

# ST. JOHN'S



Valve Exercising Program

# Overview

- Details of a Valve Exercising Program
- Program Requirements
- Data Collection and Management
- Deficiencies and Repairs
- Starting a Program

# What is a Valve Exercising Program?

A systematic program to locate and exercise water valves to ensure that they operate properly.



# AWWA Definition

"Each valve should be operated through a full cycle and returned to its normal position on a schedule that is designed to prevent a buildup of tuberculation or other deposits that could render the valve inoperable or prevent a tight shut-off."



# Why should we exercise valves?

Valves are an integral part of the water distribution system and in the event of an emergency:

- Valve locations will be known;
- Valves will operate correctly;
- Valves will be accessible;
- Result - reduced damage to infrastructure.

## [Watermain Break](#)



# Why should we exercise valves?



## Watermain Break

# Why Not?

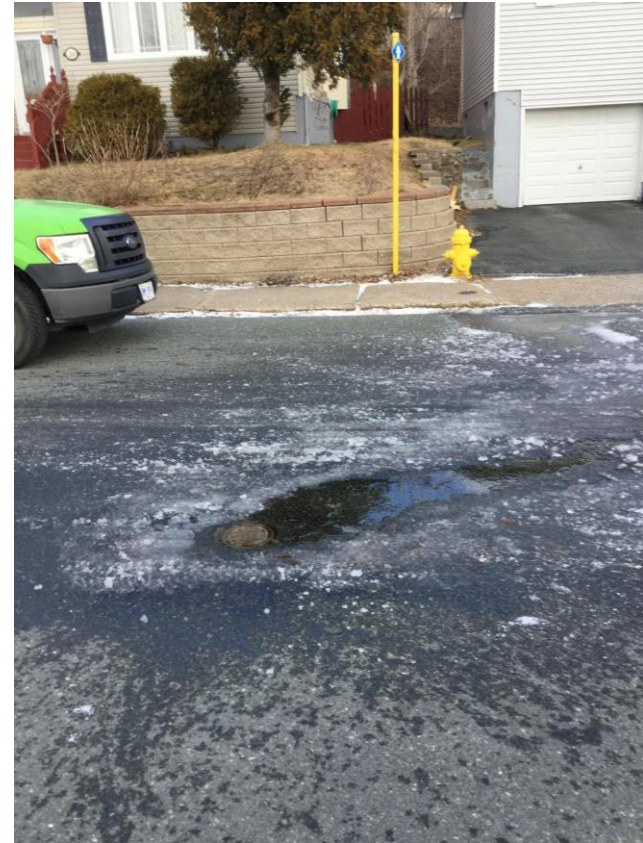
Some common reasons:

- Our system is old;
- Our system is new;
- Our system is small;
- Our valves are perfect.



# Benefits

- Valve locations will be known;
- Quicker to shut for emergencies;
- Reduce leak run time therefore reduce loss of treated water = \$\$;
- Reduce leak time therefore reduce damage to municipal infrastructure;
- Reduce area / residents affected by breaks & outages.
- Legal Benefits – less claims & legal defense.





# Problems

- Locating the valves;
- Valves will be broken;
- Wrong valve will be operated;
- Cause dirty water;
- Disruption to residents.



