

	Kingsville Environmental Services SOP ID#1 FIRE HYDRANT – FLUSHING	SOP: #1 Issued: 26-Jan-09 Rev.#: 2 Pages: 1 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the steps to be taken for the purpose of flushing a fire hydrant within the Town of Kingsville Water Distribution System.

NOTE:

All municipal fire hydrants will be flushed and maintenance will be performed bi-annually, in the spring and fall. The schedule for the flushing of hydrants will be posted in the local papers in advance of the starting date.

2. SCOPE

This procedure applies to fire hydrant flushing within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Hydrant Operating Manuals
AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for the hydrant flushing program
 - instructing the Water Personnel/Operators of the proper flushing protocol as set out below.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the fire hydrant flushing program as set out below.

	Kingsville Environmental Services SOP ID#1 FIRE HYDRANT – FLUSHING	SOP: #1 Issued: 26-Jan-09 Rev.#: 2 Pages: 2 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

- 7.1 If landscaping damage or erosion of ground will occur use a diffuser or a 2 ½ control valve and a 2" flexible hose.
- 7.2 Where the main is plastic you should be able to let the hydrant run for five (5) minutes to clear. In areas of cast iron main let the hydrant flow until the water runs clear.
- 7.3 Open and close hydrant slowly.
- 7.4 Spray "O Rings" around the top stem with an approved lubricant. Check and lightly grease all three caps with approved food grade lubricant.
- 7.5 Grease operating stem by removing top bolt and installing grease fitting, then replace bolt.
- 7.6 **Do not flush directly into a stream or river without de-chlorination device or directing water away allowing retention time.**
- 7.7 Utilizing the Kingsville Fire Hydrant Inspection Form, record activities completed:
 - Flushed
 - Pumped
 - Greased
- 7.8 List any further repairs required (e.g. needs raising, operates hard, needs barrier protection).
- 7.9 If the hydrant is not numbered, identify such in the inspection form and an identification number will be assigned using the GIS system.
- 7.10 Ignore pressure available column unless flow tests are specifically requested.
- 7.11 Completed Kingsville Fire Hydrant Inspection records will be recorded in comprehensive hydrant database.

8. FAILURE

If this SOP ID #1 - Fire Hydrant - Flushing should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

	Kingsville Environmental Services SOP ID#1 FIRE HYDRANT – FLUSHING	SOP: #1 Issued: 26-Jan-09 Rev.#: 2 Pages: 3 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Fire Hydrant – Flushing & Maintenance	
2-Dec-13	1	Updates following SAI Global Audit 2013	CG
19-Nov-18	2	Minor Modifications	SM



	Kingsville Environmental Services SOP ID#2 FIRE HYDRANT – REPLACEMENT	SOP: #2 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the necessary steps when replacing a fire hydrant.

2. SCOPE

This procedure applies to fire hydrant replacement within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Hydrant Operating Manuals
 AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
 AWWA Standards
 Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for the hydrant flushing program
 - instructing the Water Personnel/Operators of the proper flushing protocol as set out below.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the fire hydrant flushing program as set out below.

7. PROCEDURE

- 7.1 Ensure locates have been completed.
- 7.2 Excavate site if necessary.
- 7.3 Remove backhoe bucket and replace with breaker (if necessary).



	Kingsville Environmental Services SOP ID#2 FIRE HYDRANT – REPLACEMENT	SOP: #2 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

- 7.4 Shut off watermain and operate valve.
- 7.5 Break up asphalt and concrete (if necessary).
- 7.6 Excavate hole to expose old hydrant.
- 7.7 Remove new hydrant from dump truck.
- 7.8 Enter hole with ladder ensuring that all regulations are adhered to as you will be entering a confined space.
- 7.9 Support existing valve with restraints (if necessary).
- 7.10 Cut away old pipe/hydrant.
- 7.11 Remove old hydrant.
- 7.12 Dump stone into hole.
- 7.13 Install coupling to old pipe (if necessary).
- 7.14 Install extension pipe to new hydrant.
- 7.15 Lower new hydrant into hole.
- 7.16 Pour chlorine into hydrant base.
- 7.17 Level hydrant.
- 7.18 Fill hole with stone/backfill material.
- 7.19 Flush hydrant and pressure test.
- 7.20 Restore site.

8. FAILURE

If this SOP ID #2 - Fire Hydrant - Replacement should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Fire Hydrant – Replacement	



	Kingsville Environmental Services SOP ID#3 LOW PRESSURE - RESIDENTIAL	SOP: #3 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines steps to be taken in the event of a “low pressure” which could result in an emergency.

2. SCOPE

This procedure applies to the repair of the low pressure complaint from residents within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Customer complaint form - to be filed with the Director of Municipal Services
AWWA Publications
Operating Manuals

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 *DIRECTOR:* The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel to assist customers with low pressure complaints
 - instructing the Water Personnel/Operators the best remedy for low pressure complaints.
- 6.2 *WATER PERSONNEL/OPERATORS:* The Water Personnel/Operators are responsible for assisting customers in a professional and knowledgeable manner in an attempt to resolve the complaint.

