



# SOP Cooperative

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Aurora Water

# A common problem

- Every utility should have SOPs for key processes
- SOP development and management is often a low priority
- Minimal sharing of SOPs between utilities

# The opportunity

- Share SOPs for common tasks – minimize recreating the wheel
- Continuous improvement – improve practices by seeing what others are doing

# SOP Cooperative formed in 2013

- Share SOP formats and templates
- Share and/or develop SOPs for common tasks
- Develop training curriculum and/or other tools

# SOP Cooperative Members

- City of Boulder
- Aurora Water
- City of Ft. Collins
- Pueblo Water
- Littleton/Englewood
- City of Loveland
- Colorado Springs Utilities
- Denver Water
- Central Point (OR )

# Logistics

- Meets monthly via conference call, content shared via the website
- Cooperative is facilitated by:
  - Jeff Oxenford
  - Clare Haas Claveau
- Funded through annual subscription dues
  - \$2500 for systems serving greater than 50,000

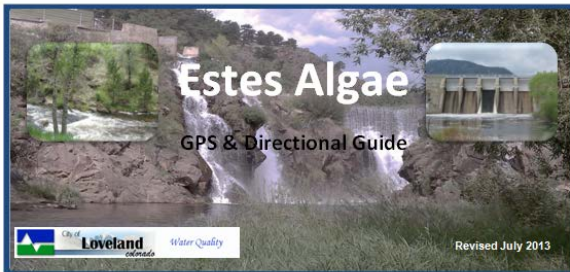
What have we accomplished  
so far?

# 1. Shared templates and processes

- Workshop to share templates and discuss processes
- Identified innovative formats being used
- Summary article published as Question of the Month in Opflow, Oct 2014



# Example innovative formats



**Estes Algae**  
GPS & Directional Guide

City of Loveland Water Quality  
Revised July 2013



**North Fork**

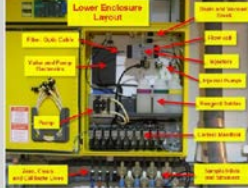
From the Loveland WTP take HWY34 west towards Estes Park. Turn right (north) into the Drake Camp Ground. Collect sample from the campsite by the stream running into the river. Use the wooden steps down to the river to collect sample.  
[~10.5 miles from WTP]

N 40°25.999'  
W 105°20.510'  
Elevation = 6,193 feet

Document Number:	DDN_SOP_307	Revision Number:	11	ERC	48059
Effective Date:	8/11	Last Revision Date:	8/12	Next Review Date:	8/15
Prepared by:	J Wright *K. Bush	S.M.E.	J Wright	Approved by:	HMF

EQUIPMENT NUMBER: AGENT-Q-120-46745-12-701  
AREA: Identification, Pipe gallery

DESCRIPTION: Periodically, magnets must be replaced. This time period depends on the number of sample lines in use and time between testing cycles. Always replace the magnets. Do not simply add magnet to the existing container. This will assure that the magnet is operating using a fresh magnet at all times.




RESOURCES REQUIRED: Lath gloves, Safety glasses, Personal magnets (See raised missing SOP)

REGULATORY REQUIREMENTS: Checked weekly as a PM. Replaced as required.

RELATED TOB: Request Magnets, Change/Install/Remove

STEP RESPONSE:  
S1: Follow the Request Magnets SOP and prepare new magnets.  
Prepare New Magnets

T.C. Storage On-line Mode: Press the **CLERK** key in Periscope. After a few moments the ENTER SECURITY CODE will screen. Enter **0000**



If an invalid security code is entered or it takes longer than 30 seconds to enter the code the message **INVALID SECURITY CODE** will display.

## SOP 401.2—LOCATING WATER LINES



**1) Start by identifying the water lines, valves, and hydrants on the map.** Use visual clues (i.e. valve and hydrant locations) to roughly estimate where the water lines should be.

**2) Connect the red wire on the transmitter to a meter, hose bib, valve, or fire hydrant.** When using a valve key make sure that the key does not touch the valve box.



