TO SITE

1.6 AVERAGE DISCHARGES PER MONTH — I/D/C = INSPECTIONS PER DAY PER CREW

6.9 AVER. DAYS BEFORE RETURNING TO SITE — I/D = INSPECTIONS PER DISCHARGE

4.5 AVER. INSPECTIONS PER DAY PER CREW

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05	0	1	0	0	0	0	0						1
S06	0	0	0	0	0	0	0						0
S07	0	0	0	0	0	0	0						0
S08	0	0	0	0	0	0	0						0
S09	0	0	0	0	0	0	0						0
S10	0	0	0	0	0	0	0						0
S12	0	0	0	0	0	0	0						0
S12A	0	0	0	0	0	0	0						0
S13	0	0	0	0	0	0	0						0
S15	0	0	0	0	0	0	0						0
S16	0	0	0	0	0	0	0						0
S17	0	0	0	0	0	0	0						0
S18	0	0	0	0	0	0	0						0
S19	0	0	0	0	0	0	0						0
S21	0	0	0	0	0	0	0						0
S23	0	0	0	0	0	0	0						0
S25	0	0	0	0	0	0	0						0
S26	0	0	0	0	0	0	0						0
LOWER SCHUYLKILL EAST SIDE 9 S													
S31	0	0	0	0	0	0	0						0
S35	0	0	0	0	0	0	0						0
S36	0	0	0	0	0	0	0						0
S36A	0	0	0	0	0	0	0						0
S37	0	0	0	1	0	0	0						1
S42	0	1	0	0	1	0	0						2
S42A	0	0	0	0	0	0	0						0
S44	0	0	0	0	0	0	0						0
S46	0	0	0	0	0	0	0						0
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01	0	0	0	1	0	0	0						1
S02	0	0	0	0	0	0	0						0
S03	0	0	0	0	0	0	0						0
S04	0	0	0	0	0	0	0						0
S11	0	0	0	0	0	0	0						0
S14	0	0	0	0	0	0	0						0
S20	0	0	0	0	0	0	0						0
S22	0	0	0	1	0	0	0						1
S24	0	0	0	0	0	0	0						0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	0	0	0	0	0	0	0						0
S28	0	0	0	0	0	0	0						0
S30	0	0	0	0	0	0	0						0
S34	0	0	0	0	0	0	0						0
S39	0	0	0	0	0	0	0						0
S40	0	0	0	0	0	0	0						0
S43	0	0	0	0	0	0	0						0
S47	0	0	0	0	0	0	0						0
S50	0	0	0	0	0	0	0						0
S51	0	0	0	0	0	0	0						0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	0	0	0	0	0	0	0						0
S33	0	0	0	0	0	0	0						0
S38	0	0	0	0	0	0	0						0
S45	0	0	0	0	0	0	0						0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS													
C01	0	0	0	0	0	0	0						0
C02	0	0	0	0	0	0	0						0
C04	0	0	0	0	0	0	0						0
C04A	0	0	0	0	0	0	0						0
C05	0	0	0	0	0	0	0						0
C06	0	0	1	0	0	0	0						1
C07	0	0	0	0	0	0	0						0
C09	0	1	0	0	0	0	1						2
C10	0	0	0	0	0	0	0						0
C11	0	0	0	0	0	0	0						0
C12	0	0	0	0	0	0	0						0
C13	0	0	0	0	0	0	0						0
C14	0	1	0	0	0	0	0						1
C15	0	0	0	0	0	0	0						0
C16	0	0	0	0	0	0	0						0
C17	0	0	0	0	0	0	0						0
C31	0	0	0	0	0	0	0						0
C32	0	0	0	0	0	0	0						0
C33	0	0	0	0	0	0	0						0
C34	0	0	0	0	0	0	0						0
C35	0	0	0	0	0	0	0						0
C36	0	1	0	0	0	0	0						1
C37	0	0	0	0	0	0	0						0
COBBS CREEK LOW LEVEL 13 SWWPC UNITS													
C18	0	0	0	0	0	0	0						0
C19	0	0	0	0	0	0	0						0
C20	0	0	0	0	0	0	0						0
C21	0	0	0	0	0	0	0						0
C22	0	0	0	0	0	0	0						0
C23	0	0	0	0	0	0	0						0
C24	0	0	0	0	0	0	0						0
C25	0	0	0	0	0	0	0						0
C26	0	0	0	0	0	0	0						0
C27	0	0	0	0	0	0	0						0
C28A	0	0	0	0	0	0	0						0
C29	0	0	0	0	0	0	0						0
C30	0	0	0	0	0	0	0						0
													TOTAL DISC
	0	5	1	3	1	0	1	0	0	0	0	0	11

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
CSE	0	1	0	0	0	0	0	0	0	0	0	0	1
LSE	0	1	0	1	1	0	0	0	0	0	0	0	3
CSW	0	0	0	2	0	0	0	0	0	0	0	0	2
SWG	0	0	0	0	0	0	0	0	0	0	0	0	0
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	3	1	0	0	0	1	0	0	0	0	0	5
CCLL	0	0	0	0	0	0	0	0	0	0	0	0	0

	NO OF DISCHARGES IN DISTRICT												TOTAL
CSE	0	1	0	0	0	0	0	0	0	0	0	0	1
LSE	0	1	0	1	1	0	0	0	0	0	0	0	3
CSW	0	0	0	2	0	0	0	0	0	0	0	0	2
SWG	0	0	0	0	0	0	0	0	0	0	0	0	0
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	3	1	0	0	0	1	0	0	0	0	0	5
CCLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05	0	2	1	0	0	0	0						3
S06	0	0	0	0	0	0	0						0
S07	0	0	1	0	0	0	1						2
S08	0	0	0	0	1	0	0						1
S09	0	0	0	0	0	0	0						0
S10	0	0	0	0	0	0	0						0
S12	0	1	0	0	0	0	0						1
S12A	0	1	0	0	0	0	0						1
S13	0	1	0	0	0	0	1						2
S15	0	1	0	0	0	0	0						1
S16	0	1	0	0	0	1	0						2
S17	0	0	0	0	0	0	0						0
S18	0	0	0	0	0	0	0						0
S19	1	1	0	0	0	0	1						3
S21	1	1	0	0	0	1	1						4
S23	0	0	0	0	1	1	0						2
S25	0	1	0	1	1	0	0						3
S26	1	0	0	0	0	0	0						1
LOWER SCHUYLKILL EAST SIDE 9 SV													
S31	0	0	0	0	0	0	0						0
S35	0	1	0	3	1	4	1						10
S36	0	0	0	0	0	0	0						0
S36A	0	1	1	1	0	1	0						4
S37	1	2	2		0	0	0						5
S42	2	3	0	1	3	2	0						11
S42A	0	1	0	1	0	2	0						4
S44	0	0	0	0	0	0	0						0
S46	0	1	1	1	0	2	0						5
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01	0	0	0	3	0	0	0						3
S02	0	0	0	0	0	0	0						0
S03	0	0	0	0	0	0	0						0
S04	0	0	0	0	0	0	0						0
S11	0	0	0	0	0	0	0						0
S14	0	1	0	0	0	0	0						1
S20	0	0	0	0	0	0	0						0
S22	0	1	0	1	0	0	0						2
S24	0	1	0	1	0	2	0						4
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	0	0	0	0	0	0	0						0
S28	0	0	1	0	0	1	0						2
S30	0	0	0	0	0	0	0						0
S34	0	0	0	0	0	0	0						0
S39	0	0	0	0	1	0	0						1
S40	0	0	0	0	0	0	0						0
S43	0	0	0	0	1	0	0						1
S47	0	0	0	0	0	1	0						1
S50	4	7	2	3	2	6	3						27
S51	4	3	4	3	2	2	2						20
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	3	2	4	4	3	5	2						23
S33	1	0	1	1	2	2	3						10
S38	0	1	2	1	2	1	1						8
S45	0	0	2	1	1	0	0						4