7. PROCEDURE

- 7.1 Disconnect meter.



	Kingsville Environmental Services SOP ID#3 LOW PRESSURE - RESIDENTIAL	SOP: #3 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

- 7.2 Connect plastic pipe to meter and reroute water to laundry tub.
- 7.3 Turn on water and test pressure from meter.
- 7.4 Block off road (if necessary).
- 7.5 Excavate lawn to expose main.
- 7.6 Change bucket to breaker (if necessary).
- 7.7 Dig up road to expose service main (if necessary).
- 7.8 Change breaker to bucket.
- 7.9 Disconnect house water feed.
- 7.10 Connect new coupling.
- 7.11 Backfill hole.
- 7.12 Place asphalt on top of hole.
- 7.13 Use tamper to compact asphalt.
- 7.14 Reconnect meter.
- 7.15 Test water pressure in resident's home.
- 7.16

8. FAILURE

If this SOP ID #3 - Low Pressure Residential - should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Low Pressure – residential	



	Kingsville Environmental Services SOP ID#4 SAMPLE COLLECTION	SOP: #4 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the steps to be taken for sample collections.

2. SCOPE

This procedure applies to all sample collections within the distribution system of the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - instructing the Water Personnel/Operators on correct procedure for collecting samples
 - ensuring all necessary resources for the Water Distribution System personnel are available for the hydrant flushing program.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for the collections of water samples taken within the Kingsville Water Distribution System.

	Kingsville Environmental Services SOP ID#4 SAMPLE COLLECTION	SOP: #4 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

Please Note:

As defined in O. Reg. 170, an individual who holds a valid certificate under Ontario Regulation 128/04 (Certification of Drinking-Water System Operators) can perform the chlorine residual test. Operators must have read the Ministry of Environment's (MOE) publication entitled "Practices for the collection and Handling of Drinking-Water Samples", current version.

1. Flush the sample location (e.g. S.S., B/O, Riser) for at least 15 minutes, ensuring that the sample is a representative of the supply, taking into consideration the diameter and length of the pipe to be flushed, as well as the flow.
2. Test the chlorine residual using the Pocket Colormeter II.
3. For a combined chlorine residual result less than 0.5 mg/L in the distribution system notify the area supervisor immediately if the sample was collected from:
 - Mains - in service
 - Hydrants (e.g. pipe patrol)
 - Customer calls
4. For a combined chlorine result between 0.5 and 1.0 mg/L flush the hydrant until a combined chlorine residual greater than 1.0 mg/L is achieved.

8. FAILURE

If this SOP ID #4 - Sample Collection should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain – repair broken valve	

	Kingsville Environmental Services SOP ID#5 WATER SERVICE – LOW PRESSURE / SERVICE LEAKS	SOP: #5 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the necessary procedure to repair low pressure/water service leaks.

2. SCOPE

This procedure applies to any repair of water service within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Publications
Customer Complaint Form

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - instructing the Water Personnel/Operators of the proper flushing protocol as set out below
 - ensuring all necessary resources for the Water Distribution System personnel are available for correcting any low pressure/service leaks
 - instructing the Water Personnel/Operators of the procedures for correcting any low pressure/service leaks.

- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the necessary repairs to correct the low pressure/service leaks issues, as set out below.



	Kingsville Environmental Services SOP ID#5 WATER SERVICE – LOW PRESSURE / SERVICE LEAKS	SOP: #5 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

- 7.1 Ensure all locates have been completed.
- 7.2 Excavate site (if necessary), being aware of possible confined space risk.
- 7.3 Pump water from hole.
- 7.4 Shut water off/operate valve.
- 7.5 Remove old material.
- 7.6 Install new shutoff valve.
- 7.7 Install new service pipe.
- 7.8 Support new shutoff and materials.
- 7.9 Turn water back on/operate valve.
- 7.10 Pressure test repairs.
- 7.11 Install tracing wire (as needed).
- 7.12 Install water shutoff box and rod.
- 7.13 Backfill hole as required.
- 7.14 Restore site.

8. FAILURE

If this SOP ID #5 - Low Pressure/Service Leaks should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Low Pressure/Service Leaks	



	Kingsville Environmental Services SOP ID#6 WATERMAIN BLOW-OFF FLUSHING MAINTENANCE	SOP: #6 Issued: 26-Jan-09 Rev.#: 2 Pages: 1 of 2
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the procedure for blow-off flushing and maintenance of watermains.

2. SCOPE

This procedure applies to watermains within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for the watermain maintenance program
 - instructing the Water Personnel/Operators of the proper blow-off flushing and maintenance protocol as set out below.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for the watermain blow-off flushing and maintenance program as set out below.

7. DEFINITIONS

CHORINE RESIDUAL TRIGGER: The value at which the need for flushing is determined. A chlorine residual of less than 0.2 mg/l initiates the flushing program.