# Program Components

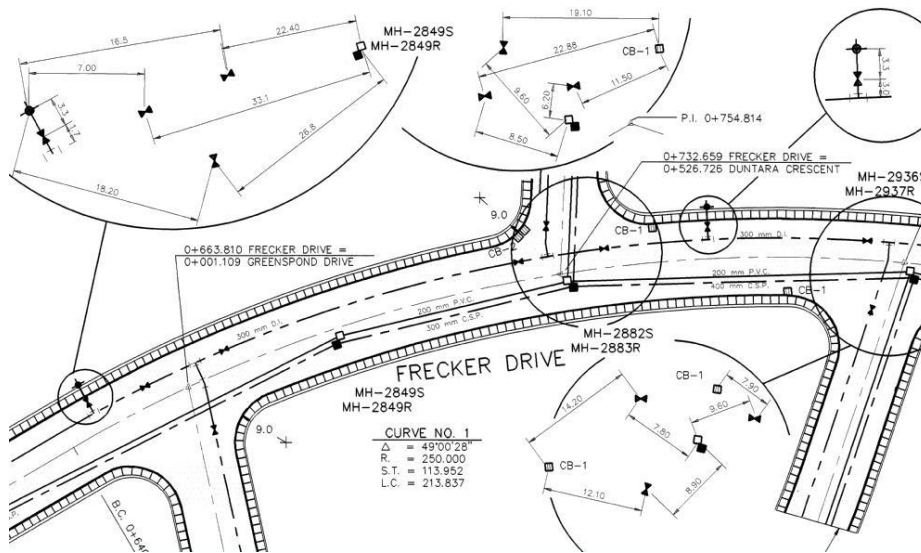
1. Locate Valves;
2. Exercise Valves;
3. Valve Records;
4. Valve Maintenance.

