

Municipal Sanitary Authority of the City of New Kensington

Presentation to the Cities of New
Kensington, Arnold, Lower Burrell
and Borough of Plum

March 10, 2010



Meeting Purpose

- Informational Meeting
- EPA Administrative Consent Order
- Effective Date December 11, 2009
- What's done?
- What needs to be done?



First - Some Background

- PaDEP Order Dated October 2, 2002 Required MSANK To Address Two (2) Issues Regarding the City of New Kensington Collection System
 1. Conduct Hydraulic Characterization by February 1, 2004 - **COMPLETE**
 2. Submit LTCP – **COMPLETE**
(September 2004)



EPA Information Request Letter February 8, 2007

- The Letter Consisted of Questions Regarding MSANK's Understanding of the Status of The LTCP Submitted September 2004.
- First Response from the PaDEP or EPA Since Submission of the September 2004 LTCP



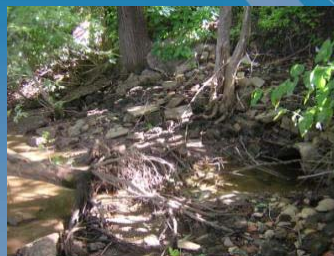
EPA Administrative Order – October 2, 2007

- September 2004 LTCP Deemed “inadequate”.
 - Select Presumptive or Demonstrative Approach
 - Website not current
 - Post Construction Water Quality Monitoring Not Defined
 - Provide Fixed Date Implementation and Financing Plans



EPA Administrative Order – October 2, 2007

- Comply with the Conditions of MSANK's NPDES Permit
- Acknowledge Order Within 14 Days –
Submitted October 15, 2007
- Submit Final LTCP No Later Than November 30, 2007



EPA Order - October 2, 2007 Combined Sewer Overflows

“..develop the LTCP by collaborating with representatives of the City of New Kensington, the City of Arnold, the City of Lower Burrell, and Plum Borough. The inclusion of these communities in the development of the LTCP is necessary to ensure that the LTCP will be effective in serving all of the involved municipalities, particularly in the use of wet weather modeling in the LTCP”



Administrative Order of Consent

- Negotiated with EPA from 2007 through 2009
- AOC executed on December 11, 2009
- for complete document go to www.msank.org



What's in AOC

Stage I – Mapping and Sewer System Investigation

Develop Public Participation Plan	6/10/2010
Nine Minimum Control Report	2/12/2010
Physical Survey and Inspection of the Sewer Systems	12/10/2010
Cleaning and Closed Circuit TV Inspection	12/10/2010
Sewer System Dye and Smoke Testing	12/10/2010
Stage I Mapping and Investigation Report	12/10/2010
Sewer Systems Urgent Deficiency Corrections	6/15/2011

Flow & CSO Pollutant Monitoring

Develop Work Plan	9/10/2011
Procurement & Installation of Equipment	2/22/2012
Flow & CSO Pollutant Monitoring	2/22/2013
Stage I Monitoring Report	5/20/2013

Hydraulic and Hydrologic Modeling

Develop Work Plan	3/11/2013
Complete Sewer System Model	8/26/2013

Stage II Regional Wet Weather Planning

Prepare Regional Long Term Control Plan	8/26/2014
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Public Participation Plan

- Ensure public involvement
- Goals of LTCP
- Types of Controls and Remedial Activities
- Establish two way communication
- Informational Newsletter and Meetings
- Web Site
- CSO Signs
- Due June 10, 2010

MSANK Wet Weather Management Program January 2010 Newsletter

Overview and Schedule

On December 15, 2009, the United States Environmental Protection Agency (USEPA) entered into an Administrative Order for Compliance on Consent (AOC) with the Municipal Separate Utility of the City of New Kensington (MSANK), the City of Arnold, the City of Lower Merion, the City of New Kensington, and the Borough of Park to ensure compliance with the USEPA's Combined Sewer Overflow Control Policy (CSO Policy). Over the next several years our communities will be performing the work to meet a series of requirements. We developed a comprehensive wet weather management plan. Plan development includes street network mapping, the modeling, planning, designing, and constructing improvements to the existing system. Close municipal cooperation, public awareness, and community support are all required to meet the plan development schedule.