	Kingsville Environmental Services SOP ID#6 WATERMAIN BLOW-OFF FLUSHING MAINTENANCE	SOP: #6 Issued: 26-Jan-09 Rev.#: 2 Pages: 2 of 2
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

8. PROCEDURE

Each blow-off point will be flushed and maintained annually.

- 7.1 Traffic Protection Plan (see Municipal Policy) must be prepared and executed if necessary.
- 7.2 Inspect blow-off for accessibility and visibility for roadside weed cutting and cut area with a weed eater if over grown with grass and weeds.
- 7.3 Assess the area for de-chlorination techniques. If a sensitive area does not allow enough retention time the neutralizer or LPD-250 are available.
- 7.4 Start flushing and be sure to take chlorine residual and record this result.
- 7.5 Flush for fifteen (15) minutes and take another chlorine residual sample, record this result.
- 7.6 If after flushing the chlorine residual is 0.25 mg/L or higher then stop flushing. If the chlorine residual trigger of 0.25 mg/L is not met, then reinitiate the flushing program. Continue to flush and retest every fifteen (15) minutes.
- 7.7 If after two (2) hours 0.25 mg/L is not obtained notify the Supervisor as flushing leading up to a dead end may be required to move the water.
- 7.8 Close and lock blow-off and paint valves or caps with blue paint for future locating and visibility.
- 7.9 Break down Traffic Protection signage.

8. FAILURE

If this SOP ID #6 - Watermain - Blow-off Flushing Maintenance should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain – Blow-off & Flushing Maintenance	
28-Mar-11	1	Updates following Internal Audit	CG
19-Nov-18	1	Minor Modifications	SM



	Kingsville Environmental Services SOP ID#7 Commissioning New Watermains	SOP: #7 Issued: 26-Jan-09 Rev.#: 1 Pages: 1 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the steps defining the minimum requirements for disinfection of watermains, including the preparation (flushing) of watermains, application of chlorine, sampling and testing for the presence of bacteria and pressure testing. Before a water main is placed in service, the following procedure must take place.

2. SCOPE

This procedure is applicable to personnel responsible for installing, commissioning and disinfecting all water mains within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
 AWWA Standard C651- Watermain Disinfection Procedure
 O. Reg. 128/04 as Amended

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
 AWWA Standards
 Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

6.1 *CONSULTANT.* It is the consultant’s responsibility to notify the distribution system Overall Responsible Operator (ORO) or Operator-in-Charge (OIC) of all disinfection, swabbing, and pressure testing activities in his/her area of responsibility at the beginning of the project with scheduled updates as the project progresses. A minimum of 24 hours’ notice should be given to the ORO/OIC to ensure staff is available for commissioning activities.

6.2 *CONTACTOR.* The contractor will introduce potable water through a backflow preventer selected, tested, and installed in accordance with CSA Standard **B64.10-11/B64.10.1-11** into the swabbed new main using one of the following methods:



	Kingsville Environmental Services SOP ID#7 Commissioning New Watermains	SOP: #7 Issued: 26-Jan-09 Rev.#: 1 Pages: 2 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

- Bulk water supply of potable water
- Fire hydrant, operated by a certified Water Operator
- Tap off of the existing main, operated by a certified Water Operator

6.3 **DIRECTOR.** The Director of Municipal Services is responsible for:

- the operation, repair and maintenance of the Kingsville Water Distribution System
- ensuring all necessary resources for the Water Distribution System personnel are available to allow personnel to install new watermains
- instructing the Water Personnel/Operators of the proper installation process for new watermains, as set out below.

6.4 **WATER PERSONNEL/OPERATORS.** the Water Operators are responsible for performing this task, as set out below, in accordance with instructions from their Director, AWWA Standards, and municipal policy.

7. PROCEDURE

- 7.1 **SWABBING:** Water Operators will initiate flushing and swabbing of the new water main installation before chlorination with the proper number and size of swabs with potable water as determined by the consultant.
- 7.2 **PRESSURE TESTING:** The contractor will conduct pressure testing according to a calculation which determines the test pressure, duration time, and allowable water loss according to main size and operating pressure, determined by the consultant.
- 7.3 **DISINFECTION:** a) The contractor overseen by a certified water operator will disinfect the new main according to the following table:

Chlorine Concentrations and Contact Times for new watermains At levels over 10 mg/L a measurement of total chlorine shall be deemed to be equivalent of a measurement of free chlorine			
Disinfection Method	Minimum Contact Time	Initial Chlorine Concentration	Maximum Allowable Decrease in Chlorine Concentration
Tablet or Continuous Feed	24 hours	≥ 25mg/L	40 % of the initial Chlorine Conc. to a max decrease of 50mg/L
Slug	3 hours	≥ 100 mg/L	25 mg/L decrease
Spray	30 minutes	≥ 200 mg/L	measurement not required



	Kingsville Environmental Services SOP ID#7 Commissioning New Watermains	SOP: #7 Issued: 26-Jan-09 Rev.#: 1 Pages: 3 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

b) The certified water operator shall record work on the Commissioning New Watermain Checklist supplied by the ORO/OIC. This checklist shall contain:

- Initial Dose
- Duration of disinfection
- Residual at the end of the contact time (24 hours)

The certified water operator will ensure that representative system chlorine residuals are obtained after flushing the super-chlorinated water from the new watermain.