31.14 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS													
C01	0	0	0	0	0	0	0						0
C02	0	0	0	0	0	0	0						0
C04	0	0	0	0	0	0	0						0
C04A	0	0	0	0	0	0	0						0
C05	0	0	0	0	0	0	0						0
C06	0	0	1	0	0	0	0						1
C07	0	1	0	0	0	0	0						1
C09	0	2	0	0	0	0	1						3
C10	1	0	0	0	0	0	0						1
C11	1	0	1	0	0	0	0						2
C12	2	0	1	0	0	0	0						3
C13	0	0	1	0	0	0	0						1
C14	2	1	3	1	0	0	0						7
C15	1	0	0	0	0	0	0						1
C16	1	0	2	0	0	0	0						3
C17	0	0	0	0	0	0	0						0
C31	0	0	1	0	0	0	0						1
C32	0	0	0	0	0	0	0						0
C33	0	0	0	0	0	0	0						0
C34	0	0	1	0	0	0	0						1
C35	0	0	1	0	0	0	0						1
C36	0	1	1	0	0	0	0						2
C37	0	0	1	0	1	1	0						3
COBBS CREEK LOW LEVEL 13 SWWPC UNITS													
C18	1	0	0	0	0	0	0						1
C19	2	0	0	0	0	0	0						2
C20	0	0	1	1	1	0	0						3
C21	0	0	0	0	0	0	0						0
C22	0	0	0	0	0	0	0						0
C23	0	0	1	0	0	0	0						1
C24	0	0	2	0	0	0	0						2
C25	0	0	1	0	0	0	0						1
C26	0	1	2	0	0	0	0						3
C27	0	0	1	0	0	0	0						1
C28A	0	0	0	0	0	0	0						0
C29	0	0	1	0	0	0	0						1
C30	0	0	0	0	0	0	0						0
													TOTAL
	29	41	45	28	23	35	17	0	0	0	0	0	218

CSE	3	10	2	1	3	3	4	0	0	0	0	0	26
LSE	3	9	4	7	4	11	1	0	0	0	0	0	39
CSW	0	3	0	5	0	2	0	0	0	0	0	0	10
SWG	8	10	7	6	6	10	5	0	0	0	0	0	52
LSW	4	3	9	7	8	8	6	0	0	0	0	0	45
CCHL	8	5	14	1	1	1	1	0	0	0	0	0	31
CCLL	3	1	9	1	1	0	0	0	0	0	0	0	15

January 2005 RELIEF SEWER MONTHLY INSPECTION

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	2	3	1	3	2	3	2						16
R2	2	3	1	3	2	3	2						16
R3	2	3	1	3	2	3	2						16
R4	2	3	1	3	2	3	1						15
R5	2	3	1	3	2	3	1						15
R6	2	3	1	3	2	3	1						15
MAIN RELIEF SEWER													
R7	2	1	2	3	3	3	1						15
R8	2	1	2	4	2	3	1						15
R9	2	1	2	3	2	2	1						13
R10	1	1	3	3	2	2	1						13
R11	1	1	2	3	2	2	1						12
R11A	1	1	2	3	2	2	1						12
R12	1	1	1	2	2	2	1						10
WAKLING RELIEF SEWER													
R13	1	2	1	1	2	2	1						10
R14	1	2	1	1	2	2	1						10
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	1	2	1	1	2	2	1						10
OREGON AVE RELIEF SEWER													
R16	2	2	1	1	2	5	2						15
R17	2	2	1	1	2	5	2						15
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	2	2	1	2	2	2	1						12
32ND ST RELIEF SEWER													
R19	1	1	1	1	2	2	1						9
MAIN STREET RELIEF SEWER													
R20	1	1	1	1	2	2	1						9
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	1	1	1	1	2	3	1						10
TEMPORARY REGULATOR CHAMBER													
R22													
R23	1	1	1	1	2	2	1						9
ARCH ST RELIEF SEWER													
R24	1	1	1	2	1	3	1						10
16TH & SNYDER													
R25	2	2	3	2	3	3	2						17
GRANT & STATE RD. RELIEF													
R26	2	2	1	1	2	3	1						12
TOTAL	40	46	35	55	53	70	32	0	0	0	0	0	331
AVER	1.5	1.7	1.3	2.0	2.0	2.6	1.2	0.0	0.0	0.0	0.0	0.0	1.0

RELIEF SEWER MONTHLY DISCHARGE

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	0	0	0	0	0	0	0						0
R2	0	0	0	0	0	0	0						0
R3	0	0	0	0	0	0	0						0
R4	0	0	0	0	0	0	0						0
R5	0	0	0	0	0	0	0						0
R6	0	0	0	0	0	0	0						0
MAIN RELIEF SEWER													
R7	0	0	0	0	0	0	0						0
R8	0	0	0	0	0	0	0						0
R9	0	0	0	0	0	0	0						0
R10	0	0	0	0	0	0	0						0
R11	0	0	0	0	0	0	0						0
R11A	0	0	0	0	0	0	0						0
R12	0	0	0	0	0	0	0						0
WAKLING RELIEF SEWER													
R13	0	0		0	0	0	0						0
R14	0	0	0	0	0	0	0						0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	0	0	0	0	0	0	0						0
OREGON AVE RELIEF SEWER													
R16	0	0	0	0	0	0	0						0
R17	0	0	0	0	0	0	0						0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	0	0	0	0	0	0	0						0
32ND ST RELIEF SEWER													
R19	0	0	0	0	0	0	0						0
MAIN STREET RELIEF SEWER													
R20	0	0	0	0	0	0	0						0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	0	0	0	0	0	0	0						0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23	0	0	0	0	0	0	0						0
ARCH ST RELIEF SEWER													
R24	0	0	0	0	0	0	0						0
16TH & SNYDER													
R25	0	0	0	0	0	0	0						0
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0						0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0
UNITS	0	0	0	0	0	0	0	0	0	0	0	0	

January 2005 RELIEF SEWER MONTHLY BLOCKS CLEARED PAGE 7

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	0	0	0	0	0	0	0						0
R2	0	0	0	0	0	0	0						0
R3	0	0	0	0	0	0	0						0
R4	0	0	0	0	0	0	0						0
R5	0	0	0	0	0	0	0						0
R6	0	0	0	0	0	0	0						0
MAIN RELIEF SEWER													
R7	0	0	0	0	0	0	0						0
R8	0	0	0	0	0	0	0						0
R9	0	0	0	0	0	0	0						0
R10	0	0	0	0	0	1	0						1
R11	0	0	0	0	0	0	0						0
R11A	0	0	0	0	0	0	0						0
R12	0	0	0	0	0	0	0						0
WAKLING RELIEF SEWER													
R13	0	0	0	0	0	0	0						0
R14	0	0	0	0	0	0	0						0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	0	0	0	0	0	0	0						0
OREGON AVE RELIEF SEWER													
R16	0	0	0	0	0	0	0						0
R17	0	0	0	0	0	0	0						0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	0	0	0	0	0	0	0						0
32ND ST RELIEF SEWER													
R19	0	0	0	0	0	0	0						0
MAIN STREET RELIEF SEWER													
R20	0	0	0	0	0	0	0						0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	0	0	0	0	0	0	0						0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23	0	0	0	0	0	0	0						0
ARCH ST RELIEF SEWER													
R24	0	0	0	0	0	0	0						0
16TH & SNYDER													
R25	0	0	0	0	0	0	0						0
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0						0
TOTAL	0	0	0	0	0	1	0	0	0	0	0	0	1
AVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

January 2005 MISCELLANEOUS SITE INSPECTIONS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST	1	2	1	1	3	3	1						12
SOMERSET GRIT LEVEL	2	3	1	1	1	1	1						10
(H-20) 70th & Dicks	2	1	1	2	1	3	1						11
CCLL CONTROL PIPE @ ISLAND AVE.	3	4	3		3	4	2						19
RHOM & HAAS FLAP GATE	2	2	1	1	3	3	3						15
DROP SWIRL ON CSE COLLECTOR	2	2	3	2	2	2	0						13
UPPER DARBY OVERFLOW	2	1	1	1	1	3	1						10
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	13	15	6	4	9	9	7						63
O & ERIE DIVERSION GATE	1	2	1	2	2	2	2						12
T-04 NET REPLACEMENTS	JUL 23,2004	, 2004	N/A	, 2004	N/A	, 2004	N/A						7
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	5	5	4	3	4	4	2						27
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	5	4	4	2	3	2	1						21
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	4	5	3	3	4	4	2						25
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	2	4	2	3	3	3	1						18
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	4	5	3	3	3	4	1						23
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	4	5	2	3	3	4	1						22
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	4	3	2	2	3	2	1						17
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	4	3	2	2	3	2	1						17