Stage I – Mapping and Sewer System Investigation	Due Date
Develop Public Participation Plan	6/10/2010
Nine Minimum Control Report	2/12/2010
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Each Community is required to conduct some of the tasks within its own territory, such as mapping and sewer investigations. Coordination of all the work and the preparation of the regional Long Term Control Plan (LTCP) will be the responsibility of MSANK, as the owner and operator of the sewage treatment plant.

Facts About our Sewer Systems

- Cleaners that collect wastewater from the remote corners of our communities to the MSANK sewage treatment plant range from 4 inches to 48 inches in diameter.
- The total length of our sewers exceeds 100 miles.
- Eight (8) MSANK are located within our watershed in the City of New Kensington and two in the City of Arnold.
- Every inch, an average of over 50 million gallons of wastewater are collected to and treated at MSANK's sewage treatment plant.
- MSANK is in the last stage of construction and completion of the construction of new headworks and Phase I improvements to the Sewage Treatment Plant.

March 2010
MSANK.com
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Nine Minimum Control

- Meet objectives of the CSO Control Policy
- Document implementation of NMC 2004-2009
 1. Proper Operation and Regular Maintenance Program
 2. Maximum Use of Collection System for Storage
 3. Review and Modification of Pretreatment Requirements
 4. Maximization of Flow to POTW for Treatment
 5. Elimination of CSO During Dry Weather
 6. Control of Solids and Floatable Materials
 7. Pollution Prevention Program
 8. Public Notification of Overflow Occurrences
 9. Monitoring to Characterize CSO Impacts
- MSANK and City of Arnold submitted NMC on February 9, 2010

Physical Survey and Inspection of the Sewer System

- Each Municipality to complete inspection of its sewer system
- MSANK to physically inspect approximately 1,700 manholes, and three pump stations
- Two crews fully equipped and NASSCO certified will conduct inspection
- Inspection starts on March 15, 2010
- Safety Training provided for HMM and MSANK employees
- GPS Survey and inspection of an unknown number of catch basins
- GPS Survey of manholes that require higher vertical accuracy (0.1 feet) by an outside contractor (approximately 450)
- Any major structural deficiency must be fixed (initiated) within 60 days

MANHOLE INVESTIGATION REPORT	
MH NO. 4274	
CLIENT: New Riverport Municipal Sewer Authority	DATE: 3/2/10
INSPECTED BY: [Signature]	INSPECTION TYPE: [Signature]
WEATHER CONDITIONS: [Signature]	
LOCATION: [Signature]	
MANHOLE COVER: [Signature]	
DEPTH: [Signature]	COVER SIZE: 22 1/2" INCHES BY 1 3/4" INCHES
CONDITION: [Signature]	BASE CASTING TOUGH BY: [Signature]
NUMBER OF OPENINGS COVER: [Signature]	DIAMETER: [Signature]
MANHOLE FRAME: [Signature]	MANHOLE BRICK: [Signature]
CONDITION: [Signature]	EDGE ROSS: [Signature]
MANHOLE WALL: [Signature]	SPRINK FRAME: [Signature]
CONSTRUCTION: [Signature]	BRICK: [Signature]
CONDITION: [Signature]	CRACKED SECTION: [Signature]
MANHOLE BELL AND COVER: [Signature]	WATER LAYING IN DUCT: [Signature]
CONDITION: [Signature]	MANHOLE BELL AND COVER: [Signature]
MANHOLE LINES: [Signature]	MANHOLE LINES: [Signature]
CONDITION: [Signature]	MANHOLE LINES: [Signature]
DEPTH FROM SURFACE TO CENTER: [Signature]	MANHOLE SECTION: [Signature]
LINE: [Signature]	DIAMETER: [Signature]
A: [Signature]	DEPTH: [Signature]
B: [Signature]	DEPTH: [Signature]
C: [Signature]	DEPTH: [Signature]
D: [Signature]	DEPTH: [Signature]
E: [Signature]	DEPTH: [Signature]
F: [Signature]	DEPTH: [Signature]
SUMMARY OF MANHOLE DEFECTS: [Signature]	
RECOMMENDATIONS: [Signature]	
DATE OF NEXT INSPECTION: [Signature]	