7.4 **SAMPLING:** To verify the integrity of the disinfection process, the consultant shall perform prescribed bacteriological sampling from the main after flushing has been conducted. Samples shall be submitted to an accredited laboratory.

For new mains, a sample shall be collected:

- Every 1200' (370 m) of new water main
- At an end point or blow-off
- At a branch greater than one pipe length collect at least one sample (AWWA C651 - 14 - 5.1.1.2).

Samples will be analyzed for the following parameter:

- E Coli
- Total coliform
- Total and free Chlorine Residuals

Procedure:

- Take an initial set of samples
- Wait at least 16 hours
- Take another set of samples
- The results for both sets must be satisfactory before tie-ins can take place.

7.5 **TIE IN PROCESS:** The distribution system ORO/OIC, the consultant, and the contractor will coordinate the tie in process. Watermains and appurtenances must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made.

	Kingsville Environmental Services SOP ID#7 Commissioning New Watermains	SOP: #7 Issued: 26-Jan-09 Rev.#: 1 Pages: 4 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

If the connections are equal to or less than one pipe length (20' or 6m) the pipe, fittings, and valves required for the connection may be spray disinfected with a 1% solution of chlorine. If the pipe is greater than one pipe length, it must be set up above ground, disinfected, and sampled in accordance with this standard procedure.

7.6 OPERATION OF VALVES AND APPURTENANCES: only certified Water Operators will conduct the operation of valves and appurtenances. The Consultant and the certified Water Operator shall maintain a record of all activities carried out during the commissioning process.

8. FAILURE

If this SOP ID #7 -Commissioning New Watermains should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain – placing new main in service	
06-Sept-18	1	Update Disinfection Procedures	SM

	Kingsville Environmental Services SOP ID#8	SOP: #8 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	WATERMAIN – MAINTENANCE OF VALVES	
Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services	

1. PURPOSE

This SOP outlines the steps necessary for the maintenance of watermain valves.

2. SCOPE

This procedure applies to any watermain within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
 AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
 AWWA Standards
 Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 *DIRECTOR:* The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for the valve maintenance program
 - instructing the Water Personnel/Operators of the proper valve maintenance as set out below.

- 6.2 *WATER PERSONNEL/OPERATORS:* The Water Personnel/Operators are responsible for the valve maintenance program as set out below.

7. PROCEDURE

- 7.1 Traffic Protection Plan (see Municipal Policy) must be prepared and executed if necessary.
- 7.2 Note any valve marker posts or signs and conditions.
- 7.3 Locate valve and cut any grass around valve with a weed eater.



	Kingsville Environmental Services SOP ID#8	SOP: #8 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	WATERMAIN – MAINTENANCE OF VALVES	
Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services	

- 7.4 Assess height of the valve box in regards to the existing area grade.
- 7.5 Remove cap of valve box and view with a spot light for centering and condition of operating nut.
- 7.6 Install wrench and close valve $\frac{3}{4}$ of allowable turns down (rule of thumb: 3-x-valve size).
- 7.7 Open completely and turn down 1 turn.
- 7.8 Replace cap of valve box and paint blue for future visibility.
- 7.9 Break down Traffic Protection signage.

8. FAILURE

If this SOP ID #8 - Maintenance of Valves should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain – Maintenance of Valves	

	Kingsville Environmental Services SOP ID#9	SOP: #9 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	WATERMAIN – REPAIR BROKEN VALVE	
Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services	

1. PURPOSE

The purpose of this procedure outlines instructions for fixing a broken valve within the Town of Kingsville.

2. SCOPE

This procedure applies to all broken valves within the distribution system of the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
 AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
 AWWA Standards
 Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel for repairing any broken watermain
 - instructing the Water Personnel/Operators of the proper procedure for repairing broken watermains
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the valve replacement program as set out below.

7. PROCEDURE

Each blow-off point will be flushed and maintained bi-annually.

- 7.1 Ensure that all locates have been completed.

	Kingsville Environmental Services SOP ID#9	SOP: #9 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	WATERMAIN – REPAIR BROKEN VALVE	
Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services	

- 7.2 Excavate site as required.
- 7.3 Shut off water in order to operate valve.
- 7.4 Change bucket to breaker on backhoe (if necessary).
- 7.5 Break up concrete (if necessary).
- 7.6 Change breaker to bucket on backhoe (if necessary).
- 7.7 Enter excavation with ladder, being aware of confined space and adhering to all safety regulations.
- 7.8 Expose old valve and pipe.
- 7.9 Remove old valve and pipe.
- 7.10 Install new valve and pipe.
- 7.11 Repair valve (if necessary).
- 7.12 Flush system until clear (refer to SOP).
- 7.13 Pressure test repairs.
- 7.14 Backfill excavation.
- 7.15 Restore site.