**Documentation!**

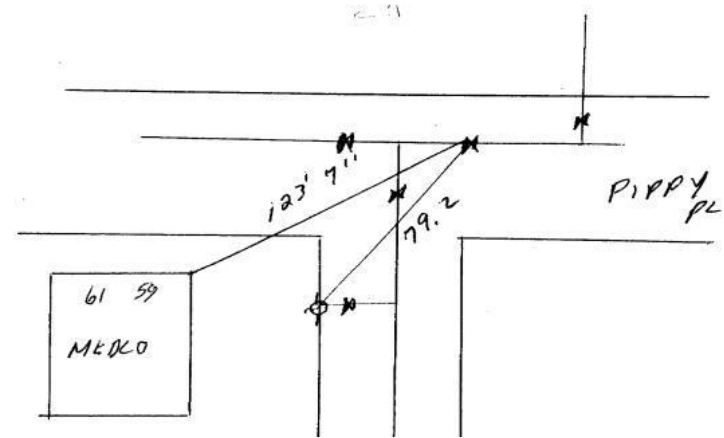


# Step 1 – Locate Valves

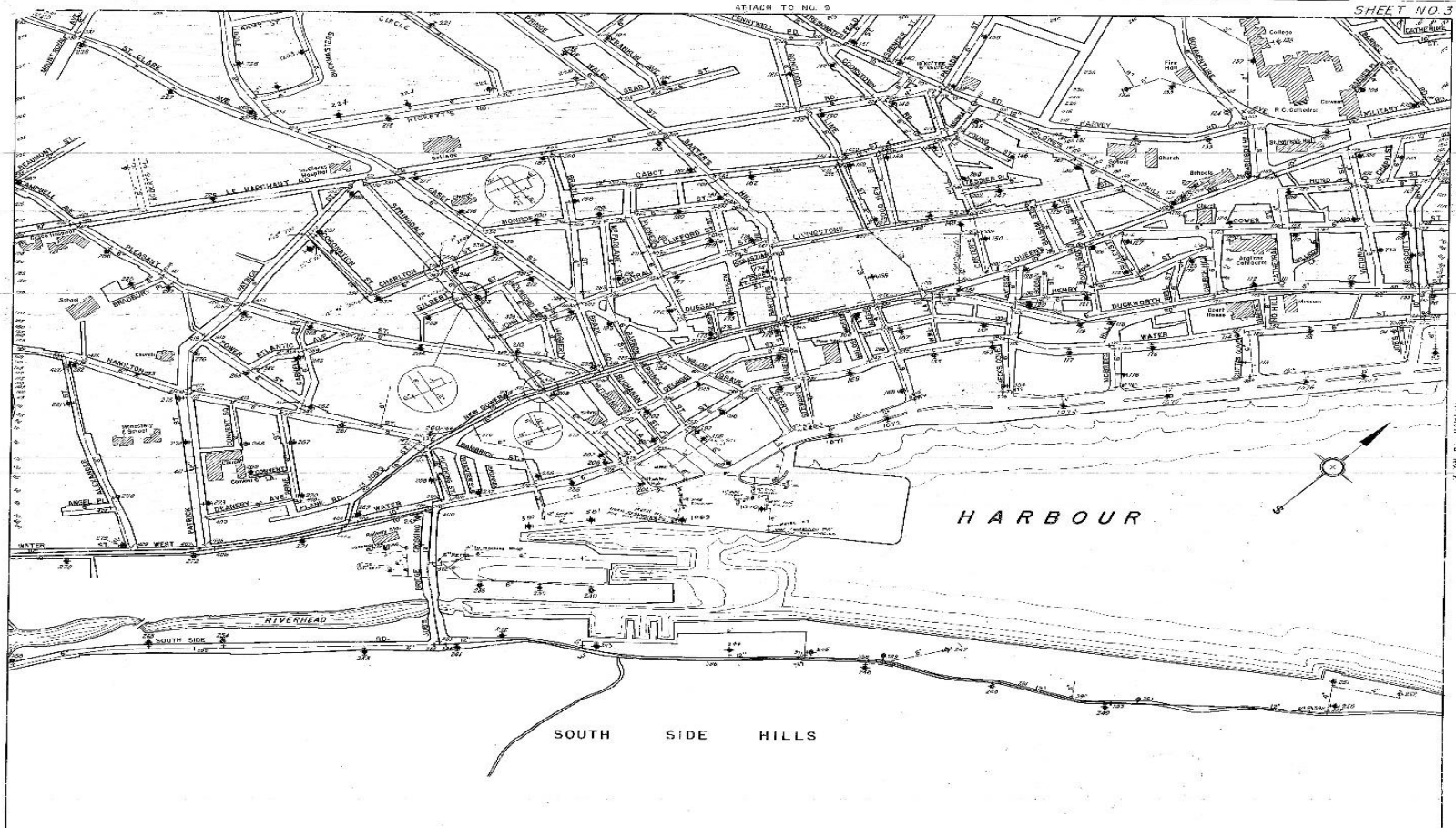
- Find All Visible Valves;
- Valve Ties;
- As-Built Drawings;
- Water Main Break Reports.



