PHILADELPHIA WATER DEPARTMENT

Annual CSO Status Report

2003

Chapter 94: Wasteload Management Report

March 31st, 2004

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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 2003, to manage and reduce the combined sewer overflows (CSO's) 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-2004**
323 TOTAL of ALL NETWORK MONITORING SITES		
39 SITES NOT INSTALLED		
284 SITES INSTALLED		
Status of the 284 Installed Sites	41%	Operational
22 of 23 METERING CHAMBERS INSTALLED	76.0%	Operational
24 of 24 RAIN GAUGE SITES INSTALLED	67.6%	Operational
149 of 200 CSO SITES INSTALLED	36.3%	Operational
89 of 96 Priority Sites	33.6%	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 CSO's, 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.

During calendar 2003, the Somerset Grit Chamber was cleaned 7 times on the following dates:

Date	Tons Removed
01/06/03	56.82
03/18/03	45.52
07/02/03	75.56
09/09/03	94.00
11/19/03	53.20

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 CSO's 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.

Since the installation of the netting device, 88 nets have been replaced (44 visits) with an approximate total of 7787 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.

Repair, Rehabilitation, and / or expansion of debris grills was performed at the following sites during calendar year 2003:

Calendar Year 2003

SITE	DATE(s)
D-02	7/17/2003
	12/20/2003
D-03	12/19/2003
F-05	1/21/2003
	5/19/2003
	6/6/2003
	6/27/2003
	7/21/2003
	9/25/2003
	11/21/2003
	12/20/2003
T-08	12/20/2003
Sandy Run	12/22/2003

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 2003 include:

- Grasscycling – Recycling Your Grass Clipping
- Streets Department Curbside Recycling Program
- Every Drop of Water Comes from Our Watersheds (watersheds and CSO's)
- In's & Out's of Sewer Inlets
- PWD Drinking Water Week
- Yo! No Dumping! Drains to River (Inlet Stenciling Program)
- Coast Day Event

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 2003 include:

Spring '03 Edition – This issue featured an update on the river conservation plan public activities, featuring a bus tour of the historic Wingohocking Creek, once the largest above ground tributary to the Tacony Creek. The bus followed the combined sewer that now contains the creek from its headwaters in Mt. Airy/Chestnut Hill to its confluence with the Tacony Creek, now one of the largest outfalls in the City at "I" and Ramona Streets. Also featured was the Tookany/Tacony-Frankford Partnership's progress in the development of a watershed management plan.

1.7.3 Comprehensive Education Materials

The following projects were initiated and/or completed in calendar year 2003:

- 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, and the Schuylkill Center for Environmental Education.
- Development (continuing) of watershed self-guided tour booklets for the city's eight watersheds
- Continued research/development 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 Pennypack River Conservation Plan and the hosting of the first Steering Committee meeting in January 2004. DCNR awarded PWD and its partners a River Conservation Plan grant for the Pennypack Creek watershed for Philadelphia and Montgomery counties. PWD and its partners began a visual assessment of the Pennypack Creek and is planning for a number of outreach events in the spring 2004.
- The development of a website (www.phillywater.org/Partnerships) for the Pennypack 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 first draft of the Tacony-Frankford River Conservation Plan.

General Educational projects in calendar year 2003 - 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.

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 2003, the CAC targeted 20 businesses and provided a list of suggested BMPs for the business partners to implement.

"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. The next advertising campaign will be on dog waste control.

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 2003, over 500 volunteers participated in the storm drain marking activity. Throughout the month of April, approximately 2,500 storm drains were marked in the City of Philadelphia by 165 teams. The CAC is expecting the same level of activity in April 2004.

"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. The Awards Ceremony was held on April 22, 2003 at the Sheraton Society Hill Hotel in Philly's Old City neighborhood. This year's award ceremony is scheduled for the end of 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. Over 100 partners attended a Kick-Off/Premiere, held on March 26, 2003 at the Academy of Natural Sciences. Over a six week period 65 shows were held throughout the City, in schools and community settings. More than 9,000 students saw the performance at their schools and more than 1,000 at the community venues. Through these assemblies, students learn about watersheds, the Delaware Estuary, biodiversity, and most importantly stormwater runoff pollution and what they can do to prevent this pollution from entering our waterways. Each performance is tailored to the specific watershed in which the school is located.

1.7.5 City-Wide Initiatives

Homeowner Outreach Project: Global Action Plan
The Philadelphia Water Department contracted with environmental outreach organization the Empowerment Institute to educate homeowners in Mill Creek, West Oak Lane, and North Philadelphia neighborhoods about stormwater runoff at their property, specifically addressing concerns related to housing conditions and deterioration caused by water infiltration and poor drainage. This project is geared toward preventative maintenance but addresses homes in need of repair as well.

Specifically, Global Action Plan staff is:

A) Teaching residents about preventative maintenance techniques to properly manage stormwater run-off and water infiltration at their properties through PWD's Homeowner's *Repair Manual.*

B) Providing residents' with information on financial aid and grant programs to implement preventative maintenance and home repair projects related to infiltration.

C) Directing residents to hands-on workshops relevant to homeowner repair maintenance responsibilities related to infiltration. The workshops are created by created by PWD staff.

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.

Grand Opening of Fairmount Water Works Interpretive Center:

In a series of festive events on Tuesday and Wednesday, the 28th and 29th of October 2003, the Fairmount Water Works Interpretive Center was launched to the public.

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.

After their first month of operation, the Waterways Restoration Team pulled approximately 14.6 tons of debris from the Cobbs, Tacony and Pennypack Creeks along with floatables and trash from the Manayunk Canal and Fairmount Fish Ladder. Since then, with increased cohesion between PWD and FPC staff and more readily accessible equipment, the rate of removal has dramatically increased. Between July 2003 and February 2004, our crews have removed over 115 tons of debris from Philadelphia's Waterways". In January 2004 alone, WRT's staff pulled out 20.8 tons of debris from the Poquessing and Cobbs Creek . . .the equivalent of a pile of tires one quarter of a mile high!

In addition to the unbelievable amounts of trash that have been eliminated from our park and stream systems, the Waterways Restoration Team is involved in numerous projects related to stream and infrastructure restoration. Currently, WRU members have been meeting with our Design Team concerning a project designed to eliminate scour pools and attenuate flow from our storm water and combined sewer outfalls - a common problem throughout our waterways which can have a deleterious effect on the aquatic life. The team's first pilot project is designed to eliminate the scour pool beneath this outfall and redesign the channel to handle high flows before it reaches the Tacony Creek.

Northwest Watersheds Appreciation Day:
On November 15, 2003, 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.

With the receipt of its second million-dollar grant from The Delaware River Port Authority (DRPA), PWD was in the position to proceed with the construction planning. In support of the work, PWD also received a $240,000 grant from the state's Department of Conservation and Natural Resources (DCNR). Groundbreaking for the construction of the Interpretive Center took place in April 2001 and is the renovation is currently underway. The Center was completed in October of 2003.

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. Our 2003 display included a green roof and a rain barrel as garden features.

Community Outreach and the Captain Sewer Program:
The Water Department continues to organize and distribute information to the public about stormwater runoff and individual environmental stewardship for community groups and other civic and professional organizations. Literature and speakers are provided for community events, health fairs and city events. Captain Sewer teaches young children in schools, camps, libraries and day care centers about the effects of dumping trash and pollutants into stormwater inlets.

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 2003 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 will review and revise our public notification program in areas that have a reasonable likelihood for primary contact recreation. As part of our watershed management program development, PWD has been examining 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 new advisory is also under development for the Schuylkill River in conjunction with the Department's Water Quality Committee. In this respect, 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 take place 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.

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 2003 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. 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 2003 as required in the NPDES Permit. The table has been reorganized to present overflows by the specific receiving water into which the CSO's 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 2003.

1.9.1 Annual CSO Statistics (2003)

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

COBBS CREEK 2003 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 - 89	25	1280 - 1359	54% - 56%	0 - 352
Cobbs Creek Low Level	9	12	0 - 63	24	94 - 98	79% - 80%	0 - 192

DELAWARE RIVER 2003 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	0 - 64	33	855 - 903	64% - 65%	0 - 239
Somerset	8	9	32 - 82	52	3896 - 4169	50% - 52%	62 - 343
Lower Delaware Low Level	27	27	0 - 84	43	2669 - 2797	64% - 66%	0 - 371
Oregon	5	6	0 - 65	43	1294 - 1348	41% - 42%	0 - 222
Lower Frankford Low Level	5	6	29 - 68	46	1073 - 1142	50% - 51%	48 - 259

PENNYPACK CREEK 2003 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	18 - 61	34	69 - 73	74% - 74%	24 - 202

SCHUYLKILL RIVER 2003 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	-	103	36	1177	-	1215	63%	-	65%	0	-	479
Central Schuylkill West Side	10	10	0	-	99	47	663	-	655	54%	-	54%	0	-	476
Lower Schuylkill East Side	7	9	0	-	74	47	731	-	762	58%	-	59%	0	-	330
Lower Schuylkill West Side	4	4	5	-	85	56	1213	-	1271	23%	-	24%	6	-	331
Southwest Main Gravity	2	2	0	-	72	36	1885	-	2012	67%	-	69%	0	-	280

TACONY CREEK 2003 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	0	-	88	45	4027	-	4314	43%	-	45%	0	-	367
Upper Frankford Low Level	12	12	11	-	75	45	371	-	387	64%	-	65%	14	-	305

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 CSO's: 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 temporary flow monitors will be redeployed during the spring of 2004 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 CSO's 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 2004. By fall of 2004, 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 2004.

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

The specialized sewer-cleaning contract was split into two parts and was awarded to two different contractors. REI / Drayco 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.

Mobile Dredging and Pumping was responsible for cleaning the following three sewer sites:

Columbia Avenue trunk sewer just west of Beach Street. This trunk sewer starts at the first manhole access just west of Beach Street and extends through Intercepting Chamber D-42, 350 feet to the Delaware River Outfall.

Marlborough Street trunk sewer starts just upstream of Allen Street and extends 460 feet to Intercepting Chamber D-43 at the Delaware River

Frankford Avenue South of Frankford Creek. This trunk sewer starts at Intercepting Chamber F-10 and extends 455 feet upstream, through a junction chamber to 2nd access manhole located on Jasper Street.

REI / Drayco dropped from the sewer cleaning contract on July 7, 2003. The PWD asked Mobile Dredging and Pumping to continue the work.

The status of the sewer cleanings are as follows:

<u>Packer Avenue at Delaware Avenue twin trunk sewers</u>

This job started on March 31, 2003. The total length of the section that was cleaned was 140 linear feet. The total amount of debris removed from this sewer as of June 30, 2003, was 457 tons.

This job re-started on August 25, 2003 by Mobile Dredging and Pumping and was still ongoing at the end of the calendar year. As of December 31, 2003, the total length cleaned was 1,340 linear feet. The total amount of debris removed from this sewer was 618 tons. The total bid to clean this sewer is $168,832.20. As of December 31, 2003, an amount of $91,208.20 was paid to the contractor.

Bristol Street / Duncan Street trunk sewers under I-95
No work was performed on this job as of December 31, 2003. The total bid to clean this sewer is $196,305.30.

Columbia Avenue trunk sewer just west of Beach Street
The job started on 5/5/2003 and was completed on 5/14/2003. The total amount of debris removed was 8 tons. The total number of linear feet cleaned was 350. The total cost to clean this sewer was $1,127.00.

Marlborough Street trunk sewer
This job started on 5/7/03 and was completed on 6/30/03. The total amount of debris removed was 8 tons. The total length of the section of the sewer that was cleaned was 460 linear feet. The total cost to clean this sewer was $2,944.00.

Frankford Avenue South of Frankford Creek
This job started on 5/13/03 and was completed on 6/4/03. The total amount of debris removed was 3 tons. The total number of linear feet cleaned was 455. The total cost to clean this sewer was $4,025.00.

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 CSO's since April of 1997. Since the installation of the netting device, 88 nets have been replaced (44 visits) with an approximate total of 7787 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 CSO's.

Skimming Vessel Status: 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: The PWD received approvals from the Procurement Department to sole-source purchase the vessel. Members of the PWD worked with Hewitt Environmental to develop a final draft of the specs and included these in the purchase requisition package submitted to PWD's Project Control Unit on September 19, 2003.

On December 29, 2003, PWD's Procurement Department issued a go-ahead letter to Hewitt Environmental to commence construction on the vessel. The cost of the vessel has been 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 initiated in 1999 by the Philadelphia Water Department to create a framework for all stakeholders in the 75 square mile Darby-Cobbs watershed basin to provide environmentally sound solutions to improve the water quality of the Darby-Cobbs creeks. Permit holders,

participating agencies, and community-based organizations are constructing this framework based upon regulatory and voluntary activities. To this end, 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 but that also embraces the environmental/public sensitive approach to improve stream water quality and quality of life in communities. Members of the Darby-Cobbs Watershed Partnership include, in addition to the municipalities and townships that reside in the watershed:

- The Philadelphia Water Department
- The Fairmount Park Commission
- The Pennsylvania Environmental Council
- The PA Department of Environmental Protection
- The US Fish and Wildlife Commission
- The Cobbs Creek Community Environmental Education Center
- The Delaware Creek Valley Association
- The Delaware County Planning Department
- The Academy of Natural Sciences
- Lower Merion Township
- The Environmental Protection Agency
- Natural Lands Restoration Environmental Education Project
- Sunoco – South Philadelphia Refinery

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 following is a list of meetings that took place in 2003:

- February 5, 2003 - Public Participation Committee Meeting - Review of draft powerpoint presentation for community/civic associations meetings
- April 1, 2003 - Public Participation Committee Meeting - May 3 watershed tour planning, community/civic presentation update, watershed display boards for libraries and municipal buildings
- April 15, 2003 - DC Watershed Partnership - update on draft watershed management plan
- May 3, 2003 - Bus Tour for Municipal Representatives through the Cobbs Watershed and Presentation at CCCEEC
- June 20, 2003 - DC Watershed Partnership - Update on Watershed Management Plan
- September 11, 2003 - DC Public Participation Committee Meeting - Update on Civic Presentations, Update on management plan
- September 17, 2003 - PWD Urban Environmental Summit at FWWIC
- September 25 - DC Watershed Partnership - Update on Watershed Management Plan
- October 30, 2003 - DC Watershed Partnership - Presentation of History of Cobbs Creek Watershed

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.
The preliminary planning goals and objectives were presented to stakeholders for initial review. However, the final, prioritized goals and objectives were subjected to final review and approval only when the data analysis and modeling work were complete.

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.

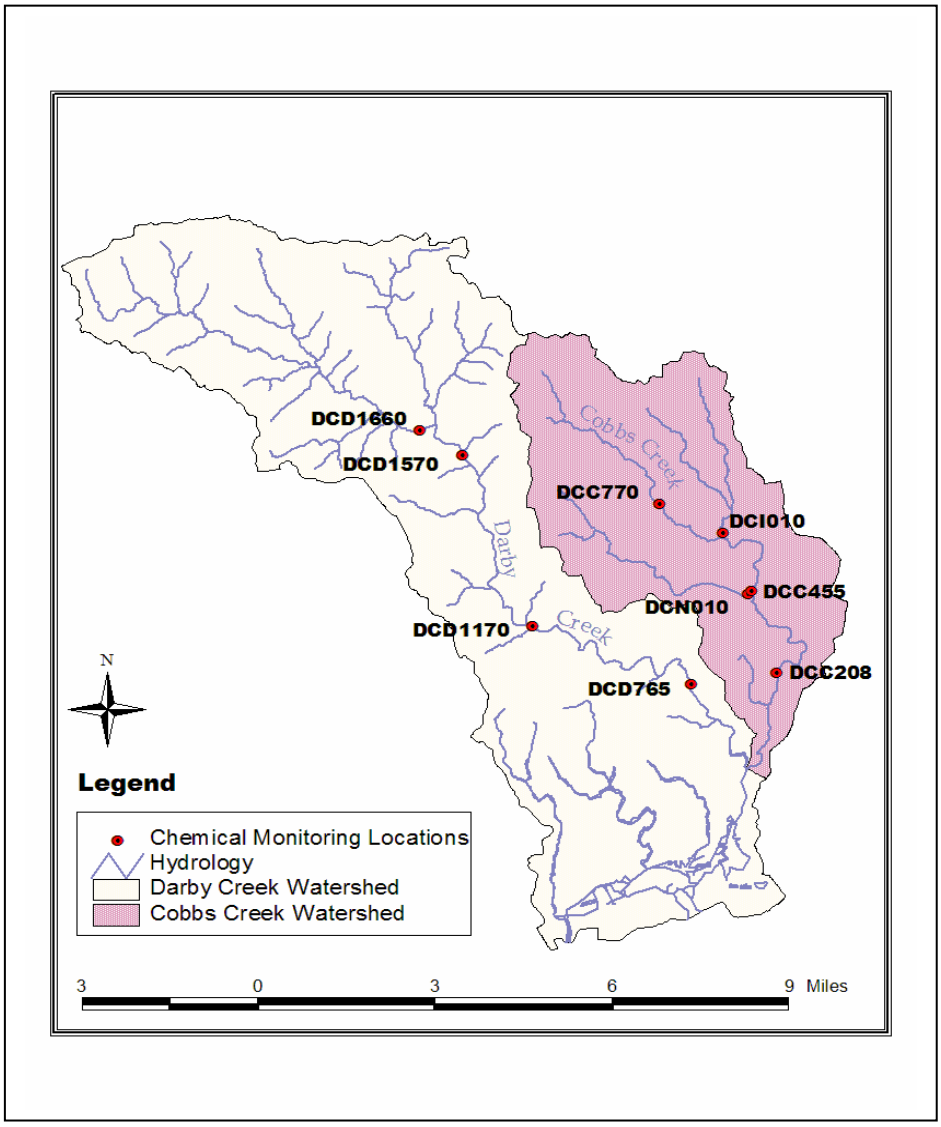

Figure 1. Discrete water quality stations in the Darby-Cobbs Watersheds (2003).

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 instream 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.

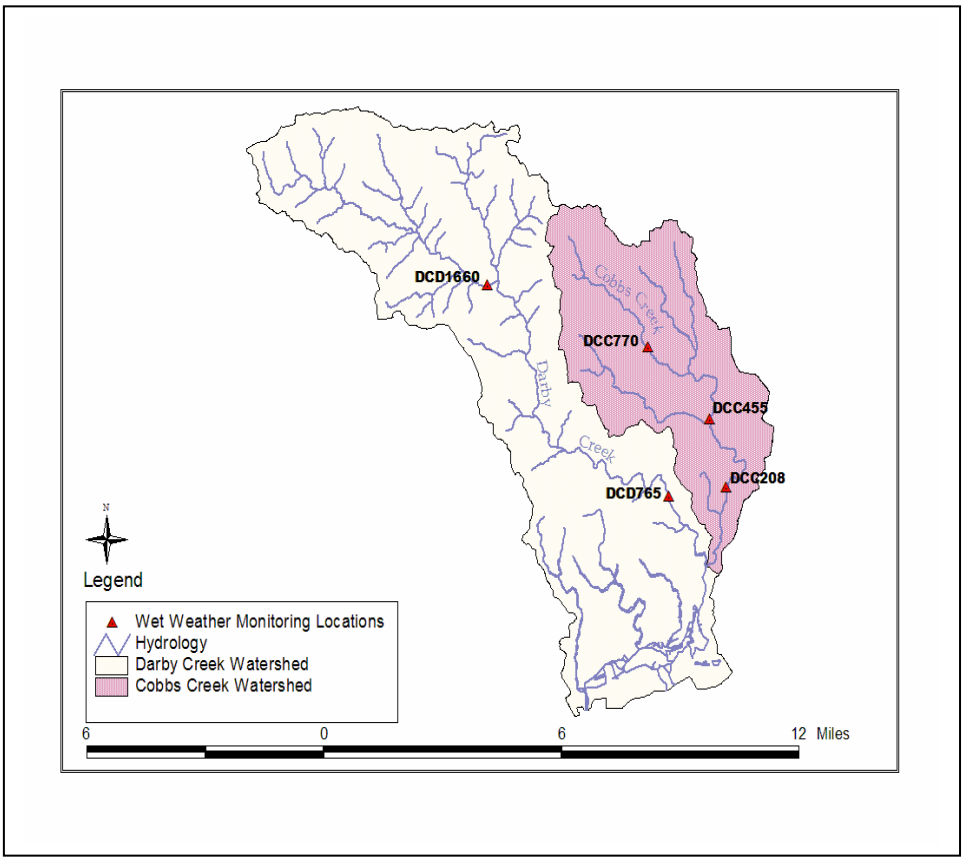

Figure 2. Wet-weather monitoring locations in Darby-Cobbs Watershed.

