

**Draft**  
**Hydrostatic Test Plan**  
**Rev. 1**

## L5WSR Hydrostatic Test Water Appropriations and Discharge Planning

The Enbridge Line 5 Wisconsin Segment Relocation Project (“L5WSRP” or “Project”) consists of the installation of approximately 42 miles of 30-inch diameter, Grade X-70 carbon steel pipe via open trench, conventional bore, and trenchless crossing techniques to reroute the existing Line 5. As part of the construction process the newly installed pipe will be hydrotested prior to being placed into service. The summary below provides details on the preferred test section design and water appropriation sources, volumes, and discharge points.

Test section breaks depend on access requirements, water sourcing, elevation change, and material strength parameters. Test sections breaks will be determined by the water sources that can be utilized for testing activities. Water will be withdrawn and discharged for each mainline test section independent of other test segments. Enbridge’s proposed test sections are discussed below:

### **Option A (Preferred):** *Two test sections, water appropriation from Bad River*

The preferred scenario is to withdraw water from Bad River and test the mainline in two test sections with Test Section 1 extending from the Bad River at approximately MP 24.1 to the west at MP 0. Test Section 2 would extend from Bad River at approximately MP 24.1 to the east to MP 41.1.

Test Section	Start MP	End MP
1	0.0	24.1
2	24.1	41.1

### **Option B (Alternative):** *Three test sections, water appropriation from Silver Creek and Tyler Forks*

An alternative testing scenario would create three test sections. Test Section 1 from MP 0.0 to 19.5 and Test Section 2 from MP 19.5 to MP 33.8 would utilize water from Silver Creek. Test Section 3 would extend from MP 33.8 to MP 41.1 and utilize water from Tyler Forks.

Test Section	Start MP	End MP
1	0.0	19.5
2	19.5	33.8
3	33.8	41.1

Water quantity estimates for the hydrotesting include the fill volume, squeeze volume, and 15% contingency water. The cumulative water volume required for testing purposes is approximately 8.7 million gallons. Water will not be re-used between test sections; therefore, separate appropriations are proposed to test each pipeline segment. When filling from a natural waterbody, suction piping shall be maintained at sufficient depth to eliminate the introduction of air, debris, silt, or other granular materials into the test medium. Additionally, a mesh screening will be used to prevent aquatic species from entering the system. Proposed withdrawal rates range from 1,000-1,500 gallons per minute, subject to permit conditions. Hydrostatic test water will be returned (discharged) to the source water according to permit conditions and in a manner to prevent erosion, scour, or flooding.

The table below illustrates how that volume would be utilized in the two testing scenarios described above. Water

Option	Test Description	Length (ft)	Theoretical Fill Volume (gal)	Theoretical Squeeze Volume (gal)	15% Contingency Volume (gal)	Total Water Required (gal)
A	Section 1	127,037	4,359,000	51,000	662,000	5,072,000
A	Section 2	89,971	3,088,000	37,000	469,000	3,594,000
B	Section 1	102,960	3,533,000	42,000	537,000	4,112,000
B	Section 2	75,504	2,591,000	31,000	394,000	3,016,000
B	Section 3	38,544	1,323,000	16,000	201,000	1,540,000

Additionally, for the proposed reroute, Enbridge intends to install the pipeline using trenchless techniques (i.e., horizontal directional drill [HDD] or direct pipe method) at 13 locations. All piping installed via HDD pipe will be pretested prior to installation. After installation, these sections will then be welded to the rest of the mainline and included in the mainline pressure tests. Crossings utilizing conventional boring methods (non-HDD) do not require a pre-installation pressure test. For many of the sections Enbridge intends to utilize water from municipal sources and will haul water to and from the site for purposes of testing the pipe sections. Enbridge proposes to utilize water at four of the crossing locations as indicated in the table below. For the Trout Brook and Billy Creek HDDs, Enbridge proposes to utilize water from Trout Brook, and at Silver Creek and Tyler Forks, Enbridge proposes to utilize water from the respective waterbodies utilizing the same appropriations and discharge criteria described for the mainline hydrotest.

Test Description	Length (ft)	Water Source	Theoretical Fill Volume (gal)	Theoretical Squeeze Volume (gal)	15% Contingency Volume (gal)	Total Water Required (gal)
White River	4,439	Hauled In	147,200	1,700	22,400	171,300
Deer Creek	1,777	Hauled In	60,000	800	9,100	69,900
Marengo River	1,985	Hauled In	67,000	800	10,200	78,000
Brunswailer River	2,790	Hauled In	94,100	1,200	14,300	109,600
Hwy13/Canadian National Railroad	1,998	Hauled In	66,300	800	10,100	77,200
Trout Brook	2,337	Trout Brook	78,900	1,000	12,000	91,900
Billy Creek	1,775	Trout Brook	59,900	800	9,100	69,800
Silver Creek	3,435	Silver Creek	113,900	1,300	17,300	132,500
Krause Creek	1,597	Hauled In	53,900	700	8,200	62,800
Bad River	1,774	Hauled In	58,800	700	9,000	68,500
Tyler Forks	1,841	Tyler Forks	62,100	800	9,500	72,400
Potato River	3,472	Hauled In	115,100	1,300	17,500	133,900
Vaughn Creek	2,055	Hauled In	69,400	900	10,600	80,900