Testing Methods for Asbestos Cement Pipe (yes there are ACP sewer lines)

Presented to:  
SCAP Collection Systems Committee  
Irvine, CA

Presented By:  
Phil Giori, ENV SP  
Dudek
“For gravity sewer systems, ‘K&M’ Asbestos-Cement non-pressure pipe is the modern answer to the need for low-cost, permanent, water-tight connections”
Failure Modes of AC Pipe
Who has AC Pipe?
Test Methods Overview

Phenolphthalein Dye Test

Acoustic Velocity Test

SEM-EDX Test

Crushing Strength Test

Hardness Test
Phenolphthalein Dye Test

- No color denotes potential degradation
- Magenta denotes strong pipe wall

Highly Conservative
Effluent Outfall Condition Assessment Results

Sample #1

Sample #2

Sample #3

Sample #4

Sample #5

Sample #6
Hardness Testing

Test on Pipe Cross Section

Durometer Measures Relative Hardness (Scale 0-100)
Hardness Testing
Effluent Outfall Condition Assessment

Sample #1

- **Interior No Purple**: 75-85 Hardness
- **Purple Areas**: 90+ Hardness
- **Exterior No Purple**: 20-30 Hardness
- **Degraded Pipe Wall**
Cost/Savings Potential

![Cost/Savings Potential Diagram]

- Cleghorn Forcemain
- Debt Service
- Vehicle Replacements
- Long-Term Planning
- Outfall Pipeline Rehabilitation
- Treatment Plant Upgrades
- Collection System Rehabilitation

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<th>Annual CIP, Millions</th>
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Questions?

We talked about…

- History of AC Pipe
- Failure Modes of AC Pipe
- Testing Methods for AC Pipe
- Phenolphthalein dye test
- Hardness test
- Cost/Savings potential