



PCCP Inspection and Monitoring Tools Standardization

March 17, 2021

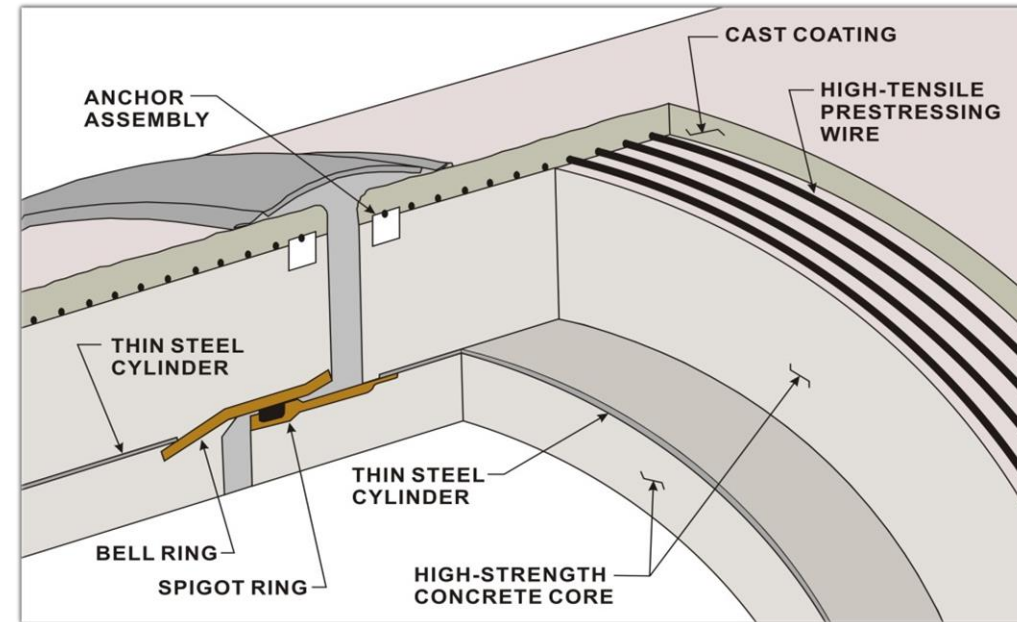
Agenda

- Overview of Prestressed Concrete Cylinder Pipe (PCCP)
- Pipe Protection Techniques
- PCCP Failures
- Why Standardize Technologies?
- Benefits of the Current Program
- Next Steps

