

**BREAKTHROUGH
TO EXCELLENCE**



Mueller Intelligent Water Technology™

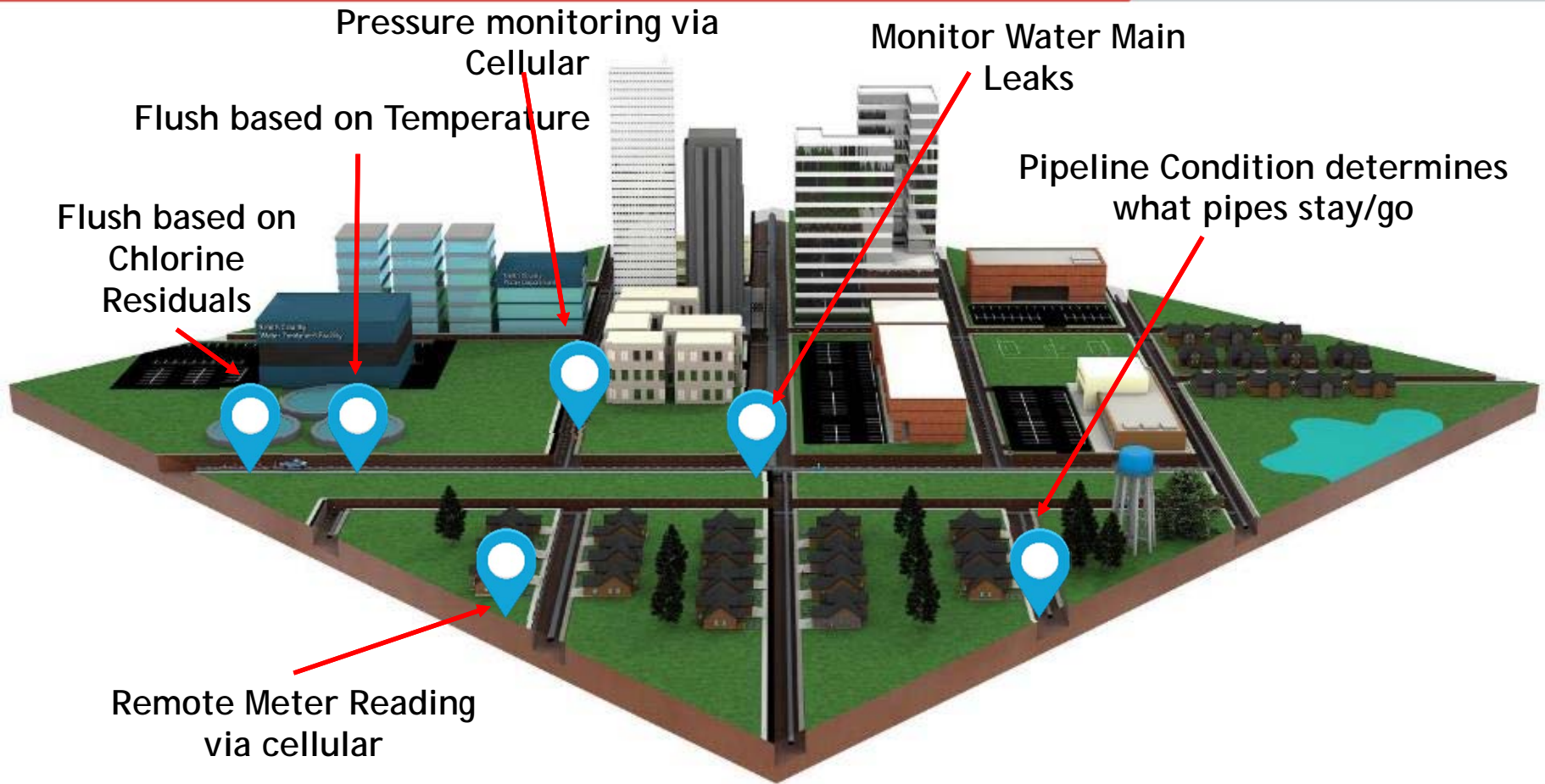
Pressure Monitoring and Data Management System

Gander 2017 Clean and Safe Drinking Water Workshop

March 29th, 2017

Mueller Co.

MESHING APPLICATIONS, DATA, AND NETWORKS



**BREAKTHROUGH
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Meshing Intelligent Water Technologies

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- **Remote Pressure Monitoring System (Mueller Co.)**
= real time ability to monitor pressure variations
- **Automated Flushing Systems (Hydro-Guard®)**
= Program devices or proactive devices react to live conditions to flush water systematically until acceptable quality levels return
- **Metering (Mueller Systems®)**
= AMI/AMR via advanced networks
- **Leak Detection and Condition Assessments (Echologics®)**
= Monitor & locate leaks and know what pipes to replace before you dig



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Will a water main leak
flood the mayor's house
this year?

Why Monitor Pressure in a Water Line?

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The Remote Pressure Monitor enables you to...

- Capture **critical system performance data** from points throughout distribution network.

