UW-09

PROJECT NAME: _____

CONTRACTOR: _____

WITNESS: _____

LINE PRESSURIZED: DATE: _____ TIME: _____ am / pm

LINE TESTED: DATE: _____ TIME: _____ am / pm

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

LEAKAGE FORMULA

L = Testing (leakage) allowance (makeup water), in gallons per hour = _____ GPH

S = Length of pipe tested in feet = _____ FEET

D = Nominal diameter of the pipe, in inches = _____ INCHES

P = Average test pressure during the hydrostatic test, in pounds per square inch (gauge) _____ PSI

*If multiple diameters of water main are being tested, separate leakage (L) calcaulation shall be added together.

TESTING PROCEDURE

STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS (LATEST EDITION) AND AWWA STANDARD C600-17 SHALL APPLY ALONG WITH THE FOLLOWING:

1) PRETEST: THE CONTRACTOR SHALL PROVIDE A MAP OF THE FACILITIES (WATER MAINS, HYDRANTS, VALVES, ETC.) TO BE INCLUDED DURING THE TEST TO THE ENGINEER. THE ENGINEER WILL COORDINATE WITH THE WATER DEPARTMENT TO SCHEDULE OPENING OF CITY VALVES AND FILLING OF NEW WATER MAIN A MINIMUM OF 24 HOURS IN ADVANCE OF THE TEST. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES ON EXISTING CITY WATER MAIN WITHOUT WRITTEN PERMISSION.
2) HYDROSTATIC PRESSURE TESTING: ALL TESTING EQUIPMENT AND LABOR NECESSARY TO SETUP AND RUN THE TEST SHALL BE PROVIDED BY THE CONTRACTOR AND SHALL INCLUDE:
   A) PRESSURE GAUGE LOCATED AT HIGHEST POINT OF ELEVATION OF THE WATER MAIN
   B) PUMP
   C) TANK
   D) FITTINGS FOR TESTING EQUIPMENT TO BE CONNECTED TO WATER MAIN
   E) ACCURATE WATER VOLUME MEASURING DEVICE (CALIBRATED VOLUMETRIC METER OR 1 GALLON GRADUATED CYLINDER IN OUNCES)

3) AIR REMOVAL: AFTER FILLING THE WATERMAIN, AIR SHALL BE EXPELLED BY FLUSHING WATER OUT OF THE MAIN AT FIRE HYDRANTS OR CORPORATION STOPS LOCATED AT HIGH POINTS ALONG THE WATER MAIN.

4) PRESSURIZATION: AFTER ALL AIR HAS BEEN REMOVED, THE MAIN SHOULD BE PRESSURIZED TO MINIMUM 150 PSI BY PUMPING ADDITIONAL WATER INTO THE WATER MAIN.

5) TWO HOUR TEST: ONCE TESTING PRESSURE IS OBTAINED, THE PUMP SHOULD BE SHUT OFF AND TIMING STARTED. THE PRESSURE GAUGE SHOULD BE CHECKED INTERMITTENTLY AND THE PRESSURE READING RECORDED AFTER TWO HOURS. IF THE PRESSURE READING VARIES MORE THAN +/- 5 PSI FROM THE INITIAL PRESSURE, THE TEST FAILS. THE LEAK SHALL BE FOUND AND ADDRESSED PRIOR TO RETESTING.

6) MAKE UP VOLUME: IF THE PRESSURE IS MAINTAINED WITHIN +/- 5 PSI FOR THE TWO HOUR TEST, THE MAKE-UP VOLUME SHALL BE DETERMINED BY PUMPING WATER BACK INTO THE WATER MAIN TO REACH THE INITIAL TEST PRESSURE. THIS WILL NORMALLY BE DONE BY EXCEEDING THE TEST PRESSURE, AND USING THE BLEED OFF VALVE TO DROP THE PRESSURE TO THE INITIAL TEST PRESSURE. ONCE THE INITIAL TEST PRESSURE HAS BEEN REACHED, THE BLEED OFF VALVE SHALL BE OPENED AND WATER THAT LEAVES THE SYSTEM SHALL BE COLLECTED IN THE VOLUME MEASURING DEVICE. ONCE THE GAUGE REACHES THE FINAL TWO HOUR TEST PRESSURE, THE VOLUME OF WATER COLLECTED SHALL BE MEASURED.

7) ALLOWABLE MAKE-UP VOLUME: THE MEASURED VOLUME OF "MAKE UP" WATER SHALL BE COMPARED TO THE ALLOWABLE LEAKAGE. THE ALLOWABLE LEAKAGE SHALL BE CALCULATED BY THE ENGINEER USING THE FORMULA ABOVE. IF THE WATER COLLECTED IS LESS THAN THE ALLOWABLE MAKE UP VOLUME, THE TEST PASSES. IF THE WATER COLLECTED IS MORE THAN THE ALLOWABLE MAKE UP VOLUME, THE TEST FAILS. THE LEAK SHALL BE FOUND AND ADDRESSED PRIOR TO RETESTING.

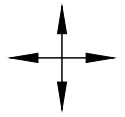
8) FINAL VALVE CHECK: PRIOR TO BLEEDING OFF THE PRESSURE, ALL HYDRANTS ON THE TESTING MAP SHALL BE SLOWLY OPENED TO ENSURE THAT THEY HAD PRESSURE AGAINST THEM DURING TESTING. THE PRESSURE GAUGE SHOULD DROP AS THE HYDRANTS ARE OPENED ENSURING THAT ALL VALVES IN THE SYSTEM WERE PROPERLY OPENED/CLOSED DURING TESTING.

9) IF THE WATER MAIN HAS PASSED THE PRESSURE TEST, THE PRESSURE SHOULD BE REDUCED TO THE CITY'S SYSTEM PRESSURE. THE PRESSURE GAUGE SHALL REMAIN ON THE HIGHEST CORPORATION STOP AND MONITORED UNTIL THE IEPA PERMIT IS RECEIVED. THE PRESSURE SHALL NEVER GO BELOW 20 PSI AFTER A PASSED TEST. IF THE GAUGE FALLS BELOW 20 PSI, RETESTING AND/OR RECHLORINATING SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE CITY.

2-HOUR TEST

TOTAL ALLOWABLE LEAKAGE = L X 2 HOURS	_____ GALLONS	A
INITIAL TEST PRESSURE (MINIMUM 150 PSI)	_____ PSI	B
FINAL TEST PRESSURE	_____ PSI	C
PASS (B-C<5 PSI) OR FAIL (B-C>5 PSI)		
MAKE UP VOLUME	_____ GALLONS	D
PASS (A > D) OR FAIL (A < D)		E

NOTES, MAP, AND CALCULATIONS



INDICATE NORTH

Revised:
1. 06/12/2015
2. 7/13/2021 - KL Leakage formula, procedure, delete 24 hour test
3.
4.

Drawing Name

WATER MAIN TEST REPORT

Drawing Number

UW-09

Date: 09/20/2012

Drawn	Checked
DD	VR

City of Crystal Lake Illinois