8. FAILURE

If this SOP ID #9 Watermain- Repair Broken Valve should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain – Repair Broken Valve	



	<p style="text-align: center;">Kingsville Environmental Services</p> <p style="text-align: center;">SOP ID#10</p> <p style="text-align: center;">CATEGORY 1 WATERMAIN BREAK(S) – GENERAL REPAIRS</p>	<p>SOP: #10 Issued: 26-Jan-09 Rev.#: 1 Pages: 1 of 3</p>
Reviewed by: Shaun Martinho, Public Works Manager		Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the necessary procedure for the repair and sampling of Category 1 Main Breaks; this includes circumferential breaks or small leaks where flow can be maintained until a sufficient air gap can be established.

2. SCOPE

This procedure applies to watermain breaks within the distribution system of the Town of Kingsville that require reducing system pressure or dewatering of mains in the affected area.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Standard C651-14

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 *DIRECTOR:* The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for general repairs to watermains
 - instructing the Water Personnel/Operators of the proper procedures for making general repairs to watermains, as set out below.
- 6.2 *WATER PERSONNEL/OPERATORS:* The Water Personnel/Operators are responsible for performing general repairs.



	Kingsville Environmental Services SOP ID#10 CATEGORY 1 WATERMAIN BREAK(S) – GENERAL REPAIRS	SOP: #10 Issued: 26-Jan-09 Rev.#: 1 Pages: 2 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

- 7.1 Referring to the area drawings for the location of the break, locate all valves to be used in order to be able to isolate the affected area.
- 7.2 Systematically begin closing the valve closest to the break and the valve farthest from the damaged area. The final valve to be shut should be left open 2 to 4 turns so as to keep positive pressure within the affected area. Positive pressure is necessary for two reasons:
 - a) to prevent any contamination from entering into the system
 - b) to avoid any back siphoning from other service connections.
- 7.3 Complete shut downs should be avoided unless absolutely necessary in order to avoid creating other extremely hazardous situations such as property damage and safety hazards.
- 7.4 Notify the Town of Kingsville of the area affected by the break noting any hydrants out of service or under reduced pressure.
- 7.5 Secure the work area with proper cones, barricades and traffic signs to protect the general public as well as the workers within the work area.
- 7.6 Before the excavation begins ensure all locates have been secured for the dig site, ensure all water pumps are in place, primed, full of fuel, equipped with suction and discharge hoses connected and in place.
- 7.7 The excavated work area must be properly shored and/or sloped so workers can perform their repairs safely. Submit a notice of trench work to the Ministry of Labour identifying the location of the dig site.
- 7.8 Excavation dewatering shall continue for the duration of the repairs such that an air gap between the location of the break in the watermain and the water in the excavation is maintained. At a minimum, the excavation should be one (1) foot below the bottom of the watermain with a two (2) foot deep sump at one end to allow for a pump to dewater the excavation.
- 7.9 With the main exposed, the exterior of the pipe should be properly scraped and cleaned. Following the cleaning, the main and any repair material shall be disinfected with a minimum 1% sodium hypochlorite solution before the repair is completed.

	Kingsville Environmental Services SOP ID#10 CATEGORY 1 WATERMAIN BREAK(S) – GENERAL REPAIRS	SOP: #10 Issued: 26-Jan-09 Rev.#: 1 Pages: 3 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

- 7.10 Install the repair parts according to manufacturer specifications. If at any time, contamination is evident or suspected, see SOP #12 Category 2 Watermain Break- Repairs to Potentially Contaminated Watermains.
- 7.11 If the watermain is cast or ductile iron, secure an anode to the exposed pipe.
- 7.12 Proceed to open the control valve slowly until the main is under full system pressure. Check to see that the repair remains leak tight.
- 7.13 Post repair flushing should be conducted following the repair by creating a temporary dead end downstream of the break through valve operation, and flushing through the location of the repair to a discharge point. Flushing shall continue until the discharged water is free from discolouration, and secondary disinfection has been restored.
- 7.14 With repairs complete, proceed to open all the valves slowly starting from the farthest point and working towards the affected area. Call the watermain and affected hydrants back into service and proceed to backfill and restore the excavated area.

8. FAILURE

If this SOP ID #10 Category 1 Watermain Break General Repairs, should fail in any way and further assistance is required contact the Director of Municipal Services for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain Break – General	
06-Spt-18	1	Update Disinfection Procedures	SM



Category 1

Continue to dewater excavation for the duration of repairs to maintain air gap.

*Note: If air gap is not maintained throughout the repair or contamination is evident or suspected at any time during the repair, the break shall be reclassified as Category 2.

Disinfect pipe and repair parts with minimum 1% sodium hypochlorite solution immediately prior to installation .

Install repair parts while ensuring that contaminants do not enter the watermain.