= **Prevent Damage** to water mains often caused by frequent drastic changes in pressure



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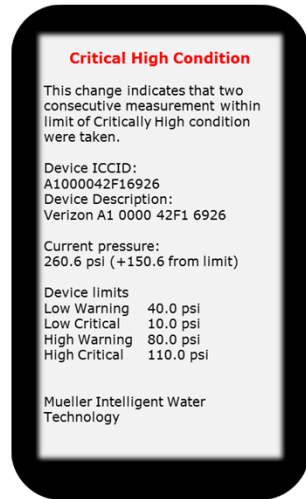
Why Monitor Pressure in a Water Line?



The Remote Pressure Monitor enables you to...

➤ Receive **data in the time frame they need it** so that system critical decisions can be made.

= **Prevent Interruption** in service caused by pressure loss or catastrophic failure



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Why Monitor Pressure in a Water Line?

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- **Monitor distribution activity** from even the most remote points in the system.

= **Reduction of Energy Costs** through the utilization of pressure data thus allowing for more efficient pump operation



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Why Monitor Pressure in a Water Line?

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- Improve **water quality** and **enhance service** response times.

= **Reduce Customer Complaints** and boil water advisories related to low water pressure...avert a PR nightmare



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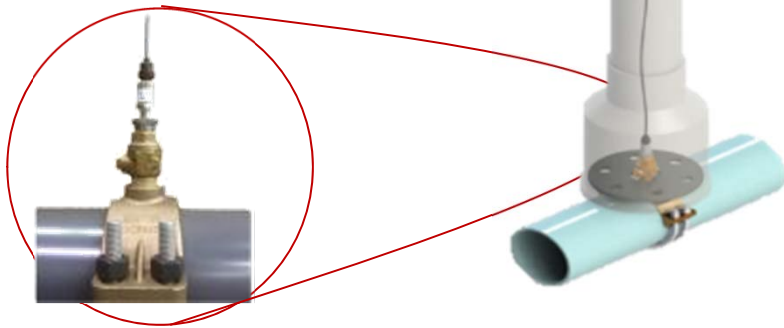
Installation Option 1

Direct or Saddle Tap Installation

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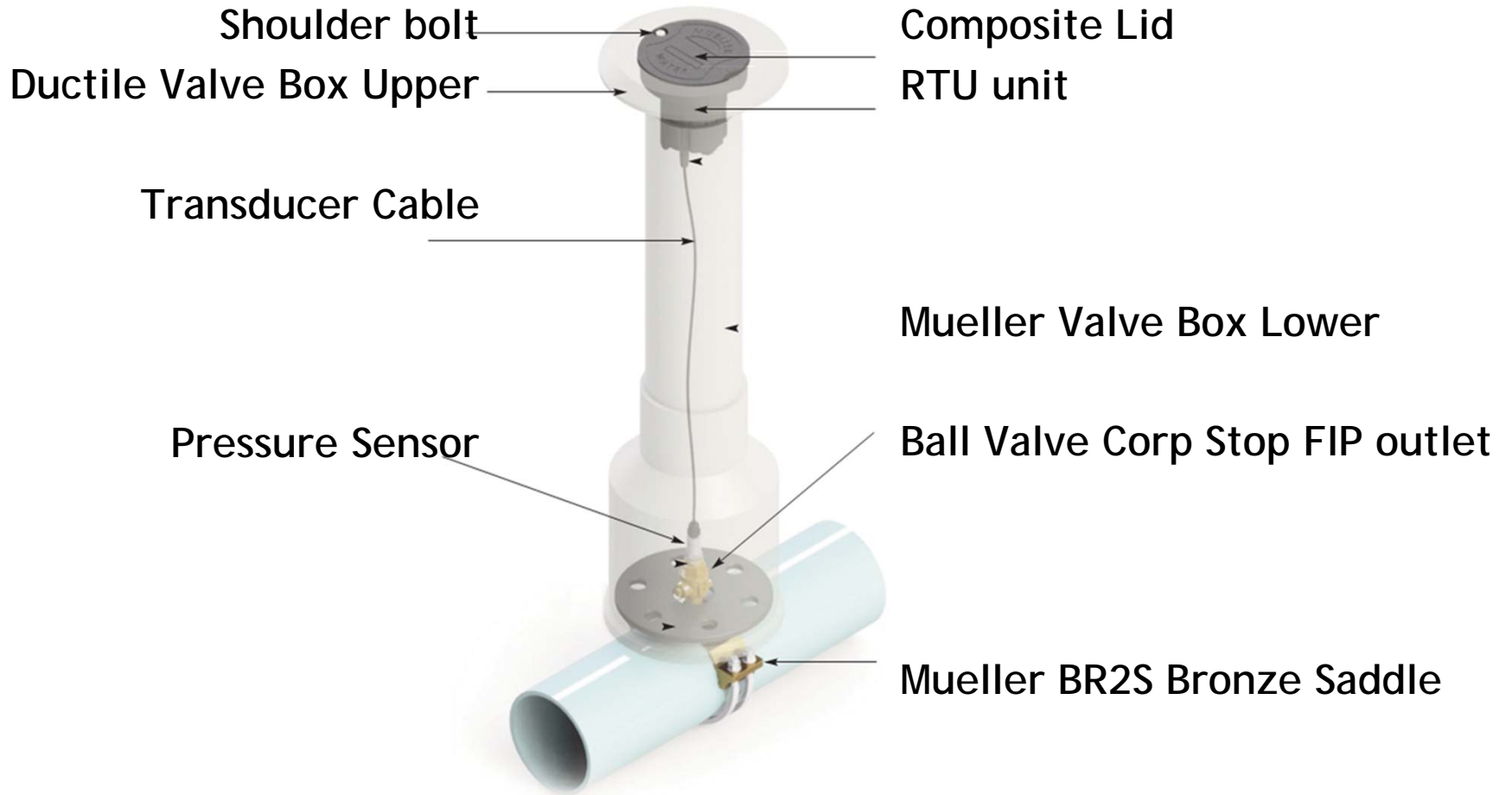
- The Pressure Monitoring System can be attached to a corporation stop directly inserted into the main or installed in a saddle. Opening the corp stop activates the pressure sensor.