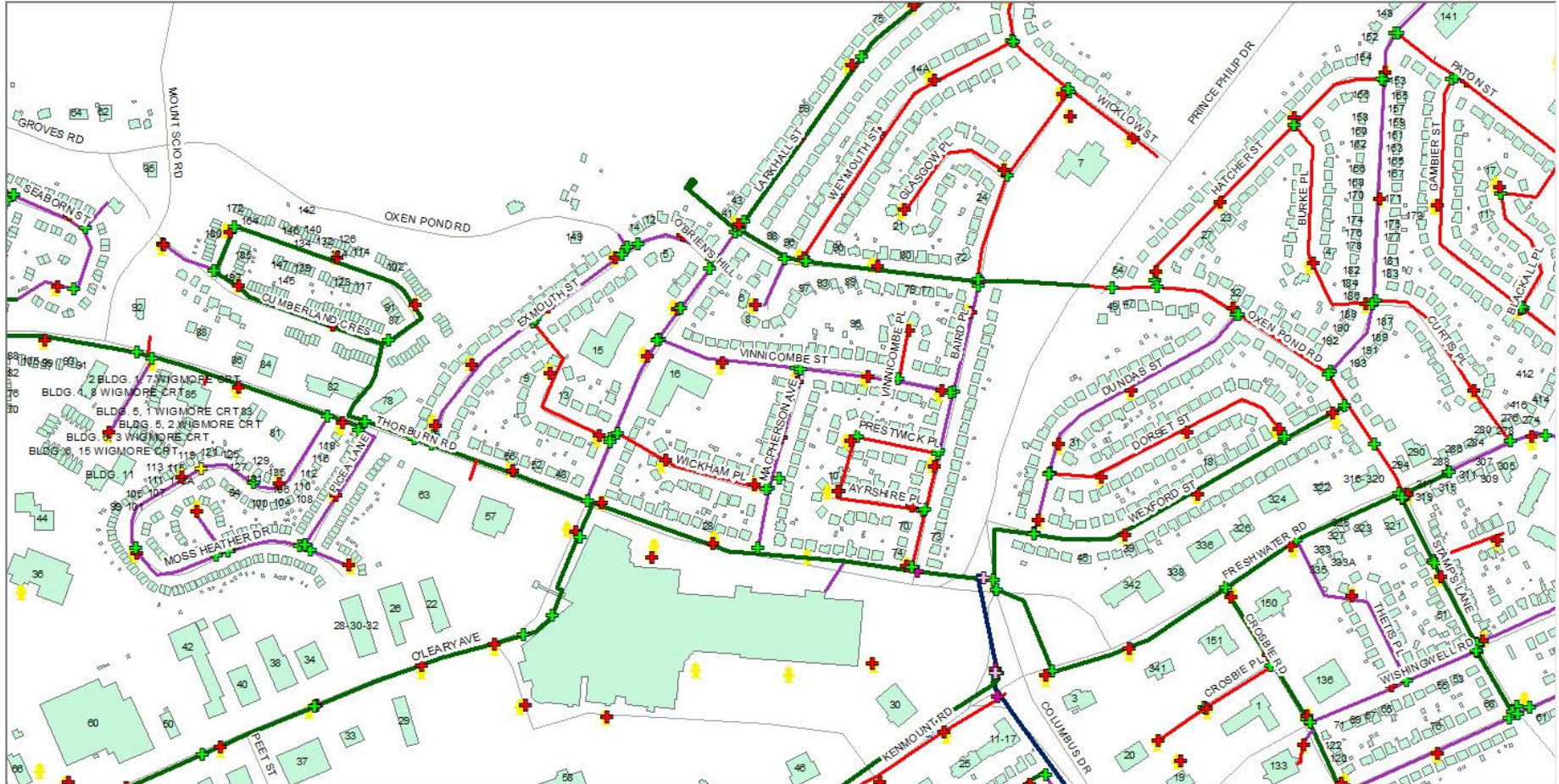
Permanent Valve Record	
VALVE NUMBER <u>7155MV1849</u>	LOCATION <u>PIPPY PL AT</u>
MANUFACTURER _____	<u>DUFFY PL</u> <small>SOUTH WALK</small>
TYPE _____	VALVE DEPTH _____
SIZE _____	OPENS TO RIGHT OR LEFT _____
DATE INSTALLED _____	TURNS TO OPEN _____
VALVE BOX TYPE _____	NORMAL GATE POSITION _____



# Step 1 – Locate Valves



# Step 1 – Locate Valves



# Step 1 – Locate Valves

## Missing Valves or No Records?

- Valves Paved Over;
- Review construction specifications for guidelines for valve spacing;
- Start at Intersections – 1, 2, 3 or 4;
- Raise Valves to Grade;
- Record Location.



# Step 2 – Exercise Valves

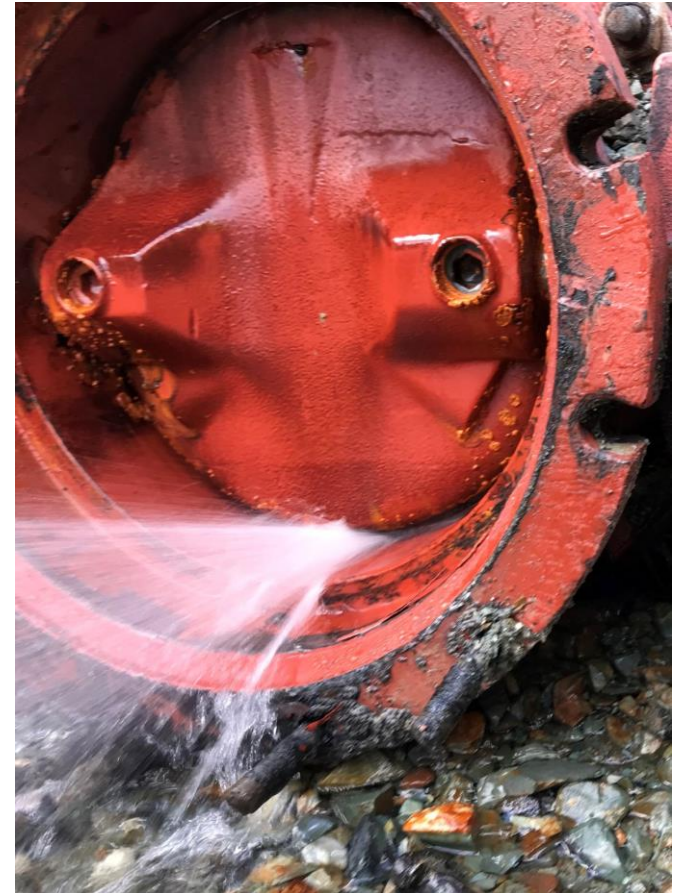
- Locate Valve;
- Clean Out Valve Box;
- Exercise the valve through one entire cycle (open & close);
- Record the Information.