January 2005 MISCELLANEOUS SITE DISCHARGES

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST			0			0							
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks													
CCLL CONTROL PIPE @ ISLAND AVE.	0	0	0		0	0	0						0
RHOM & HAAS FLAP GATE													
DROP SWIRL ON CSE COLLECTOR	0	0	0	0	0	0	0						0
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	2	0	0	0	0	0	0						2
O & ERIE DIVERSION GATE													
T-04 NET WEIGHT	215 LB	375		175 LB	N/A	395 lbs	N/A						
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	0	0	0	0	0	0	0						0
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	0	0	0	0	0	0	0						0
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	0	0	0	0	0	0						0
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	0	0	0	0	0	0	0						0
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	0	0	0	0	0	0	0						0
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	0	0	0	0	0	0	0						0
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	0	0	0	0	0	0	0						0
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	0	0	0	0	0	0	0						0

January 2005 MISCELLANEOUS SITE BLOCKAGES CLEARED

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST	0	0	0	0	0	0	0						
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks	0	0	0	0		0	0						
CCLL CONTROL PIPE @ ISLAND AVE.	0	0	1		0	0	0						1
RHOM & HAAS FLAP GATE													
DROP SWIRL ON CSE COLLECTOR	0	0	0	0	0	0	0						0
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	4	4	0	0	1	0	0						9
O & ERIE DIVERSION GATE	0	0	0	0	0	0	0						
T-04 NET ****													
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	1	0	2	0	0	0	0						3
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	1	3	1	1	0	0	1						7
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	1	1	0	0	0	0						2
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	1	0	1	0	0	0	0						2
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	0	1	1	0	0	0	0						2
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	0	0	0	0	0	0	0						0
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	0	0	0	0	0	0	0						0
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	0	0	0	0	0	0	0						0

FY2005 Dry Weather Discharges To Date

Discharge Observed		Discharge Stopped		Last Inspection						
DateDO	TimeDO	DateDS	TimeDS	DateLI	TimeLI	SiteID	Collector	TypeUnit	Location	Comment
07/15/04	01:35 PM	07/16/04	02:40 PM	07/08/04	02:15 PM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek.	Grit & debris in slot box going to connecting pipe blocked the flow.
07/31/04	10:10 AM	07/31/04	05:00 PM	07/27/04	11:14 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek.	Connecting line to the interceptor blocked with grit & a large rock.
07/31/04	10:10 AM	07/31/04	02:20 PM	07/27/04	12:00 PM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek.	Connecting line to the interceptor blocked with grit & other unknown debris.
08/02/04	12:00 PM	08/03/04	01:00 PM	07/29/04	10:30 AM	C-09	CCHL	SLOT	64th St. & Cobbs Creek.	The slot box & connecting pipe was blocked with debris. The Vactor was able to partially unblock the slot on Aug. 2nd. Returned on the 3rd, the connecting pipe level dropped from 7' to approximately 2' allowing more visibility to completely remove the blockage.
08/02/04	01:50 PM	08/02/04	02:20 PM	07/31/04	02:20 PM	T-11	FHL	SLOT	Ruscomb St. East Of Tacony Creek	Grit & debris in the connecting pipe blocked the flow.
08/02/04	08:35 AM	08/02/04	02:55 PM	07/31/04	05:00 PM	T-13	FHL	SLOT	Whitaker Ave. East Of Tacony Creek	Grit, debris & large rock in connecting pipe blocked the flow.
08/06/04	11:00 AM	08/06/04	02:15 PM	07/30/04	10:35 AM	P-04	PP	SLOT	Cottage Ave. & Holmesburg Ave.	The connecting pipe was obstructed with unknown debris.
08/06/04	09:00 AM	08/07/04	10:30 AM	08/30/00	09:25 AM	S-05	CSES	B & B	24th St. 155 S of Park Towne Place	A large section of red brick which appeared to be part of a sewer was lodged in trunk opening to regulator chamber. Crew diligently tried to dislodge the obstruction. They were able to reposition the obstruction to allow it to relieve itself. Returned on aug. 7th and were able to completely remove the obstruction.
08/07/04	11:15 AM	08/07/04	01:35 PM	07/27/04	09:25 AM	S-42	LSES	B & B	Passyunk Ave. & 29th St.	Shuttergate was stuck in the closed position.
08/10/04	11:00 AM	08/10/04	12:30 PM	08/06/04	01:10 PM	C-14	CCHL	SLOT	Baltimore Ave. & Cobbs Creek.	Large tree branch got stuck in the slot box
08/10/04	02:10 PM	08/10/04	02:45 PM	07/29/04	11:40 AM	F-09	LFLL	WH-S	Frankford Ave. N or Frankford Creek.	Wood & trash blocked the flow through the gate valve.
08/24/04	01:40 PM	08/24/04	02:35 PM	08/23/04	01:35 PM	C-36	CCHL	SLOT	69th St. & Woodbine Ave S of Brentwoo	A towel and other debris blocked the slot opening.
08/31/04	08:40 AM	08/31/04	09:57 AM	08/18/04	09:15 AM	P-04	PP	SLOT	Cottage Ave. & Holmesburg Ave.	Grit in slot box & connecting pipe blocked the flow.
09/04/04	07:30 AM	09/04/04	10:35 AM	08/30/04	12:00 PM	F-09	LFLL	WH-S	Frankford Ave. N or Frankford Creek.	Plastic milk jug and trash in mouth of the gate caused a partial overflow.
09/30/04	10:05 AM	09/30/04	05:00 PM	09/09/04	12:45 PM	C-06	CCHL	SLOT	Lebanon Ave. & 68th St.	Slot box and connecting pipe were blocked with grit.
09/30/04	10:30 AM	09/30/04	12:20 PM	09/20/04	10:10 AM	D-25	SOM	B & B	Somerset St. E of Richmond St.	PVC and construction lumber in tide gate and trunk opening to regulator from construction site at C & Indiana ave.
10/05/04	11:00 AM	10/05/04	12:38 PM	09/28/04	12:00 PM	S-01	CSW	B & B	Mantua Ave. & West River Dr.	Stones, pieces of brick, grit & other debris blocked the shutter gate.
10/06/04	01:55 PM	10/06/04	02:45 PM	10/02/04	11:15 AM	F-09	LFLL	WH-S	Frankford Ave. N or Frankford Creek.	Plastic food tray & trash in mouth of gate caused overflow over dam.
10/07/04	01:00 PM	10/07/04	02:00 PM	10/01/04	11:26 AM	S-22	CSW	B & B	660' S of South St E of Penn Field	Shutter gate was stuck partially down, blocking flow.
10/29/04	08:30 AM	10/29/04	11:15 AM	10/19/04	10:05 AM	S-37	LSES	B & B	Vare Ave. & Jackson St.	Regulator invert was blocked with grit and bricks.
11/15/04	11:00 AM	11/15/04	01:00 PM	11/10/04	12:25 PM	S-42	LSES	B & B	Passyunk Ave. & 29th St.	Large log was stuck in the trunk opening to the regulator.
01/12/05	10:20 AM	01/12/05	11:40 AM	01/04/05	11:40 AM	C-09	CCHL	SLOT	64th St. & Cobbs Creek.	Boulder in slot box restricted flow causing a discharge.