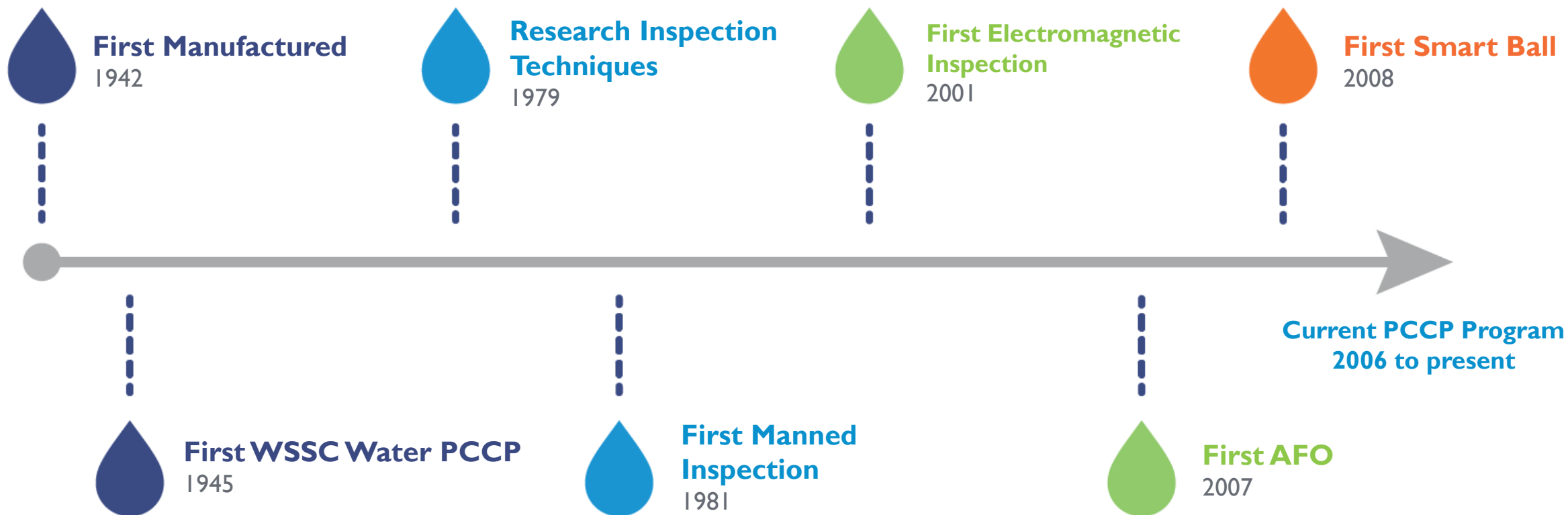


Overview of PCCP

- Pipe is mostly used for large transmission mains because of its ability to withstand high pressures and loading
- Constructed with a concrete core, a thin steel cylinder, high tensile prestressing wires and a mortar coating
- Strength comes mostly from the prestressing wires, which keeps the concrete core in compression
- First manufactured in 1942



Overview of PCCP – WSSC Water

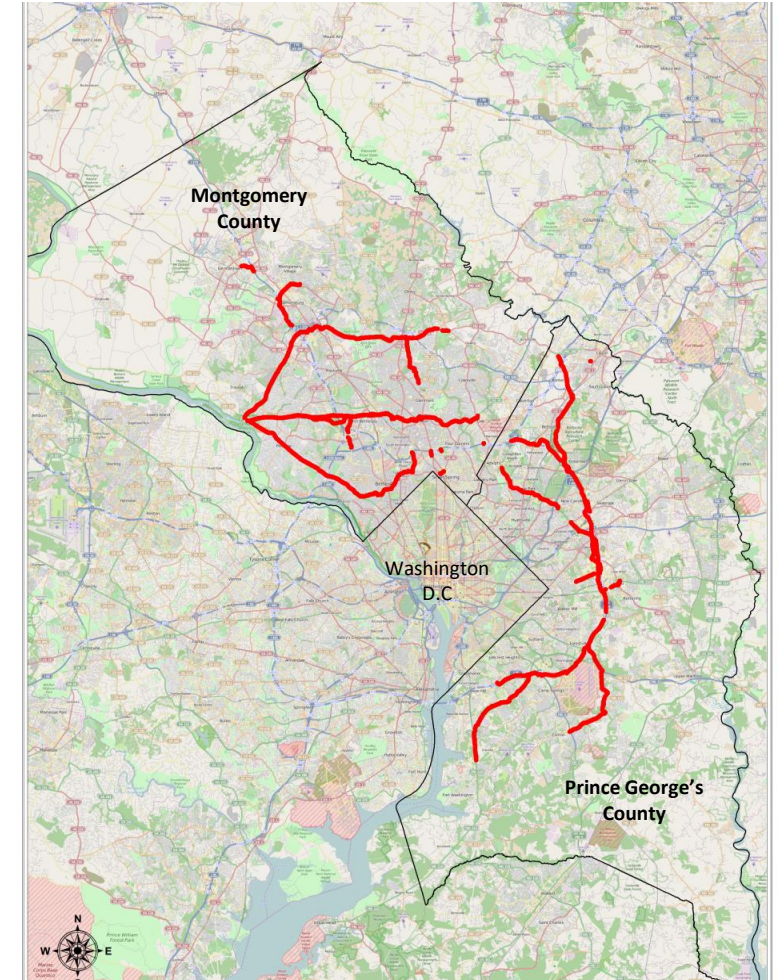


16" and greater = about 350 miles
constructed mostly mid 1940s to mid 1970s

Overview of PCCP – WSSC Water

- Backbone of WSSC Water's transmission system is 145 miles of 36-inch and larger PCCP
- PCCP inventory distributed across Montgomery and Prince George's counties
- WSSC Water has the third longest PCCP system in the country
- Over 100 miles of Acoustic Fiber Optic (AFO) monitoring (**LONGEST IN THE COUNTRY**)