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).

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

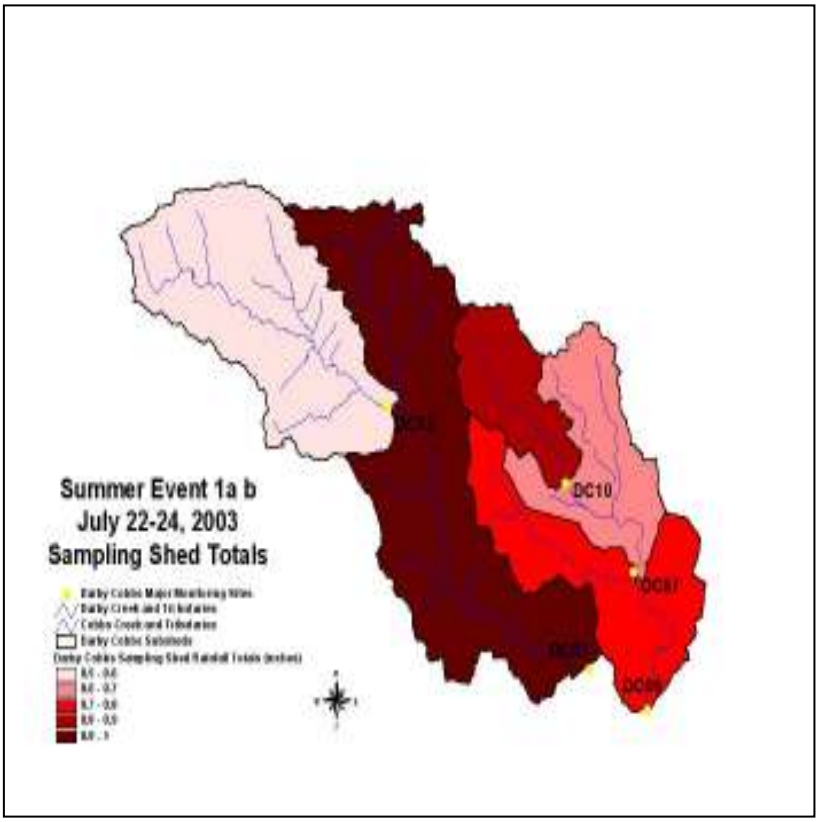

Figure 3. RADAR rainfall data collected in the Darby-Cobbs Watershed (July 22-July 24).

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.

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.

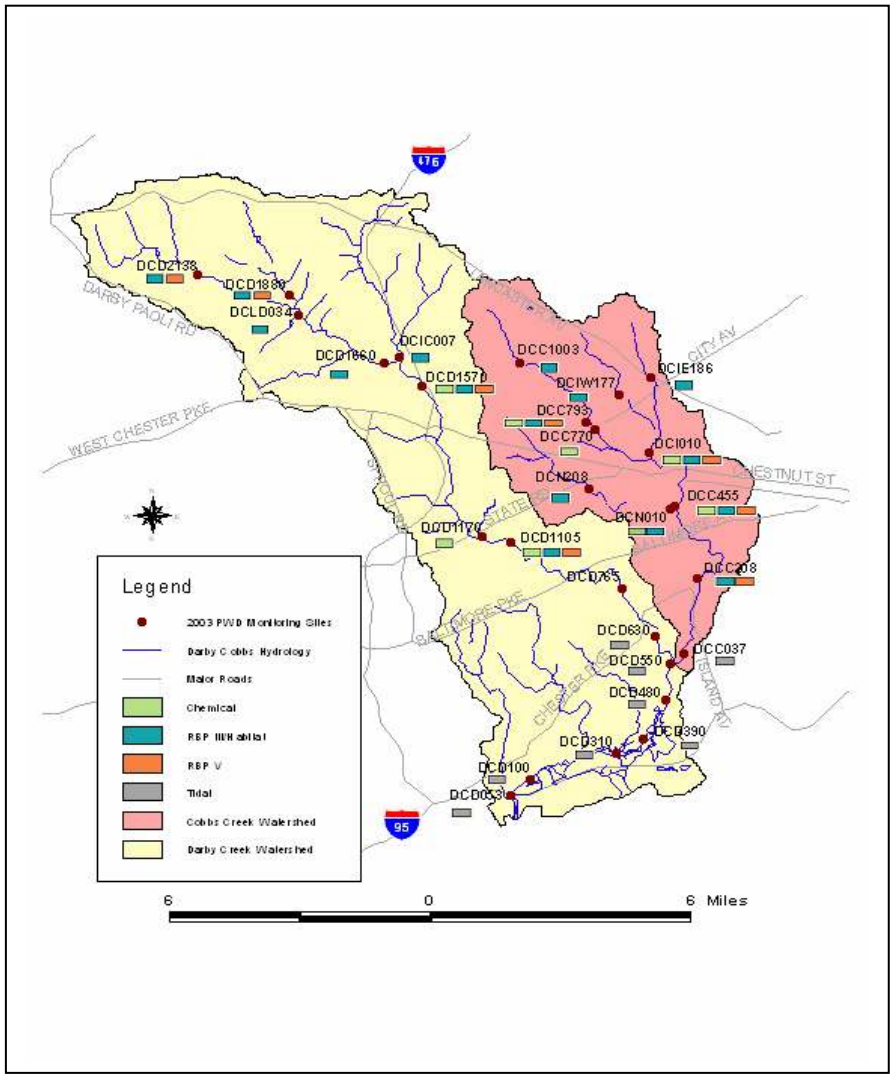

Figure 4. Biological and habitat monitoring locations in Darby-Cobbs Watershed.

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 PADEP's 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 2003 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 - 89	25	1280 - 1359	54% - 56%	0 - 352
Cobbs Creek Low Level	9	12	0 - 63	24	94 - 98	79% - 80%	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, CSO's 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.

During 2003, engineering assignments were generated from this design memorandum. The PWD has decided to combine together the engineering work for both the Rock Run and Tacony Creek Park storage

projects. The engineering firm of Hatch Mott McDonald has been retained to prepare bid documents for the Rock Run portion of the project. The preparation of the construction documents is scheduled to begin in January of 2004.

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, CSO's 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: See above. During 2003, engineering assignments were generated from this design memorandum. The PWD has decided to combine together the engineering work for both the Rock Run and Tacony Creek Park storage projects. The engineering firm of O'Brien & Gere was selected in March of 2003 to prepare bid documents for the Tacony Creek Park storage portion of the project. As of December 2003, O'Brien & Gere were finishing up the site plans and design for the gate and the structure that will house all gate controls.

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

The following components of the preliminary reconnaissance survey were produced in draft form in 2002:

- *Historical Flow and Water Quality for the Tookany-Tacony-Frankford Watershed*
- *Biologic Assessment of the Tookany-Tacony-Frankford Watershed*
- *Watershed Indicators for the Tookany-Tacony-Frankford Watershed*

2.2 Watershed Work Planning & Assessment

The watershed plan development process described for the Cobbs Creek watershed in the preceding section is in the process of being implemented in the Tacony Frankford Creek during and the draft plan is expected to be completed in September 2004.

2.2.1 Watershed Partnership

The PWD sponsored Tacony-Frankford Watershed kicked off with its first Partnership meeting on October 4th, 2000. 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 tap into 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:

- 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, we envision that more "hands-on" type of 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 applied for a DCNR grant in October to develop a River Conservation Plan for the Philadelphia county portion of the Tacony-Frankford watershed. The Partnership will be working closely to coordinate this grant with the River Conservation Plan in progress on the Tookany Watershed in Montgomery County. Cheltenham Township, a Partnership member, is developing this RCP.

The creation of a River Conservation Plan (RCP) for the Frankford-Tacony Watershed will enable the City to create an environmental and cultural planning inventory for a highly urbanized watershed with the ultimate goal to develop an holistic management plan that will facilitate restoration, enhancement and sustainable improvements in the designated watershed

The City is also supporting a number of public education initiatives suggested by the Public Participation committee of the Tacony-Frankford Watershed Partnership, formed in October 2000. Projects included watershed walks in Montgomery and Philadelphia counties along the streams and their tributaries. Walks were co-hosted by resident volunteers and partners this spring and summer. Projects completed include a creek clean up day, a pilot "self-guided" watershed walk, development of a newspaper series on the watershed, its history, challenges, amenities and future, and a logo design contest for watershed schools. The Partnership is also deeply immersed in the development of a River Conservation Plan for the Philadelphia County portion of the watershed. Through this planning process, the Partnership conducted a variety of outreach events in 2003, including an historic Wingohocking Tour, a presentation on the history of the Tacony Creek Watershed, an invasive species workshop, and visual stream assessments for the Philadelphia portion of Tacony Creek. The partnership also hosted a watershed celebration in a public event titled, "Return of the Blue Heron" in May 2003.

The following is a list of meetings that took place in 2003:

- January 13, 2003 - River Conservation Plan Steering Committee Meeting - update of plan progress
- January 16, 2003 - TTF Steering Committee Meeting - Rain Barrel Project Update and presentation of draft watershed indicators
- February 13, 2003 - TTF Public Participation Committee Meeting - General updates, spring Blue Heron event, watershed event at Awbury
- March 11, 2003 - TTF Public Participation Committee Meeting - Planning of Blue Heron Watershed Celebration Event
- April 21, 2003 - TTF Public Participation Committee Meeting - Blue Heron Event Planning, Awbury Watershed Day Update
- April 29, 2003 - TTF Watershed Partnership Meeting - Review of Goals and Objectives for Watershed Management Plan
- May 17, 2003 - Blue Heron Watershed Celebration and Awbury Watershed Awareness Day (Blue Heron visits various Phila. Cares About Fairmount Park volunteer sites - Community environmental fair at Juniata Park)
- May 21, 2003 - TTF Watershed Partnership meeting - Weighing of Goals and Objectives for Watershed Management Plan
- June 3, 2003 - TTF Public Participation Committee meeting - RCP Visual Assessment planning, rain barrel project update, PA Stream Signage program
- July 12, 2003 - Volunteer Training Session for RCP visual stream assessments

- July 22, 2003 - TTF Public Participation Committee meeting - Strategic Plan for the Partnership, Native Plants Workshop, RCP Visual Stream Assessment Update, Rain Barrel Project update
- July 30, 2003 - RCP Native Plants Workshop with Fairmount Park Commission
- September 17, 2003 - PWD Urban Environmental Summit at FWWIC
- September 24, 2003 - TTF Public Participation Committee meeting - Organization Models and discussion of planned Structure Committee
- October 14, 2003 - TTF Watershed Partnership - Update on Watershed Management Plan
- October 18, 2003 - Historic Wingohocking Bus Tour
- November 19, 2003 - First Meeting of Structure Committee - Advising on future organization structure of Partnership
- December 9, 2003 - RCP Steering Committee meeting - Review of Draft Plan and prep for Public Meeting to present draft plan
- December 17, 2003 - TTF Structure Committee Meeting - Defining goals for future Board

Pilot Rain Barrel Workshop:

PWD and Partnership members collaborated to create a series of Rain Barrel workshops which were during May and June 2003 in Montgomery and Philadelphia counties. At the workshops, residents received rain barrels and instructions on how to use them to capture stormwater from downspouts. Residents also learned about the natural and urban water cycle, and how and why municipalities are trying to find alternate ways to manage stormwater run off, rain barrels being one alternative method that can have an impact when implemented on a large scale. Participants have been asked to complete monthly monitoring sheets on their rain barrel usage.

Tour of Wingohocking Creek:

The RCP and Partnership Team sponsored a bus tour on October 19, 2002 that followed the route of the historic Wingohocking Creek, the largest tributary to the Tacony-Frankford Creek. The goal of the tour was to help inform watershed residents in the border areas of the watershed that they lived in the Tacony Creek watershed. The bus stopped at locations which featured topographical or historic structures which gave evidence of the stream, now contained within a combined sewer, which once ran visibly through these neighborhoods. Featured sites included: Awbury Arboretum, LaSalle University, Logan Triangle and the "I" and Ramona outfall. The tour was so successful that the Partnership is offered it again on October 18, 2003.

Return of the Blue Heron Event:

On Saturday, May 17, 2003 from 9 a.m. till noon, two Cessna-sized great blue heron touched down in various parts of the Tookany/Tacony-Frankford Watershed, delivering their "good eggs of approval" to volunteers working in the creeks and parks in their communities. One bird completed his journey at the Awbury Arboretum's Watershed Awareness Day, while the other bird joined watershed volunteers and a community fair and celebration at the Ferko Recreation Center at "J" and Cayuga Streets. Volunteer projects included park and streamside clean ups, removal of invasive plant species from the parks and streambanks, streambank restorations and tree plantings. All of these activities protect and improve the quality of our natural areas and the streams into which they drain when it rains.

The community fair and watershed celebration ran from noon till 2 p.m. at the Ferko Recreation Center. Volunteers and the public were invited to attend and participate in demonstration and table top exhibits sponsored by City agencies and non-profits (Water, Health, Fire, TownWatch, PA Department of Environmental Protection and many others), live music, local entertainment, a fish shocking demonstration, local mascots and refreshments. Philip Goldsmith, City Managing Director, and other public officials also attended.

The event was co-sponsored by Philadelphia Cares About Fairmount Park and by the Tookany/Tacony-Frankford Watershed Partnership to highlight the community stewardship and environmental successes that are taking place in the parks and along sections of the Tacony and Frankford Creeks.

Native Plants Workshop:
The RCP Team and the Fairmount Park Commission (FPC) hosted a Native Plants Workshop in Tacony Creek Park on July 30, 2003. Invasive plants have been identified as one of the top threats to the health of the city's natural ecosystems. Workshop participants were provided an opportunity to learn about both native and invasive plant species by FPC staff who pointed out a variety of examples along a quarter mile stretch of Tacony Creek. Participants viewed, touched, smelled and talked about the benefits of native plants and the horrors of invasive species and how to remove them.

Visual Stream Assessments:
The RCP Team hosted a workshop for volunteers on July 12, 2003 as a means to provide the public with an opportunity to participate and learn about the stream problems first hand and about sections of the stream that are in good shape and need further protection. These assessments also assisted with prioritizing the locations of restoration projects once the plan is completed and provide a baseline (a snapshot of existing conditions) that can be used to measure against the Watershed Management Plan. There were nine assessment areas beginning at the Cheltenham/Philadelphia border and ending at the Delaware River. Each segment was ¾ to 1-1/2 miles long and the assessments were done by two or more volunteers. The volunteers were asked to complete a three-page form detailing what they saw and if there were any odors detected. In addition, they were asked to write down any pertinent information on a detailed map of the assessment area. Photographs were taken to the document the conditions and then linked to the general location on a map of the area. The volunteers received training on how to identify trees and invasive plants, how to determine if there is streambank erosion, and how to determine the use of the stream by the public.

2.2.2 Monitoring and Field Data Collection

Wet-Weather Targeted Sampling

Similar to the water quality sampling on the Darby-Cobbs, PWD staff used automated samplers to conduct wet-weather sampling in the Tacony-Frankford Watershed during 2003. Four predetermined positions along the river continuum were chosen based on 3 criteria: 1) spatial relationship to each site; 2) variation in stream width/discharge characterization; and 3) accessibility (Figure 5).

A total of seven (n=7) wet-weather events were successfully captured during the spring and summer of 2003 with over 9024 chemical analytes being processed. PWD plans to continue its monitoring strategy on the Tacony-Frankford in 2004 to provide strong statistical power with regards to the determination of water quality stressors in this watershed.

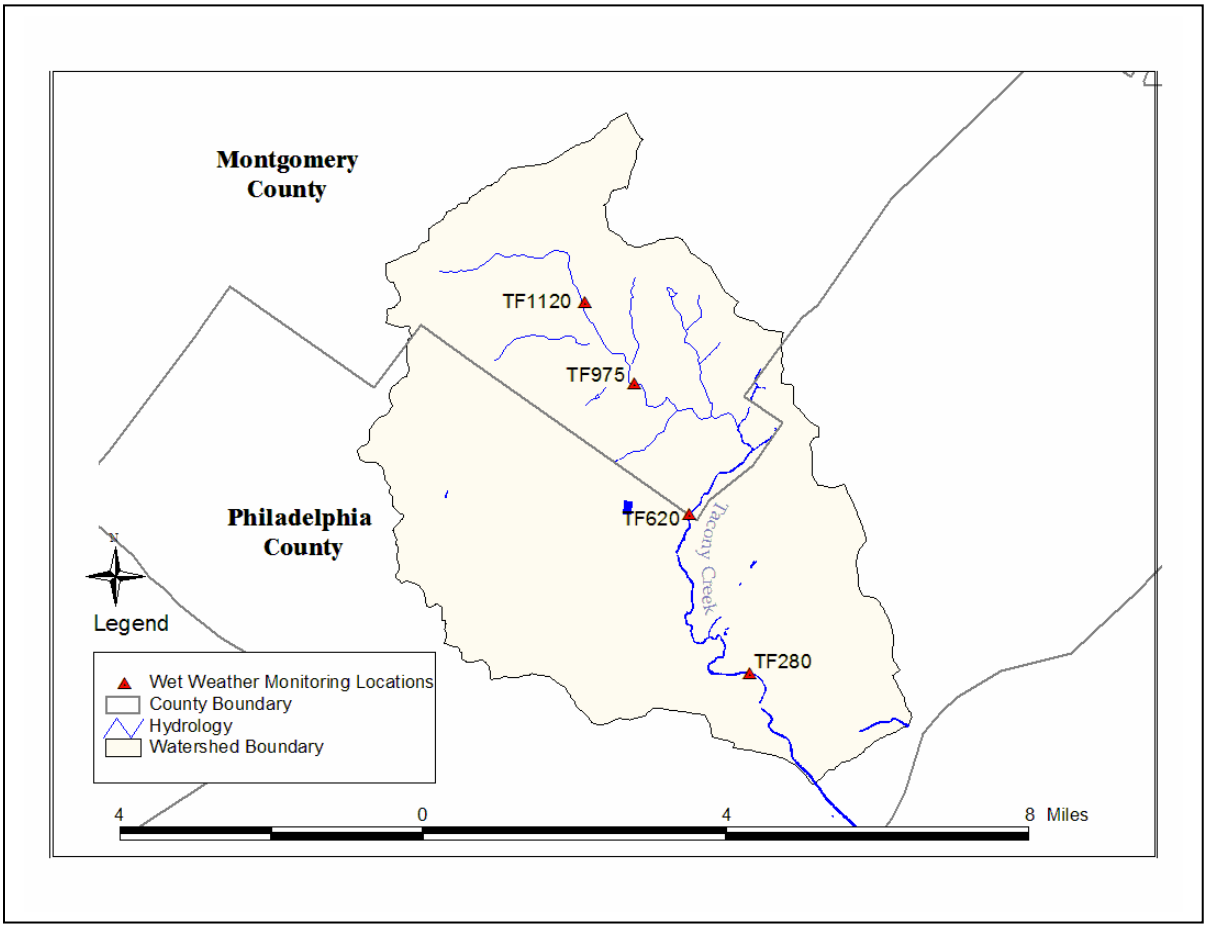

Figure 5. Wet weather monitoring locations in Tacony-Frankford Watershed

RADAR Rainfall Data and Analysis

During the reporting period, PWD extended its contract with Vieux and Associates, to further quantify rainfall intensity during storm events targeted by wet weather sampling in the Tacony Frankford Watershed. A total of six (n=6) rain events were captured using RADAR rainfall techniques during the spring and summer of 2003. Wet-weather data accompanied by rainfall intensity will be used to model pollution loadings in various sub-watersheds along the Tacony-Frankford Creek (Figure 6).