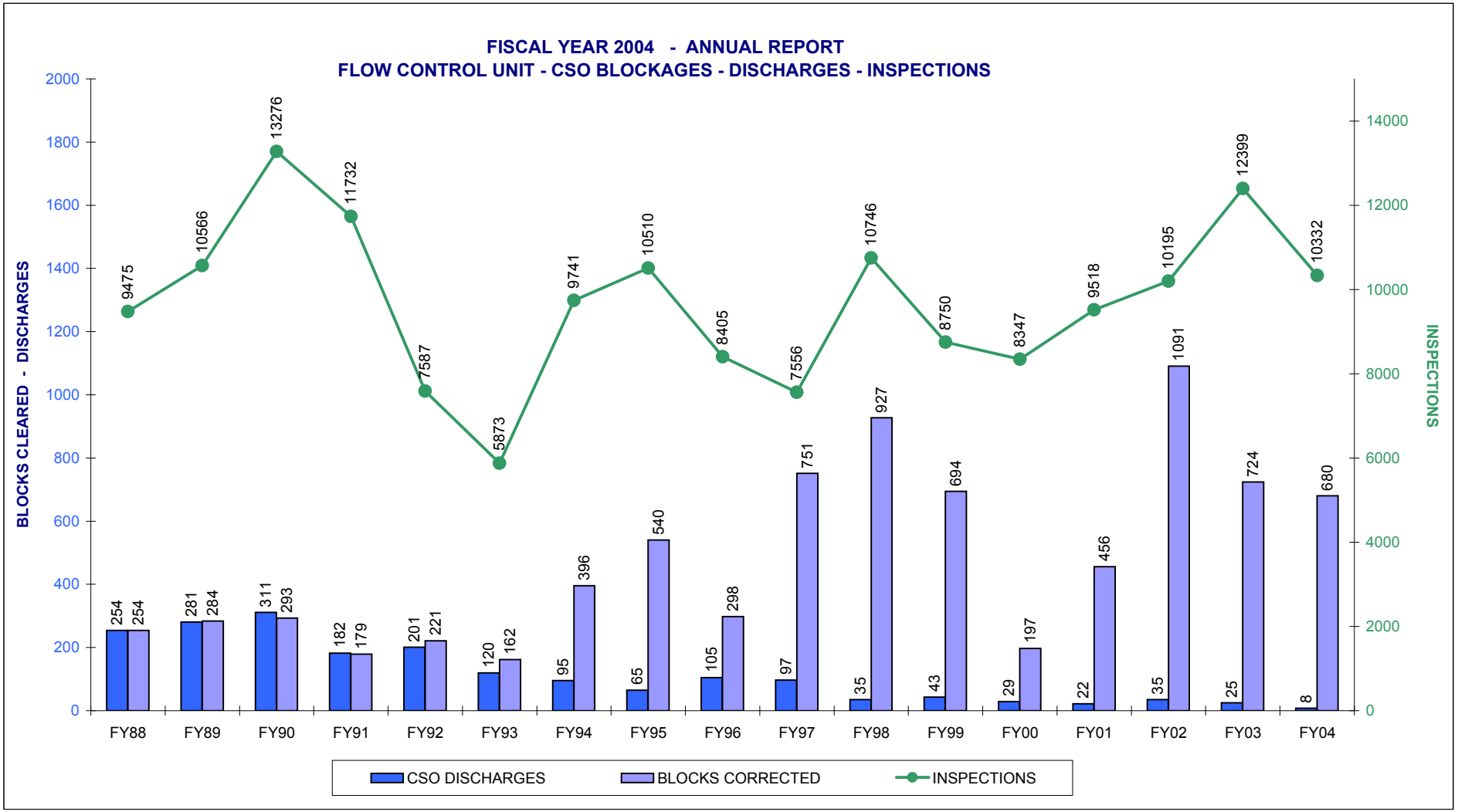
2003 - CSO Regulator and Tide Gate - Comprehensive Maintenance Completion Dates

SITE ID	REG PM DATE	TG PM DATE
	UPPER PENNYPACK	
P01		
P02		
P03		
P04		
P05		
	UPPER DELAWARE LOW LEVEL	
D02		
D03		
D04		
D05		
D06		
D07		
D08		
D09		
D11		
D12		
D13		
D15		
	LOWER FRANKFORD CREEK	
F13		
F14		
F21		
F23		
F24		12/29/04
F25		
	LOWER FRANKFORD LOW LEVEL	
F03		
F04		
F05		
F06		
F07		
F08		
F09		
F10		
F11		
F12		
	FRANKFORD HIGH LEVEL	
T01		
T03		
T04		
T05		
T06		
T07		
T08		
T09		
T10		
T11		
T12		
T13		
T14		
T15		

SITE ID	REG PM DATE	TG PM DATE
	SOMERSET LOW LEVEL	
D17		
D18		
D19	07/22/04	
D20		07/30/04
D21	01/12/04	
D22		
D23		
D24		
D25		08/18/04
	LOWER DELAWARE LOW LEVEL	
D37	01/06/04	07/29/04
D38		07/30/04
D39		
D40		07/19/04
D41		
D42		
D43		
D44		
D45	06/19/04	
D46		
D47		
D48		
D49		
D50		
D51		
D52		
D53		
D54		
D58	12/18/04	
D61	07/22/04	
D62		
D63		
D64		
D65		
D66		
D67		
D68		
D69		
D70		
D71		
D72		
D73		

SITE ID	REG PM DATE	TG PM DATE
	CENTRAL SCHUYLKILL EAST SIDE	
S05	01/06/04	
S06		
S07		
S08		
S09		
S10		
S12		
S12A		
S13		
S15		
S16		07/31/04
S17		
S18		
S19		
S21		
S23	12/18/04	
S25		
S26		
	LOWER SCHUYLKILL EAST SIDE	
S31		
S35		
S36		
S36A		
S37		
S42		
S42A		
S44		
S46		
	CENTRAL SCHUYLKILL WEST	
S01		
S02		
S03		
S04		
S11		
S14		
S20		
S22		
S24		
	SOUTHWEST MAIN GRAVITY	
S27		
S28		
S30		
S34	07/22/04	
S39		
S40		
S43		
S47	12/18/04	
S50	12/11/04	
S51		
	LOWER SCHUYLKILL WEST SIDE	
S32		
S33		
S38	07/22/04	
S45		

SITE ID	REG PM DATE	TG PM DATE
	COBBS CREEK HIGH LEVEL	
C01		
C02		
C04		
C04A		
C05		
C06		
C07		
C09		
C10		
C11		
C12		
C13		
C14		
C15		
C16		
C17		
C31		
C32		
C33		
C34		
C35		
C36		
C37		
	COBBS CREEK LOW LEVEL	
C18		
C19		
C20		
C21		
C22		
C23		
C24		
C25		
C26		
C27		
C28A		
C29		
C30		