Cleaning and Closed Circuit TV Inspection

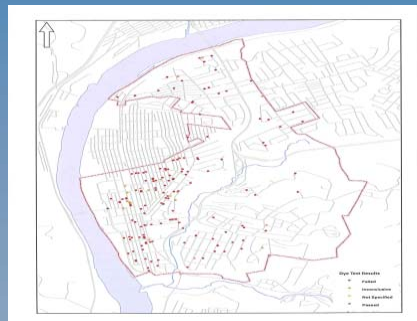
1. Each Municipality shall complete cleaning prior to CCTV for
 - a) 10" and greater separate sanitary sewers
 - b) 15" and greater combined sewers
 - c) Sewers associated with chronic flooding
 - d) Downstream of flow diversion structures
 - e) Deemed necessary by PE



Approximately 18 miles of pipe for MSANK sewer system

Sewer System Dye Testing

- Complete dye/smoke testing to determine the sources of storm water such as roof leaders, yard and driveway drains
- Previous dye testing if available CAN be used
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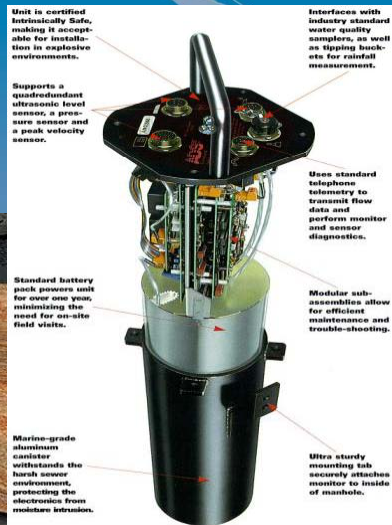
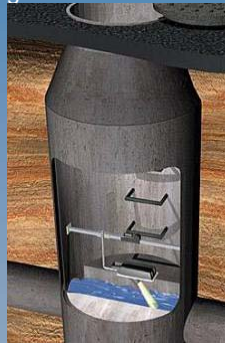
Stage I Mapping and Investigation Report

- PHASE I Activities to produce comprehensive sewer maps
- Mapping and Report due December 10, 2010!
- Coordinated by MSANK
- Accuracy Requirements 0.1' vertical
- Phase I success ensure success of entire program



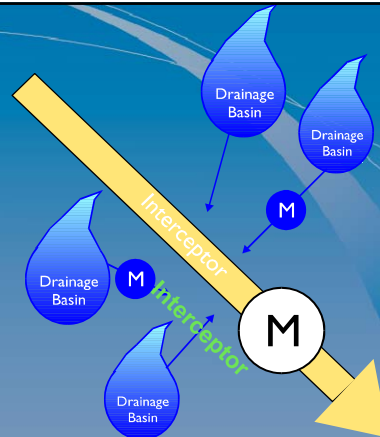
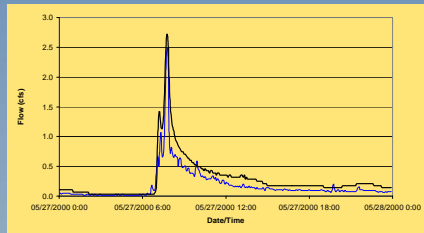
Flow Monitoring Program

- Develop work plan by 9/11/2011
- Start of Monitoring by 2/22/2012
- End of Monitoring by 2/22/2013
- Over 60 Total Monitoring Sites
- Monitor for flow
- Monitor for pollutants



H&H Modeling Program

- SWMM Model complete by 8/26/2013
 - Fully Dynamic Model
 - Continuous Simulation
 - Flow Generation
 - Boundary Conditions
 - Surcharged Conditions



- M Calibrate to these basin monitors first to define basin characteristics
- M Calibrate to these interceptor monitors second to define total upstream system

Four Steps to Model Development

- Develop Flow Basins
- Develop Basin Flow Models
- Develop Hydraulic Model Network
- Model Calibration & Verification

New Kensington Flow Basin (Sewershed) Boundaries

- 30 Separate Sewer Basins
- 15 Combined Sewer Basins
 - Network Topology (Inventory Mapping and GPS Survey)
 - As-Built Sewer Maps
 - County Parcels and Land Use (Data Sharing Agreement)
 - Field Verification