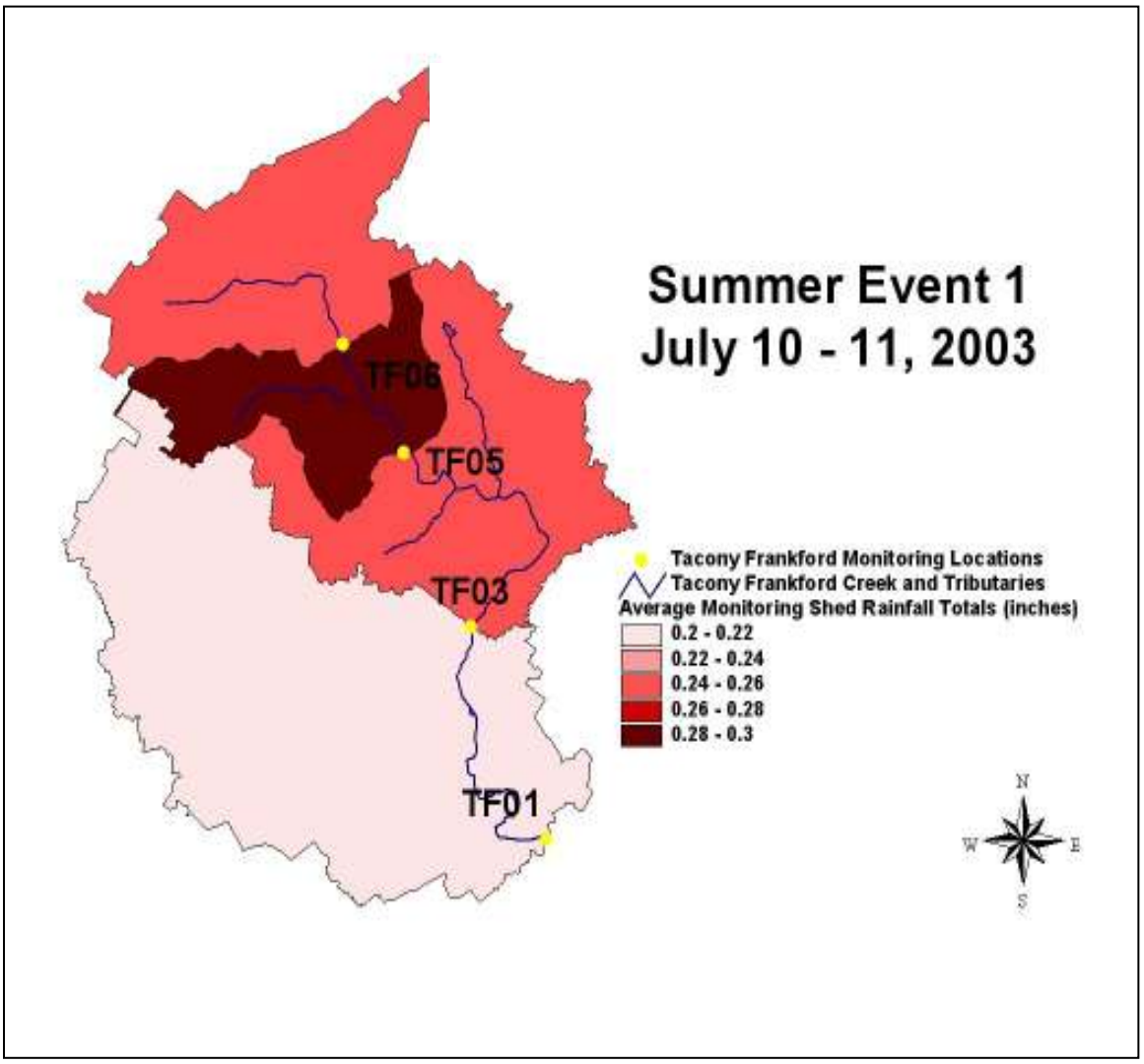

Figure 6. RADAR rainfall data collected in the Tacony-Frankford Watershed (July 10-July 11)

Continuous Water Quality:
In accordance with the CSO program's Long-Term Control Plan (LTCP), PWD continued to deploy monitoring strategies directed at both the quality and quantity of water within our watersheds. During the reporting period, PWD completed a total of forty-eight (n=48) continuous water quality-monitoring deployments in the Tacony-Frankford Watershed (Table 1).

TACONY-FRANKFORD								
Deployment Dates	Continuous Water Quality Monitoring Locations							
	TF-01	TF-02	TF-03	TF-04	TF-05	TF-06	TF-07	TF-08
03/04/03 - 03/12/03	X							
03/18/03 - 03/21/03	X							
03/31/03 - 04/15/03	X		X		X	X		
04/15/03 - 04/29/03	X		X		X	X		
04/29/03 - 05/13/03	X		X		X	X		
05/13/03 - 05/20/03	X		X		X	X		
05/30/03 - 06/12/03	X		X		X	X		
06/17/03 - 06/23/03	X							
07/08/03 - 07/14/03	X		X		X	X		
08/06/03 - 08/13/03			X					
09/17/03 - 09/25/03	X		X		X	X		
09/25/03 - 10/15/03	X		X		X	X		
10/15/03 - 10/30/03	X		X		X	X		
10/30/03 - 11/13/03	X		X		X	X		
11/13/03 - 11/26/03	X		X		X	X		

Table 1. Dates and locations of SONDE deployments in the Tacony-Frankford Watershed.

Continuous water quality-monitoring instruments were programmed to obtain chemical measurements of pH, conductivity, dissolved oxygen, turbidity, temperature and depth at 15-minute increments.

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 2003 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	0	-	88	45	4027	-	4314	43%	-	45%	0	-	367
Upper Frankford Low Level	12	12	11	-	75	45	371	-	387	64%	-	65%	14	-	305

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 2003. The design plans and specifications will be forwarded to Projects Control the first week of January. It is anticipated that the project will be bid in March 2004 and construction will start in June 2004.

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 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 2003 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	18 - 61	34	69 - 73	74% - 74%	24 - 202

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.

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

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 2003 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	0	-	64	33	855	-	903	64%	-	65%	0	-	239
Somerset	8	9	32	-	82	52	3896	-	4169	50%	-	52%	62	-	343
Lower Delaware Low Level	27	27	0	-	84	43	2669	-	2797	64%	-	66%	0	-	371
Oregon	5	6	0	-	65	43	1294	-	1348	41%	-	42%	0	-	222
Lower Frankford Low Level	5	6	29	-	68	46	1073	-	1142	50%	-	51%	48	-	259

[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: A design memorandum was produced that lists the expected environmental benefits of the Main Relief Project, quantifies the flooding risks associated with the project, and documents the designed 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 Main Relief storage utilization and eliminated adverse affects of the project at other CSO regulators on the Schuylkill River. Final design plans and specifications were completed in mid-2003. In November of 2003, the project was advertised and bid. The bid was awarded in mid-December to Ross Arrico for an amount of $1,029,919. It is anticipated that construction will begin in March 2004.

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 2003, a detailed hydraulic evaluation of three alternatives was performed to eliminate the overflow without adversely impacting current sewer hydraulics. Several scenarios for eliminating the overflow have been investigated and evaluated using the EPA's Stormwater Management Model (SWMM). These alternatives include 1.) Reconstructing the existing interceptor to provide sufficient capacity, 2.) constructing a parallel interceptor for additional capacity, and 3.) Constructing off-line storage to retain flows during times when there is insufficient capacity, or various combinations of the three. A design memorandum was completed in mid-2003 summarizing all analyses to date, including the final design scenario recommended for elimination of the Main & Shurs overflow. Engineering assignments have been generated from the design memorandum. The Engineering firm of Hazen & Sawyer was selected in September 2003 to further evaluate the storage alternative and prepare the bid documents for this project. Their analysis recommended off-line storage at the lower end of the interceptor as achieving the best balance of eliminating the overflow without adversely impacting sewer hydraulics and design is in progress.

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.

It is expected that the PADEP permit will be issued by March of 2004. At that point the City will commence the condemnation process to secure the last remaining Right of Way required to construct the project. The design plans and specifications will then be finalized. The final plans and specs are estimated to be completed by the end of April 2004.

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 2003 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	-	103	36	1177	-	1215	63%	-	65%	0	-	479
Central Schuylkill West Side	10	10	0	-	99	47	663	-	655	54%	-	54%	0	-	476
Lower Schuylkill East Side	7	9	0	-	74	47	731	-	762	58%	-	59%	0	-	330
Lower Schuylkill West Side	4	4	5	-	85	56	1213	-	1271	23%	-	24%	6	-	331
Southwest Main Gravity	2	2	0	-	72	36	1885	-	2012	67%	-	69%	0	-	280

Section 10 - Watershed Technology Center

During 2003, 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://phillywater.org/owp/

Appendix A – Flow Control CSO Maintenance Summaries

PWD FLOW CONTROL UNIT

COMBINED SEWER OVERFLOW MAINTENANCE

CALENDAR YEAR 2003

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

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

REPORT | **FLOW CONTROL UNIT** | **June 2003**

COLLECTOR	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Totals
UPPER PENNYPACK - 5 UNITS													
INSPECTIONS	15	17	22	44	37	35	30	24	21	20	30	20	315
DISCHARGES	0	1	0	1	0	0	0	0	0	0	0	0	2
BLOCKS CLEARED	1	1	1	3	0	1	1	2	0	0	0	0	10
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	58	61	42	63	61	60	70	52	52	43	46	40	648
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	5	2	0	0	1	1	2	4	2	0	5	0	22
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	36	12	15	26	22	29	33	12	26	22	27	43	303
DISCHARGES	0	0	0	0	0	1	0	0	0	0	0	0	1
BLOCKS CLEARED	1	1	1	0	0	3	1	0	0	0	2	7	16
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	48	25	42	49	62	58	68	29	48	37	27	41	534
DISCHARGES	0	0	0	1	1	0	0	0	0	0	0	0	2
BLOCKS CLEARED	2	3	4	3	3	1	1	3	3	0	1	1	25
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	85	116	102	139	117	122	121	72	55	94	107	117	1247
DISCHARGES	2	2	0	0	0	2	0	0	1	0	1	0	8
BLOCKS CLEARED	4	2	1	1	0	3	0	3	4	1	13	2	34
SOMERSET - 9 UNITS													
INSPECTIONS	40	33	35	45	30	31	57	37	34	27	29	26	424
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	5	2	6	2	0	4	4	2	6	2	4	0	37
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	176	173	168	209	221	215	205	186	228	104	174	194	2253
DISCHARGES	0	0	0	0	1	0	0	0	0	0	0	0	1
BLOCKS CLEARED	23	32	18	19	20	5	21	31	21	8	12	2	212
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	111	103	111	158	112	127	81	89	115	118	156	100	1381
DISCHARGES	0	0	0	1	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	7	10	8	16	9	11	11	5	7	15	5	4	108
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	24	37	33	36	33	18	29	25	33	36	33	36	373
DISCHARGES	1	0	0	0	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	4	5	4	3	10	6	5	0	0	0	0	2	39
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	32	25	39	47	51	62	22	47	31	52	55	50	513
DISCHARGES	1	0	0	0	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	5	2	5	10	6	4	0	0	1	0	4	6	43
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	44	59	54	60	57	40	50	44	50	64	76	54	652
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	20	14	7	5	5	2	1	7	2	6	4	8	81
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	28	619	20	33	33	18	27	21	31	26	34	32	922
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	5	4	2	1	7	0	0	0	2	5	5	2	33
COBBS CREEK HIGH LEVEL - 23 UNITS													
INSPECTIONS	74	90	118	142	122	126	111	80	112	111	117	173	1376
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	3	3
BLOCKS CLEARED	7	3	2	3	0	7	5	1	3	3	1	3	38
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	41	59	76	41	53	68	75	41	46	67	78	87	732
DISCHARGES	1	2	0	0	0	0	0	0	0	0	1	0	4
BLOCKS CLEARED	1	2	1	0	0	1	2	0	0	2	1	2	12
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	43	34	50	36	65	64	114	52	66	85	87	30	726
DISCHARGES	0	0	0	0	0	1	0	0	0	0	0	0	1
BLOCKS CLEARED	0	0	0	1	9	1	3	0	0	0	0	0	14
TOTALS / MONTH for 201 REGULATOR UNITS													Totals
TOTAL INSPECTIONS	855	1463	927	1128	1076	1073	1093	811	948	906	1076	1043	12399
TOTAL DISCHARGES	5	5	0	3	2	4	0	0	1	0	2	3	25
TOTAL BLOCKS CLEARED	90	83	60	67	70	50	57	58	51	42	57	39	724
AVER. # of INSP. / BC	10	18	15	17	15	21	19	14	19	22	19	27	18
DISC / 100 INSPECTIONS	0.6	0.3	0.0	0.3	0.2	0.4	0.0	0.0	0.1	0.0	0.2	0.3	0.2

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
UPPER PENNYPACK 5 NEWPC UNITS															
P01	3	3	4	9	7	7	6	5	5	4	6	4	63	5.3	5.8
P02	3	3	4	7	7	6	6	4	5	4	6	4	59	4.9	6.2
P03	3	3	4	9	8	9	6	6	3	4	6	4	65	5.4	5.6
P04	3	4	5	12	8	7	6	6	5	4	6	4	70	5.8	5.2
P05	3	4	5	7	7	6	6	3	3	4	6	4	58	4.8	6.3
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	5	5	6	8	8	7	6	6	5	4	5	5	70	5.8	5.2
D03	6	5	5	7	7	8	6	6	5	4	5	4	68	5.7	5.4
D04	8	6	4	7	6	7	6	8	4	4	5	4	69	5.8	5.3
D05	6	5	3	6	7	6	6	4	4	4	5	3	59	4.9	6.2
D06	7	5	3	5	7	7	7	5	4	4	5	3	62	5.2	5.9
D07	5	5	3	5	6	4	6	4	4	4	3	2	51	4.3	7.2
D08	5	5	3	5	6	4	7	5	4	4	3	4	55	4.6	6.6
D09	4	5	3	4	5	4	7	3	4	4	3	3	49	4.1	7.4
D11	3	5	3	4	3	4	6	2	4	3	3	3	43	3.6	8.5
D12	3	5	3	4	2	3	4	3	5	3	3	3	41	3.4	8.9
D13	3	5	3	4	2	3	4	4	5	3	3	3	42	3.5	8.7
D15	3	5	3	4	2	3	5	2	4	2	3	3	39	3.3	9.4
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	6	2	2	6	4	4	5	2	4	4	4	7	50	4.2	7.3
F14	6	2	2	6	4	4	5	2	4	4	4	8	51	4.3	7.2
F21	5	2	2	2	3	2	5	1	4	2	4	3	35	2.9	10.4
F23	7	2	3	5	4	7	5	3	5	5	5	14	65	5.4	5.6
F24	7	2	4	5	4	10	7	3	5	4	5	8	64	5.3	5.7
F25	5	2	2	2	3	2	6	1	4	3	5	3	38	3.2	9.6
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	5	3	4	4	6	5	5	4	5	4	4	4	53	4.4	6.9
F04	5	2	4	6	6	5	7	4	6	4	4	4	57	4.8	6.4
F05	5	2	6	7	7	5	7	4	6	4	3	5	61	5.1	6.0
F06	4	2	4	5	6	5	7	2	4	4	3	5	51	4.3	7.2
F07	4	2	4	5	6	5	8	3	5	4	3	4	53	4.4	6.9
F08	5	3	4	4	6	5	6	2	5	4	2	5	51	4.3	7.2
F09	5	4	5	8	10	9	7	3	5	4	2	4	66	5.5	5.5
F10	6	4	4	4	6	6	8	2	4	3	2	4	53	4.4	6.9
F11	3	1	2	3	3	6	5	2	4	3	2	3	37	3.1	9.9
F12	6	2	5	3	6	7	8	3	4	3	2	3	52	4.3	7.0
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	6	6	6	9	7	7	9	5	4	4	10	9	82	6.8	4.4
T03	8	7	7	10	9	9	8	6	3	5	7	9	88	7.3	4.1
T04	5	7	9	9	11	7	7	4	4	3	6	8	80	6.7	4.6
T05	4	5	7	9	9	7	7	5	3	4	5	5	70	5.8	5.2
T06	6	5	7	9	8	7	6	5	3	3	5	4	68	5.7	5.4
T07	6	5	7	9	8	7	6	6	3	3	5	5	70	5.8	5.2
T08	7	5	7	10	8	7	9	7	8	13	14	16	111	9.3	3.3
T09	7	13	8	11	8	9	12	5	4	10	9	11	107	8.9	3.4
T10	7	14	8	11	9	11	12	5	4	11	12	14	118	9.8	3.1
T11	6	13	8	13	9	11	12	5	4	9	8	8	106	8.8	3.4
T12	7	10	8	11	9	12	11	6	4	10	8	7	103	8.6	3.5
T13	7	10	8	11	9	12	11	6	4	10	9	9	106	8.8	3.4
T14	4	8	6	9	7	8	6	4	4	4	5	6	71	5.9	5.1
T15	5	8	6	8	6	8	5	3	3	5	4	6	67	5.6	5.4

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
SOMERSET LOW LEVEL 9 NEWPC UNITS															
D17	7	6	6	6	3	3	7	4	4	3	5	3	57	4.8	6.4
D18	7	4	4	6	3	3	7	5	4	3	4	3	53	4.4	6.9
D19	7	3	4	6	3	3	7	4	5	3	3	3	51	4.3	7.2
D20	4	4	5	4	3	3	6	4	4	3	3	3	46	3.8	7.9
D21	2	3	3	4	4	4	6	3	4	3	2	3	41	3.4	8.9
D22	3	3	4	4	3	2	6	4	4	3	2	3	41	3.4	8.9
D23	2	3	2	5	4	5	6	4	2	3	3	2	41	3.4	8.9
D24	2	3	3	5	2	4	7	4	2	3	2	3	40	3.3	9.1
D25	6	4	4	5	5	4	5	5	5	3	5	3	54	4.5	6.8
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	7	7	8	10	8	8	7	6	9	3	6	4	83	6.9	4.4
D38	8	7	8	11	8	8	7	7	9	2	6	8	89	7.4	4.1
D39	6	6	5	4	7	7	6	9	8	2	5	8	73	6.1	5.0
D40	5	6	6	3	6	7	6	6	6	1	5	2	59	4.9	6.2
D41	5	6	6	4	7	7	5	5	6	1	5	2	59	4.9	6.2
D42	6	5	4	4	5	7	5	5	5	1	5	2	54	4.5	6.8
D43	7	4	3	4	5	7	4	4	5	1	4	2	50	4.2	7.3
D44	6	5	7	10	9	11	5	7	8	2	4	3	77	6.4	4.7
D45	8	6	8	12	8	6	7	8	9	7	5	6	90	7.5	4.1
D46	4	5	4	5	7	7	6	4	7	5	5	7	66	5.5	5.5
D47	7	6	4	7	9	8	6	6	8	5	5	6	77	6.4	4.7
D48	9	6	6	11	7	7	7	9	9	6	6	9	92	7.7	4.0
D49	4	6	3	3	4	6	5	6	7	4	5	4	57	4.8	6.4
D50	4	7	4	6	6	5	5	6	6	5	5	5	64	5.3	5.7
D51	5	5	6	6	6	8	6	6	8	5	5	6	72	6.0	5.1
D52	3	4	3	5	4	6	5	6	6	4	5	6	57	4.8	6.4
D53	3	3	2	3	4	5	5	5	6	4	5	5	50	4.2	7.3
D54	3	4	2	4	4	5	5	4	5	4	6	5	51	4.3	7.2
D58	6	4	7	8	8	9	7	6	8	4	7	8	82	6.8	4.4
D61	4	5	6	7	7	7	7	6	6	4	7	8	74	6.2	4.9
D62	6	5	8	11	8	9	7	6	6	3	5	8	82	6.8	4.4
D63	6	6	6	11	8	9	7	6	6	3	5	8	81	6.8	4.5
D64	4	7	5	4	8	7	6	6	6	2	5	6	66	5.5	5.5
D65	5	5	4	3	6	6	8	5	8	2	4	4	60	5.0	6.1
D66	7	5	4	3	5	5	6	5	8	3	4	5	60	5.0	6.1
D67	6	4	6	5	6	3	6	5	8	3	6	5	63	5.3	5.8
D68	8	7	7	9	11	8	7	6	9	3	8	7	90	7.5	4.1
D69	3	5	4	8	13	14	8	5	7	3	7	4	81	6.8	4.5
D70	5	6	5	7	9	4	6	4	7	3	6	9	71	5.9	5.1
D71	4	4	5	6	5	1	9	3	7	2	4	10	60	5.0	6.1
D72	4	4	5	5	5	1	7	4	5	2	5	9	56	4.7	6.5
D73	5	4	4	5	4	1	7	4	4	1	4	7	50	4.2	7.3
D75	3	4	3	5	4	6	5	6	6	4	5	6	57	4.8	6.4
TOTAL	458	437	426	575	550	550	584	412	464	347	440	481	5724		
I /D/C	7.5	7.2	7.0	9.5	9.0	9.0	9.6	6.8	7.6	5.7	7.2	7.9			
UP	15	17	22	44	37	35	30	24	21	20	30	20	315	5.3	5.8
UDLL	58	61	42	63	61	60	70	52	52	43	46	40	648	4.5	7.0
LFC	36	12	15	26	22	29	33	12	26	22	27	43	303	4.2	7.6
LFLL	48	25	42	49	62	58	68	29	48	37	27	41	534	4.5	7.0
FHL	85	116	102	139	117	122	121	72	55	94	107	117	1247	7.4	4.3
SLL	40	33	35	45	30	31	57	37	34	27	29	26	424	3.9	7.9
LDLL	176	173	168	209	221	215	205	186	228	104	174	194	2253	5.7	5.5