FISCAL YEAR 2004 - ANNUAL REPORT
FLOW CONTROL UNIT - CSO BLOCKAGES - DISCHARGES - INSPECTIONS
BLOCKS CLEARED - DISCHARGES
INSPECTIONS
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
2000
4000
6000
8000
10000
12000
14000
FY88 FY89 FY90 FY91 FY92 FY93 FY94 FY95 FY96 FY97 FY98 FY99 FY00 FY01 FY02 FY03 FY04
254 254
281 284
311 293
182 179
201 221
120 162
95 396
65 540
105 298
97 751
35 927
43 694
29 197
22 456
35 1091
25 724
8 680
9475
10566
13276
11732
7587
5873
9741
10510
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10746
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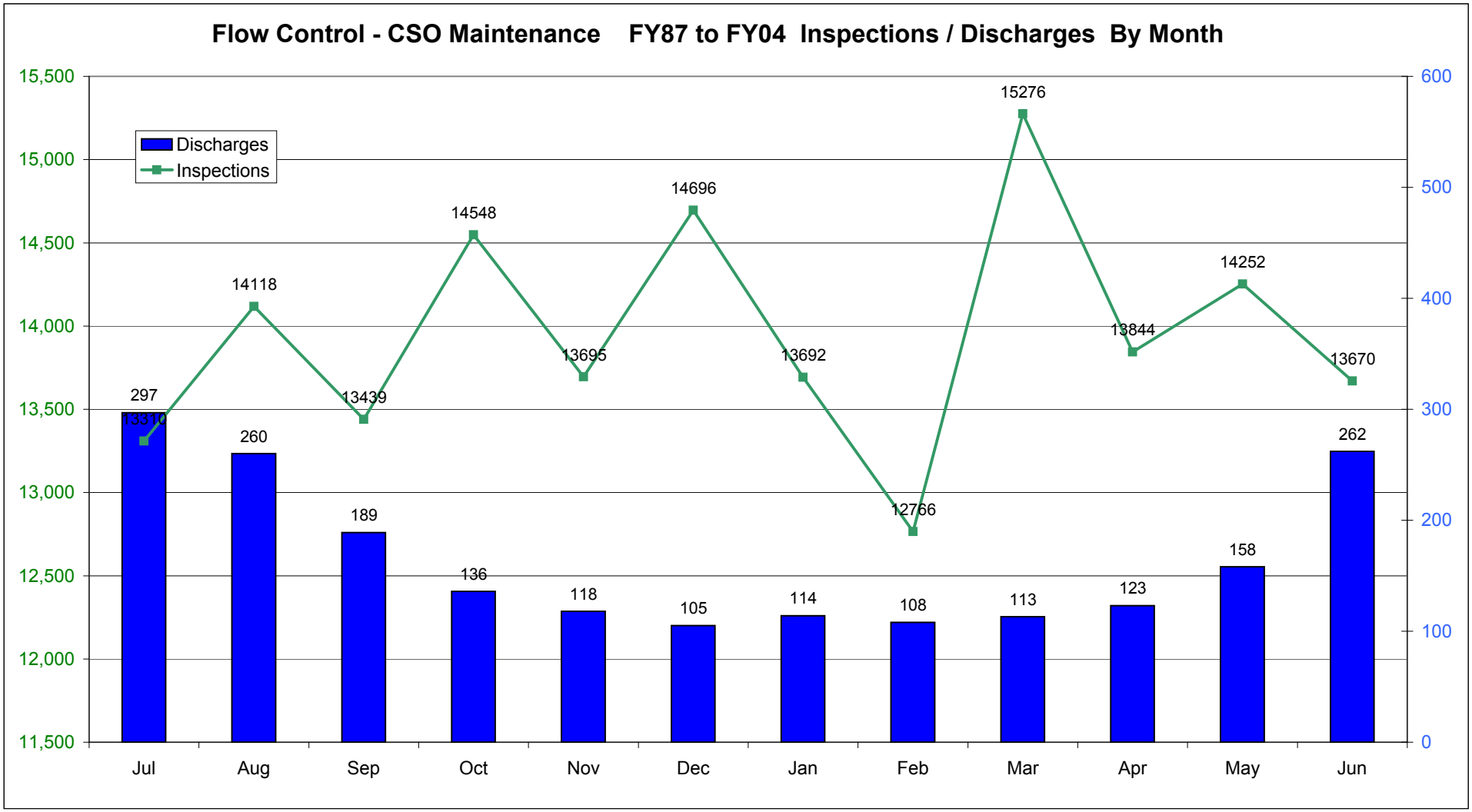
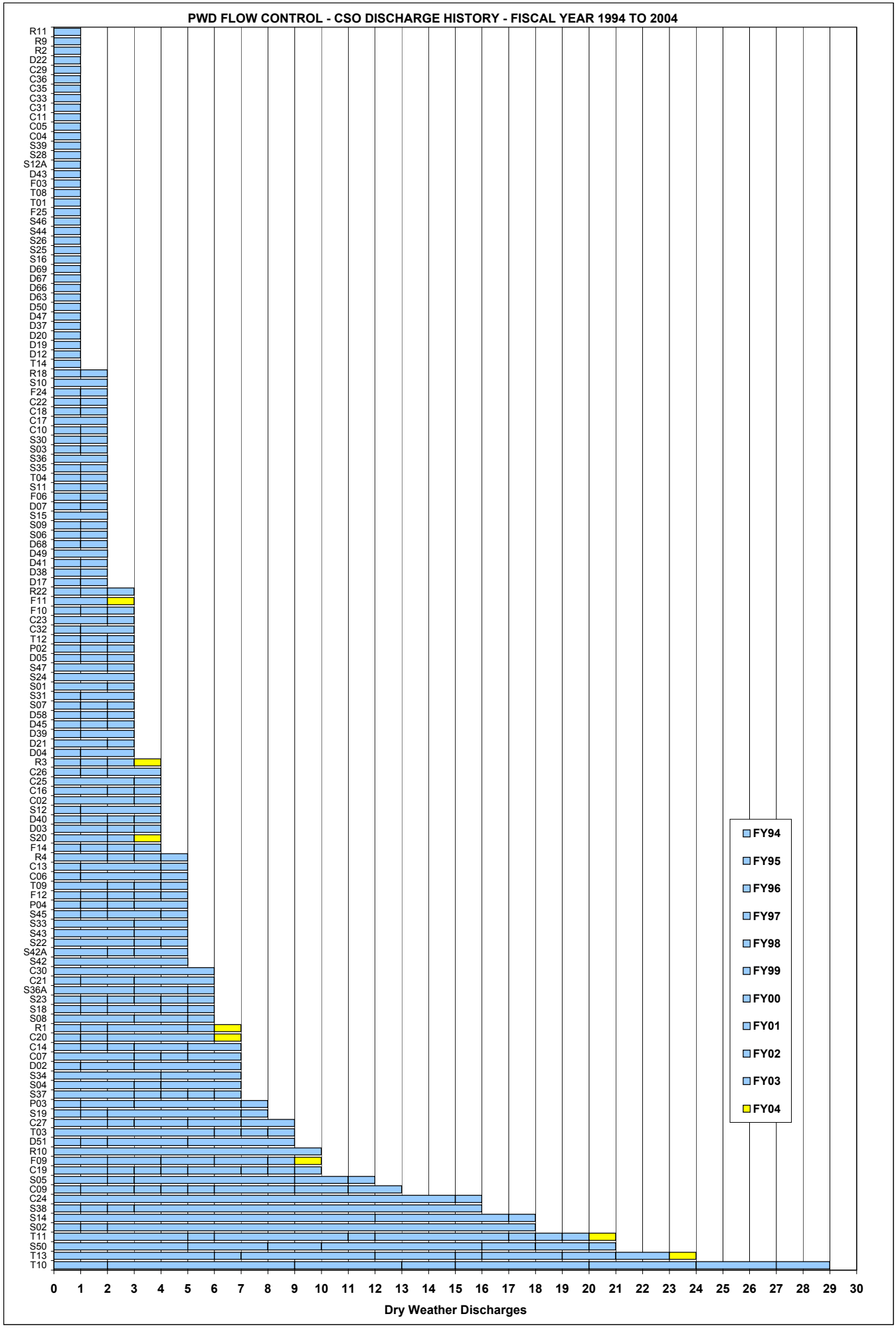
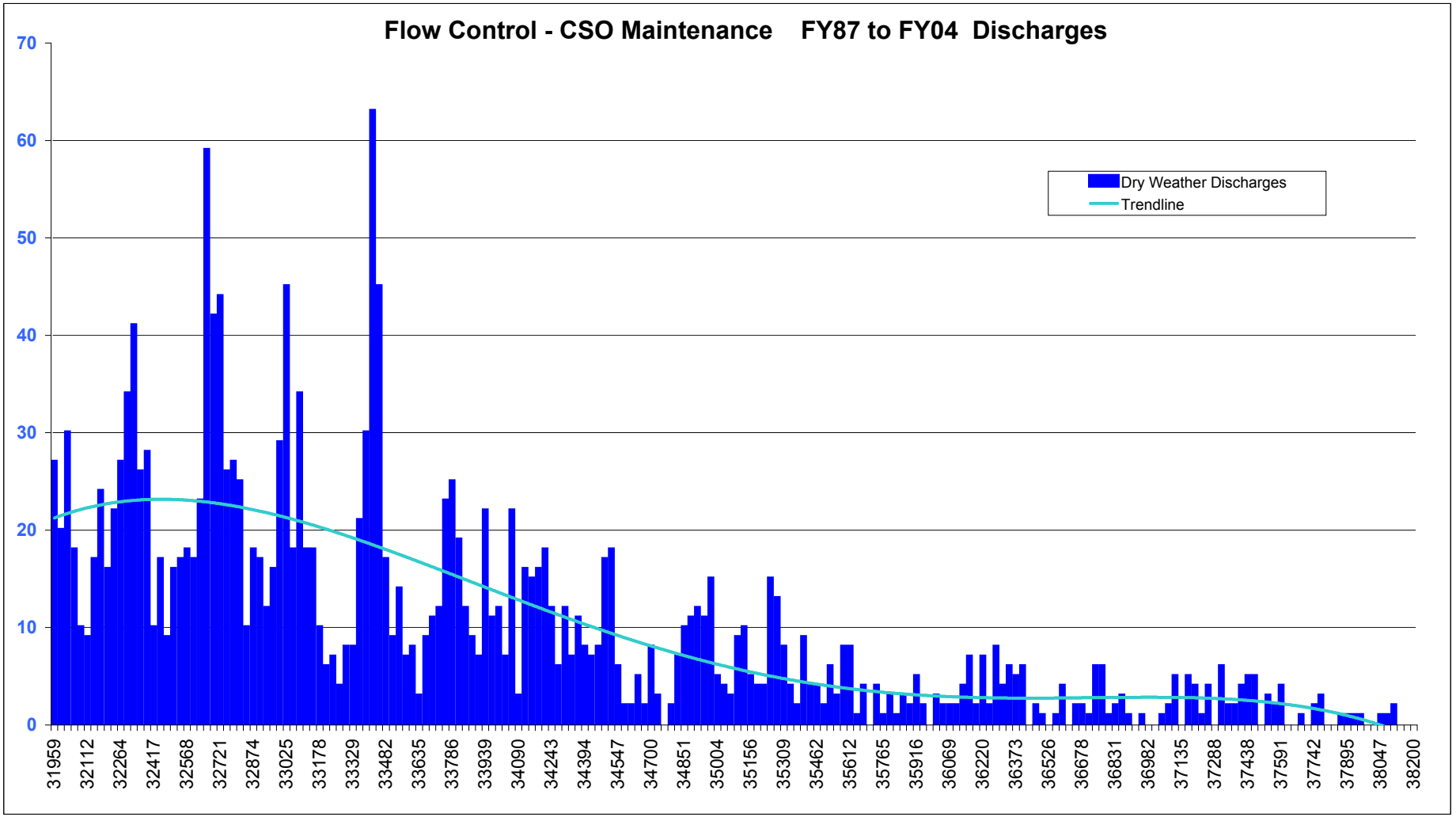
8347
9518
10195
12399
10332
CSO DISCHARGES
BLOCKS CORRECTED
INSPECTIONS