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Installation Option 1

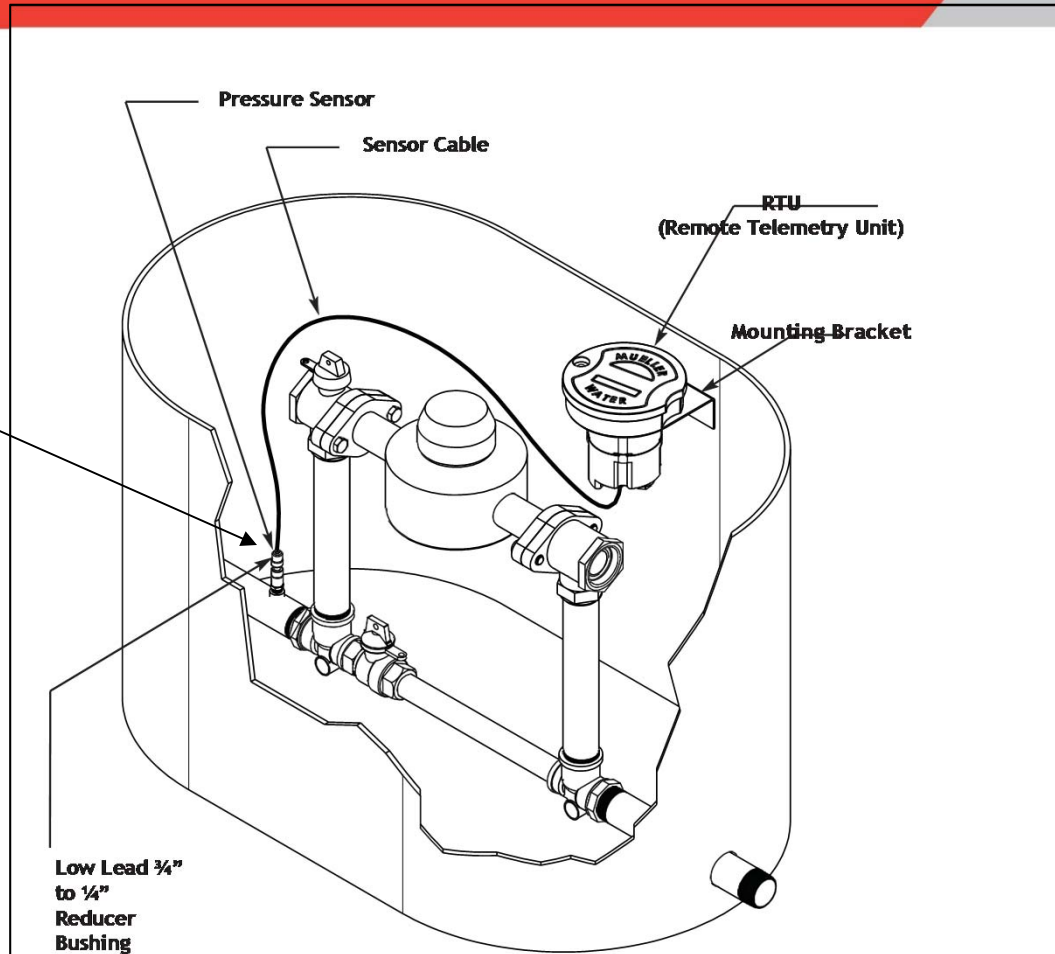
Direct or Saddle Tap Installation



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Installation Option 2

Meter/PRV Vault Installation



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Pressure Monitoring System



***Do not pave using the RTU cover



Antenna mounted
in H2O rated cap



Transducer
and Cable
(0-250 psi /
17 bar)

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Warning Level Configurations

NOTE: Changing your custom settings is normal



Pressure Sensor Save Cancel

Critical High	Critical High: <input type="text" value="100.0"/> psi
High	High: <input type="text" value="90.0"/> psi
Normal	
Low	Low: <input type="text" value="40.0"/> psi
Critical Low	Critical Low: <input type="text" value="35.0"/> psi

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PRESSURE MONITORING: the St. John's experience