14 TOTAL DISCHARGES FOR NE & SE DISTRICTS

1.2 AVERAGE DISCHARGES PER MONTH

6.2 AVER. DAYS BEFORE RETURNING TO SITE

7.8 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

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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	1	0	1	0	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0	1
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	1	0	0	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	0	0	0
F12	0	0	0	0	1	0	0	0	0	0	0	0	1
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	0	0	0	0	0	0	0	0	0.00	0
T03	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	1
T09	0	1	0	0	0	0	0	0	0	0	0	0	1
T10	0	1	0	0	0	0	0	0	0	0	1	0	2
T11	0	0	0	0	0	0	0	0	0	0	0	0	0
T12	0	0	0	0	0	1	0	0	0	0	0	0	1
T13	1	0	0	0	0	1	0	0	0	0	0	0	2
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	1	0	1	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	1	0	0	0	0	0	0	1
LFLL	0	0	0	1	1	0	0	0	0	0	0	0	2
FHL	2	2	0	0	0	2	0	0	1	0	1	0	8
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	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
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	1	0	0	0	0	0	0	0	1
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
													TOTAL DISC
	2	3	0	2	2	3	0	0	1	0	1	0	14

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
UP	0	1	0	1	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	1	0	0	0	0	0	0	1
LFLL	0	0	0	1	1	0	0	0	0	0	0	0	2
FHL	2	2	0	0	0	2	0	0	1	0	1	0	8
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	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
UPPER PENNYPACK 5 NEWPC UNITS													
P01	1	0	0	2	0	1	1	0	0	0	0	0	5
P02	0	0	0	0	0	0	0	0	0	0	0	0	0
P03	0	0	0	0	0	0	0	1	0	0	0	0	1
P04	0	1	1	1	0	0	0	1	0	0	0	0	4
P05	0	0	0	0	0	0	0	0	0	0	0	0	0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	1	0	0	0	0	0	0	2	0	0	1	0	4
D03	0	0	0	0	0	0	0	0	0	0	1	0	1
D04	2	0	0	0	0	0	2	2	1	0	2	0	9
D05	1	0	0	0	0	0	0	0	0	0	1	0	2
D06	1	1	0	0	1	0	0	0	1	0	0	0	4
D07	0	1	0	0	0	0	0	0	0	0	0	0	1
D08	0	0	0	0	0	0	0	0	0	0	0	0	0
D09	0	0	0	0	0	1	0	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	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	1	0	0	0	0	1	2
F14	1	0	0	0	0	0	0	0	0	0	1	3	5
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	1	3	4
F24	0	1	1	0	0	3	0	0	0	0	0	0	5
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	2	0	0	0	2
F04	0	1	0	0	0	0	0	0	0	0	0	0	1
F05	0	1	2	1	0	0	0	0	0	0	1	1	6
F06	1	0	0	0	0	0	0	0	0	0	0	0	1
F07	0	0	0	0	0	0	0	0	0	0	0	0	0
F08	1	0	0	0	0	0	0	0	0	0	0	0	1
F09	0	1	0	2	1	1	0	3	0	0	0	0	8
F10	0	0	1	0	0	0	0	0	1	0	0	0	2
F11	0	0	0	0	0	0	1	0	0	0	0	0	1
F12	0	0	1	0	2	0	0	0	0	0	0	0	3
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	1	0	0	0	1	0	0	0	0	2
T03	1	0	0	0	0	0	0	1	0	0	0	0	2
T04	1	0	1	0	0	1	0	0	1	0	0	1	5
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	1	1	0	0	0	2
T08	1	0	0	0	0	0	0	0	1	1	0	1	4
T09	0	1	0	0	0	0	0	0	0	0	0	0	1
T10	0	1	0	0	0	0	0	0	0	0	2	0	3
T11	0	0	0	0	0	0	0	0	0	0	0	0	0
T12	0	0	0	0	0	1	0	0	0	0	0	0	1
T13	1	0	0	0	0	1	0	0	0	0	1	0	3
T14	0	0	0	0	0	0	0	0	1	0	0	0	1
T15	0	0	0	0	0	0	0	0	0	0	10	0	10

29.67 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	0	0	1	0	1	0	0	0	0	1	0	4
D18	0	1	0	0	0	0	2	1	1	0	1	0	6
D19	1	0	2	0	0	2	0	1	2	1	1	0	10
D20	0	0	2	0	0	1	0	0	2	1	1	0	7
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	1	1	0	0	1	0	0	0	0	0	3
D24	0	0	0	0	0	0	0	0	0	0	0	0	0
D25	3	1	1	0	0	0	1	0	1	0	0	0	7
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	1	2	0	1	3	0	1	1	3	0	0	0	12
D38	1	0	1	0	1	0	0	2	1	0	1	0	7
D39	0	2	1	1	1	0	0	4	1	0	1	0	11
D40	1	1	2	1	0	0	1	3	1	0	0	0	10
D41	1	1	1	0	0	0	1	1	0	0	0	0	5
D42	0	1	0	0	0	0	0	1	0	0	0	0	2
D43	0	0	0	0	0	0	0	0	0	0	0	0	0
D44	0	1	0	1	3	0	1	1	0	0	0	0	7
D45	2	3	2	2	0	0	4	1	1	1	0	0	16
D46	0	2	0	0	0	0	0	1	0	2	0	0	5
D47	3	0	2	1	1	0	2	1	2	1	0	0	13
D48	3	0	0	1	1	0	1	1	1	1	1	0	10
D49	1	1	0	0	0	0	0	1	0	0	0	0	3
D50	0	1	0	0	0	0	0	0	0	0	0	0	1
D51	1	0	1	0	0	0	1	0	0	0	0	0	3
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	1	0	0	0	0	0	1	0	1	0	1	0	4
D61	0	1	0	0	0	0	0	0	0	0	1	0	2
D62	0	1	1	3	0	1	2	0	0	0	0	0	8
D63	0	1	0	0	1	0	1	0	0	0	0	0	3
D64	1	1	2	1	0	0	0	2	1	0	0	0	8
D65	0	3	2	1	0	0	1	2	1	1	1	0	12
D66	1	1	0	1	2	0	0	1	1	1	1	0	9
D67	2	1	0	1	0	0	0	1	1	0	1	0	7
D68	3	3	2	0	2	1	0	2	0	0	1	0	14
D69	0	2	0	3	3	3	1	2	2	0	0	0	16
D70	0	0	1	1	0	0	0	1	2	0	1	1	7
D71	0	1	0	0	1	0	1	0	1	0	0	1	5
D72	1	1	0	0	0	0	1	1	1	0	2	0	7
D73	0	1	0	0	1	0	1	1	0	0	1	0	5
D75	0	0	0	0	0	0	0	0	0	0	0	0	0
													TOTAL
	41	43	31	28	24	18	30	45	36	11	37	12	356

UP	1	1	1	3	0	1	1	2	0	0	0	0	10
UDLL	5	2	0	0	1	1	2	4	2	0	5	0	22
LFC	1	1	1	0	0	3	1	0	0	0	2	7	16
LFLL	2	3	4	3	3	1	1	3	3	0	1	1	25
FHL	4	2	1	1	0	3	0	3	4	1	13	2	34
SLL	5	2	6	2	0	4	4	2	6	2	4	0	37
LDLL	23	32	18	19	20	5	21	31	21	8	12	2	212

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS															
S05	9	6	8	11	6	9	6	7	7	9	10	11	99	8.3	3.7
S06	8	6	8	11	6	8	5	6	4	8	10	10	90	7.5	4.1
S07	9	6	8	11	6	8	6	6	8	9	10	11	98	8.2	3.7
S08	7	6	7	9	7	11	5	6	7	9	10	8	92	7.7	4.0
S09	8	6	7	11	7	7	5	7	6	8	10	7	89	7.4	4.1
S10	7	6	7	10	7	5	5	6	5	8	9	7	82	6.8	4.4
S12	8	6	7	10	7	7	5	5	7	8	9	7	86	7.2	4.2
S12A	8	7	7	10	7	8	5	5	7	8	8	7	87	7.3	4.2
S13	5	6	6	8	7	5	4	4	6	6	8	5	70	5.8	5.2
S15	6	6	7	9	7	7	5	4	8	8	8	4	79	6.6	4.6
S16	6	6	7	8	6	7	5	3	7	6	10	5	76	6.3	4.8
S17	5	5	6	5	7	4	4	3	7	5	8	3	62	5.2	5.9
S18	5	5	5	8	7	9	3	4	7	5	9	3	70	5.8	5.2
S19	5	5	5	6	5	5	4	4	6	4	7	3	59	4.9	6.2
S21	4	6	4	6	6	7	4	5	5	5	7	2	61	5.1	6.0
S23	5	5	3	8	6	8	4	5	6	4	8	3	65	5.4	5.6
S25	3	5	4	9	4	6	3	4	6	4	8	2	58	4.8	6.3
S26	3	5	5	8	4	6	3	5	6	4	7	2	58	4.8	6.3
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS															
S31	4	5	5	6	5	4	5	4	7	5	6	7	63	5.3	5.8
S35	4	5	5	6	3	4	5	4	7	5	6	7	61	5.1	6.0
S36	2	3	2	2	1	1	1	0	1	1	1	1	16	1.3	22.8
S36A	4	5	5	5	4	3	3	4	5	4	5	6	53	4.4	6.9
S37	3	2	2	2	1	1	2	1	1	2	1	1	19	1.6	19.2
S42	1	5	4	5	9	2	5	4	4	6	4	4	53	4.4	6.9
S42A	1	6	4	5	5	1	3	4	4	5	5	6	49	4.1	7.4
S44	2	3	2	2	1	1	3	0	1	2	1	1	19	1.6	19.2
S46	3	3	4	3	4	1	2	4	3	6	4	3	40	3.3	9.1
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS															
S01	4	2	6	3	6	6	2	6	5	6	5	5	56	4.7	6.5
S02	4	2	6	4	6	7	3	6	6	6	5	5	60	5.0	6.1
S03	4	2	4	3	6	7	2	6	5	5	5	6	55	4.6	6.6
S04	4	3	4	11	7	9	3	6	2	6	8	5	68	5.7	5.4
S11	4	2	2	5	4	2	2	4	2	6	4	6	43	3.6	8.5
S14	2	3	4	5	6	9	2	4	2	7	7	6	57	4.8	6.4
S20	1	3	4	6	4	6	2	5	3	6	5	5	50	4.2	7.3
S22	6	4	5	5	6	8	3	5	3	5	7	6	63	5.3	5.8
S24	3	4	4	5	6	8	3	5	3	5	9	6	61	5.1	6.0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS															
S27	2	5	6	5	4	5	4	5	5	6	7	6	60	5.0	6.1
S28	3	5	4	6	4	5	4	5	4	6	6	5	57	4.8	6.4
S30	2	4	4	8	4	5	5	5	4	6	6	5	58	4.8	6.3
S34	3	4	4	5	5	4	6	4	4	6	6	5	56	4.7	6.5
S39	2	4	4	5	5	2	5	4	3	6	7	5	52	4.3	7.0
S40	2	4	6	6	4	1	3	3	4	5	4	3	45	3.8	8.1
S43	2	4	4	3	4	1	4	3	3	5	6	3	42	3.5	8.7
S47	2	4	4	3	4	2	4	4	3	5	5	3	43	3.6	8.5
S50	16	16	12	11	13	9	8	7	10	11	15	10	138	11.5	2.6
S51	10	9	6	8	10	6	7	4	10	8	14	9	101	8.4	3.6
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS															
S32	7	601	5	11	10	5	7	5	8	7	9	9	684	57.0	0.5
S33	7	7	5	11	8	5	7	6	8	8	9	9	90	7.5	4.1
S38	7	5	5	4	9	4	7	5	8	6	8	8	76	6.3	4.8
S45	7	6	5	7	6	4	6	5	7	5	8	6	72	6.0	5.1

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
COBBS CREEK HIGH LEVEL 23 SWWPC UNITS															
C01	2	4	3	6	6	3	4	4	5	5	4	7	53	4.4	6.9
C02	3	4	3	6	5	3	4	4	5	5	4	7	53	4.4	6.9
C04	2	4	5	8	6	4	5	4	5	5	4	7	59	4.9	6.2
C04A	3	4	5	8	6	4	5	4	5	4	4	7	59	4.9	6.2
C05	4	5	7	7	6	7	5	2	5	4	3	11	66	5.5	5.5
C06	6	4	7	6	7	9	5	3	5	4	5	15	76	6.3	4.8
C07	5	4	6	8	6	8	5	2	5	5	5	14	73	6.1	5.0
C09	5	4	7	6	5	9	5	2	5	5	6	9	68	5.7	5.4
C10	5	4	7	7	5	8	5	2	5	4	6	10	68	5.7	5.4
C11	2	3	3	3	4	5	4	2	4	3	5	6	44	3.7	8.3
C12	2	3	4	3	4	4	4	2	4	3	4	6	43	3.6	8.5
C13	2	3	5	3	5	5	4	2	4	3	3	6	45	3.8	8.1
C14	2	3	6	3	3	5	6	3	5	5	7	8	56	4.7	6.5
C15	2	4	6	3	3	5	6	2	5	5	6	8	55	4.6	6.6
C16	3	4	6	4	3	6	6	3	5	5	6	6	57	4.8	6.4
C17	2	3	6	3	3	2	6	3	5	5	5	6	49	4.1	7.4
C31	3	4	3	9	6	5	4	5	5	6	7	6	63	5.3	5.8
C32	4	5	6	9	9	6	6	6	5	6	5	6	73	6.1	5.0
C33	3	5	4	8	5	6	5	4	5	6	7	5	63	5.3	5.8
C34	3	5	4	8	5	5	5	5	5	5	6	5	61	5.1	6.0
C35	4	4	4	8	8	6	4	6	5	6	5	6	66	5.5	5.5
C36	4	3	6	9	7	6	4	5	5	6	5	6	66	5.5	5.5
C37	3	4	5	7	5	5	4	5	5	6	5	6	60	5.0	6.1
COBBS CREEK LOW LEVEL 13 SWWPC UNITS															
C18	4	5	7	3	4	5	6	3	5	6	6	6	60	5.0	6.1
C19	3	5	6	3	5	6	6	3	3	6	7	6	59	4.9	6.2
C20	5	5	6	3	5	5	6	3	5	5	7	5	60	5.0	6.1
C21	5	5	6	3	5	5	6	3	4	5	5	4	56	4.7	6.5
C22	3	4	5	3	5	3	6	3	3	5	5	4	49	4.1	7.4
C23	2	4	4	3	4	5	6	3	2	5	5	8	51	4.3	7.2
C24	4	5	7	4	4	6	6	3	3	5	10	14	71	5.9	5.1
C25	2	4	7	3	4	6	6	3	3	5	5	8	56	4.7	6.5
C26	3	5	8	3	4	7	6	3	3	5	5	9	61	5.1	6.0
C27	3	5	8	4	4	5	6	3	3	5	5	9	60	5.0	6.1
C28A	3	4	4	3	3	5	5	3	4	5	6	5	50	4.2	7.3
C29	2	4	4	3	3	5	5	4	4	5	6	4	49	4.1	7.4
C30	2	4	4	3	3	5	5	4	4	5	6	5	50	4.2	7.3
TOTAL	354	992	451	517	461	459	395	347	418	474	549	532	5949		
I /D/C	3.9	10.9	4.9	5.7	5.1	5.0	4.3	3.8	4.6	5.2	6.0	5.8			
CSES	111	103	111	158	112	127	81	89	115	118	156	100	1381	6.4	4.9
LSES	24	37	33	36	33	18	29	25	33	36	33	36	373	3.5	11.5
CSW	32	25	39	47	51	62	22	47	31	52	55	50	513	4.8	6.5
SWMG	44	59	54	60	57	40	50	44	50	64	76	54	652	5.4	6.4
LSW	28	619	20	33	33	18	27	21	31	26	34	32	922	19.2	3.6
CCHL	74	90	118	142	122	126	111	80	112	111	117	173	1376	5.0	6.3
CCLL	41	59	76	41	53	68	75	41	46	67	78	87	732	4.7	6.6

10 TOTAL DISCHARGES IN SW DISTRICT

0.8 AVERAGE DISCHARGES PER MONTH

6.5 AVER. DAYS BEFORE RETURNING TO SITE

5.4 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	1	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	0	0	0
S22	1	0	0	0	0	0	0	0	0	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	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	1	1
C07	0	0	0	0	0	0	0	0	0	0	0	2	2
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	0	0	0	0	0	0	0	0	0
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	1	0	1
C25	0	1	0	0	0	0	0	0	0	0	0	0	1
C26	1	1	0	0	0	0	0	0	0	0	0	0	2
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
	3	2	0	1	0	0	0	0	0	0	1	3	10

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
CSE	0	0	0	1	0	0	0	0	0	0	0	0	1
LSE	1	0	0	0	0	0	0	0	0	0	0	0	1
CSW	1	0	0	0	0	0	0	0	0	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	2	2
CCLL	1	2	0	0	0	0	0	0	0	0	1	0	4

	NO OF DISCHARGES IN DISTRICT												TOTAL
CSE	0	0	0	1	0	0	0	0	0	0	0	0	1
LSE	1	0	0	0	0	0	0	0	0	0	0	0	1
CSW	1	0	0	0	0	0	0	0	0	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	3	3
CCLL	1	2	0	0	0	0	0	0	0	0	1	0	4

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05	0	0	2	3	0	0	1	0	0	2	0	0	8
S06	0	0	1	1	1	1	1	0	1	1	0	0	7
S07	0	0	0	2	1	1	1	0	3	5	0	2	15
S08	1	0	0	1	1	2	1	0	1	2	1	0	10
S09	0	0	0	1	1	0	1	0	0	2	0	0	5
S10	0	0	0	0	0	0	0	0	0	0	0	0	0
S12	1	2	0	1	1	0	1	0	0	0	0	1	7
S12A	1	2	0	1	1	0	1	0	0	0	0	0	6
S13	0	0	0	1	1	0	1	0	0	0	0	0	3
S15	1	1	0	2	1	0	1	0	0	1	3	0	10
S16	0	1	0	1	0	0	1	0	0	0	0	0	3
S17	0	0	0	0	0	0	1	0	0	0	0	0	1
S18	1	0	1	0	1	2	0	1	0	0	0	1	7
S19	0	1	1	0	0	1	0	1	0	0	0	0	4
S21	0	2	2	0	0	1	0	1	0	1	1	0	8
S23	2	1	1	1	0	1	0	0	2	1	0	0	9
S25	0	0	0	0	0	1	0	1	0	0	0	0	2
S26	0	0	0	1	0	1	0	1	0	0	0	0	3
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31	0	1	0	0	1	0	0	0	0	0	0	0	2
S35	0	0	1	0	1	0	1	0	0	0	0	0	3
S36	0	1	0	0	0	0	0	0	0	0	0	0	1
S36A	1	1	1	2	1	0	0	0	0	0	0	0	6
S37	1	1	1	0	0	0	0	0	0	0	0	0	3
S42	0	0	0	1	3	0	1	0	0	0	0	1	6
S42A	0	1	1	0	2	0	1	0	0	0	0	1	6
S44	0	0	0	0	0	0	2	0	0	0	0	0	2
S46	2	0	0	0	2	6	0	0	0	0	0	0	10
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	1	0	0	0	1
S03	1	0	0	1	1	1	0	0	0	0	0	0	4
S04	1	0	1	4	1	1	0	0	0	0	1	3	12
S11	1	0	0	0	0	0	0	0	0	0	1	0	2
S14	0	1	1	2	2	1	0	0	0	0	0	0	7
S20	0	0	0	0	0	0	0	0	0	0	0	0	0
S22	2	0	2	2	1	1	0	0	0	0	0	1	9
S24	0	1	1	1	1	0	0	0	0	0	2	2	8
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	1	0	0	1	0	0	0	0	0	0	0	1	3
S28	0	0	0	1	0	0	0	1	0	0	0	1	3
S30	0	0	0	0	0	0	0	1	0	0	0	0	1
S34	1	0	1	0	1	0	1	1	0	1	0	0	6
S39	1	1	0	0	2	0	0	1	0	1	0	0	6
S40	0	0	1	1	0	0	0	0	0	0	0	0	2
S43	0	0	2	1	0	0	0	0	0	1	0	0	4
S47	0	1	1	1	0	0	0	2	0	1	1	0	7
S50	14	11	2	0	0	2	0	1	2	2	2	4	40
S51	3	1	0	0	2	0	0	0	0	0	1	2	9
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	1		1	0	2	0	0	0	0	1	2	1	8
S33	2	1	0	0	2	0	0	0	1	2	1	0	9
S38	1	3	1	0	3	0	0	0	1	2	1	1	13
S45	1	0	0	1	0	0	0	0	0	0	1	0	3

