

Enbridge Line 5 Pipeline through the Straits of Mackinac

The Worst Possible Place for an Oil Spill: The aging Enbridge pipelines push nearly 23 million gallons of oil and natural gas liquids a day through the Straits of Mackinac, which the company uses as a shortcut for its Line 5 route from Superior, Wis., to Sarnia, Ontario. A July 2014 study by the University of Michigan called the Straits “the [worst possible place](#) for an oil spill in the Great Lakes” and [depicted the prospect of a plume from a million-gallon oil spill](#) in the Straits stretching for 85 miles – from Lake Michigan’s Beaver Island to Mackinac Island to Rogers City down the Lake Huron shore.

Independent Experts Who Studied Enbridge Line 5 through the Straits: Key Findings

Scientific Findings Require Line 5 Closure: Findings by a team of experts who studied Line 5 lead to a strong recommendation that Line 5 should be shut down pending a full review under state law to avoid a catastrophic oil spill into the Great Lakes, home to 20 percent of the world’s fresh surface water. The State of Michigan has insufficient information to ensure Line 5 is operating safely. An open, public process should begin immediately to consider the best way to avoid a spill.

Outdated Pipelines: The twin oil Enbridge pipelines rely on 1950s technology and use outdated protective coating and welds connecting the 40-foot segments that make up the pipelines that run through the Straits of Mackinac, where Lake Michigan and Lake Huron meet. Shifting sand and gravel at the bottom likely causes friction that is accelerating pipeline wear after more than six decades of use.

Zebra Mussels Corrode Steel Pipes: The pipelines were constructed prior to the zebra mussel invasion of the Great Lakes and were not designed to withstand the corrosive impact of zebra mussels. The invasive species secretes an acidic waste that corrodes exposed steel. The steel pipes are coated with obsolete coal tar enamel that has failed elsewhere, including in 2009 with Enbridge’s Line 2 near Odessa, Saskatchewan, which was constructed the same year as Enbridge’s Line 5 through the Straits.

Deficient Pipeline Welds: Welds created using 1953 techniques are deficient. Sixteen Enbridge oil spills reported from 2002-2010 were caused either by weld failure or from the failure of coal tar enamel coating similar to the coating used on Line 5 through the Straits.

Failure to Install Pipeline Supports: Enbridge has failed to install as many as 65 supports required by the state to prevent the pipeline from grinding along the bottom, bending, and potentially failing or breaking at its weld points.

Independent Expert Team

Richard J. Kane, QEP, CHMM, CPP was formerly the Director of Security, Environment, Transportation Safety & Emergency Services for Rhodia, North America. He is past Chairman of the Chemical Sector Coordinating Council, Chairman, Security Committee, the American Chemistry Council (ACC), and former member of The Society of Chemical Manufacturers & Affiliates (SOCMA) Environmental, Safety & Security Committees. He is a Certified Protection Professional (CPP), Certified Hazardous Materials Manager (CHMM), and Qualified Environmental Professional (QEP).

Gary L. Street, PE, was formerly Director of Engineering, Dow Environmental – AWD Technologies; Technology Director, Film Tec Corporation, subsidiary of Dow Chemical; Section Manager, Process Engineering, Dow Chemical; Board Chair and Vice President, Midland Engineering, Ltd.; and Engineering Consultant, Freshwater Future. He is currently an Engineering Consultant for FLOW. Mr. Street's 30-year career has covered an extensive range of experience in environmental engineering, chemical process design, ethanol production processes, minimization of waste materials, and project management. He is the co-author of the text, Applied Chemical Process Design.

Edward E. Timm, PhD., PE, was formerly a Senior Scientist and Consultant to Dow Chemical's Environmental Operations Business (EOB), subject matter expert on Dioxin Formation and Transport in Chemical Process Systems, and leader in the company's voluntary efforts to reduce dioxin emissions. He was also Senior Scientist for Liquid Separations Business (LSB), including Ion Exchange and Film Tec Products for water purification. As Senior Scientist in EOB, he served as technical professional in developing a process for gasification of chlorinated wastes as alternative to incineration, and as Senior Scientist for LSB, he developed reverse osmosis membranes to concentrate dissolved solids and purify water. He also served as an expert on development and evaluation of new chemical processes, invention and patents, process development, plant design and construction, and process optimization.

###