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Overview

- Applications
- Installation
- Results
- Future Projects

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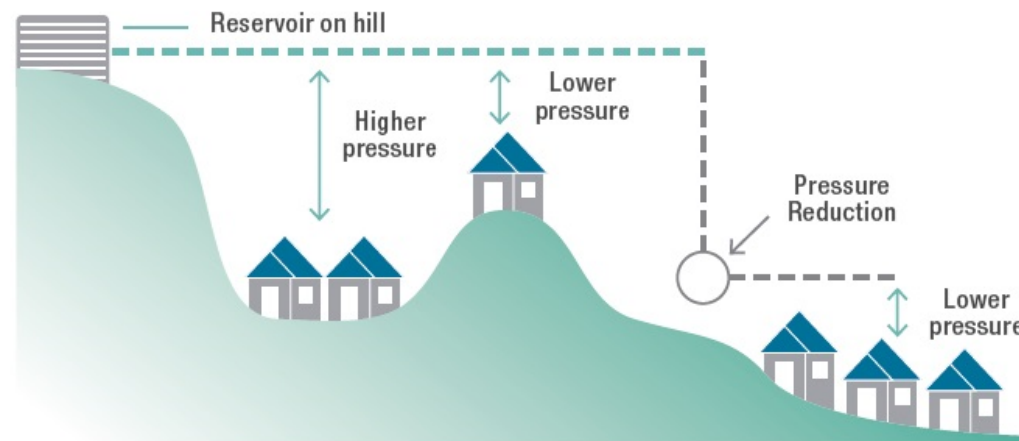
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Pressure Monitoring

Where?

Monitor Pressure at Critical Locations

- Pressure Reducing Station
- Water Pumping Station
- High Elevation in Distribution System
- Low Elevation in Distribution System
- Areas of high break history, complaint history, sensitive customers



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Pressure Monitoring



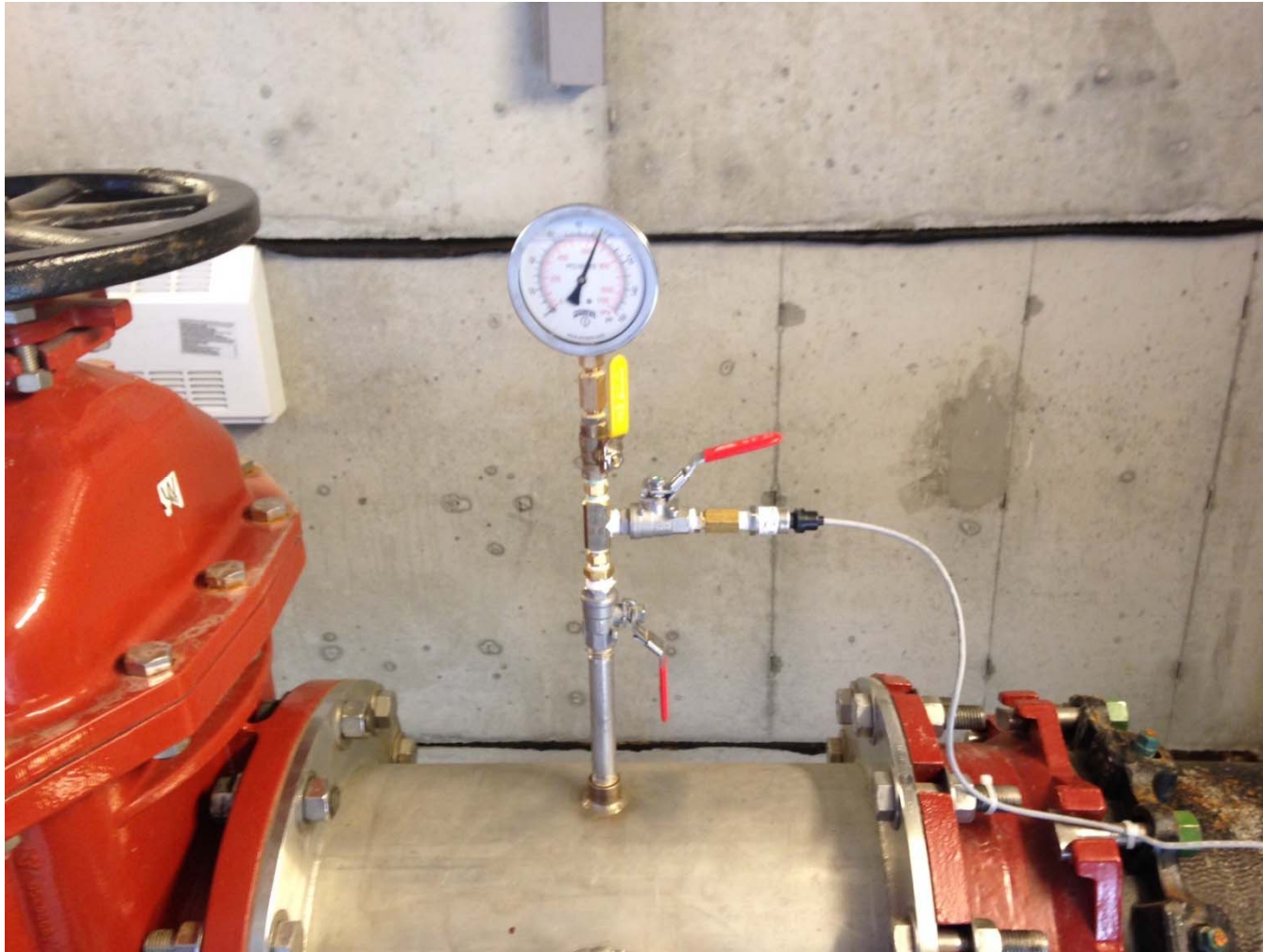
Installation

- Located in PRV Chamber
- Modified Existing Pressure Connection
- Connect Sensor and Mount Transmitter