# Step 2 – Exercise Valves

## AWWA Recommended Procedure

- Begin with a steady amount of torque in the direction necessary to close the valve for 5 - 10 rotations;
- Reverse (open) for 2 - 3 rotations;
- Reverse (close) for 5 - 10 rotations;
- Repeat above until fully closed;
- Once fully closed, open a couple of turns to flush away debris
- Fully open the valve.





# Step 2 – Exercise Valves

## AWWA Recommended Procedure

- The theory for this procedure is that you "scrub" or clean any debris from the gate or slides.
- If the valve gate is forced into the debris at the base of the valve it will be more difficult to open as the debris may become compacted under gate.
- Debris will prevent a tight seal or shut.



# Step 3 – Records

## Record Keeping

- Most important step; Maintenance History and Planning

## Information to be Recorded

- Location – address & ties;
- Valve Size
- Number of Turns
- Depth to Valve Nut
- Valve Head – square vs wheel valve
- Open Direction – left vs right;
- Date Exercised;
- Maintenance Required / Completed.

# Step 3 – Records

1:38 PM Thu Jan 19 LTE 96%

Valve Exercising

Description (Autofill)

Date  
Thursday, January 19, 2023

Time  
1:37 P.M.

Valve Location (Autofill)

Is Valve Location Listed Above Correct?  
*Blank will need to be updated*

Yes  No  No - Not on Map

Foreperson Area (Autofill)

Operators Conducting Maintenance \*

Steve K  Mike P  Barry C  Adam A  Sid M  
 Nicole B  Other

Valve Size (Autofill)

Depth to Operating Nut  
*Inches*

Valve Head Type

Small Box  Big Box  Other - Please describe

✓

1:38 PM Thu Jan 19 LTE 96%

Valve Exercising

Opening Direction on Arcmap (Autofill)  
*Standard=Clockwise / Non Standard=Counter-Clockwise*

Is Above Opening Direction Correct?  
*Blank is a "No" and will need to be updated*

Yes  No  Unknown

Approx # of Turns on Arcmap to Fully Open/Close (Autofill)

Actual # of Turns to Fully Open/Close

Valve Position on Arcmap (Autofill)

Current Valve Position

Open  Closed  Unknown  
 Other - Please Describe

Were any Repairs Completed?

Yes  No

Will Asphalt Be Required to Complete Repair?

Yes  No

Any Valve or Valve Box Deficiencies Still Needing to be Completed?

Yes  No

Is Valve Usable?