Conduct post-repair flushing through the location of repair. Dechlorinate as required.

Continue to flush until the required secondary disinfectant concentration is achieved.

Return system to normal service.

Document Repair.

	Kingsville Environmental Services SOP ID#11 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO DEWATERED MAINS	SOP: #11 Issued: 26-Jan-09 Rev.#: 1 Pages: 1 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the necessary procedure for the repair and sampling of Category 2 Main Breaks where there is no suspected contamination: this includes watermain repairs involving more than 6 meters of replaced pipe or if a situation exists where the main must be dewatered in order to complete the repairs or modifications to the system.

2. SCOPE

This procedure applies to repairs involving more than 6 meters of replaced pipe within the Kingsville Water Distribution System.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Publications

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standard C651-14
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for repairs to dewatered mains
 - instructing the Water Personnel/Operators of the proper protocol for any repairs to dewatered mains, as set out below.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the necessary repairs to any dewatered main, as set out below.

	Kingsville Environmental Services SOP ID#11 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO DEWATERED MAINS	SOP: #11 Issued: 26-Jan-09 Rev.#: 1 Pages: 2 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

- 7.1 Referring to the area drawings for the location of the break, locate all valves to be used in order to be able to isolate the affected area.
- 7.2 Systematically begin closing the valve closest to the break and the valve farthest from the damaged area. The final valve to be shut should be left open 2 to 4 turns so as to keep positive pressure within the affected area. Positive pressure is necessary for two reasons:
 - a) to prevent any contamination from entering into the system
 - b) to avoid any back siphoning from other service connections.
- 7.3 If possible all customers within the affected area should be given adequate verbal or written notification of the water shut down so as to minimize any inconvenience and to allow them time to protect any equipment affected by the water shut off.
- 7.4 Notify the Town of Kingsville of the area affected by the break noting any hydrants out of service or under reduced pressure.
- 7.5 Secure the work area with proper cones, barricades and traffic signs to protect the general public as well as the workers within the work area.
- 7.6 Before the excavation begins ensure all locates have been secured for the dig site. The excavated work area must be properly shored and/or sloped so workers can perform their repairs safely. Submit a notice of trench work to the Ministry of Labour identifying the location of the dig site.
- 7.7 Excavation dewatering shall continue for the duration of the repairs such that an air gap between the location of the break in the watermain and the water in the excavation is maintained. At a minimum the excavation should be one (1) foot below the bottom of the watermain with a two (2) foot deep sump pit at one end to allow for a pump to dewater the excavation.
- 7.8 Two water pumps shall be fueled, primed and placed into service before the watermain is completely shut down. Flow shall be discontinued only after a sufficient air gap has been established. With the main shut down, you can now prepare to cut the main as required.
- 7.9 Once you are sure that the pumps can keep up with the inflow of water, then that section of pipe can be removed.

	Kingsville Environmental Services SOP ID#11 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO DEWATERED MAINS	SOP: #11 Issued: 26-Jan-09 Rev.#: 1 Pages: 3 of 3
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

- 7.10 Any new pipe and materials, along with as much as possible of the inside and outside of the existing pipe, should be swabbed and disinfected with a minimum 1% sodium hypochlorite solution so as to minimize any possibility of contamination.
- 7.11 Reconstruct the section of watermain making sure to block, support and restrain all new materials before the watermain is turned on. Cathodic protection should be installed onto existing iron pipe.
- 7.12 If at any time the water level rises in the excavation such that the air gap is not maintained after flow from the main has been discontinued see SOP #12 Category 2 Watermain Break- Repairs to Potentially Contaminated Watermains.
- 7.13 Proceed to open the control valve slowly until the main is under full system pressure. Check to see that the repair remains leak tight.
- 7.14 Post repair flushing should be conducted following the repair by creating a temporary dead end downstream of the break through valve operation, and flushing through the location of the repair to a discharge point. If a hydrant or blow-off is not available, then a 1” service shall be tapped and used for this purpose. Flushing shall continue until the discharged water is free from discoloration, and secondary disinfection has been restored.
- 7.15 With repairs complete, proceed to open any remaining valves slowly starting from the farthest point and working towards the affected area. Call the watermain and affected hydrants back into service and proceed to backfill and restore the excavated area.

8. FAILURE

If this SOP ID #10 - Category 2 Watermain Break - Repairs to Dewatered Mains should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Revision History

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain Break – Dewatered mains	
06-Sept-18	1	Update Disinfection Procedures	SM



Category 2- Repairs to Dewatered Mains

Was contaminated water directed to users?

No (If the answer is Yes proceed to SOP#12)

Is there evident or suspected sewage or chemical contamination?

No (If the answer is Yes proceed to SOP#12)

Continue dewatering excavation for the duration of repairs to maintain air gap.

Take additional steps to remove contaminants from the watermain (as appropriate).

Disinfect pipe and repair parts with minimum 1% sodium hypochlorite solution immediately prior to installation

Use additional disinfection procedures as appropriate.