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Pressure Monitoring



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Pressure Monitoring



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Pressure Monitoring Typical Readings

City of St John's Home Users RTU Index Measurements Analytics



RTU Index / RTU: Craigmillar Ave (PRV) / Measurements



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Pressure Monitoring Examples of Alerts

RTU Index / RTU: Craigmillar Ave (PRV) / Measurements



<https://city-ogjs.mwlnet.net/devices>



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Pressure Monitoring Email Alerts



High Warning Pressure Notification
noreply to: jphillips

From: noreply@miwt.net
To: jphillips@stjohns.ca

High Warning Condition

This change indicates that two consecutive measurement within limit of High Warning condition were taken.

Device ICCID:

[89011704252305474063](#)

Device Description:

Craigmillar Ave (PRV)

Current value:

117.8 psi(+2.8 from limit)

Device limits

Low Warning	60.0 psi
Low Critical	50.0 psi
High Warning	115.0 psi
High Critical	125.0 psi

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2016-10-10 06:38:19 -0230



Critically Low Pressure Notification
noreply to: jphillips

From: noreply@miwt.net
To: jphillips@stjohns.ca

Critical Low Condition

This change indicates that two consecutive measurement within limit of Critically Low condition were taken.

Device ICCID:

[89011704252305474063](#)

Device Description:

Craigmillar Ave (PRV)

Current value:

40.9 psi(-9.1 from limit)

Device limits

Low Warning	60.0 psi
Low Critical	50.0 psi
High Warning	115.0 psi
High Critical	125.0 psi

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2016-10-19 17:09:51 -0230

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Pressure Monitoring Email Alerts



Pressure Returned To Normal Notification
noreply to: jphillips

From: noreply@miwt.net
To: jphillips@stjohns.ca

Condition Returned To Normal

This change indicates that two consecutive measurement within limit of Normal condition were taken.

Device ICCID:

[89011704252305474063](#)

Device Description:

Craigmillar Ave (PRV)

Current value:

93.0 psi

Device limits

Low Warning	60.0 psi
Low Critical	50.0 psi
High Warning	115.0 psi
High Critical	125.0 psi

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2016-10-10 06:39:06 -0230



Critical Pressure Alert Off Notification
noreply to: jphillips

From: noreply@miwt.net
To: jphillips@stjohns.ca

Critical Condition Off

This change indicates that two consecutive measurement within limit of Normal condition were taken.

Device ICCID:

[89011704252305474063](#)

Device Description:

Craigmillar Ave (PRV)

Current value:

82.8 psi

Device limits

Low Warning	60.0 psi
Low Critical	50.0 psi
High Warning	115.0 psi
High Critical	125.0 psi