WSSC Water's PCCP Transmission Mains



Pipe Protection Techniques

Leak Detection –Smart Ball*

- Highly sensitive acoustic sensor locates very small leaks and gas pockets

Electromagnetic Inspection

- Detects wire breaks and pipe wall distress

PipeDiver*

- Free swimming tool used while pipe is in service

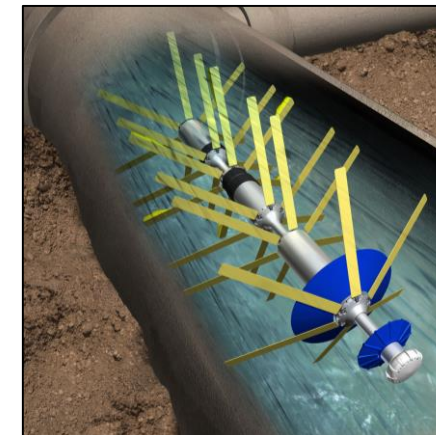
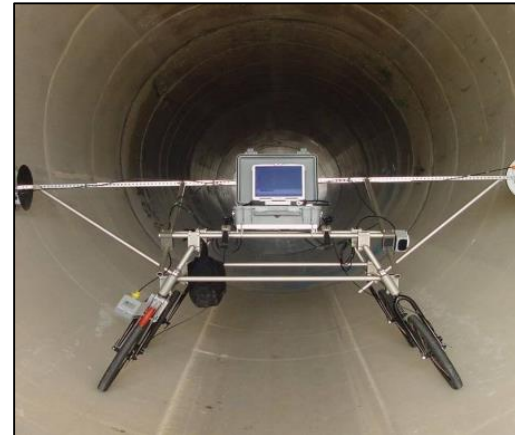
PipeWalker*

- Requires dewatering and confined space entry

PipeRobotics*

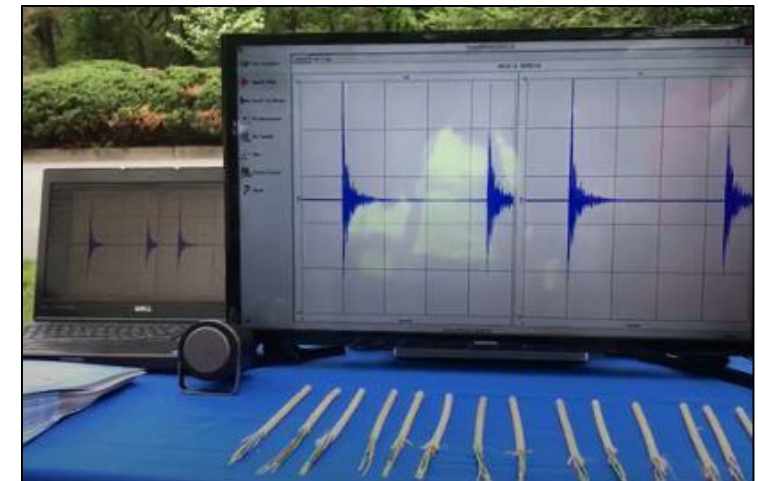
- Includes live video during inspections

* All tools are patented and/or proprietary by Pure Technologies



Pipe Protection Techniques

- Pure Technologies' Acoustic Fiber Optic (AFO) Monitoring*
- AFO monitoring is an advanced warning system used to detect wire breaks in PCCP
- Over 100 miles of AFO monitoring (**LONGEST IN THE COUNTRY**)
- Real-time (24/7/365) broken wire wrap detection
- Web-based graphical dashboard with Cloud based data management system



* System contains some proprietary parts

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PCCP Failures

- Most PCCP failures result from prestressing wire breaks
- Failures are often catastrophic
- Comes with an extremely high financial cost
- Each failure comes with an estimated price tag of \$2,000,000



Why Standardize Technologies?

- WSSC Water PCCP program is built on PURE's platform
- PURE is the ONLY vendor who can provide all the tools needed for effective program management
- Inspection tools are patented and/or proprietary and cannot be provided by others at this time
- All tools tested, validated and calibrated in WSSC Water system
- Over the years, PURE has acquired multiple competitors making them a single source for the services need
- Changing vendors to untested technologies now will risk pipe failures