29.5 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	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	1	0	0	0	0	0	0	2
C06	1	0	1	0	0	1	1	0	0	0	0	1	5
C07	0	0	0	0	0	2	1	0	0	0	0	2	5
C09	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	1
C14	1	0	0	0	0	0	1	0	1	0	0	0	3
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	2	0	0	0	0	0	0	0	0	0	0	2
C33	1	0	0	2	0	0	1	0	1	1	0	0	6
C34	0	0	0	0	0	1	0	0	0	0	0	0	1
C35	2	0	0	1	0	1	1	1	1	1	0	0	8
C36	0	0	1	0	0	1	0	0	0	1	0	0	3
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	1	0	0	0	2	0	0	0	0	0	3
C20	0	0	0	0	0	0	0	0	0	0	0	0	0
C21	0	0	0	0	0	0	0	0	0	0	0	0	0
C22	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	1	2
C25	0	1	0	0	0	0	0	0	0	0	0	0	1
C26	0	1	0	0	0	1	0	0	0	1	0	0	3
C27	0	0	0	0	0	0	0	0	0	0	0	1	1
C28A	0	0	0	0	0	0	0	0	0	0	0	0	0
C29	0	0	0	0	0	0	0	0	0	1	0	0	1
C30	0	0	0	0	0	0	0	0	0	0	0	0	0
													TOTAL
	49	40	29	38	37	31	24	13	15	31	20	27	354

CSE	7	10	8	16	9	11	11	5	7	15	5	4	108
LSE	4	5	4	3	10	6	5	0	0	0	0	2	39
CSW	5	2	5	10	6	4	0	0	1	0	4	6	43
SWG	20	14	7	5	5	2	1	7	2	6	4	8	81
LSW	5	4	2	1	7	0	0	0	2	5	5	2	33
CCHL	7	3	2	3	0	7	5	1	3	3	1	3	38
CCLL	1	2	1	0	0	1	2	0	0	2	1	2	12

June 2003 **RELIEF SEWER MONTHLY INSPECTION**

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R1	2	1	3	1	3	4	5	3	3	4	3	1	33
R2	2	1	3	1	3	4	5	3	2	4	3	1	32
R3	2	1	3	1	3	6	5	3	2	4	3	1	34
R4	2	1	3	1	3	4	5	3	3	4	3	1	33
R5	2	1	3	1	2	4	5	3	2	4	3	1	31
R6	2	1	3	1	2	4	5	3	2	4	3	1	31
MAIN RELIEF SEWER													
R7	1	1	1	1	1	2	5	3	2	4	4	1	26
R8	1	1	2	1	2	2	5	2	2	4	4	1	27
R9	1	1	2	1	2	2	4	2	2	4	4	1	26
R10	1	1	2	1	2	2	5	2	2	3	4	1	26
R11	1	1	2	1	2	2	5	2	2	3	4	1	26
R11A	1	1	2	1	2	2	5	2	2	3	4	1	26
R12	1	1	1	1	2	2	4	3	2	3	3	1	24
WAKLING RELIEF SEWER													
R13	1	1	1	1	2	1	3	1	4	2	3	1	21
R14	1	1	1	1	2	1	3	1	4	2	3	1	21
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	1	1	1	1	2	2	3	1	2	3	3	1	21
OREGON AVE RELIEF SEWER													
R16	5	5	3	4	6	4	7	2	5	3	4	3	51
R17	5	5	3	4	5	4	7	2	5	3	4	3	50
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	3	1	2	2	2	2	5	2	3	3	4	1	30
32ND ST RELIEF SEWER													
R19	1	1	1	1	2	1	3	1	2	3	3	1	20
MAIN STREET RELIEF SEWER													
R20	1	1	1	1	2	1	3	1	2	3	3	1	20
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	1	1	1	1	3	1	3	1	2	4	3	1	22
TEMPORARY REGULATOR CHAMBER													
R22													
R23	1	1	1	1	3	1	3	1	2	5	3	1	23
ARCH ST RELIEF SEWER													
R24	1	1	2	1	2	3	4	2	2	2	3	1	24
16TH & SNYDER													
R25	1	1	2	3	3	3	4	2	2	3	3	1	28
GRANT & STATE RD. RELIEF													
R26	2	1	1	2	2	0	3	1	3	1	3	1	20
TOTAL	43	34	50	36	65	64	114	52	66	85	87	30	726
AVER	1.6	1.3	1.9	1.3	2.4	2.4	4.2	1.9	2.4	3.1	3.2	1.1	2.2

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	0	0	0
R2	0	0	0	0	0	0	0	0	0	0	0	0	0
R3	0	0	0	0	0	1	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	0	0	0	0	0
TEMPORARY REGULATOR CHAMBER													
R22													
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	0	0	1	0	0	0	0	0	0	1
UNITS	0	0	0	0	0	1	0	0	0	0	0	0	

June 2003 **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	0	0	0
R2	0	0	0	0	0	0	1	0	0	0	0	0	1
R3	0	0	0	0	0	1	2	0	0	0	0	0	3
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	9	0	0	0	0	0	0	0	9
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													
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										0			
R25	0	0	0	1	0	0	0	0	0	0	0	0	1
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	1	9	1	3	0	0	0	0	0	14
AVER	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

June 2003 MISCELLANEOUS SITE INSPECTIONS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST	1	1	2	1	4	0	5	1	1	2	2	2	22
SOMERSET GRIT LEVEL	6	2	3	4	3	4	3	2	4	2	4	2	39
(H-20) 70th & Dicks	1	2	2	2	2	2	5	2	3	4	3	2	30
CCLL CONTROL PIPE @ ISLAND AVE.	3	4	4	3	3	5	5	3	4	5	6	5	50
RHOM & HAAS FLAP GATE	2	5	3	4	2	3	5	3	1	3	3	2	36
DROP SWIRL ON CSE COLLECTOR	1	3	2	2	4	2	1	2	3	2	2	4	28
UPPER DARBY OVERFLOW	1	5	4	3	3	3	5	4	3	3	3	2	39
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	13	16	15	15	16	14	14	6	10	8	10	11	148
O & ERIE DIVERSION GATE	1	1	2	1	1	1	6	1	4	3	2	2	25
T-04 NET REPLACEMENTS	7/8	N/A	9/5	N/A	N/A	12/18	N/A	N/A	3/11	N/A	N/A	6/11	12
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	14	14	12	14	11	13	12	4	6	8	10	14	132
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	14	13	12	13	9	10	12	5	6	7	11	14	126
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	13	14	11	14	11	14	11	4	7	7	10	14	130
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	8	10	11	15	11	14	9	3	6	7	11	14	119
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	13	14	12	15	11	13	10	3	7	7	10	14	129
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	13	14	11	14	11	12	11	4	7	7	10	13	127
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	3	9	8	7	7	10	10	3	6	5	7	8	83
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	3	9	8	7	6	9	10	3	6	5	7	8	81

June 2003 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													
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	0	0	0	0	1	0	0	0	0	0	1
O & ERIE DIVERSION GATE													
T-04 NET WEIGHT	115	N/A	210	N/A	N/A	235	N/A	N/A	240	N/A	N/A	275	
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	1	1	0	0	0	0	0	0	0	0	0	0	2
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	1	3	2	0	1	1	0	0	0	0	1	2	11
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	1	0	0	0	0	0	0	0	0	0	0	1
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	0	2	2	0	1	0	0	0	0	0	1	0	6
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 2003 MISCELLANEOUS SITE BLOCKAGES CLEARED

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CASMIER ST													
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks													
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	3	1	0	0	0	1	0	0	0	0	0	0	5
O & ERIE DIVERSION GATE													
T-04 NET ****													
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	2	1	0	0	1	1	0	0	0	0	0	0	5
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.	4	4	5	1	3	2	1	2	2	0	2	2	28
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	2	1	1	0	1	0	0	0	0	0	0	0	5
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	2	4	3	2	3	1	0	0	0	0	2	3	20
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	1	0	1	1	2	0	0	0	0	0	0	1	6
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	0	0	0	0	0	1	0	0	0	0	0	0	1
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	0	1	0	0	1	0	0	0	0	0	0	1	3
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	0	0	0	0	0	0	0	0	0	0	0	0	0

FY2003

Discharge Observed		Discharge Stopped		Last Inspection						
DateDO	TimeDO	DateDS	TimeDS	DateLI	TimeLI	SiteID	Collector	TypeUnit	Location	Comment
07/10/02	11:10 AM	07/10/02	11:55 AM	07/05/02	02:13 PM	T-03	FHL	SLOT	Champlost Ave. W of Tacony Creek.	Debris - sticks and rags blocked slot.
07/11/02	11:20 AM	07/11/02	11:25 AM	07/08/02	11:48 AM	C-26	CCLL	SLOT	Saybrook Ave. & Island Ave.	Island ave. recreation ctr. turned on too many pumps. they were told to limit the pumping to two units.
07/16/02	01:41 PM	07/16/02	05:38 PM	07/10/02	02:15 PM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek.	Tree limbs and branches blocked the connecting pipe and slot opening.
07/24/02	09:40 AM	07/24/02	10:20 AM	07/23/02	10:40 AM	S-37	LSES	B & B	Vare Ave. & Jackson St.	Unit blocked at the orifice plate opening.
07/29/02	12:00 PM	07/29/02	01:10 PM	07/26/02	12:00 PM	S-22	CSW	B & B	660' S of South St E of Penn Field	Shutter gate stuck in closed position.
08/05/02	11:50 AM	08/05/02	01:50 PM	08/03/02	08:17 AM	T-09	FHL	SLOT	Roosevelt Blvd. W of Tacony Creek.	A stick with tree branches, leaves and plastic food bags blocked the slot opening.
08/13/02	09:45 AM	08/13/02	10:10 AM	07/11/02	12:00 PM	C-25	CCLL	SLOT	Woodland Ave. E of Island Ave.	Plastic bottle and Styrofoam food container blocked slot.
08/17/02	08:15 AM	08/17/02	10:00 AM	08/14/02	09:05 AM	P-04	PP	SLOT	Cottage Ave. & Holmesburg Ave.	Unknown debris blocked the slot opening
08/22/02	12:26 PM	08/22/02	12:45 PM	08/13/02	12:00 PM	C-26	CCLL	SLOT	Saybrook Ave. & Island Ave.	Pumps at Island Ave. Recreation Ctr. Pumped too much flow. Their discharge valve has been mechanically restricted.
08/26/02	10:30 AM	08/26/02	01:50 PM	08/21/02	01:10 PM	T-10	FHL	SLOT	Roosevelt Blvd. E of Tacony Creek.	Connecting pipe blocked with grit, brick and other debris.
10/01/02	01:00 PM	10/01/02	02:00 PM	09/28/02	10:45 AM	F-09	LFLL	WH-S	Frankford Ave. N or Frankford Creek.	A fish net and other debris blocked the regulator opening.
10/02/02	03:55 PM	10/02/02	09:00 PM	09/27/02	10:00 AM	P-04	PP	SLOT	Cottage Ave. & Holmesburg Ave.	The connecting pipe was blocked with unknown debris.
10/17/02	01:25 PM	10/17/02	01:50 PM	10/11/02	09:05 AM	S-23	CSES	B & B	Schuylkill Ave. & Bainbridge St.	A 3' x 10' piece of wood jammed behind shutter gate causing it to shut.
11/18/02	01:40 PM	11/18/02	08:45 PM	11/15/02	09:45 AM	D-69	LDLL	B & B	Delaware Ave. N of Porter St.	Debris including 5 gal. bucket and pieces of styrofoam in the trunk blocked the opening to the regulator chamber.
11/18/02	09:00 AM	11/18/02	10:30 AM	11/13/02	12:30 PM	F-12	LFLL	SLOT	Sepviva St. N of Butler St.	Grit build up in connecting pipe between slot and cleanout blocked the flow. Monthly flushing is scheduled for this line.
12/02/02	02:05 PM	12/02/02	02:16 PM	11/21/02	01:10 PM	R-03	THOMAS RUN	DAM	56th St. & Spruce St. (South)	A stick with a ball of rags blocked the dwo pipe.
12/12/02	11:00 AM	12/12/02	03:05 PM	12/11/02	12:35 PM	T-12	FHL	SLOT	Whitaker Ave. E of Tacony Creek.	The connecting line was blocked with unknown debris.
12/18/02	09:35 AM	12/18/02	10:30 AM	12/14/02	09:10 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek.	Tree branches, trash & other debris blocked the slot box.
12/23/02	12:15 PM	12/23/02	12:50 PM	12/18/02	01:00 PM	F-24	LFC	WH-S	Bridge St. SE of Creek Basin	A trash bag & debris in trunk blocked the flow to the regulating chamber.
03/25/03	10:38 AM	03/25/03	11:38 AM	03/07/03	12:55 PM	T-08	FHL	M-SG	Ashdale St. W of Tacony Creek.	The level sensor cable was dislodged from wall allowing cable to get into the flow. Debris became entangled around the cable and was lodged in trunk opening creating discharge.
05/14/03	09:25 AM	05/14/03	11:15 AM	05/06/03	01:25 PM	C-24	CCLL	SLOT	Greenway Ave. & Cobbs Creek. Parkway	Plastic bottles, plates, sticks and other debris blocked the slot.
05/15/03	01:00 PM	05/15/03	03:15 PM	05/06/03	10:55 AM	T-10	FHL	SLOT	Roosevelt Blvd. E of Tacony Creek.	The connecting pipe was blocked between regulator and first cleanout.
06/11/03	02:15 PM	06/11/03	05:36 PM	06/09/03	01:55 PM	C-07	CCHL	SLOT	Lansdowne Ave. & 69th St.	Connecting pipe was blocked with unknown debris
06/12/03	10:05 AM	06/12/03	02:00 PM	06/09/03	01:40 PM	C-06	CCHL	SLOT	Lebanon Ave. & 68th St.	Connecting pipe was blocked with unknown debris
06/12/03	10:20 AM	06/12/03	05:30 PM	06/11/03	05:30 PM	C-07	CCHL	SLOT	Lansdowne Ave. & 69th St.	Connecting pipe was blocked with unknown debris

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

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

REPORT | **FLOW CONTROL UNIT** | **January 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	0	0	0	0	0	133
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	0	0	0	6
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	36	46	42	66	19	56	24	0	0	0	0	0	289
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	2	6	2	11	1	4	2	0	0	0	0	0	28
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	29	30	28	23	22	35	18	0	0	0	0	0	185
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	3	5	3	0	3	2	1	0	0	0	0	0	17
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	35	41	30	57	25	45	24	0	0	0	0	0	257
DISCHARGES	0	0	0	0	0	1	0	0	0	0	0	0	1
BLOCKS CLEARED	1	8	1	3	4	2	7	0	0	0	0	0	26
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	67	70	71	59	37	86	52	0	0	0	0	0	442
DISCHARGES	0	0	1	0	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	4	2	5	2	3	7	1	0	0	0	0	0	24
SOMERSET - 9 UNITS													
INSPECTIONS	34	28	25	26	20	31	28	0	0	0	0	0	192
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	6	5	8	2	3	4	7	0	0	0	0	0	35
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	168	111	188	192	149	153	142	0	0	0	0	0	1103
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	10	9	9	4	7	16	5	0	0	0	0	0	60
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	89	84	116	90	94	133	124	0	0	0	0	0	730
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	14	2	7	8	6	1	0	0	0	0	0	42
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	30	37	36	48	37	43	32	0	0	0	0	0	263
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	2	8	8	1	4	2	0	0	0	0	0	25
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	40	42	40	49	33	39	37	0	0	0	0	0	280
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	1	2	2	2	2	2	2	0	0	0	0	0	13
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	60	44	52	75	55	65	45	0	0	0	0	0	396
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	6	10	10	0	2	8	5	0	0	0	0	0	41
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	26	29	31	33	30	30	22	0	0	0	0	0	201
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	6	6	2	1	1	1	0	0	0	0	0	21
COBBS CREEK HIGH LEVEL - 23 UNITS													
INSPECTIONS	167	93	149	113	101	132	100	0	0	0	0	0	855
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	2	13	4	9	5	1	5	0	0	0	0	0	39
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	64	67	67	54	56	68	45	0	0	0	0	0	421
DISCHARGES	0	0	0	0	1	0	0	0	0	0	0	0	1
BLOCKS CLEARED	4	2	4	2	1	1	0	0	0	0	0	0	14
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	57	65	60	69	49	69	45	0	0	0	0	0	414
DISCHARGES	0	0	0	1	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTALS / MONTH for 201 REGULATOR UNITS													Totals
TOTAL INSPECTIONS	931	804	955	976	737	1010	748	0	0	0	0	0	6161
TOTAL DISCHARGES	0	0	1	1	1	1	0	0	0	0	0	0	4
TOTAL BLOCKS CLEARED	51	85	64	54	41	58	39	0	0	0	0	0	392
AVER. # of INSP. / BC	18	9	15	18	18	17	19	n/a	n/a	n/a	n/a	n/a	16
DISC / 100 INSPECTIONS	0.0	0.0	0.1	0.1	0.1	0.1	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					28	3.5	8.7
P02	6	4	4	4	2	5	2	2					29	3.6	8.4
P03	7	3	4	5	2	5	2	2					30	3.8	8.1
P04	5	3	4	4	2	5	2	2					27	3.4	9.0
P05	5	3	4	6	2	5	2	2					29	3.6	8.4
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	5	6	4	7	3	5	2	2					34	4.3	7.2
D03	4	4	5	6	2	5	2	2					30	3.8	8.1
D04	4	4	4	6	2	6	2	2					30	3.8	8.1
D05	5	4	4	5	2	5	2	2					29	3.6	8.4
D06	4	4	3	5	2	4	2	2					26	3.3	9.4
D07	2	4	4	5	1	4	2	2					24	3.0	10.1
D08	2	4	3	6	2	6	2	2					27	3.4	9.0
D09	2	4	3	5	1	5	2	2					24	3.0	10.1
D11	2	3	3	4	1	4	2	2					21	2.6	11.6
D12	2	3	3	5	1	4	2	2					22	2.8	11.1
D13	2	3	3	5	1	4	2	2					22	2.8	11.1
D15	2	3	3	7	1	4	2	2					24	3.0	10.1
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	6	8	5	4	4	5	3	4					39	4.9	6.2
F14	5	4	4	4	4	6	3	3					33	4.1	7.4
F21	4	3	4	3	3	5	3	2					27	3.4	9.0
F23	5	6	5	4	4	7	3	2					36	4.5	6.8
F24	5	5	5	5	4	7	3	2					36	4.5	6.8
F25	4	4	5	3	3	5	3	3					30	3.8	8.1
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	5	4	3	6	3	5	4	2					32	4.0	7.6
F04	5	4	3	6	3	5	4	2					32	4.0	7.6
F05	4	4	3	7	3	7	2	2					32	4.0	7.6
F06	3	5	3	6	3	4	2	1					27	3.4	9.0
F07	3	4	3	6	3	4	2	2					27	3.4	9.0
F08	3	4	3	6	2	4	2	4					28	3.5	8.7
F09	3	4	3	5	2	8	2	2					29	3.6	8.4
F10	3	3	3	5	2	3	2	2					23	2.9	10.6
F11	3	1	3	5	2	2	2	2					20	2.5	12.2
F12	3	8	3	5	2	3	2	2					28	3.5	8.7
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	3	8	4	5	4	5	5	5					39	4.9	6.2
T03	6	6	5	4	4	6	4	3					38	4.8	6.4
T04	5	5	8	6	4	6	4	4					42	5.3	5.8
T05	5	4	4	4	3	6	3	3					32	4.0	7.6
T06	5	4	4	4	3	6	3	3					32	4.0	7.6
T07	5	4	4	4	3	4	3	2					29	3.6	8.4
T08	6	6	3	4	4	8	5	5					41	5.1	5.9
T09	3	4	4	4	2	7	3	2					29	3.6	8.4
T10	6	5	9	4	4	7	3	2					40	5.0	6.1
T11	5	4	6	4	1	8	4	2					34	4.3	7.2
T12	4	4	5	4	1	6	4	2					30	3.8	8.1
T13	5	7	8	4	2	6	3	2					37	4.6	6.6
T14	5	5	3	4	1	5	4	2					29	3.6	8.4
T15	4	4	4	4	1	6	4	3					30	3.8	8.1

