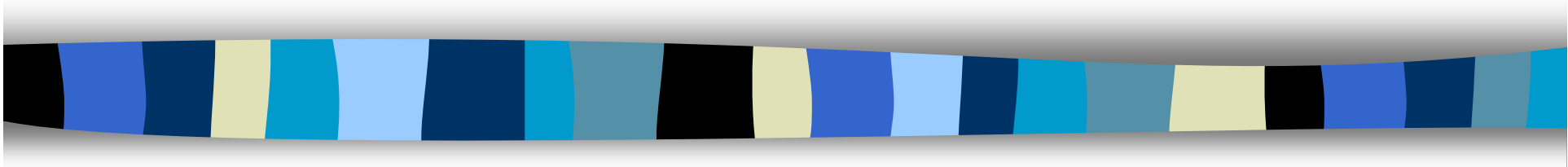


Mill Creek



Presentation

February 9, 2006



Introductions and Orientation

- Introductions
 - County Council
 - Health Department
 - Public Information Office
 - Community & Constituent Affairs
 - Department of Public Works
 - Bureau of Engineering
 - Bureau of Utilities Operation and Maintenance
 - Customer Relations
 - Bayland Consultants and Designers, Inc.
- Comment Cards
- Breakout Information Stations



Breakout Information Sessions

	<u>Station No.</u>
• Media and Public Notification	<u>1</u>
• Water Quality Monitoring, Mitigation & Cleanup	<u>2</u>
• Interceptor Corrosion, Replacement & Rehabilitation (Including Overflow Sequence of Events)	<u>3</u>
• Broadneck Sanitary Sewer Service Area Critical Interceptor and Force Main Condition Assessment	<u>4</u>
• County-Wide Sanitary Sewer Collection Systems and Pump Station Infrastructure Rehabilitation and Replacement Programs	<u>5</u>



Agenda

- DPW Bureau of Utilities Notification of Incident
- Media and Community Notification
- Mill Creek Water Quality Impact
- Environmental Cleanup and Mitigation
- Calendar Year 2006 Monitoring
- Mill Creek Gravity Interceptor Rehabilitation
- Broadneck Sewer Service Area Infrastructure Condition Assessment



Mill Creek Pump Station Utilities Notification of Incident

<u>Date</u>	<u>Time</u>	<u>Incident Notifications</u>	<u>Incident Assessments</u>
Dec 17, 2005	9:45 AM	Emergency Dispatch Alarm	Secondary Pump Control Stand-By Employee Called
	9:47 AM	Emergency Dispatch Alarm	High Wet Well Secondary Pump Control
	9:48 AM	Fire Department Called Emergency Dispatch	Active Overflow into Mill Creek
	10:00 AM	Fire Department on Scene	
	10:00 AM	Citizen Calls Started at Emergency Dispatch	Utilities Employee In Route
	10:07 AM	Utilities Employee On Site	Situation Assessment and Emergency Dispatch Notification of Resources Required for Incident Response

Mill Creek Pump Station Media Notification

<u>Date</u>	<u>Time</u>	<u>Incident Notifications</u>	<u>Incident Assessments</u>
Dec 17, 2005	10:00 AM	County Public Information Office Notified	Media advised Press Release from Health Department will follow
	11:34 AM	Health Department Notified	
	11:30 AM to 12:00 PM	Community & Constituent Affairs Notified	
	3:00 PM to 4:30 PM	Health Department Issued Press Release Regarding Closure of Mill Creek	Notified: Assoc. Press; Capital Newspaper; MD Gazette; Baltimore Sun; Wash. Post; Baltimore & Washington TV and Radio; Community TV;
			Media Coverage: Dec 17 PM TV News Dec 18 AM Newspapers
Dec 18, 2005	1:00 PM	Land Use Office Press Release	Wastewater spill update & request to conserve water
Dec 19, 2005	1:00 PM	Press Conference @ Arundel Center	Facts regarding what happened, response to stop overflow, and plan for rehabilitation of deteriorated pipeline.
Dec 22, 2005		Press Release	Mill Creek Remains Closed
Jan 20, 2006		Press Release	Mill Creek Reopened