Yes  No

✓

# Step 3 – Records

ArcGIS Survey123 My surveys Organization Help Jason

Valve Exercising Overview Design Collaborate Analyze **Data** Settings

5/21/19 - 1/16/23 Filter Report Export Open in Map Viewer Form view 1,377/1,377

Valve Exercising

Valve Number (Autofill)	Description (Autofill)	Date	Time	Valve Location (Autofill)	Is Valve Location Listed Above Correct?	Please Update Valve Location	Foreperson Area (Autofill)	Operators Conducting Maintenance	First Name & Initial	Valve Size (Autofill)	Distance
MSVAWA08299	Main Line Valve - Tyrone Place to Kilmory Place	Dec 2, 2022	11:36	Easement - Kilmory to Tyrone	Yes		5	AdamA		200	60
MSVAWA10267	Main Line Valve - Eastbourne Crescent	Dec 2, 2022	11:28	Eastbourne Cres @ Tyrone Pl	Yes		5	AdamA		200	48
MSVAWA01931	Main Line Valve - Paddy Dobbin Drive	Dec 1, 2022	13:32	Paddy Dobbin Dr (54) @ Brighton Pl	Yes		5	AdamA		300	36
MSVAWA02021	Main Line Valve - Harlow Place	Dec 1, 2022	13:22	Carrick Dr @	Yes		5	AdamA		200	40
MSVAWA02107	Main Line Valve - Norfolk Place	Dec 1, 2022	13:16	Norfolk Pl @ Paddy Dobbin Dr	Yes		5	AdamA		200	40

0 of 1377 selected

# Step 4 – Maintenance

- Identify defects;
- Schedule & Prioritize repairs;
- Complete repairs;
- Record any relevant information.