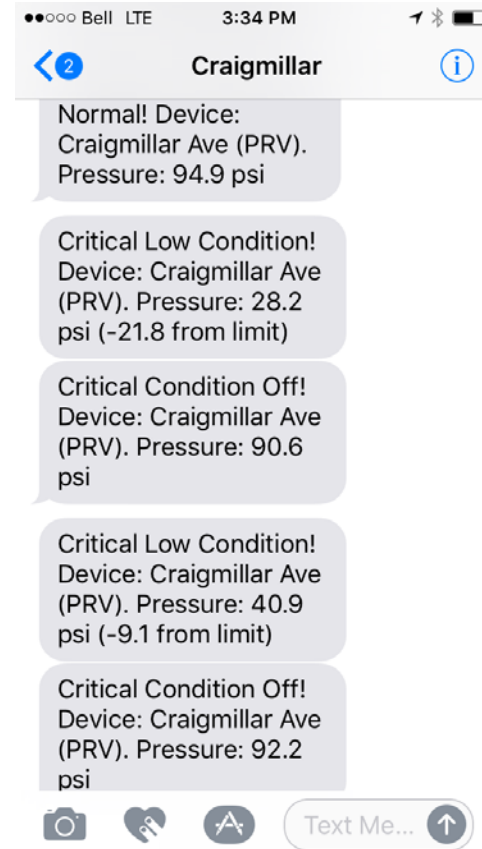
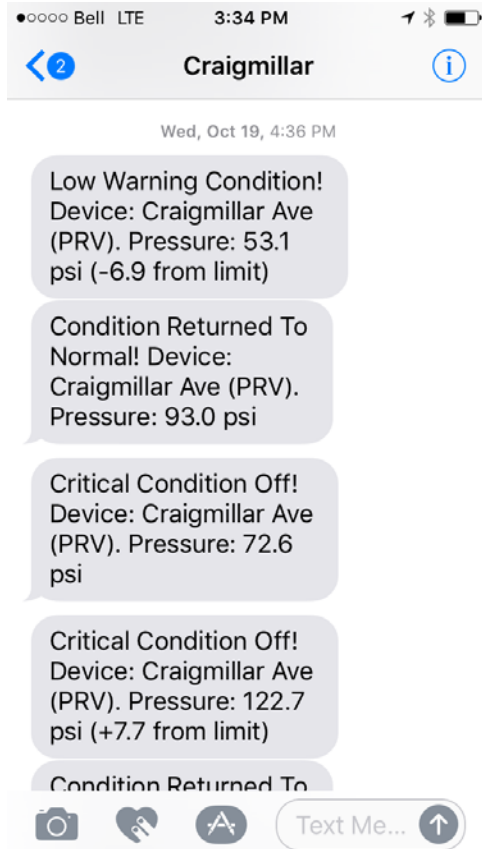
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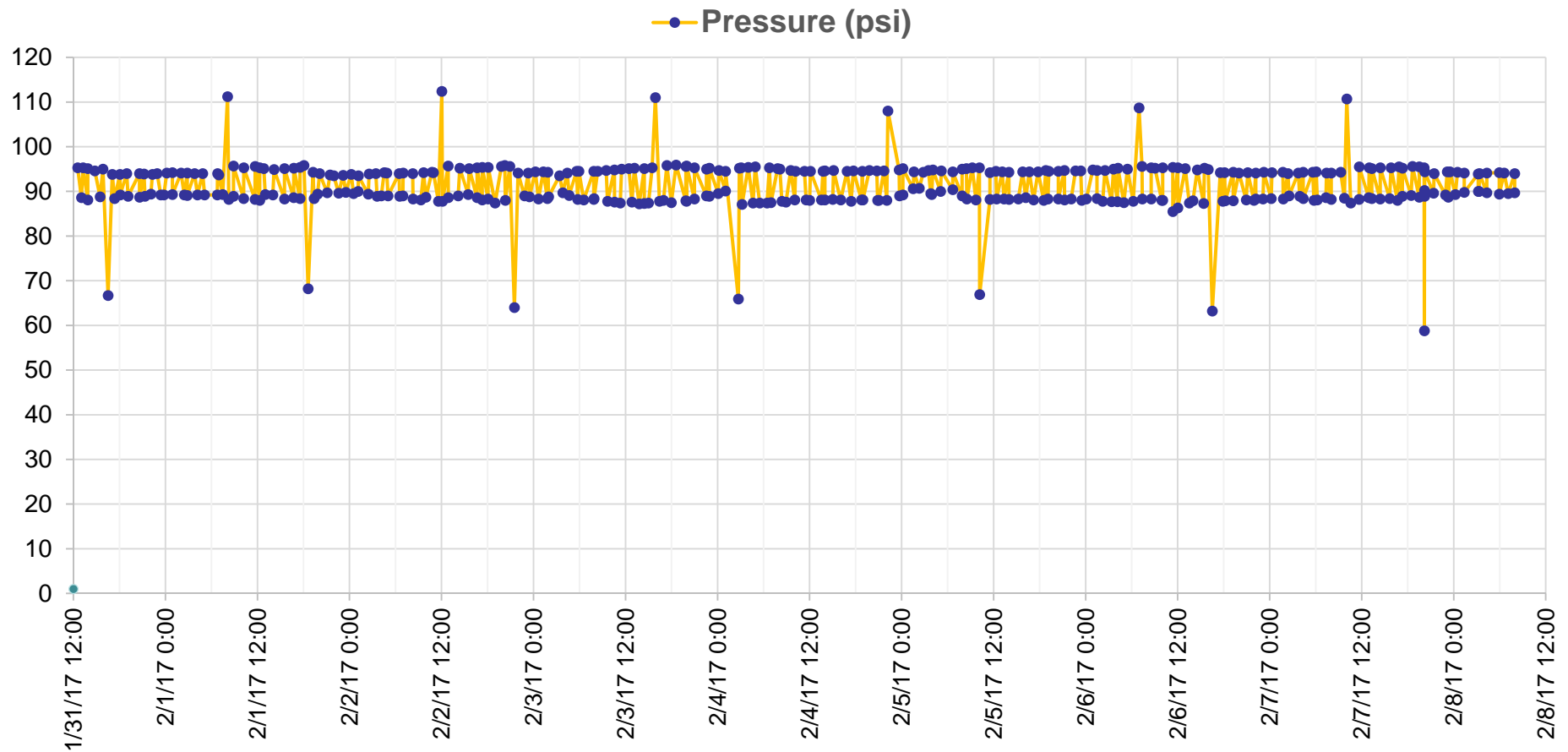
Pressure Monitoring Text Alerts