2	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
5.9	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	4	3	3	3	3	3	3	3					25	3.1	9.7
D18	4	3	3	3	2	4	3	2					24	3.0	10.1
D19	4	3	3	3	3	5	3	2					26	3.3	9.4
D20	5	3	2	3	2	4	3	2					24	3.0	10.1
D21	5	3	3	3	2	3	3	2					24	3.0	10.1
D22	2	3	2	4	2	3	3	2					21	2.6	11.6
D23	3	3	2	2	2	3	3	2					20	2.5	12.2
D24	3	3	2	2	2	3	3	2					20	2.5	12.2
D25	4	4	5	3	2	3	4	4					29	3.6	8.4
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	5	3	7	8	5	6	5	5					44	5.5	5.5
D38	5	3	7	8	5	6	5	4					43	5.4	5.7
D39	5	3	6	9	5	6	4	3					41	5.1	5.9
D40	3	3	5	6	4	5	3	3					32	4.0	7.6
D41	3	3	5	6	5	5	4	3					34	4.3	7.2
D42	3	3	5	6	3	5	4	3					32	4.0	7.6
D43	3	3	5	6	3	5	4	3					32	4.0	7.6
D44	4	4	7	9	2	5	2	3					36	4.5	6.8
D45	7	4	7	9	5	5	6	4					47	5.9	5.2
D46	6	4	8	7	6	5	6	4					46	5.8	5.3
D47	5	4	8	9	4	5	4	4					43	5.4	5.7
D48	7	5	8	9	7	6	6	5					53	6.6	4.6
D49	5	4	6	5	4	5	6	4					39	4.9	6.2
D50	8	5	6	6	6	5	6	5					47	5.9	5.2
D51	6	4	7	5	5	4	6	4					41	5.1	5.9
D52	6	4	7	5	4	4	5	4					39	4.9	6.2
D53	5	4	5	4	3	4	4	3					32	4.0	7.6
D54	5	4	5	4	3	4	4	4					33	4.1	7.4
D58	9	5	7	7	6	4	4	3					45	5.6	5.4
D61	7	4	6	6	6	4	4	4					41	5.1	5.9
D62	6	4	6	6	7	4	4	4					41	5.1	5.9
D63	9	4	6	7	6	4	4	4					44	5.5	5.5
D64	5	2	6	6	5	4	4	4					36	4.5	6.8
D65	6	3	6	4	5	4	4	4					36	4.5	6.8
D66	6	3	6	4	4	4	4	4					35	4.4	6.9
D67	4	3	5	4	3	5	5	4					33	4.1	7.4
D68	6	4	5	6	5	5	5	3					39	4.9	6.2
D69	3	3	4	5	5	4	4	5					33	4.1	7.4
D70	4	3	4	5	4	5	4	4					33	4.1	7.4
D71	4	2	5	4	5	5	4	4					33	4.1	7.4
D72	4	2	4	4	5	6	4	3					32	4.0	7.6
D73	4	2	4	3	4	5	4	3					29	3.6	8.4
D75	1	1	1	1	1	1	1	1					8	1.0	30.4
TOTAL	399	344	405	446	283	432	299	254	0	0	0	0	2862		
I /D/C	6.6	5.7	6.7	7.3	4.7	7.1	4.9	4.2	0.0	0.0	0.0	0.0			
UP	29	17	20	22	10	25	10	10	0	0	0	0	143	3.6	8.5
UDLL	36	46	42	66	19	56	24	24	0	0	0	0	313	3.3	9.5
LFC	29	30	28	23	22	35	18	16	0	0	0	0	201	4.2	7.4
LFLL	35	41	30	57	25	45	24	21	0	0	0	0	278	3.5	8.9
FHL	67	70	71	59	37	86	52	40	0	0	0	0	482	4.3	7.2
SLL	34	28	25	26	20	31	28	21	0	0	0	0	213	3.0	10.4
LDLL	169	112	189	193	150	154	143	122	0	0	0	0	1232	4.7	7.2

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	0	0	0	0	0	0						0
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	0	0	0	0	1	0						1
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	0	0	0	0	0	0	0						0
T12	0	0	0	0	0	0	0						0
T13	0	0	1	0	0	0	0						1
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	0	0	0	0	0						0
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

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

NO OF DISCHARGES IN DISTRICT	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	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	0	0	1
FHL	0	0	1	0	0	0	0	0	0	0	0	0	1
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

NO OF UNITS IN DISTRICT BLOCKED	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	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	0	0	1
FHL	0	0	1	0	0	0	0	0	0	0	0	0	1
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
P02	0	0	0	0	0	0	0						0
P03	2	0	0	1	0	0	0						3
P04	2	1	0	0	0	0	0						3
P05	0	0	0	0	0	0	0						0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02	1	1	0	1	1	1	0						5
D03	0	1	1	1	0	1	0						4
D04	1	0	1	2	0	2	0						6
D05	0	0	0	0	0	0	0						0
D06	0	1	0	2	0	0	0						3
D07	0	2	0	1	0	0	0						3
D08	0	1	0	2	0	0	0						3
D09	0	0	0	0	0	0	1						1
D11	0	0	0	0	0	0	0						0
D12	0	0	0	0	0	0	0						0
D13	0	0	0	2	0	0	0						2
D15	0	0	0	0	0	0	1						1
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13	1	2	0	0	0	0	0						3
F14	2	0	0	0	1	1	1						5
F21	0	0	0	0	0	0	0						0
F23	0	2	1	0	1	1	0						5
F24	0	0	1	0	1	0	0						2
F25	0	1	1	0	0	0	0						2
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03	0	1	0	1	0	0	0						2
F04	0	0	0	0	0	0	1						1
F05	1	0	0	0	2	1	1						5
F06	0	1	0	0	0	0	0						1
F07	0	0	0	0	0	0	2						2
F08	0	0	0	0	0	0	0						0
F09	0	1	0	0	1	1	1						4
F10	0	0	1	2	1	0	1						5
F11	0	0	0	0	0	0	0						0
F12	0	5	0	0	0	0	1						6
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01	0	0	0	1	0	0	0						1
T03	0	1	0	0	1	0	0						2
T04	1	0	2	1	0	2	0						6
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	1						1
T08	0	0	0	0	0	1	0						1
T09	0	0	0	0	0	0	0						0
T10	1	0	1	0	1	1	0						4
T11	1	0	1	0	0	2	0						4
T12	0	0	0	0	0	0	0						0
T13	0	1	1	0	1	0	0						3
T14	1	0	0	0	0	0	0						1
T15	0	0	0	0	0	1	0						1

28 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						6
D18	0	1	1	0	0	1	1						4
D19	2	1	0	0	1	2	1						7
D20	2	1	1	1	0	1	1						7
D21	0	0	1	0	0	0	1						2
D22	0	0	0	1	0	0	0						1
D23	0	0	1	0	0	0	1						2
D24	0	0	1	0	0	0	0						1
D25	1	0	2	0	1	0	1						5
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37	1	1	0	0	1	0	0						3
D38	1	1	0	1	1	0	0						4
D39	0	1	0	2	1	1	0						5
D40	0	0	0	0	0	1	0						1
D41	0	0	0	0	0	1	0						1
D42	0	0	0	0	0	0	0						0
D43	0	0	0	0	0	0	0						0
D44	1	2	1	0	0	0	0						4
D45	1	1	1	0	0	0	0						3
D46	1	0	1	0	0	0	0						2
D47	0	0	1	1	0	1	0						3
D48	0	1	1	0	0	1	0						3
D49	0	0	0	0	0	1	0						1
D50	1	0	0	0	1	2	1						5
D51	1	0	0	0	1	1	0						3
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	1	1	0	1	1	1						5
D61	1	0	1	0	1	1	1						5
D62	0	0	1	0	0	1	0						2
D63	2	1	0	0	0	0	0						3
D64	0	0	0	0	0	0	0						0
D65	0	0	1	0	0	0	0						1
D66	0	0	0	0	0	0	0						0
D67	0	0	0	0	0	1	1						2
D68	0	0	0	0	0	0	0						0
D69	0	0	0	0	0	1	0						1
D70	0	0	0	0	0	1	0						1
D71	0	0	0	0	0	0	0						0
D72	0	0	0	0	0	1	1						2
D73	0	0	0	0	0	0	0						0
D75	0		0	0	0	0	0						0
													TOTAL
	30	36	28	23	21	35	23	0	0	0	0	0	196

UP	4	1	0	1	0	0	0	0	0	0	0	0	6
UDLL	2	6	2	11	1	4	2	0	0	0	0	0	28
LFC	3	5	3	0	3	2	1	0	0	0	0	0	17
LFLL	1	8	1	3	4	2	7	0	0	0	0	0	26
FHL	4	2	5	2	3	7	1	0	0	0	0	0	24
SLL	6	5	8	2	3	4	7	0	0	0	0	0	35
LDLL	10	9	9	4	7	16	5	0	0	0	0	0	60

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						53	7.6	4.0
S06	6	5	10	7	6	9	8						51	7.3	4.2
S07	6	5	10	7	7	9	8						52	7.4	4.1
S08	6	5	7	7	7	7	8						47	6.7	4.5
S09	6	5	8	4	7	8	8						46	6.6	4.6
S10	5	5	7	4	5	7	8						41	5.9	5.2
S12	6	6	7	5	6	7	8						45	6.4	4.7
S12A	6	6	7	5	6	7	8						45	6.4	4.7
S13	6	6	7	4	6	7	8						44	6.3	4.8
S15	5	5	7	5	6	7	8						43	6.1	4.9
S16	6	5	6	4	6	7	7						41	5.9	5.2
S17	5	5	4	4	4	7	6						35	5.0	6.1
S18	4	4	4	4	5	7	5						33	4.7	6.4
S19	4	4	5	6	3	7	5						34	4.9	6.3
S21	3	4	4	4	4	7	5						31	4.4	6.9
S23	4	3	4	4	4	8	5						32	4.6	6.7
S25	2	3	4	4	3	7	5						28	4.0	7.6
S26	3	3	5	4	3	6	5						29	4.1	7.3
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS															
S31	6	5	4	8	7	6	6						42	6.0	5.1
S35	6	5	3	8	6	5	6						39	5.6	5.5
S36	1	2	3	2	2	2	2						14	2.0	15.2
S36A	5	5	3	6	3	5	3						30	4.3	7.1
S37	1	2	4	2	2	3	2						16	2.3	13.3
S42	4	5	5	7	5	8	4						38	5.4	5.6
S42A	3	5	5	7	4	7	3						34	4.9	6.3
S44	1	2	5	2	2	2	2						16	2.3	13.3
S46	3	6	4	6	6	5	4						34	4.9	6.3
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS															
S01	4	4	6	5	5	6	4						34	4.9	6.3
S02	4	4	6	5	5	6	4						34	4.9	6.3
S03	4	4	6	4	5	6	5						34	4.9	6.3
S04	5	6	4	6	3	5	5						34	4.9	6.3
S11	5	4	3	5	3	4	1						25	3.6	8.5
S14	4	5	3	6	3	3	4						28	4.0	7.6
S20	5	5	4	6	3	3	4						30	4.3	7.1
S22	4	5	4	6	3	3	5						30	4.3	7.1
S24	5	5	4	6	3	3	5						31	4.4	6.9
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS															
S27	5	5	2	7	5	2	4						30	4.3	7.1
S28	5	5	2	6	5	5	3						31	4.4	6.9
S30	5	4	3	6	4	5	4						31	4.4	6.9
S34	5	3	3	6	4	4	4						29	4.1	7.3
S39	5	3	3	6	4	5	5						31	4.4	6.9
S40	5	3	3	7	2	5	1						26	3.7	8.2
S43	7	4	3	7	3	5	6						35	5.0	6.1
S47	6	3	3	6	3	5	5						31	4.4	6.9
S50	9	7	17	13	13	15	7						81	11.6	2.6
S51	8	7	13	11	12	14	6						71	10.1	3.0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS															
S32	6	7	7	9	8	8	7						52	7.4	4.1
S33	6	7	8	8	8	8	6						51	7.3	4.2
S38	8	8	9	8	8	7	4						52	7.4	4.1
S45	6	7	7	8	6	7	5						46	6.6	4.6

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						35	5.0	6.1
C02	6	4	7	4	3	6	5						35	5.0	6.1
C04	8	4	7	5	5	6	5						40	5.7	5.3
C04A	8	4	7	5	5	6	5						40	5.7	5.3
C05	11	4	6	8	5	6	5						45	6.4	4.7
C06	11	7	7	8	6	6	4						49	7.0	4.3
C07	11	6	7	8	6	5	4						47	6.7	4.5
C09	9	5	6	6	6	6	3						41	5.9	5.2
C10	8	4	6	6	5	5	3						37	5.3	5.8
C11	5	3	6	5	4	5	4						32	4.6	6.7
C12	5	3	5	5	4	5	4						31	4.4	6.9
C13	5	2	5	5	3	5	3						28	4.0	7.6
C14	7	7	6	7	7	6	4						44	6.3	4.8
C15	5	5	6	4	6	6	3						35	5.0	6.1
C16	5	4	6	4	6	6	3						34	4.9	6.3
C17	5	4	6	2	6	5	4						32	4.6	6.7
C31	8	3	7	3	3	6	6						36	5.1	5.9
C32	7	4	7	4	3	6	4						35	5.0	6.1
C33	8	3	7	3	3	6	6						36	5.1	5.9
C34	8	3	7	4	3	6	6						37	5.3	5.8
C35	7	3	7	4	3	6	5						35	5.0	6.1
C36	7	3	7	4	3	6	5						35	5.0	6.1
C37	7	4	7	5	3	6	4						36	5.1	5.9
COBBS CREEK LOW LEVEL 13 SWWPC UNITS															
C18	8	6	6	5	6	6	4						41	5.9	5.2
C19	7	7	6	4	6	6	3						39	5.6	5.5
C20	6	4	5	3	8	7	2						35	5.0	6.1
C21	6	3	5	3	6	7	4						34	4.9	6.3
C22	6	3	5	3	4	6	4						31	4.4	6.9
C23	7	6	5	4	4	6	4						36	5.1	5.9
C24	6	7	7	5	5	5	4						39	5.6	5.5
C25	5	6	6	5	4	5	4						35	5.0	6.1
C26	5	5	5	6	4	4	4						33	4.7	6.4
C27	5	5	5	5	4	4	3						31	4.4	6.9
C28A	1	5	4	4	2	4	3						23	3.3	9.3
C29	1	5	4	4	2	4	3						23	3.3	9.3
C30	1	5	4	3	1	4	3						21	3.0	10.1
TOTAL	476	396	491	462	406	510	405	0	0	0	0	0	3146		
I /D/C	5.2	4.3	5.4	5.1	4.4	5.6	4.4	0.0	0.0	0.0	0.0	0.0			
CSES	89	84	116	90	94	133	124	0	0	0	0	0	730	5.8	5.5
LSES	30	37	36	48	37	43	32	0	0	0	0	0	263	4.2	8.6
CSW	40	42	40	49	33	39	37	0	0	0	0	0	280	4.4	6.9
SWMG	60	44	52	75	55	65	45	0	0	0	0	0	396	5.7	6.2
LSW	26	29	31	33	30	30	22	0	0	0	0	0	201	7.2	4.2
CCHL	167	93	149	113	101	132	100	0	0	0	0	0	855	5.3	5.8
CCLL	64	67	67	54	56	68	45	0	0	0	0	0	421	4.6	6.9

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

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

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

4.9 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	0	0	0	0	0	0						0
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 SWWPC UNITS													
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	0	0	0	0						0
S42	0	0	0	0	0	0	0						0
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	0	0	0	0						0
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	0	0	0	0						0
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	0	0	0	0	0						0
C07	0	0	0	0	0	0	0						0
C09	0	0	0	0	0	0	0						0
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	0	0	0	0	0	0						0
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	0	0	0	0	0	0						0
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	1	0	0						1
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	0	0	0	1	0	0	0	0	0	0	0	1

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	0	0	0	0	0
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	0	0	0	0	0
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						4
S06	0	2	0	1	0	0	0						3
S07	0	0	0	0	1	1	0						2
S08	1	3	0	2	2	2	0						10
S09	0	0	0	0	1	0	0						1
S10	0	0	0	0	1	0	0						1
S12	0	3	1	1	0	0	0						5
S12A	0	1	0	0	0	0	0						1
S13	0	1	0	0	0	0	0						1
S15	0	1	0	1	1	1	0						4
S16	1	0	0	0	1	0	0						2
S17	0	0	0	0	0	0	0						0
S18	0	0	0	0	1	0	0						1
S19	1	0	0	2	0	0	0						3
S21	0	0	0	0	0	0	0						0
S23	0	0	0	0	0	2	0						2
S25	0	0	1	0	0	0	0						1
S26	0	1	0	0	0	0	0						1
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31	0	0	1	0	0	1	0						2
S35	0	1	1	2	0	1	0						5
S36	0	0	0	0	0	0	0						0
S36A	0	0	1	2	0	1	0						4
S37	0	0	1	0	0	0	0						1
S42	0	0	0	1	0	1	0						2
S42A	0	0	2	2	0	0	1						5
S44	0	0	2	0	0	0	0						2
S46	0	1	0	1	1	0	1						4
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01	0	0	0	0	0	0	0						0
S02	0	0	0	0	0	0	0						0
S03	0	0	0	0	0	0	0						0
S04	1	0	1	1	1	2	2						8
S11	0	2	0	1	1	0	0						4
S14	0	0	1	0	0	0	0						1
S20	0	0	0	0	0	0	0						0
S22	0	0	0	0	0	0	0						0
S24	0	0	0	0	0	0	0						0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27	1	0	0	0	0	0	0						1
S28	0	2	0	0	0	0	1						3
S30	0	0	0	0	0	0	0						0
S34	1	0	0	0	0	0	1						2
S39	0	1	0	0	0	0	1						2
S40	0	0	0	0	0	0	0						0
S43	0	0	0	0	0	0	1						1
S47	0	0	0	0	0	0	1						1
S50	2	4	5	0	1	6	0						18
S51	2	3	5	0	1	2	0						13
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	1	2	2	1	0	0	0						6
S33	1	1	2	0	1	0	1						6
S38	2	0	1	1	0	1	0						5
S45	0	3	1	0	0	0	0						4

27.86 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	1	0	0	0						1
C04A	0	0	0	0	0	0	0						0
C05	0	1	0	2	0	0	0						3
C06	1	4	0	1	0	0	0						6
C07	1	2	0	1	0	0	0						4
C09	0	1	0	1	2	0	2						6
C10	0	0	0	2	1	0	1						4
C11	0	0	0	1	0	0	0						1
C12	0	1	0	0	0	0	0						1
C13	0	0	0	0	0	0	0						0
C14	0	3	3	0	2	1	1						10
C15	0	1	0	0	0	0	0						1
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	1						1
C36	0	0	1	0	0	0	0						1
C37	0	0	0	0	0	0	0						0
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	0	1	0	0						2
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	1	2	0	0	0						3
C25	0	1	0	0	0	1	0						2
C26	0	0	0	0	0	0	0						0
C27	1	1	0	0	0	0	0						2
C28A	0	0	0	0	0	0	0						0
C29	0	0	1	0	0	0	0						1
C30	0	0	1	0	0	0	0						1
													TOTAL
	21	49	36	30	20	23	16	0	0	0	0	0	195