# Step 4 – Maintenance - Packing



# Step 4 – Maintenance – Packing

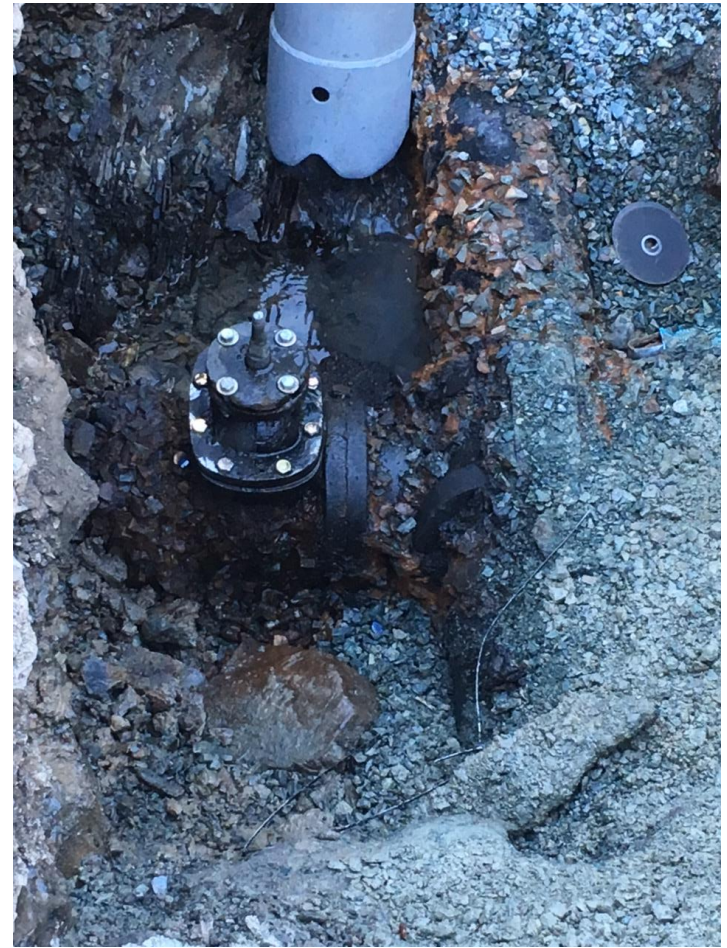


# Step 4 – Maintenance – Packing Flange

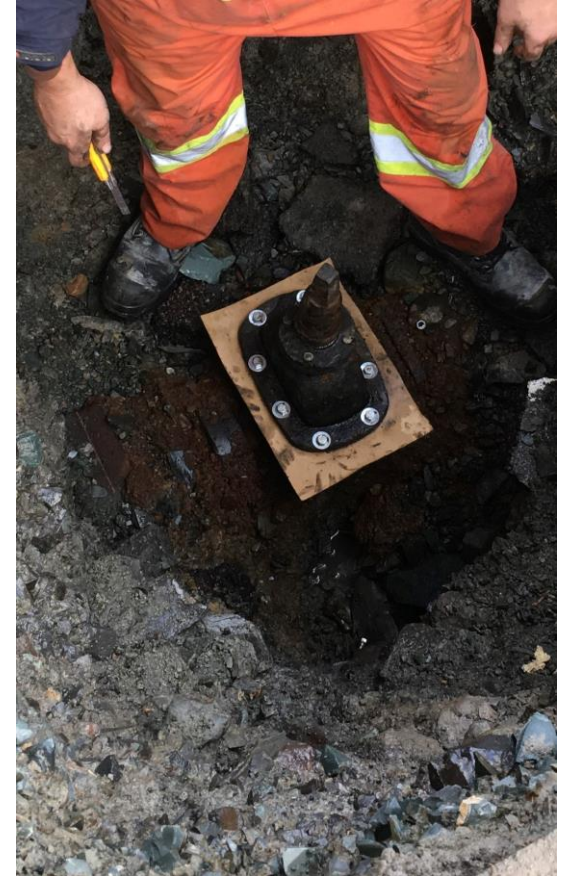




# Step 4 – Maintenance – Gaskets/Bolts



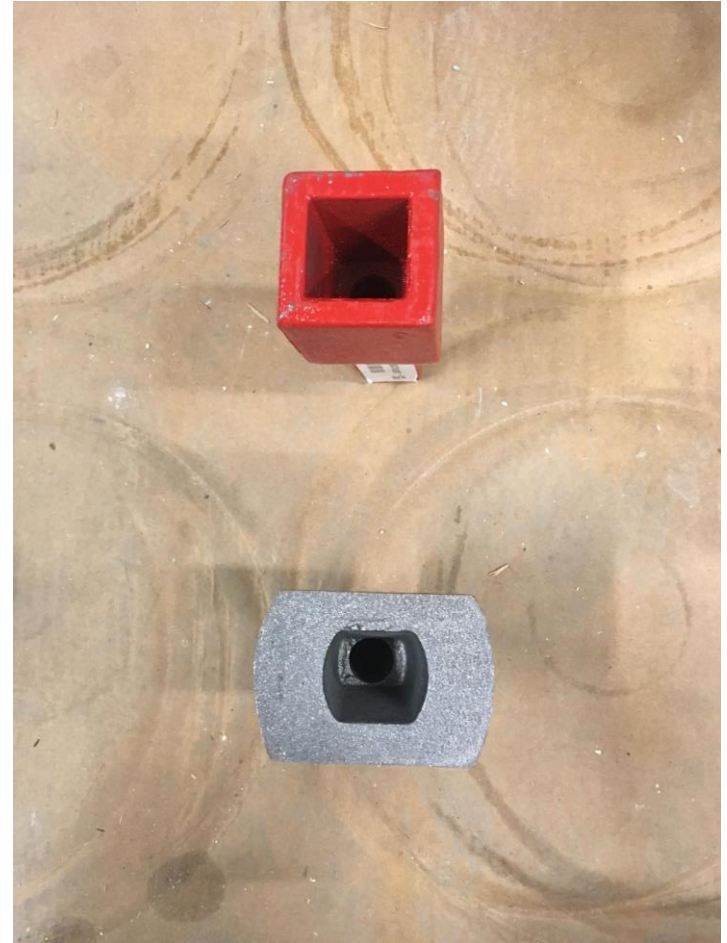
# Step 4 – Maintenance – Valve Bonnet



# Step 4 – Maintenance – Operating Nut



# Step 4 – Maintenance – Operating Nut



# Recommendations for Starting a Program

- Gather all information on your Water Distribution System;
- Start small - one valve at a time;
- Start with known valves or critical valves;
- Expand to locate all valves;
- Record information;
- Develop a plan to continue program.



# Recommendations for Starting a Program

## What's Required:

- Employees;
- Training on Program;
- Valve Keys;
- Vehicle;
- Record Keeping System;
- Small Vacuum System;
- Valve Exerciser - Optional;
- Jack Hammer - Optional.



Thank You



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