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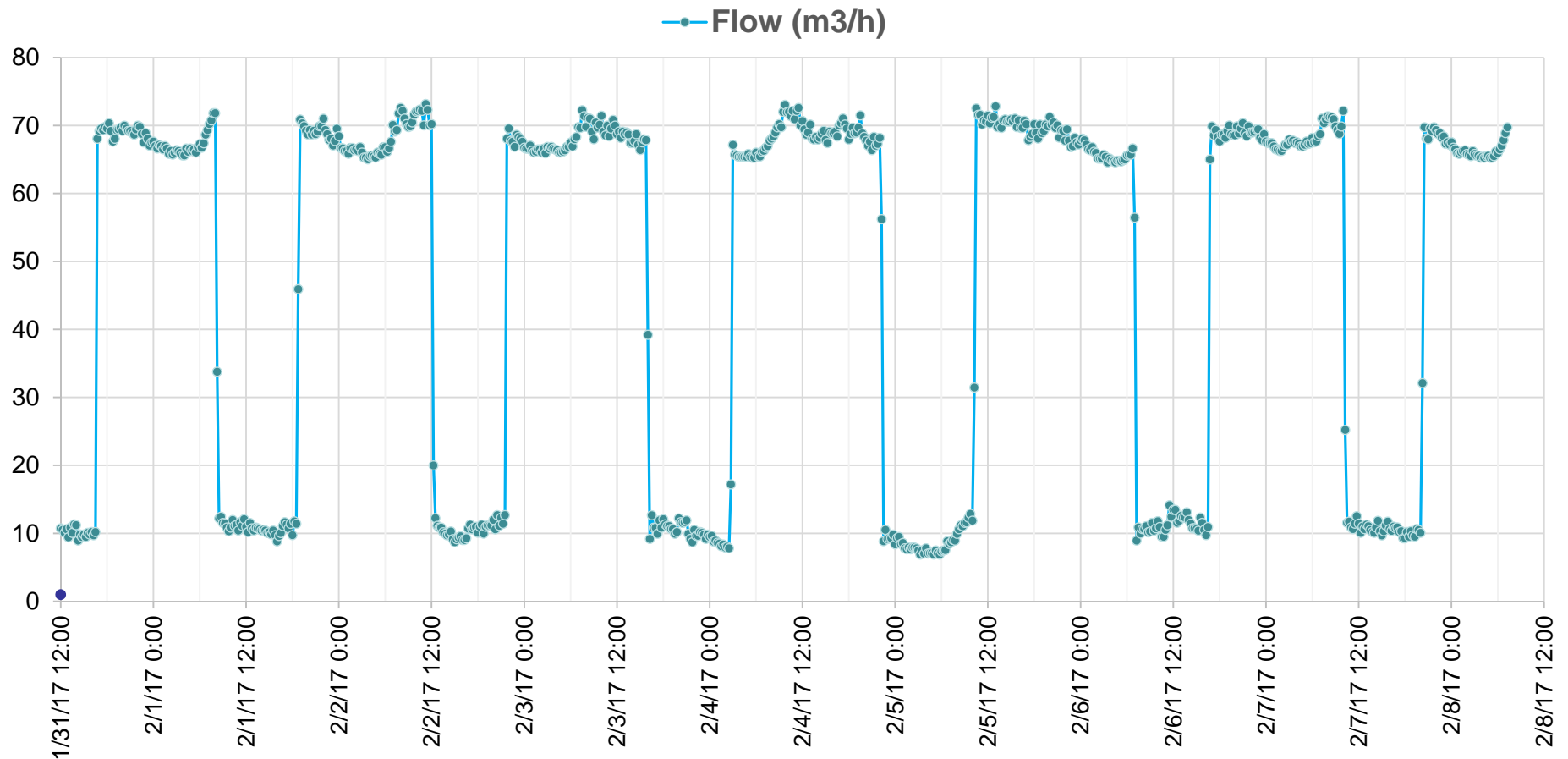
Pressure Monitoring Data Analysis