CSE	4	14	2	7	8	6	1	0	0	0	0	0	42
LSE	0	2	8	8	1	4	2	0	0	0	0	0	25
CSW	1	2	2	2	2	2	2	0	0	0	0	0	13
SWG	6	10	10	0	2	8	5	0	0	0	0	0	41
LSW	4	6	6	2	1	1	1	0	0	0	0	0	21
CCHL	2	13	4	9	5	1	5	0	0	0	0	0	39
CCLL	4	2	4	2	1	1	0	0	0	0	0	0	14

January 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						18
R2	2	3	3	3	2	3	2						18
R3	2	3	3	4	2	3	2						19
R4	2	3	3	3	2	3	2						18
R5	2	3	3	3	2	3	2						18
R6	2	3	3	3	1	3	2						17
MAIN RELIEF SEWER													
R7	2	2	2	2	1	2	3						14
R8	2	2	2	3	1	2	2						14
R9	2	2	2	3	1	2	2						14
R10	2	2	2	3	1	2	2						14
R11	2	3	2	3	1	2	1						14
R11A	2	3	2	3	1	2	1						14
R12	2	3	2	3	1	3	1						15
WAKLING RELIEF SEWER													
R13	2	2	2	2	2	3	1						14
R14	2	2	2	3	2	3	1						15
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	1	2	2	2	3	3	1						14
OREGON AVE RELIEF SEWER													
R16	1	2	3	2	2	3	3						16
R17	12	2	3	2	2	3	3						27
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	2	2	2	2	3	3	2						16
32ND ST RELIEF SEWER													
R19	2	2	2	2	2	3	1						14
MAIN STREET RELIEF SEWER													
R20	1	2	2	2	3	3	1						14
SOMERSET SYSTEM DIVERSION CHAMBER													
R21	2	3	2	2	3	3	2						17
TEMPORARY REGULATOR CHAMBER													
R22													
R23	1	2	2	2	2	3	1						13
ARCH ST RELIEF SEWER													
R24	2	3	2	2	2	2	2						15
16TH & SNYDER													
R25	2	3	2	4	2	2	2						17
GRANT & STATE RD. RELIEF													
R26	1	3	2	3	3	2	1						15
TOTAL	57	65	60	69	49	69	45	0	0	0	0	0	414
AVER	2.1	2.4	2.2	2.6	1.8	2.6	1.7	0.0	0.0	0.0	0.0	0.0	1.3

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
R2	0	0	0	0	0	0	0						0
R3	0	0	0	1	0	0	0						1
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
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	1	0	0	0	0	0	0	0	0	1
UNITS	0	0	0	1	0	0	0	0	0	0	0	0	

January 2004 RELIEF SEWER MONTHLY BLOCKS CLEARED

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	1	0	0	0						1
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						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	1	0	0	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 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						14
SOMERSET GRIT LEVEL	3	4	2	3	3	2	2						19
(H-20) 70th & Dicks	2	3	3	3	2	3	2						18
CCLL CONTROL PIPE @ ISLAND AVE.	1	5	4	4	2	4	3						23
RHOM & HAAS FLAP GATE	2	3	3	4	1	4	2						19
DROP SWIRL ON CSE COLLECTOR	1	3	5	4	3	3	2						21
UPPER DARBY OVERFLOW	4	4	2	4	1	4	2						21
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	7	9	8	9	9	6	8						56
O & ERIE DIVERSION GATE	1	1	2	2	1	4	1						12
T-04 NET REPLACEMENTS	JUL. 31, 2003	N/A	26-03', 2003	DC. 19, 2003	N/A								6
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE	8	8	9	8	6	9	5						53
T-088-01-CFD-02 PITTVILLE ST. SC]	8	8	9	8	4	6	5						48
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	7	7	9	9	6	7	5						50
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	6	7	10	8	5	6	4						46
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	7	8	9	8	6	7	5						50
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.	7	8	8	8	6	8	5						50
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.	5	7	7	7	5	4	3						38
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.	4	7	7	7	6	4	3						38

January 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													
CCLL CONTROL PIPE @ ISLAND AVE.	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
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	0	0	2	0	0	0	0						2
O & ERIE DIVERSION GATE													
T-04 NET WEIGHT	282 LE	N/A	440 LE	175 LBS.		175 LE	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	1	0	0						1
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.	1	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
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 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						
SOMERSET GRIT LEVEL													
(H-20) 70th & Dicks	0	0	0	0	0	0	0						
CCLL CONTROL PIPE @ ISLAND AVE.	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
UPPER DARBY OVERFLOW													
P-090-02-PFD-01 SANDY RUN CREEK DIVERSION REGULATOR	1	0	2	0	0	1	0						4
O & ERIE DIVERSION GATE	0	0	0	0	0	4	0						
T-04 NET ****													
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.	4	4	0	1	1	0	0						10
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.	0	0	0	1	0	0	0						1
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.	3	0	1	1	0	0	0						5
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.	0	0	1	0	0	0	1						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

FY2004 Dry Weather Discharges To Date

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.

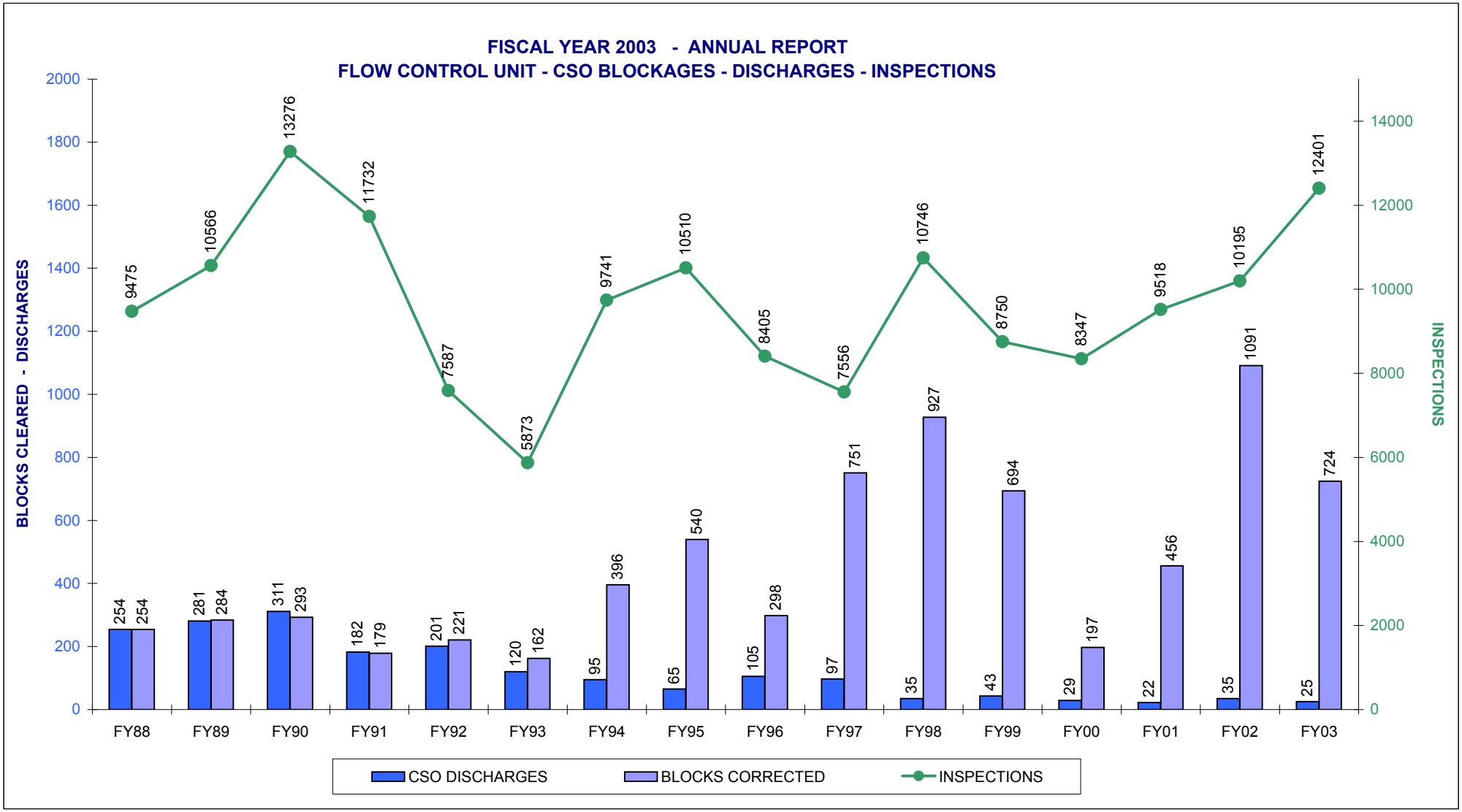
2003 - CSO Regulator and Tide Gate - Comprehensive Maintenance Completion Dates

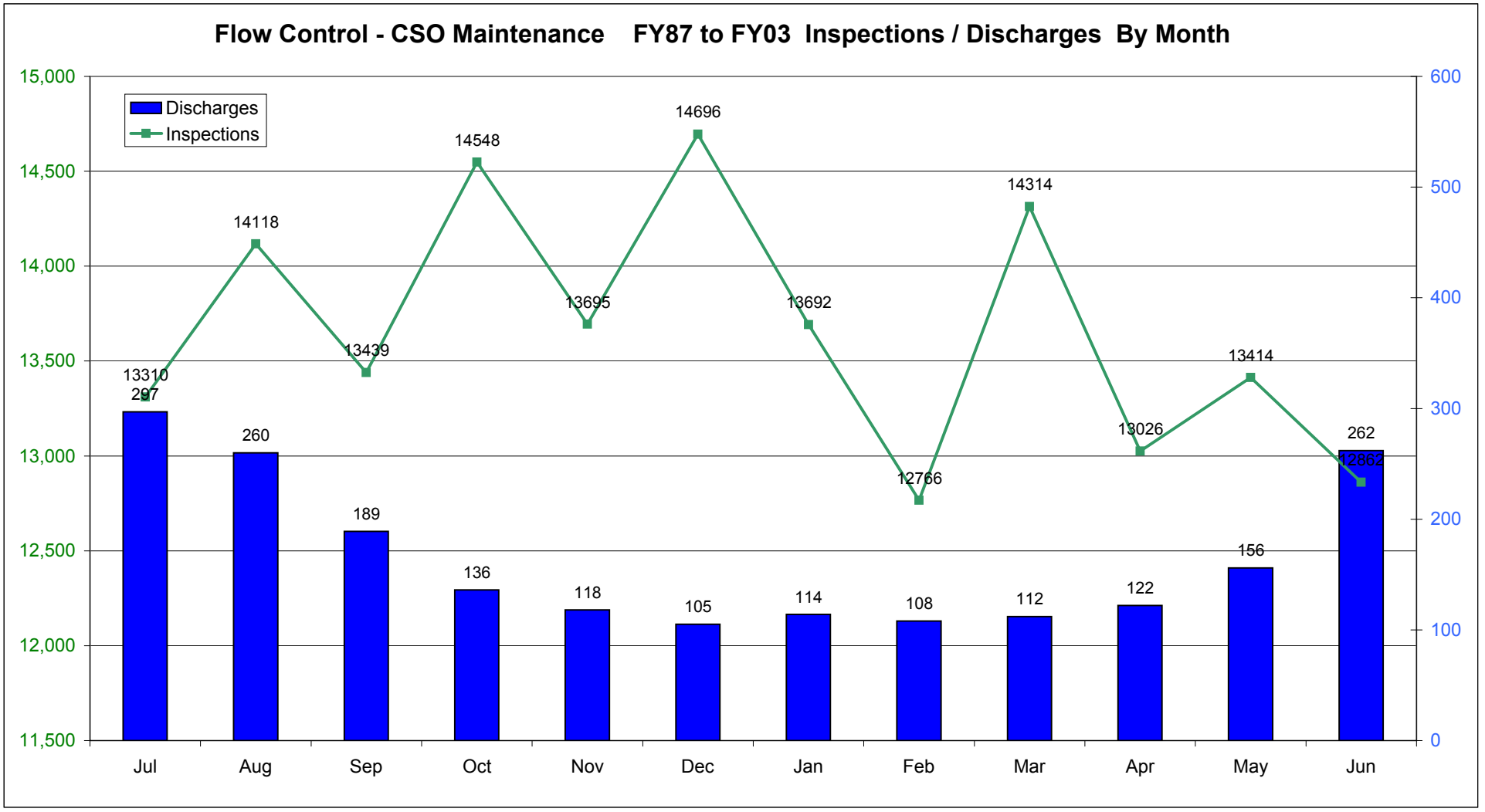
SITE ID	REG PM DATE	TG PM DATE
	UPPER PENNYPACK	
P01		
P02		
P03		
P04		
P05		
	UPPER DELAWARE LOW LEVEL	
D02	2/25/2003	
D03	2/25/2003	
D04		
D05	2/26/2003	
D06		
D07	2/25/2003	
D08		
D09	2/25/2003	
D11	2/24/2003	
D12		
D13		
D15	2/26/2003	
	LOWER FRANKFORD CREEK	
F13		
F14		
F21		
F23		
F24		
F25	2/24/2003	
	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	12/4/2003	11/13/2003
D19	11/13/2003	11/13/2003
D20	12/4/2003	
D21		
D22		
D23		
D24		
D25		9/27/2003
	LOWER DELAWARE LOW LEVEL	
D37		7/29/2003
D38		7/30/2003
D39		
D40		
D41		
D42		
D43		
D44		9/27/2003
D45		
D46		
D47		
D48	12/27/2003	
D49		
D50	12/27/2003	
D51		
D52		
D53		
D54		
D58		
D61	7/22/2003	
D62		
D63		
D64		
D65		
D66		
D67		
D68		
D69		
D70		
D71		
D72		
D73		

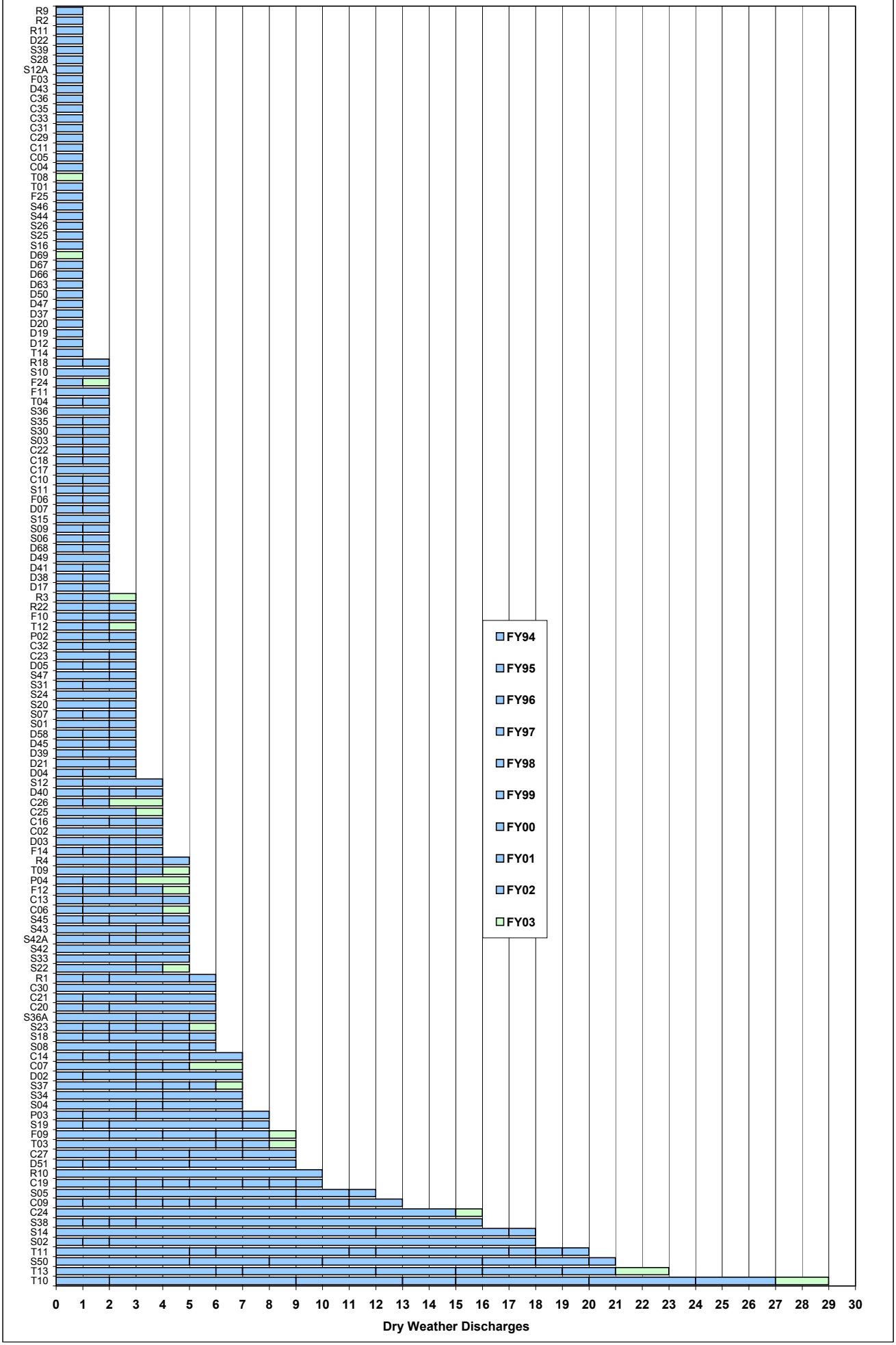
SITE ID	REG PM DATE	TG PM DATE
	CENTRAL SCHUYLKILL EAST SIDE	
S05		
S06		
S07		
S08	11/8/2003	
S09	11/8/2003	
S10		
S12		
S12A		
S13		
S15		
S16	11/1/2003	7/31/2003
S17		
S18	11/1/2003	
S19	10/11/2003	
S21		
S23		
S25		
S26		
	LOWER SCHUYLKILL EAST SIDE	
S31		
S35		
S36		
S36A		
S37		
S42		
S42A		
S44		
S46		
	CENTRAL SCHUYLKILL WEST	
S01		
S02		
S03		
S04		
S11		
S14		
S20		
S22		
S24		
	SOUTHWEST MAIN GRAVITY	
S27		
S28		
S30		
S34	7/22/2003	
S39		
S40		
S43		
S47		
S50		
S51		
	LOWER SCHUYLKILL WEST SIDE	
S32		
S33		
S38	7/22/2003	7/30/2003
S45		