Flow Control - CSO Maintenance FY87 to FY04 Inspections / Discharges By Month
Discharges
Inspections
15,500
15,000
14,500
14,000
13,500
13,000
12,500
12,000
11,500
600
500
400
300
200
100
0
297
260
189
136
118
105
114
108
113
123
158
262
13370
14118
13439
14548
13695
14696
13692
12766
15276
13844
14252
13670
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun


PWD FLOW CONTROL - CSO DISCHARGE HISTORY - FISCAL YEAR 1994 TO 2004
R11
R9
R2
D22
C29
C36
C35
C33
C31
C11
C05
C04
S39
S28
S12A
D43
F03
T08
T01
F25
S46
S44
S26
S25
S16
D69
D67
D66
D63
D50
D47
D37
D20
D19
D12
T14
R18
S10
F24
C22
C18
C17
C10
S30
S03
S36
S35
T04
S11
F06
D07
S15
S09
S06
D68
D49
D41
D38
D17
R22
F11
F10
C23
C32
T12
P02
D05
S47
S24
S01
S31
S07
D58
D45
D39
D21
D04
R3
C26
C25
C16
C02
S12
D40
D03
S20
F14
R4
C13
C06
T09
F12
P04
S45
S33
S43
S22
S42A
S42
C30
C21
S36A
S23
S18
S08
R1
C20
C14
C07
D02
S34
S04
S37
P03
S19
C27
T03
D51
R10
F09
C19
S05
C09
C24
S38
S14
S02
T11
S50
T13
T10
FY94
FY95
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY04
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Dry Weather Discharges


Flow Control - CSO Maintenance FY87 to FY04 Discharges
Dry Weather Discharges
Trendline
70
60
50
40
30
20
10
0
31959
32112
32264
32417
32568
32721
32874
33025
33178
33329
33482
33635
33786
33939
34090
34243
34394
34547
34700
34851
35004
35156
35309
35462
35612
35765
35916
36069
36220
36373
36526
36678
36831
36982
37135
37288
37438
37591
37742
37895
38047
38200

T-04 FLOATABLES CONTROL - MAINTENANCE COST - 1997 / 2004

Servicing of the debris net at the T-04 regulator is approximately 1 hours work.
This includes a 2 man crew from Inlet Cleaning to remove the bags and dump the debris
and a 2 man crew from Flow Control to install new nets. Each replacement costs roughly $396.11

Net cost for 2 nets	$110.00
Crew cost	$281.30
Disposal cost	$4.81
Total per Job	$396.11
Roughly 7 times per Yr.	$2,772.78

Total Crew Cost	**$281.30**
Combo, hourly cost	$31.95
Utility Large, hourly cost	$15.38
Total cost	$47.33
* from Unified Indirect Cost Plan 1996	
Flow Control labor / Hr.	$15.97
x's 2 workers	$31.95
Inlet Cleaning labor / Hr.	$13.64
x's 2 workers	$27.28
Total Man Hour cost	$59.23
Man Hour cost	$59.23
Unified Indirect	
cost percent markup	295.00%
Total Labor cost	$233.97

Disposal cost	**$4.81**
Debris disposal cost / ton	$53.40
Debris disposal cost / lb.	$0.03
average weight lbs.	180.23

REPLACEMENT HISTORY	
Date Replaced	Total weight 2 bags
04/24/97	75
05/08/97	150
06/06/97	200
07/18/97	200
08/19/97	150
10/02/97	75
11/19/97	75
12/27/97	90
03/06/98	100
07/08/98	125
08/13/98	150
09/04/98	150
11/18/98	150
01/20/99	225
04/07/99	175
06/02/99	100
06/15/99	75
03/08/00	150
04/06/00	250
06/09/00	130
07/05/00	Net lost
08/10/00	265
09/11/00	115
10/12/00	160
11/01/00	100
02/21/01	275
03/13/01	Net lost
04/05/01	135
06/05/01	235
07/20/01	105
08/23/01	185
10/04/01	155
01/03/02	240
02/13/02	140
04/18/02	150
05/17/02	325
06/21/02	375
09/05/02	210
12/18/02	235
03/11/03	240
06/11/03	275
07/31/03	282
09/10/03	190
09/26/03	250
10/17/03	175
12/19/03	175
02/13/04	135
05/07/04	210
06/21/04	260
07/23/04	215
08/25/04	375
10/05/04	175
12/28/04	395
TOTAL	**9552**
COUNT	**51**

Appendix B – Flow Control Pumping Station Maintenance Summaries

PWD FLOW CONTROL UNIT

PUMPING STATION MAINTENANCE

CALENDAR YEAR 2004

OUTLYING PUMPING STATION - CAPACITIES

There are sixteen outlying wastewater pumping stations that pump to the three Water Pollution Control Plants. Listed below are the station capacities, maximum flows and general condition.