Install repair parts while ensuring that contaminants do not enter the watermain.

Conduct post-repair flushing through the location of repair. Dechlorinate as required.

Continue to flush until the required secondary disinfectant concentration is achieved

	Kingsville Environmental Services SOP ID#12 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO POTENTIALLY CONTAMINATED WATERMAINS	SOP: #12 Issued: 26-Jan-09 Rev.#: 1 Pages: 1 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This procedure outlines the necessary procedure for the repair and sampling of Category 2 Main Breaks where there is suspected contamination: this includes infiltration from water during excavation, sewage contamination, and chemical contamination.

2. SCOPE

This procedure applies to broken watermains within the Kingsville Water Distribution System with evident or suspected contamination.

3. RELATED DOCUMENTS

Operating Manuals
AWWA C651-14
Watermain Disinfection Procedure, MOECC, SDWA, Feb 2017

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards
Municipal Health & Safety Policy Manual

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for any repairs to potentially contaminated watermains
 - instructing the Water Personnel/Operators of the proper procedure for any repairs to potentially contaminated watermains.

	Kingsville Environmental Services SOP ID#12 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO POTENTIALLY CONTAMINATED WATERMAINS	SOP: #12 Issued: 26-Jan-09 Rev.#: 1 Pages: 2 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

6.2 *WATER PERSONNEL/OPERATORS:* The Water Personnel/Operators are responsible for performing the repairs to possibly contaminated watermains as set out below.

7. PROCEDURE

Should the water pumps fail and contaminated ground water floods the existing system, or as stated earlier positive pressure cannot be achieved in the main until the excavation is completed, the following steps must be followed:

- 7.1 Immediately notify your supervisor of the known, or change in conditions and the additional risk of contamination of watermain being repaired. Your supervisor will contact a member of senior staff who will then initiate the procedure for notification of the Medical Officer of Health and the Ministry of the Environment (see Emergency/Essential Supplies and Services Contact List - Appendix, Tab L) as required under the existing regulations. You will be notified by the member of senior staff, through your Director of the additional steps to be taken as directed by the office of the Medical Officer of Health. See notification procedure.
- 7.2 Remove the damaged section of watermain along with as much of the contaminated section of pipe as possible.
- 7.3 With the use of the various control valves, flush back into the excavation site all of the watermain branches affected, again making sure that pump(s) (as needed) can keep up with the inflow of water.
- 7.4 With the old section of pipe removed, any new pipe and fittings along with as much as possible the inside and outside of the existing system should be swabbed and disinfected with a minimum 1% sodium hypochlorite solution so as to minimize any possibility of contamination.
- 7.5 Reconstruct the section of watermain making sure to block, support and restrain all new materials before the watermain is turned on. Cathodic protection should be installed onto any existing iron pipe.
- 7.6 Special notation must be made at this time regarding the location that will be used to flush the air and water from the contaminated watermain. If possible create a temporary dead end and flush towards the affected area out of a fire hydrant. If this is not possible then flushing to a hydrant within the isolated area is also acceptable.

	Kingsville Environmental Services SOP ID#12 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO POTENTIALLY CONTAMINATED WATERMANS	SOP: #12 Issued: 26-Jan-09 Rev.#: 1 Pages: 3 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

NOTE:

If a fire hydrant is to be used as a sample point, apply a large quantity (2 liters) of full strength sodium hypochlorite into the hydrant prior to flushing in order to disinfect it.

- a) If a fire hydrant does not exist within the affected area, then tap a 2" service in order to have a point to flush to and sample from.
- b) You may now flush the affected area towards the sample point, flushing from one point at a time. When you have completed flushing each line in turn and the water runs clear, check to determine the presence of adequate free chlorine residual (greater than 0.20 mg/L. When this is established, shut the valve again and move onto the other valves following the same procedure at each point.
- c) When the water runs clear and secondary disinfection has been restored, you are now ready to begin sampling. Collect a sample from the sampling location in the appropriate sampling container as provided by the laboratory. Bring the sample to the lab for bacterial testing as soon as possible.
- d) After the samples have been collected, open only one valve to the affected area. This will give our customer's water (it is anticipated that a Boil Water Advisory will have been issued at this time by the Medical Officer of Health for the affected area) and the necessary fire protection until sample results have been obtained. Opening only one valve will also minimize the affected area should the water samples fail.
- e) Call the affected area back into service under reduced pressure and proceed to backfill and restore the excavated area.
- f) Once two consecutive samples with satisfactory results have been received, proceed to open all of the control valves and call the watermain back into service.
- g) Should the samples taken fail, you will be provided with additional steps to take or procedures to follow by management or the Medical Officer of Health.