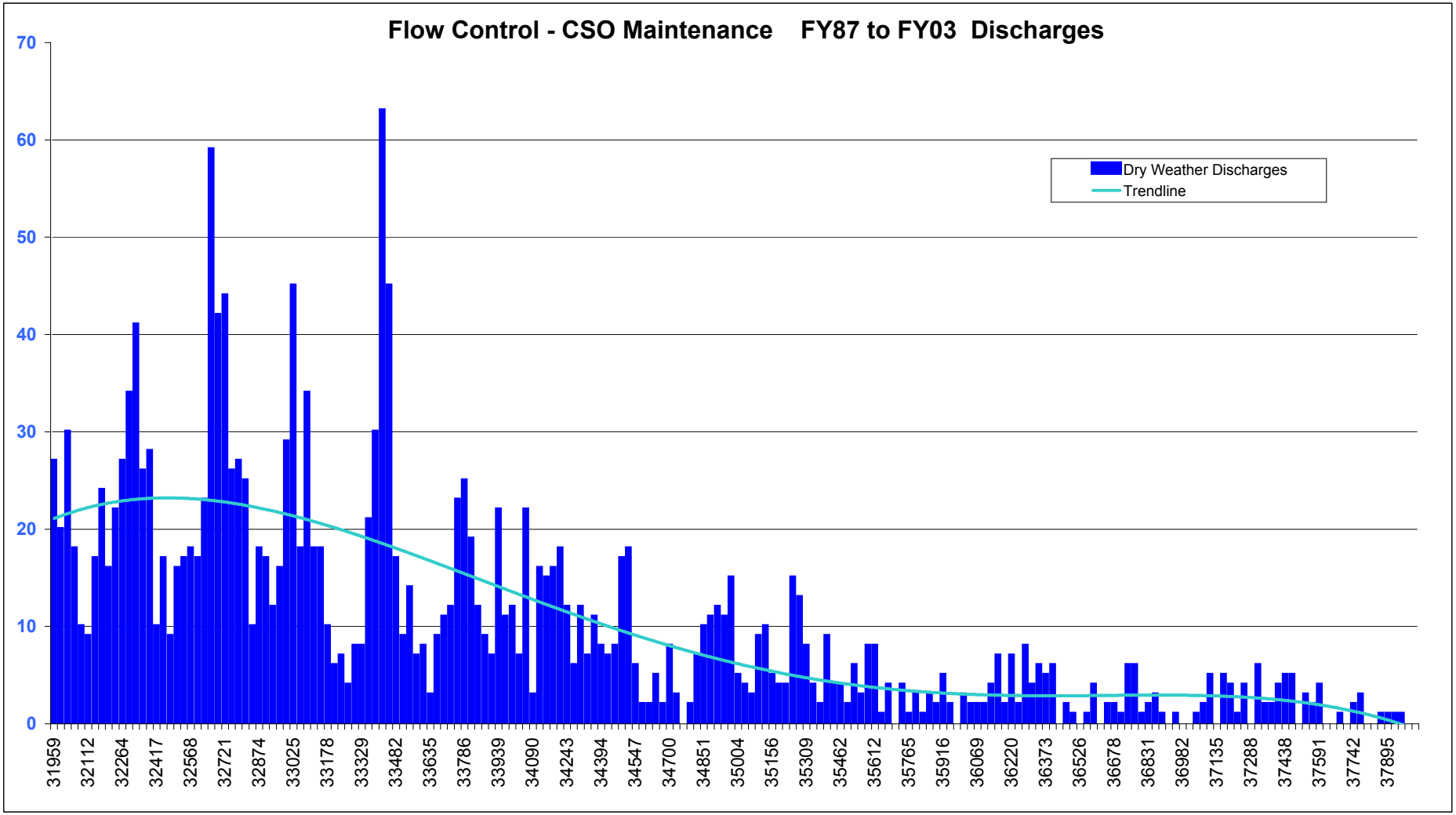
SITE ID	REG PM DATE	TG PM DATE
	COBBS CREEK HIGH LEVEL	
C01		
C02		
C04		
C04A		
C05		
C06		
C07		
C09		
C10		
C11		
C12		
C13		
C14		
C15		
C16		
C17		
C31		
C32		
C33		
C34		
C35		
C36		
C37		
	COBBS CREEK LOW LEVEL	
C18		
C19		
C20		
C21		
C22		
C23		
C24		
C25		
C26		
C27		
C28A		
C29		
C30		


FISCAL YEAR 2003 - 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
9475
10566
13276
11732
7587
5873
9741
10510
8405
7556
10746
8750
8347
9518
10195
12401
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
CSO DISCHARGES
BLOCKS CORRECTED
INSPECTIONS


Flow Control - CSO Maintenance FY87 to FY03 Inspections / Discharges By Month
Discharges
Inspections
15,000
14,500
14,000
13,500
13,000
12,500
12,000
11,500
600
500
400
300
200
100
0
13310
14118
13439
14548
13695
14696
13692
12766
14314
13026
13414
12862
297
260
189
136
118
105
114
108
112
122
156
262
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

FLOW CONTROL - CSO DISCHARGE HISTORY - FISCAL YEAR 1994 TO 2003




Flow Control - CSO Maintenance FY87 to FY03 Discharges
70
60
50
40
30
20
10
0
Dry Weather Discharges
Trendline
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

T-04 FLOATABLES CONTROL - MAINTENANCE COST - 1997 / 2003

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 $395.82

Net cost for 2 nets	$110.00
Crew cost	$281.30
Disposal cost	$4.52
Total per Job	$395.82
Roughly 7 times per Yr.	$2,770.74

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	**$4.52**
Debris disposal cost / ton	$53.40
Debris disposal cost / lb.	$0.03
average weight lbs.	169.28

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
TOTAL	**7787**
COUNT	**44**

Appendix B – Flow Control Pumping Station Maintenance Summaries

PWD FLOW CONTROL UNIT

PUMPING STATION MAINTENANCE

CALENDAR YEAR 2003

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
FY2003 OVERHAUL SCHEDULE

REPORT FOR: FY03

COMPLETED	28	57	AVERAGE DAYS TO OVERHAUL IN FY2003
PROGRESSING	0	41	AVERAGE DAYS TO OVERHAUL PAST YRS

START	FINISH	MAIN PUMPING UNITS			STATUS	OOS DAYS
08/12/02	09/24/02	CSPS	#	5	COMPLETE	43 DAYS
01/27/03	03/08/03	CSPS	#	6	COMPLETE	40 DAYS
07/24/02	08/10/02	SPRING LANE	#	1	COMPLETE	17 DAYS
10/15/02	10/25/02	RENNARD STREET	#	1	COMPLETE	10 DAYS
01/06/03	04/14/03	NEILL DRIVE	#	1	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DRIVE	#	2	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DRIVE	#	3	COMPLETE	98 DAYS
08/08/02	08/09/02	NEILL DRIVE	#	2	COMPLETE	1 DAYS
11/15/02	11/16/02	NEILL DRIVE	#	3	COMPLETE	1 DAYS
08/26/02	12/16/02	42ND STREET	#	1	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND STREET	#	2	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND STREET	#	3	COMPLETE	112 DAYS

START	FINISH	AUXILIARY EQUIPMENT			STATUS	OOS DAYS
12/03/02	12/04/02	CSPS SOUTH RAKE MOTOR			COMPLETE	1 DAYS
08/26/02	12/16/02	42ND ST.(W.W.Intake Vent.)	#	W1	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(W.W.Exhaust Vent.)	#	W2	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(P.R.Intake Vent.)	#	P1	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(P.R.Exhaust Vent.)	#	P2	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(C.R.Intake Vent.)	#	C1	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(C.R.Exhaust Vent.)	#	C2	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(P.R. Sump Pump.	#	SP1	COMPLETE	112 DAYS
08/26/02	12/16/02	42ND ST.(P.R. Sump Pump.	#	SP2	COMPLETE	112 DAYS
01/06/03	04/14/03	NEILL DR.(P.R.Intake Vent.)	#	P1	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DR.(P.R.Exhaust Vent.)	#	P2	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DR.(C.R.Intake Vent.)	#	C1	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DR.(C.R.Exhaust Vent.)	#	C2	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DR.(P.R. Sump Pump	#	SP1	COMPLETE	98 DAYS
01/06/03	04/14/03	NEILL DR.(P.R. Sump Pump	#	SP2	COMPLETE	98 DAYS
02/14/03	02/15/03	CSPS Roto Valve Motor	#	4	COMPLETE	1 DAYS

FLOW CONTROL UNIT
2003 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	2.733	2.446					5.180
BELFRY DRIVE	3.287	3.361					6.648
CENTRAL SCHUYLKILL	3289.678	4087.641	418.311	2202.947	2915.029	3605.761	16519.367
FORD ROAD	33.693	37.641					71.334
HOG ISLAND	3.716	3.980					7.696
LINDEN AVENUE	28.469	23.312					51.781
LOCKHART STREET	30.386	27.634					58.019
MILNOR STREET	2.646	2.801	3.059				8.506
NEILL DRIVE	75.508	87.550	100.323				263.381
POLICE ACADEMY	1.522	1.480					3.002
RENNARD STREET	4.271	4.209					8.480
SPRING LANE	2.220	2.216					4.436
42ND STREET	330.263	265.328	369.388				964.980
STORMWATER PUMP STATIONS							
BROAD & BOULEVARD	72.659	56.819	0.381	0.595			130.454
MINGO CREEK	13.850	0.000	101.678	802.275	990.092	293.210	2201.105
26TH & VARE	0.906	0.454					1.360

PHILADELPHIA WATER DEPARTMENT	FISCAL YEAR 2003 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	97.7%	96.5%	96.7%	97.4%	98.1%	98.1%	99.3%	96.7%	97.5%	97.7%	97.2%	97.4%	**98%**	---
CSO Dry Weather Discharges (goal is zero discharges)	CSO Discharges / 100 Inspections	0.6	0.3	0.0	0.3	0.2	0.4	0.0	0.0	0.1	0.0	0.2	0.3	**0.20**	**2.4**
CCTV Inspections of Sewer Infrastructure (goal - greater than 30,000 ft or 5.8 mi.)	Feet Miles	20,361 3.9	16,347 3.1	17,759 3.4	19,506 3.7	16,422 3.1	10,830 2.1	8,990 1.7	13,191 2.5	15,459 2.9	20,192 3.8	18,507 3.5	17,303 3.3	**16,239** **3.1**	**194,867** **37**
Metering Chamber Meters Operational (goal is 95% or higher)	% of 23 Meters / mo.	89%	67%	58%	67%	88%	89%	95%	95%	92%	90%	90%	93%	**84%**	---
CSO Level/Flow Meters Operational (goal is 90% or higher)	% of 142 Sites / mo.	41%	41%	32%	16%	12%	18%	28%	28%	21%	23%	27%	30%	**26%**	---

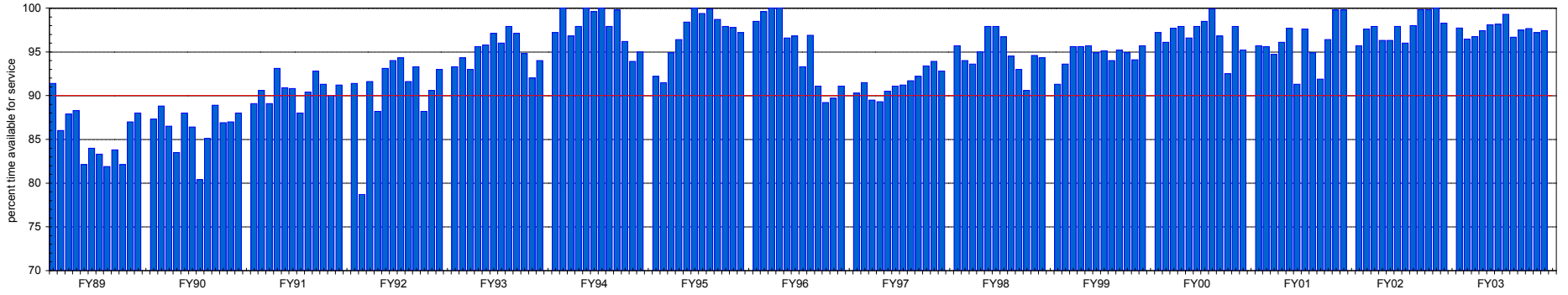
WASTEWATER PUMPING - MAIN PUMPING UNITS

OUT OF SERVICE

365	**DAYS IN THE PERIOD Jan-01-03 TO Dec-31-03**
473040	TOTAL POSSIBLE IN SERVICE HOURS
9648	TOTAL PUMP OOS HOURS
54.2%	OOS FOR BREAKDOWN
2.0%	OOS FOR PREVENTATIVE MAINTENANCE
43.8%	OOS FOR OVERHAUL
98.0%	**OVERALL AVAILABILITY FOR SELECTED PERIOD**

DATE OUT	TIME OUT	DATE IN	TIME IN	UNIT	STATION	TYPE	REASON
10/08/03	8:00 AM	10/10/03	12:15 PM	6	CSPS	PM	PUMP AND PIPING REPAINT
10/06/03	9:00 AM	10/08/03	8:00 AM	4	CSPS	PM	PUMP AND PIPING REPAINT
10/02/03	2:00 PM	10/04/03	12:00 PM	1	BELFRY DR	BD	PUMP CLOGGED - LOW FLOW
10/01/03	8:30 AM	10/02/03	3:00 PM	3	CSPS	PM	PUMP AND PIPING REPAINT
09/29/03	10:55 AM	09/30/03	2:00 PM	2	CSPS	PM	PUMP AND PIPING REPAINT
09/23/03	2:00 PM	09/25/03	2:00 PM	1	CSPS	PM	PUMP AND PIPING REPAINT.
09/17/03	10:30 PM	10/25/03	10:00 AM	2	MINGO CREEK	BD	MOTOR FAILED TO START
08/04/03	10:00 AM	10/22/03	10:30 AM	5	CSPS	BD	PUMP / MOTOR - COUPLING FAILURE
06/10/03	10:00 AM	08/11/03	1:00 PM	2	BROAD ST	BD	MOTOR TRIPS OUT OVERCURRENT
05/20/03	2:00 PM	05/21/03	2:00 PM	2	POLICE ACA	BD	PUMP SEIZED
05/03/03	4:00 PM	05/15/03	4:00 PM	6	CSPS	BD	PUMP BEARING FAILURE
05/02/03	11:00 AM	05/05/03	3:00 PM	5	CSPS	BD	VFD DRIVE OVERHEAT
04/07/03	10:00 AM	04/15/03	12:00 PM	3	PNBC 796 MAIN	BD	PUMP CLOGGED - LOW FLOW
03/05/03	8:00 AM	03/07/03	2:00 PM	2	26TH VARE	BD	PRESSURE GAUGE NIPPLE FAILURE
03/05/03	10:00 AM	03/06/03	10:00 AM	3	CSPS	BD	VALVE - ROTOVALVE FAILURE
03/05/03	10:00 AM	03/06/03	2:00 PM	3	42ND ST	BD	PUMP SEIZED
02/13/03	10:50 AM	02/14/03	12:00 PM	2	26TH VARE	BD	Pressure Gauge nipple failure.
02/07/03	10:50 AM	06/23/03	2:00 PM	6	MINGO CREEK	OV	OVERHAUL - COMPLETE UNIT
01/27/03	8:00 AM	03/08/03	12:00 PM	6	CSPS	OV	OVERHAUL - COMPLETE UNIT
01/10/03	2:00 PM	01/13/03	12:00 PM	1	PNBC 796 MAIN	BD	VFD DRIVE OVERHEAT
06/03/02	10:00 AM	01/06/03	8:00 AM	1	NEILL DR	BD	PUMP SUCTION PLATE WORN

FLOW CONTROL - SERVICE LEVEL GOAL
WASTE & STORM WATER PUMP - MONTHLY AVAILABILITY



FLOW CONTROL - SERVICE LEVEL GOAL - MAIN PUMP AVAILABILITY HISTORY FOR : JUNE 2001

Availability FY90		Availability FY91		Availability FY92		Availability FY93		Availability FY94		Availability FY95		Availability FY96		Availability FY97		Availability FY98		Availability FY99		Availability FY00		Availability FY01		Availability FY02		Availability FY03	
Jul 89	87.3 %	Jul 90	89.1 %	Jul 91	91.4 %	Jul 92	93.3 %	Jul 93	97.2 %	Jul 84	92.2 %	Jul 95	98.5 %	Jul 96	90.3 %	Jul 97	95.7 %	Jul 98	91.3 %	Jul 99	97.2 %	Jul 00	95.7 %	Jul 01	95.7 %	Jul 01	97.7 %
Aug 89	88.8 %	Aug 90	90.6 %	Aug 91	78.7 %	Aug 92	94.3 %	Aug 93	100.0 %	Aug 94	91.5 %	Aug 95	99.6 %	Aug 96	91.5 %	Aug 97	94.0 %	Aug 98	93.6 %	Aug 99	96.1 %	Aug 00	95.6 %	Aug 01	97.6 %	Aug 01	96.5 %
Sep 89	86.5 %	Sep 90	89.1 %	Sep 91	91.6 %	Sep 92	93.0 %	Sep 93	96.8 %	Sep 04	94.9 %	Sep 95	100.0 %	Sep 96	89.5 %	Sep 97	93.6 %	Sep 98	95.6 %	Sep 99	97.7 %	Sep 00	94.7 %	Sep 01	97.9 %	Sep 01	96.7 %
Oct 89	83.5 %	Oct 90	93.1 %	Oct 91	88.2 %	Oct 92	95.6 %	Oct 93	97.9 %	Oct 14	96.4 %	Oct 95	100.0 %	Oct 96	89.3 %	Oct 97	95.0 %	Oct 98	95.6 %	Oct 99	97.9 %	Oct 00	96.1 %	Oct 01	96.3 %	Oct 01	97.4 %
Nov 89	88.0 %	Nov 90	90.9 %	Nov 91	93.1 %	Nov 92	95.8 %	Nov 93	100.0 %	Nov 24	98.4 %	Nov 95	96.6 %	Nov 96	90.5 %	Nov 97	97.9 %	Nov 98	95.7 %	Nov 99	96.6 %	Nov 00	97.7 %	Nov 01	96.3 %	Nov 01	98.1 %
Dec 89	86.4 %	Dec 90	90.8 %	Dec 91	94.0 %	Dec 92	97.1 %	Dec 93	99.6 %	Dec 34	100.0 %	Dec 95	96.8 %	Dec 96	91.1 %	Dec 97	97.9 %	Dec 98	94.9 %	Dec 99	97.9 %	Dec 00	91.3 %	Dec 01	97.9 %	Dec 01	98.1 %
Jan 90	80.4 %	Jan 91	88.0 %	Jan 92	94.3 %	Jan 93	96.0 %	Jan 94	100.0 %	Jan 45	99.4 %	Jan 96	93.3 %	Jan 97	91.2 %	Jan 98	96.7 %	Jan 99	95.1 %	Jan 00	98.5 %	Jan 01	97.6 %	Jan 02	96.0 %	Jan 02	99.3 %
Feb 90	85.1 %	Feb 91	90.4 %	Feb 92	91.6 %	Feb 93	97.9 %	Feb 94	97.9 %	Feb 55	99.9 %	Feb 96	96.9 %	Feb 97	91.7 %	Feb 98	94.5 %	Feb 99	94.0 %	Feb 00	99.9 %	Feb 01	94.9 %	Feb 02	98.0 %	Feb 02	96.7 %
Mar 90	88.9 %	Mar 91	92.8 %	Mar 92	93.3 %	Mar 93	97.1 %	Mar 94	99.8 %	Mar 65	98.7 %	Mar 96	91.1 %	Mar 97	92.2 %	Mar 98	93.0 %	Mar 99	95.2 %	Mar 00	96.8 %	Mar 01	91.9 %	Mar 02	100.0 %	Mar 02	97.5 %
Apr 90	86.9 %	Apr 91	91.3 %	Apr 92	88.2 %	Apr 93	94.8 %	Apr 94	96.2 %	Apr 75	97.9 %	Apr 96	89.2 %	Apr 97	93.4 %	Apr 98	90.6 %	Apr 99	94.9 %	Apr 00	92.5 %	Apr 01	96.4 %	Apr 02	98.5 %	Apr 02	97.7 %
May 90	87.0 %	May 91	90.0 %	May 92	90.6 %	May 93	92.0 %	May 94	93.9 %	May 85	97.8 %	May 96	89.7 %	May 97	93.9 %	May 98	94.6 %	May 99	94.1 %	May 00	97.9 %	May 01	99.8 %	May 02	99.7 %	May 02	97.2 %
Jun 90	88.0 %	Jun 91	91.2 %	Jun 92	93.0 %	Jun 93	94.0 %	Jun 94	95.0 %	Jun 95	97.2 %	Jun 96	91.1 %	Jun 97	92.8 %	Jun 98	94.3 %	Jun 99	95.7 %	Jun 00	95.2 %	Jun 01	99.8 %	Jun 02	98.3 %	Jun 02	97.4 %
Avg	86.4 %	Avg	90.6 %	Avg	90.7 %	Avg	95.1 %	Avg	97.9 %	Avg	97.0 %	Avg	95.2 %	Avg	91.5 %	Avg	94.8 %	Avg	94.6 %	Avg	97.0 %	Avg	96.0 %	Avg	97.7 %	Avg	97.5 %
Max	88.9 %	Max	93.1 %	Max	94.3 %	Max	97.9 %	Max	100.0 %	Max	100.0 %	Max	100.0 %	Max	93.9 %	Max	97.9 %	Max	95.7 %	Max	99.9 %	Max	99.8 %	Max	100.0 %	Max	99.3 %
Min	80.4 %	Min	88.0 %	Min	78.7 %	Min	92.0 %	Min	93.9 %	Min	91.5 %	Min	89.2 %	Min	89.3 %	Min	90.6 %	Min	91.3 %	Min	92.5 %	Min	91.3 %	Min	95.7 %	Min	96.5 %