WASTEWATER PUMPING STATION LOCATION	NO. PUMPS IN STATION	RATED CAPACITY PER PUMP GPM	ACTUAL STATION CAPACITY GPM	MAXIMUM INFLOW PERIOD GPM	WPC PLANT FLOW DESTINATION	GENERAL CONDITION
BANK STREET	2	250	496	49	SEWPC	Good, new pumps, controls and electric gear installed in 1994
BELFRY DRIVE	2	150	389	71	SWWPC	Good, built 1978 One pump rebuilt in 2000 One pump rebuilt in 1998
C.S.P.S. VARIABLE SPEED UNIT CONSTANT SPEED UNIT	 4 2	 29,000 29,000	135,417	135,417	SWWPC	Good, station was fully automated in oct. 1996. One pump rebuilt in 2002 Two pumps rebuilt in 1997 One pump rebuilt in 2003 Two pumps rebuilt in 1999
FORD ROAD	2	900	1,467	148	SWWPC	Excellent, station completely One pump rebuilt in 2000 One pump rebuilt in 1999
HOG ISLAND ROAD	2	500	927	450	SWWPC	Excellent, new facility in 1989 One pump rebuilt in 2000 One pump rebuilt in 1998
LINDEN AVENUE	2	1,400	2,378	179	NEWPC	Good, built in 1967 One pump rebuilt in 2001 One pump rebuilt in 2000
LOCKART STREET	2	600	1,243	148	NEWPC	Good, built in 1967 One pump rebuilt in 1998 One pump rebuilt in 1999
MILNOR STREET	3	300	1,096	479	NEWPC	Good, built in 1947 One pump rebuilt in 2000 One in 1998, one in 1997
NEILL DRIVE	3	1,800	5,568	3,712	SWWPC	Good, completely rehabilitated in 2002
POLICE ACADEMY	2	100	53	22	NEWPC	Good, new pumps, controls and electric gear installed in 1993
PHILA NAVAL BUSINESS CTR PS796	3	2,250	6,750	1,110	SEWPC	Good, new pumps, controls and electric gear installed in 2000
PHILA NAVAL BUSINESS CTR PS120	2	700	1,400	939	SEWPC	Good, built in 2000
PHILA NAVAL BUSINESS CTR PS542	2	300	600	113	SEWPC	Good, built in 2000
RENNARD STREET	2	400	329	49	NEWPC	Good, built in 1968 One pump rebuilt in 1999 One pump rebuilt in 2002
SPRING LANE	2	122	242	20	SWWPC	Good, built in 2000
42ND STREET	3	2,000	5,953	5,953	SWWPC	Good, complete rehab in 2002

WASTEWATER PUMPING
FY2004 OVERHAUL SCHEDULE

REPORT FOR: FY2004

COMPLETED	20	23	AVERAGE DAYS TO OVERHAUL IN FY2004
PROGRESSING	0	42	AVERAGE DAYS TO OVERHAUL PAST YRS

START	FINISH	MAIN PUMPING UNITS			STATUS	OOS DAYS
6/10/2003	8/11/2003	Broad & Blvd.	#	2	COMPLETE	62 DAYS
08/04/03	10/22/03	CSPS	#	5	COMPLETE	79 DAYS
3/1/2004	4/2/2004	CSPS	#	1	COMPLETE	32 DAYS
2/23/2004	2/25/2004	BANK STREET	#	2	COMPLETE	2 DAYS
4/6/2004	4/13/2004	RENNARD STREET	#	2	COMPLETE	7 DAYS
4/14/2004	4/30/2004	HOG ISLAND	#	2	COMPLETE	16 DAYS
4/5/2004	4/7/2004	LINDEN AVE.	#	1	COMPLETE	2 DAYS
05/10/04	05/19/04	MILNER ST.	#	3	COMPLETE	9 DAYS
01/06/04	01/07/04	SPRING LN.	#	2	COMPLETE	1 DAYS

START	FINISH	AUXILIARY EQUIPMENT			STATUS	OOS DAYS
10/9/2003	10/10/2003	Rennard Sump pump			COMPLETE	1 DAYS
9/17/2003	9/18/2003	D-02 Sump pump			COMPLETE	1 DAYS
9/19/2003	9/22/2003	Neill Dr. Dimminuter			COMPLETE	3 DAYS
12/15/2003	12/18/2003	Mud1 valve actuator	#	1 dnst	COMPLETE	3 DAYS
12/21/2003	12/26/2003	Mud1 valve actuator	#	2 dnst	COMPLETE	5 DAYS
10/10/2003	10/11/2003	P796 Sump pump	#	1	COMPLETE	1 DAYS
10/11/2003	10/12/2003	P796 Sump pump	#	2	COMPLETE	1 DAYS
12/16/2003	12/17/2003	D-05 Sump pump			COMPLETE	1 DAYS
10/16/2003	10/17/2003	Belfry Sump pump			COMPLETE	1 DAYS
12/17/2003	12/18/2003	Milner Sump pump			COMPLETE	1 DAYS
1/6/2004	1/8/2004	CSPS S. Rack Replaced			COMPLETE	2 DAYS

FLOW CONTROL UNIT
2004 PUMP STATION YEARLY FLOW REPORT

WASTEWATER PUMP STATIONS	PUMP #1	PUMP #2	PUMP #3	PUMP #4	PUMP #5	PUMP #6	STATION FLOW (MG)
BANK STREET	3.89	3.63					7.51
BELFRY DRIVE	4.31	4.02					8.34
CENTRAL SCHUYLKILL	3,457.13	5,296.39	1,300.30	546.20	6,033.45	6,076.97	22,710.45
FORD ROAD	7,563.04	44.28					7,607.32
HOG ISLAND	14.60	11.07					25.67
LINDEN AVENUE	32.32	26.64					58.96
LOCKHART STREET	34.33	31.60					65.93
MILNOR STREET	3.27	3.49	3.96				10.71
NEILL DRIVE	140.48	164.00	161.56				466.05
POLICE ACADEMY	0.48	0.49					0.98
RENNARD STREET	4.81	4.75					9.56
SPRING LANE	3.53	3.47					7.00
42ND STREET	547.97	383.44	367.60				1,299.02
STORMWATER PUMP STATIONS							
BROAD & BOULEVARD	482.28	34.41	112.86	1.00			630.56
MINGO CREEK	3,008.11	0.00	958.68	706.62	249.97	19,937.97	24,861.34
26TH & VARE	2.13	0.94					3.07

PHILADELPHIA WATER DEPARTMENT	FISCAL YEAR 2004 ACTUAL	SERVICE LEVEL GOALS AND PERFORMANCE MEASURES

Division	BY	RESPONSIBILITY CENTER	NO.	FUND	DATE PREPARED
OPERATIONS	GEORGE COLLIER	COLLECTOR SYSTEM - FLOW CONTROL	28	WATER	End of Fiscal Year

MAJOR SERVICE ACTIVITIES PERFORMED BY THIS DIVISION / RESPONSIBILITY CENTER

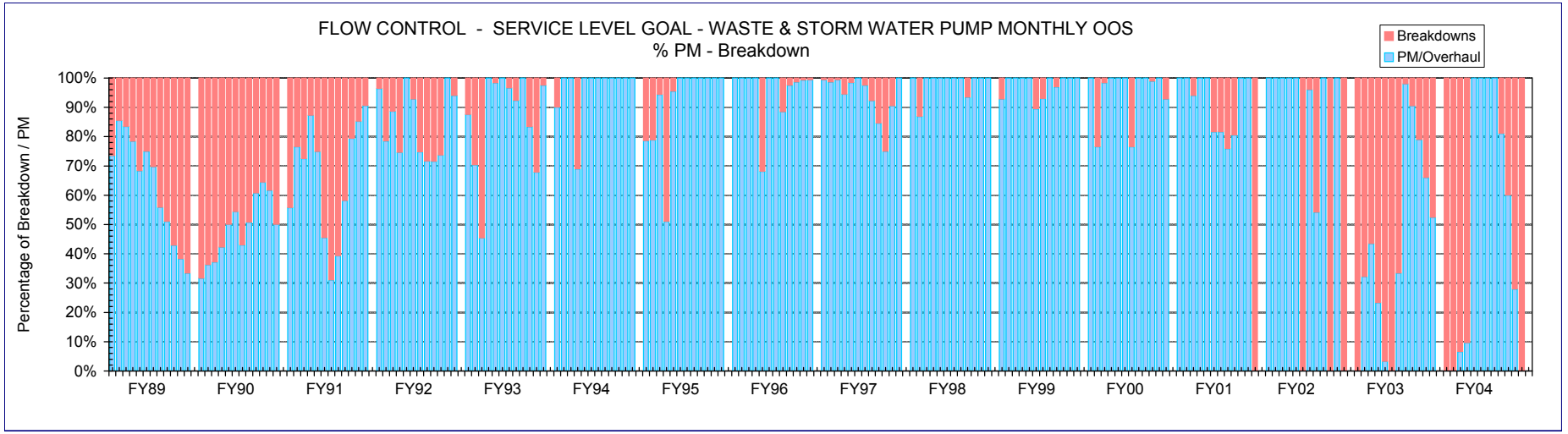
NAME/DESCRIPTION OF SERVICE	UNIT OF MEASUREMENT (1)	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	**Monthly Average**	**Yearly Total**
Main Wastewater Pump Availability (goal is 95% or higher)	Percent	98.1%	97.8%	97.2%	96.9%	100.0%	100.0%	99.9%	99.9%	97.8%	97.5%	97.4%	99.9%	**99%**	---
CSO Dry Weather Discharges (goal is zero discharges)	CSO Discharges / 100 Inspections	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.0	**0.07**	**0.8**
CCTV Inspections of Sewer Infrastructure (goal is 1 Mile/ Crew / Week = 30.3 Miles)	Feet Miles	21,015 4.0	16,321 3.1	24,197 4.6	28,679 5.4	18,596 3.5	19,845 3.8	11,433 2.2	15,221 2.9	29,743 5.6	22,661 4.3	24,756 4.7	25,107 4.8	**21,465** **4.1**	**257,574** **49**
Metering Chamber Meters Operational (goal is 95% or higher)	% of 23 Meters / mo.	90%	75%	80%	80%	89%	90%	96%	78%	75%	75%	72%	81%	**82%**	---
CSO Level/Flow Meters Operational (goal is 90% or higher)	% of 142 Sites / mo.	29%	28%	26%	25%	27%	32%	36%	38%	34%	36%	32%	29%	**31%**	---