Mill Creek Pump Station Community Association Notification

<u>Date</u>	<u>Time</u>	<u>County Office</u>	<u>Public Notifications</u>
Dec 17, 2005	Early Afternoon	Community & Constituent Affairs	Arnold Preservation Council Broadneck Federation Mago Vista Civic Association Magothy River Association Campus Green Greater Severna Park Council Raintree
	2:00 PM	Health Department	Updated Water Quality Phone Line (410-222-7999) with Mill Creek Closure Notice
	2:00 PM	Health Department	Health Department Web Site Updated with Mill Creek Closure Notice; Periodic updated regarding water quality testing results followed (English & Spanish).
Jan 20, 2006	4:00 PM	Health Department	Health Department Web Site Updated to indicate Mill Creek Re-Opened

Mill Creek Pump Station Health Department Closure Signs

<u>Date</u>	<u>Time</u>	<u>County Office</u>	<u>Public Notification Response</u>
Dec 17, 2005	12:00 PM	Health Department	Tier I responded by 12:15 PM to assess conditions. Called Tier II responders to install closure signs.
	2:30 PM	Health Department	Closures Signs Installed: Peninsula Farm Road @ Twin Oaks Park Jones Station Road @ Galway Garth Mago Vista Road @ Broadwater Road Alameda Parkway @ Clifton Avenue Mill Creek Pump Station @ Campus Green and Jones Station
Dec 19, 2005	12:00 PM	Health Department	Closure Signs Installed: Haskell Road @ Mill Creek Ferry Point Yacht Yard Mago Vista Road @ River Road Jones Station @ Mago Vista River Road @ Mill Creek Road Dauntsey @ Mago Vista Roxshire Drive @ MacSherry Drive Peninsula Farm Road @ Mill Church Road Baybourne Road @ Rushley Road Baybourne Road @ Mill Harbor Drive



Mill Creek Water Quality Impacts

Estimated Pollutant Load

Nitrogen: 743 lbs
Phosphorus: 147 lbs
Tot. Solids 7130 lbs

Waterway Response

- * Nutrients support algae growth
- * Algae growth cycle impacts water clarity and reduces dissolved oxygen in the waterway
- * Legacy Load of Pollutants in Sediment

Potential Impact

- * Reduced Dissolved Oxygen
- * Marine Life Impairment due to Low Dissolved Oxygen
- * Reduced Water Clarity
- * Reduced Sunlight Penetration
- * Submerged Aquatic Vegetation Impairment

Health Considerations

- * Direct water contact with bacteria contaminated water in Mill Creek
- * Bacteria can not survive in the Mill Creek water temperatures and environment

Note: One time slug load such as a sewage spill causes temporary water quality impact. Continuous pollutant loads cause persistent and on-going waterway impacts.

Environmental Clean-Up Estimated Sediment Balance

Sediment Source

Estimated Volume (Cubic Yards)

Sewage Overflow (Total Suspended Solids)	8
Sand from Sinkhole	
Wet Well	200
Floodplain @ Overflow Outfall	500
Stream Channel from Overflow to Tidal Interface	100
Tidal Area	<u>900</u>
Total:	1,700



Environmental Clean-Up

- Water Quality Monitoring
- Tidal Sediment Sampling & Analysis
- Bathymetry Update
- Evaluation of Dredging Justification



Environmental Monitoring Program

Samples

Tidal Water
(Weekly)

Tidal Sediment
(One-Time)

Non-Tidal Stream
(Weekly)

Mill Creek

Bacteria
Physical Parameters
Nutrients

Bacteria
Organic Content
Nutrients
Heavy Metals
Grain Size

Bacteria
Physical Parameters
Nutrients

Dividing Creek

Bacteria
Physical Parameters
Nutrients

Bacteria
Organic Content
Nutrients
Heavy Metals
Grain Size

Bacteria
Physical Parameters
Nutrients



Mill Creek Interceptor Sewer Rehabilitation

- 100 Feet of Interceptor Replaced
- 853 Feet of Interceptor Televised
- 933 Feet of Interceptor Scheduled for TV Inspection
- 1786 Feet of Interceptor Anticipated for Relining

Broadneck Water Reclamation Facility Service Area Interceptor Sewer/Pump Station Network