Benefits of the Current Program

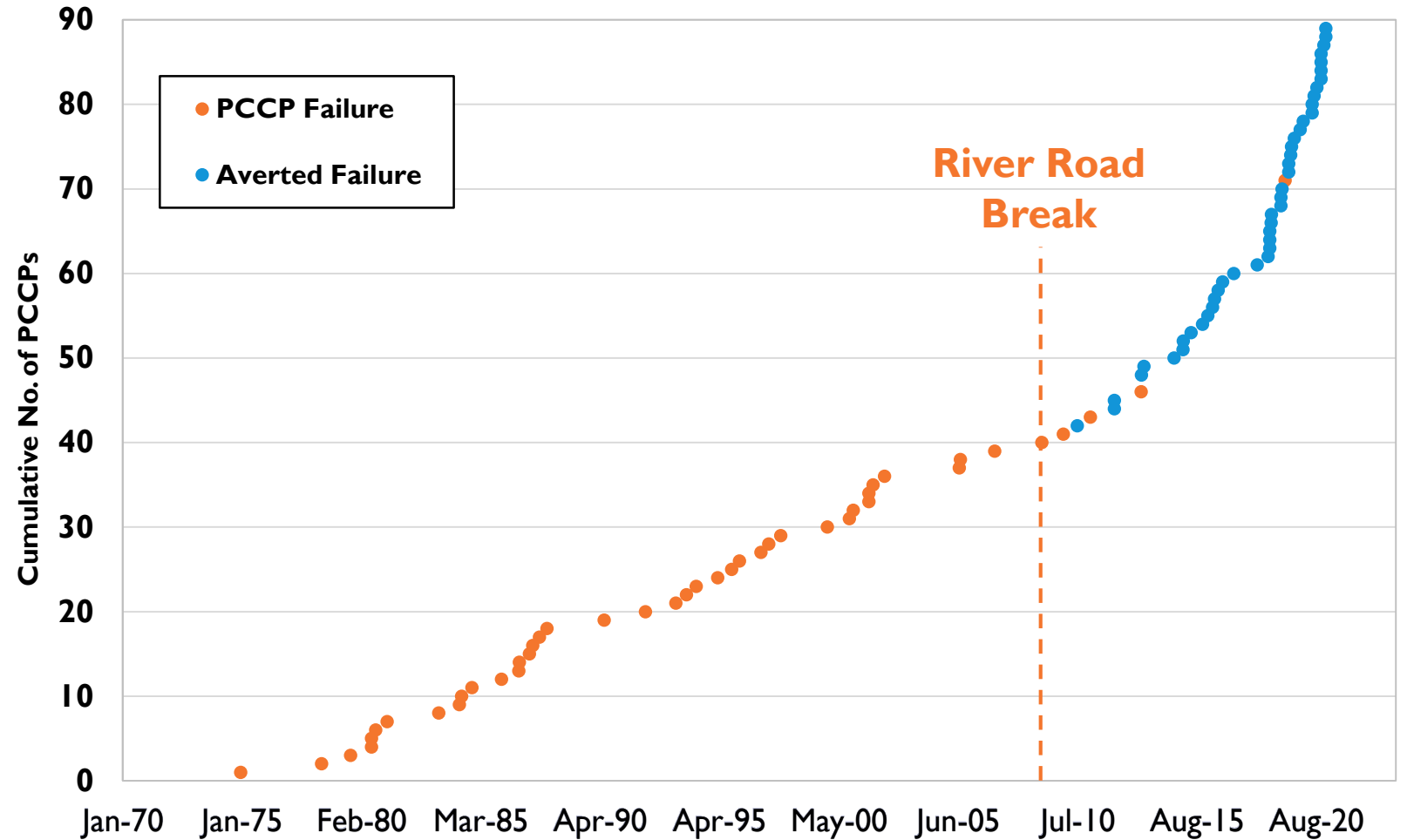
- PCCP Failures: 46
- PCCP Failures (Since 2010): 5*
- Averted Failures: 44

*4 pipeline failures on non-monitored pipes

**ESTIMATED COST SAVINGS
TO DATE**

\$88 M*

Based on an estimate of \$2.0M per break



Next Steps

- Implement a 5-year program to test and validate other tools
 - Perform research to find other vendors and tools
 - Test and validate tools
 - Perform cost-benefit analysis
- After testing and validation, invite vendors to submit proposals

Next Steps

- Seeking Commissioners Approval of Contract No. 6815 in April 2021
- Contractor – PURE Technologies, US., Inc. (Columbia, Maryland)
- Contract Term – 2-year base with two 2-year options
- Base Term Upset Limit - \$18.0 million for 2 years
 - MBE/SLBE negotiated participation – 5.5%
- Option Term Upset Limit – \$18.0 million per term
 - MBE/SLBE negotiated participation – 5.5%

Questions?