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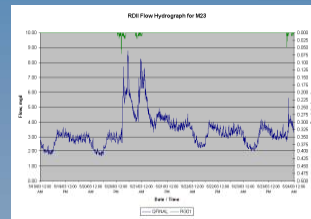
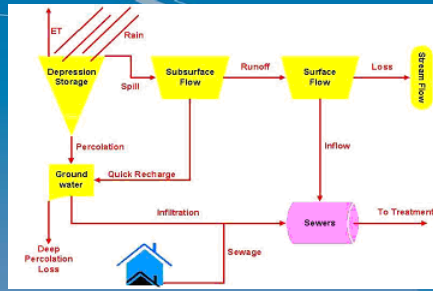
Characterization of Existing Flow Conditions

- City of Arnold
- City of Lower Burrell
- City of New Kensington
- Borough of Plum

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Basin Flow Models

- Dry Weather Flow
 - Census Data
 - Capita per Land-Use Acre
 - Flow per Acre
 - Diurnal Patterns
- Wet Weather Flow
 - Combined System
 - Hydrologic Cycle for Surface Runoff
 - Separate System
 - Rainfall Dependent Inflow/Infiltration



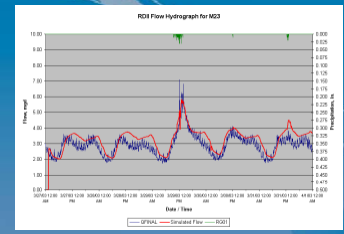
Hydraulic Model Network

- Basin Interconnectivity
- Major Interceptors
- CSO Configurations



Calibration & Verification

- Compare Simulated Results to Measured Data
 - 3 Calibration Events per Meter
 - 1 Verification Event per Meter
- Stringent Criteria for Tolerances
 - Peak Flows
 - Average Flows
 - Volumes
 - Depth



	Sim Peak Flow, mgd	5 812	10 214	7 270	7 699
	Meas Peak Flow, mgd	6 209	9 840	8 700	8 899
	-10% 10% Error, %	-7.6%	3.7%	-17.7%	-13.5%
Average 8-hr Bracket of Meas Peak Flow					
	Average Sim Flow, mgd	4 530	6 534	5 665	6 072
	Average Meas Flow, mgd	4 234	6 981	5 184	5 750
	-15% 15% Error, %	7.0%	-6.4%	9.3%	5.6%
Average 24-hr Bracket of Meas Peak Flow					
	Average Sim Flow, mgd	3 565	4 609	4 702	4 421
	Average Meas Flow, mgd	3 229	4 695	4 471	3 865
	-20% 20% Error, %	10.4%	-7.9%	5.2%	14.4%
Average 48-hr Bracket of Meas Peak Flow					
	Sim Vol, mgd	6 043	8 527	8 184	7 806
	Meas Vol, mgd	6 016	9 422	7 779	6 688
Vol > 1 MG	-10% 10% Error, %	13.7%	-9.5%	5.2%	16.7%
Vol ≤ 1MG	-15% 15% Error, %				



Stage II Regional Wet Weather Planning

- **LONG TERM CONTROL PLAN**
 - Prepared by 8/26/2014
 - 1. Shall identify all sensitive areas.....
 - 2. Include public participation in development...
 - 3. Develop and propose alternatives for CSO controls
 - 4. Develop cost analysis of all alternatives
 - 5. Implementation Plan and Schedule
 - 6. Post-Construction Monitoring Compliance Program



Current News

- MSANK WWTP Upgrade (Phase I) – Headworks and Blower Building
Project is almost complete
- Facilities sized for future need
- MSANK's web site is being redesigned with more information to come
- For all news regarding MSANK Regional Wet Weather program go to:
www.msank.org
- Lines of communications allways open:
- please contact Daniel Rowe, Manager (724) 335-9813
or Kemal Niksic, P.E., HMM (412) 497-2944



What Can You Do!

- Disconnect your downspouts from CSS
- Sweep up grass clippings. Do not hose them into the sewer drains
- Do not litter
- Fix fluid leaks
- Recycle cooking oil
- Never pour oil, grease, paint, solvents or any chemicals down the drain
- Clean up after your pets
- **ASK QUESTIONS!**



THANK YOU!

A handwritten signature in white ink, appearing to be the initials 'hm', located in the bottom right corner of the blue graphic.