<u>Pipelines</u>	<u>Feet</u>	<u>Miles</u>	<u>Pipe Flow</u>
Ben Oaks Pump Station Force Main	10,000	1.89	Full Pipe
Big Cypress PS Gravity Interceptor Sewer	14,430	2.73	Partial Pipe
Cattail Creek PS Gravity Interceptor Sewer	4,743	0.90	Partial Pipe
Cattail Creek Pump Station Force Main	16,500	3.13	Full Pipe
Mill Creek PS Gravity Interceptor Sewer	2,000	0.38	Partial Pipe
Mill Creek Pump Station Force Main	8,460	1.60	Full Pipe
Broadneck WRF Gravity Interceptor Sewer	28,000	5.30	Partial Pipe
Total Length:	84,133	15.93	
Length To Be Inspected:	49,173	9.31	

Sanitary Sewer Collection System Infrastructure Inventory

Infrastructure

Miles of Inventory

- Gravity Sewers
 - 8" and smaller
 - 10" – 16"
 - 18"
 - 21" – 24"
 - 27"
 - 30"
 - 36"
 - up to 60"
 - Total:

980
110
15
20
7
7
4
6
1149

- Force Mains
 - 8" and smaller
 - 10" – 16"
 - 18"
 - 21" – 24"
 - 30"
 - 36"
 - up to 54"
 - Total:

139
43
3
10
8
7
2
212

Sanitary Sewer Collection System Infrastructure Inventory

<u>Infrastructure</u>	<u>Inventory</u>
• Manholes	33,548
• Service Connections	109,940
• Grinder Pumps	3,100
• Pump Stations (Public)	
Baltimore City	5
Cox Creek	56
Annapolis	56
Broadneck	56
Patuxent	8
Broadwater	24
Maryland City	6
Mayo	32
Rose Haven/Holland Point	<u>1</u>
Total:	244



Sanitary Sewer Collection System Infrastructure Rehabilitation & Replacement Program

- \$3.4 Million Annual Investment Rehabilitating Aging Infrastructure
- Over 91 Miles Relined (completed) @ approximately 8 miles/year
- Pipeline Replacement Completed due to Corrosion:

- Parole Pump Station Force Main	4,000 feet	\$3.9 million
- Severn Run PS Force Main	300 feet	\$1.1 million
- Cross Country Force Main	7,000 feet	\$3.9 million
- Cape St. Claire Force Main	1,900 feet	\$0.4 million
- Arundel on the Bay PS Force Main	5,700 feet	\$2.5 million
- Marley PS Force Main	6,000 feet	\$2.5 million
- Solley Road Force Main	1,400 feet	\$.6 million

- Pipeline Replacement Under Design Due to Corrosion:

- Ben Oaks Pump Station Force Main	<u>10,100 feet</u>	<u>\$4.4 million</u> (estimated)
------------------------------------	--------------------	----------------------------------

Total:	36,400 feet	\$19.3 million
--------	-------------	----------------



Sanitary Sewer Collection System Infrastructure Rehabilitation & Replacement Program

- \$1.6 Million Annual Investment Replacing Customer Connections
@ approximately 150/year
- \$2.775 Million Annual Investment Upgrading Pump Stations
 - Pump Upgrades
 - Motor Upgrades
 - Automated System Control Upgrades
 - Redundant Emergency Power
 - Odor Control
 - Valve Replacement
 - Wet Well Piping Replacement



Sanitary Sewer Collection System Infrastructure Maintenance & Replacement

- Pipeline Cleaning (350 to 400 Miles/Year with Three Year Cycle)
- Root Cutting and Removal (40 Miles/Year)
- Chemical Root Treatment (12 Miles/Year)
- Manhole Frame and Cover Replacement (496/Year)



Breakout Information Sessions

	<u>Station No.</u>
• Media and Public Notification	<u>1</u>
• Mill Creek Water Quality Monitoring, Mitigation & Cleanup	<u>2</u>
• Mill Creek Gravity Interceptor Corrosion, Replacement & Rehabilitation (Including Overflow Sequence of Events)	<u>3</u>
• Broadneck Sanitary Sewer Service Area Critical Interceptor and Force Main Condition Assessment	<u>4</u>
• County-Wide Sanitary Sewer Collection Systems and Pump Station Infrastructure Rehabilitation and Replacement Programs	<u>5</u>