**3) Set the ground (black wire).**

- Best position (recommended in training) is at a 90° angle, i.e. out parallel to the pipe to be located.
- In asphalt, the ground rod can be driven into a crack of the pavement to save a long distance to bare ground.
- A spool of wire can be used to place the ground in an appropriate location.

**4) Use the receiver to locate signal and trace the signal.** Move the receiver in a side to side motion, the strongest sound is directly over the water line. Indicators are on the machines that identify when you are directly over the pipe.



**5) Paint the line as you walk along the water line** (blue for water, green for sewer and storm water)

**6) Leave the yellow tickler at the job site.** Be sure to make a sketch for complicated locates

## 2. Developed an SOP Library

- Almost 200 example SOPs are available via a web-based platform
  - Password protected
  - Available from the website or Google Drive



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## SOP Library - Members Only

If you are interested in becoming a member, please email [membership@sopcooperative.com](mailto:membership@sopcooperative.com). If you are accessing the library, be sure you are logging in with your approved Google account. Contact [Clare](#)

### SOPs by Category

TITLE	LAST MODIFIED
<a href="#">_Partnership for Safe Water</a>	Dec 18 Clare Haas Claveau
<a href="#">_SOPs Sorted by Utility</a>	Oct 2 Clare Haas Claveau
<a href="#">Administration - Buildings (Admin)</a>	Oct 2 Clare Haas Claveau
<a href="#">Laboratory and Monitoring (Lab - Mon)</a>	Dec 18 Clare Haas Claveau
<a href="#">Raw Water Transmission (Transmission)</a>	Oct 2 Clare Haas Claveau
<a href="#">Safety</a>	Mar 6 Clare Haas Claveau
<a href="#">Security</a>	Feb 28 Clare Haas Claveau
<a href="#">Source Water (Source)</a>	Oct 2 Clare Haas Claveau

# 3. Developing Core SOPs

- List of SOPs that all systems should have
  - Identify what should be core SOPs
  - Collect SOPs from members and web search
  - Develop and discuss summaries
  - Conduct workshop/training
- Starting with two areas
  - Water distribution systems
  - Preliminary wastewater treatment

# Distribution core

- *Hydrant – Flushing (corrective)\**
- Hydrant - Inspection and maintenance (flow testing)
- *Disinfectant residual sampling\**
- Responding to low chlorine residual
- Responding to low pressure
- Storage - Routine inspection
- Storage- Periodic inspection
- Taking a coliform sample
- Valve exercising
- Valve operation
- *Water Main Break\**
- *Nitrification response\**
- *Responding to a total coliform positive\**

# SOP summaries

- Collected SOPs
- Conference call to discuss
- Summaries developed so far:
  - Water main breaks
  - Flushing
  - Hydrant operation and maintenance
  - Valve exercising and operation

## SOP COMPONENTS FOR MAIN BREAKS

This document identifies key components of a main break SOP. For more details refer to the example SOPs in the SOP Library.

### Include / Completed

#### First Response / Investigation

- Designate first responder group and/or person
  - Regular business hours, after-hours
  - Which group will respond (emergency services or distribution group)
  - Circumstances that may impact response such as if expected severity small or questionable
- Identify metrics for response
  - First responder to investigate within 15 minutes, 30 minute, etc.
  - After hours, be on-site within 1 hour

#### Examples/ References

- Notification flowcharts – City of Boulder SOP

### Include / Completed

#### Initial Responsibilities on Site

- Initial Assessment
  - Magnitude of the break to determine the type of response
  - Address immediately or scheduled repair
  - Address public safety needs (traffic control, run-off, etc.)
- Determine appropriate valve operation
  - Determine whether to maintain flow, throttle back, or shut down.
    - See [WaterRF](#) guidance
    - Assess the type of main break and determine if you can keep the system pressurized until you can excavate below main line.
  - Inspect all [air-vac](#) vaults, potential for cross connection / contamination
- Contact appropriate crews
  - Ensure contact list is up-to-date

## c. Distribution Core Workshop

Goal: Walk away with draft SOPs or improvements for existing SOPs

- Share and discuss with other systems
- To be held March/April 2015
- Training units to be provided



# 5. Next steps

- Address additional cores
- Continue to expand the library
- Expand membership outside Colorado

# Questions?

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