8. SPECIAL CASES

If there is evident or suspected sewage or chemical contamination of a watermain a plan with site specific procedures shall be developed and implemented. The sampling plan shall include at minimum the taking of two sets of microbiological samples at least 24 hours apart. Return to normal service is contingent upon the corrective actions and sampling plan being completed to the satisfaction of the local Ministry office in consultation with the Medical Officer of Health. **The affected watermain may not be put back in service before the corrective actions and sampling plan are completed unless a Water Advisory is declared.**

	Kingsville Environmental Services SOP ID#12 CATEGORY 2 WATERMAIN BREAK(S) – REPAIRS TO POTENTIALLY CONTAMINATED WATERMAINS	SOP: #12 Issued: 26-Jan-09 Rev.#: 1 Pages: 4 of 4
	Reviewed by: Shaun Martinho, Public Works Manager	Approved by: Andrew Plancke, Director of Municipal Services

9. FAILURE

If this SOP ID #12 - Category 2 Watermain Break(s)- Repairs to Potentially Contaminated Watermains should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Revision History

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Watermain Break – Repairs to Potentially Contaminated Watermains	
09-Sept-18	1	Update Disinfection Procedures	S

Category 2- Potentially Contaminated Mains

Was contaminated water directed to users?

Yes

Immediately report as an observation of improper disinfection. The Ministry should be notified as soon as practicable.

Continue dewatering excavation for the duration of the repair to maintain air gap.

Take additional steps to remove contaminants from watermain (as appropriate)

Disinfect pipe and repair parts with minimum 1% sodium hypochlorite solution immediately prior to installation

Use additional disinfection procedures as appropriate.

Install repair parts while ensuring that contaminants do not enter the watermain.

Conduct post-repair flushing through the location of repair. Dechlorinate as required.

Continue to flush until the required secondary disinfectant concentration is achieved.

Perform prescribed Bacteriological sampling.

If there is evident or suspected sewage or chemical contamination of a watermain a plan with site specific procedures shall be developed and implemented. The affected watermain may not be put back in service before the corrective actions and sampling plan are completed unless a Water Advisory is declared.

Once the corrective actions and sampling plan have been completed to the satisfaction of the local Ministry office the system may be returned to normal service.

Document Repair

	Kingsville Environmental Services SOP ID#13 EMERGENCY INTERCONNECT	SOP: #13 Issued: 26-Jan-09 Rev.#: 0 Pages: 1 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

1. PURPOSE

This SOP outlines the necessary procedure if an emergency situation occurs and it becomes necessary to open interconnect between other systems. This will ensure adequate supply of water to Kingsville Water Distribution System in the event of a failure, such as a loss in supply due to a main break, low pressure, fire, contamination, etc.

2. SCOPE

This procedure applies to emergency situations within the distribution system of the Town of Kingsville.

3. RELATED DOCUMENTS

Operating Manuals
AWWA Publications
System Map - showing interconnects

4. SAFETY CONSIDERATIONS

Occupational Health and Safety Act
AWWA Standards

5. EQUIPMENT REQUIRED

The Operator is responsible for:

- Proper Personal Protective Equipment (PPE) as required

6. AUTHORITY AND RESPONSIBILITIES

- 6.1 **DIRECTOR:** The Director of Municipal Services is responsible for:
- the operation, repair and maintenance of the Kingsville Water Distribution System
 - ensuring all necessary resources for the Water Distribution System personnel are available for any necessary repairs.
 - instructing the Water Personnel/Operators of the proper procedure for completing emergency interconnects.
- 6.2 **WATER PERSONNEL/OPERATORS:** The Water Personnel/Operators are responsible for performing the emergency interconnects, as set out below.

	Kingsville Environmental Services SOP ID#13 EMERGENCY INTERCONNECT	SOP: #13 Issued: 26-Jan-09 Rev.#: 0 Pages: 2 of 2
	Reviewed by: Corrine Gabriele, Manager of Municipal Services	Approved by: Andrew Plancke, Director of Municipal Services

7. PROCEDURE

- 7.1 The staff of Union Water Treatment Plant will notify the Director of Municipal Services of the necessity to open an emergency interconnect valve.
- 7.2 Kingsville Water Operators will be instructed to attend at the emergency interconnect valve site.
- 7.3 Refer to the system maps for the location of the emergency interconnects.
- 7.4 Attend at the emergency interconnect valve site and the valve key, as the valve is locked.
- 7.5 Unlock the valve.
- 7.6 Open the valve.
- 7.7 Verify that there are no boil water advisories in effect at the time. If yes, notify the local Public Health Unit and the Ministry of the Environment, Conservation and Parks for further instructions.
- 7.8 Ensure that plans are in place to supply public with alternative water such as bottled water, tanker water, or water from some other source.
- 7.9 Continue to monitor the situation and once you have confirmation that system has returned to normal operations, reverse the process and close the emergency interconnects.
- 7.10 Inform all relevant personnel that the system has returned to normal operations.

8. FAILURE

If this SOP ID #14 - Emergency Interconnect should fail in any way and further assistance is required contact the Director of Municipal Services immediately for further instructions and possible reference to another SOP.

9. REVISIONS

Date	Revision #	Reason for Revision	Revision By
26-Jan-09	0	Emergency Interconnect	