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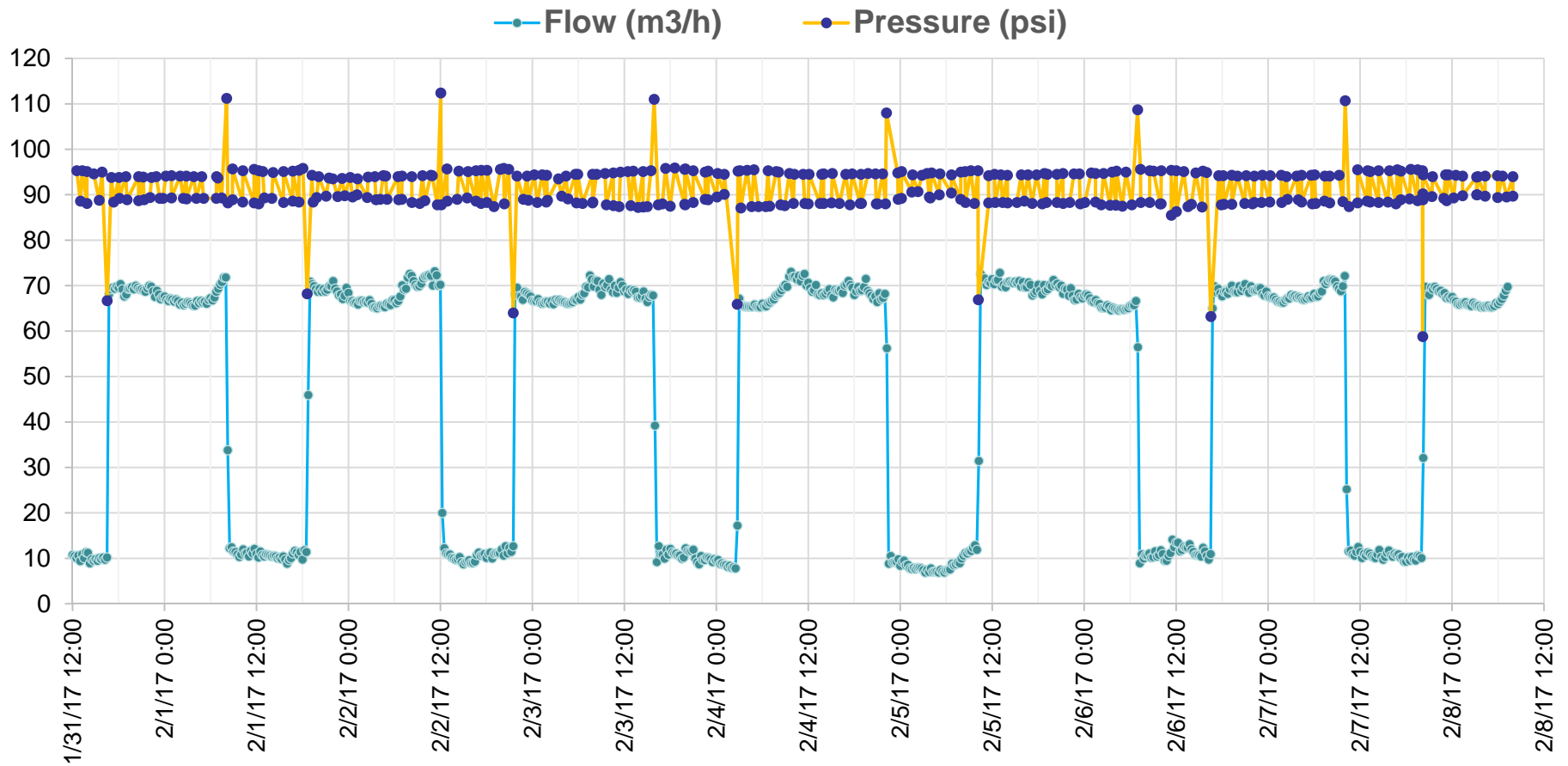
Pressure Monitoring Data Analysis



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Pressure Monitoring Data Analysis



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Pressure Monitoring Data Analysis

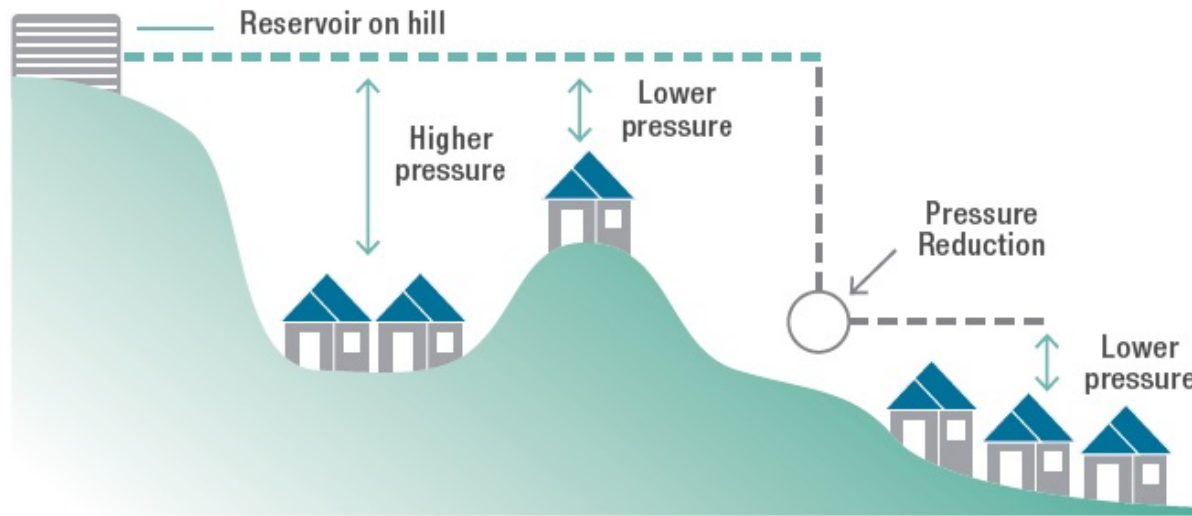


- Each time pump starts it causes a low pressure event.
- Each time pump stops it causes a high pressure event
- Current pump station will be upgraded to install soft start / stop controls

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Pressure Monitoring Future Projects



- Low pressure complaints – monitor pressure at high point
- Install pressure monitor in PRV station
- Install pressure monitor on water main at high point.

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A nighttime photograph of St. John's, Newfoundland, showing the city lights and harbor. The city is illuminated with warm yellow and white lights, reflecting on the water. The harbor is filled with boats and structures, and the city extends up a hillside in the background. The sky is a deep blue.

Thank You

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