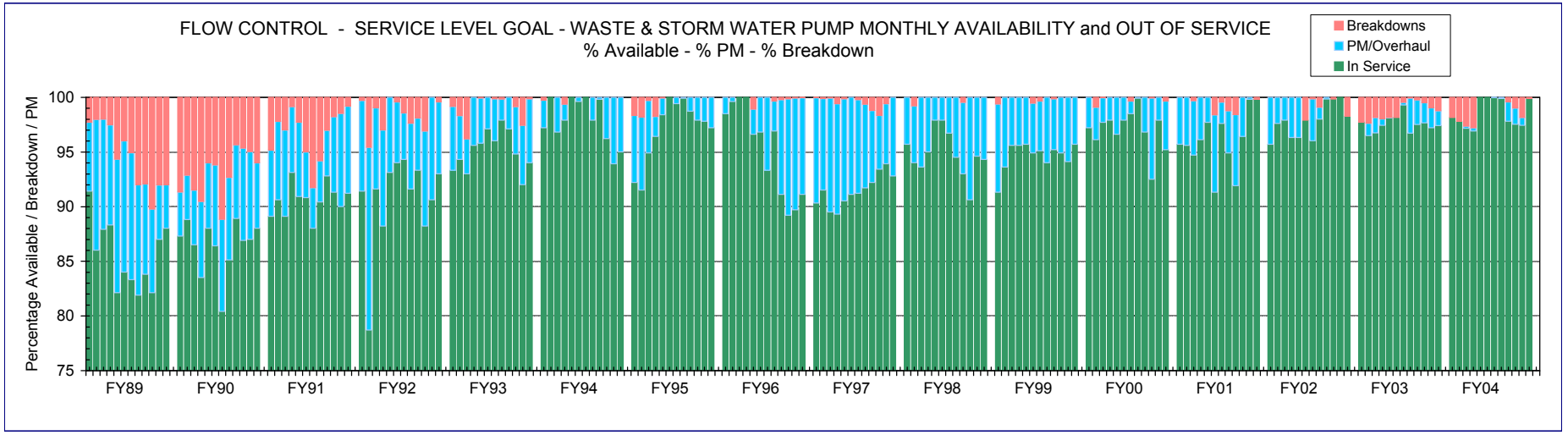
WASTEWATER PUMPING - MAIN PUMPING UNITS

OUT OF SERVICE

366	**DAYS IN THE PERIOD Jan-01-04 TO Dec-31-04**
474336	TOTAL POSSIBLE IN SERVICE HOURS
4128	TOTAL PUMP OOS HOURS
58.7%	OOS FOR BREAKDOWN
0.0%	OOS FOR PREVENTATIVE MAINTENANCE
41.3%	OOS FOR OVERHAUL
99.1%	**OVERALL AVAILABILITY FOR SELECTED PERIOD**

DATE OUT	TIME OUT	DATE IN	TIME IN	UNIT	STATION	TYPE	REASON
12/09/04	8:00 AM	12/09/04	1:00 PM	2	POLICE ACA	OV	OVERHAUL - COMPLETE UNIT
12/06/04	9:00 AM	12/07/04	12:00 PM	1	POLICE ACA	OV	OVERHAUL - COMPLETE UNIT
11/28/04	4:00 AM	11/30/04	3:00 PM	3	CSPS	BD	MOTOR TRIPS OUT OVERCURRENT
11/01/04	3:00 PM	11/02/04	3:30 PM	3	CSPS	BD	MOTOR TRIPS OUT OVERCURRENT
10/21/04	3:00 PM	10/22/04	11:00 AM	1	LOCKART ST	BD	PUMP / MOTOR - COUPLING FAILURE
10/14/04	5:45 AM	10/14/04	11:30 AM	2	CSPS	BD	INSTRUMENTATION OTHER P/M PROBLEM
09/16/04	7:00 AM	09/17/04	2:00 PM	4	CSPS	BD	INSTRUMENTATION CONTROL PROBLEM
09/15/04	12:00 PM	09/16/04	1:00 PM	3	42ND ST	BD	LOUD BEARING NOISE
08/30/04	12:00 AM	09/13/04	1:00 PM	4	CSPS	BD	INSTRUMENTATION CONTROL PROBLEM
08/04/04	2:00 PM	08/06/04	3:00 PM	4	CSPS	BD	MOTOR CONTROL PROBLEM
07/19/04	1:28 PM	07/26/04	2:20 PM	2	BROAD ST	BD	MOTOR BREAKER FAILURE
07/13/04	9:00 AM	07/20/04	2:46 PM	1	MINGO CREEK	BD	ELECTRICAL REPAIR
06/30/04	11:13 AM	07/08/04	1:00 PM	2	BROAD ST	BD	MOISTURE SENSOR TRIPPING
05/10/04	9:00 AM	05/19/04	11:45 AM	3	MILNOR ST	OV	OVERHAUL - COMPLETE UNIT
05/04/04	9:30 AM	05/07/04	11:00 AM	1	LINDEN AVE	OV	OVERHAUL - COMPLETE UNIT
04/14/04	12:00 PM	06/03/04	2:00 AM	1	CSPS	BD	MOTOR BEARING HIGH TEMPERATURE
04/14/04	12:00 PM	04/30/04	2:00 PM	2	HOG ISLAND	OV	OVERHAUL - COMPLETE UNIT
04/06/04	9:00 AM	04/13/04	12:00 PM	2	RENNARD ST	OV	OVERHAUL - COMPLETE UNIT
03/03/04	2:38 PM	03/10/04	2:30 PM	3	NEILL DR	BD	VALVE - ROTOVALVE FAILURE
03/01/04	9:30 AM	04/02/04	12:30 PM	1	CSPS	OV	OVERHAUL - COMPLETE UNIT
02/23/04	8:00 AM	02/25/04	2:00 PM	2	BANK ST	OV	OVERHAUL - COMPLETE UNIT
01/06/04	8:00 AM	01/07/04	9:18 AM	2	SPRING LA	OV	OVERHAUL - COMPLETE UNIT


FLOW CONTROL - SERVICE LEVEL GOAL - WASTE & STORM WATER PUMP MONTHLY OOS
% PM - Breakdown
Breakdowns
PM/Overhaul
Percentage of Breakdown / PM
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
FY89
FY90
FY91
FY92
FY93
FY94
FY95
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY04


FLOW CONTROL - SERVICE LEVEL GOAL - WASTE & STORM WATER PUMP MONTHLY AVAILABILITY and OUT OF SERVICE
% Available - % PM - % Breakdown
Breakdowns
PM/Overhaul
In Service
Percentage Available / Breakdown / PM
100
95
90
85
80
75
FY89
FY90
FY91
FY92
FY93
FY94
FY95
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY04