#### STATE OF MICHIGAN

# BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Application of Enbridge Energy, Limited Partnership for Authority to Replace and Relocate the Segment of Line 5 Crossing the Straits of Mackinac into a Tunnel Beneath the Straits of Mackinac, if Approval is Required Pursuant to 1929 PA 16; MCL 483.1 et seq. and Rule 447 of the Michigan Public Service Commission's Rules of Practice and Procedure, R. 792.10447, or the Grant of other Appropriate Relief

U-20763

ALJ Dennis Mack

#### **TESTIMONY OF RICHARD B. KUPREWICZ**

## **ON BEHALF OF**

### **BAY MILLS INDIAN COMMUNITY**

December 14, 2021

a way by the Staff. A "low risk" does not equate to "no risk" or even a "negligible risk" 1 2 when transporting crude oil, and especially propane. 3 Q. Please elaborate on your disagreement with Mr. Warner's testimony and explain why 4 5 the risk of explosion due to transporting crude oil or propane in a pipeline through an underground tunnel does not negate a risk of release into the Straits. 6 7 A. Mr. Warner set forth the reasoning that the replacement of the Dual Pipelines within a 8 tunnel beneath the Straits would not only negate the threat of an anchor strike, but also "serve as a secondary containment vessel in the event of a spill." (Warner testimony at 9 22:11-12). This testimony fails to recognize that both propane and crude oil are highly 10 11 hazardous and volatile substances and there is always a risk of explosion when handling these substances. When transporting these substances through a pipeline enclosed in a 12 13 tunnel, the risk of an explosion is enhanced which in turn enhances the probability that the 14 secondary containment vessel will fail. 15 In fact, Mr. Warner represents that the Tunnel Alternative Report (Exhibit A-9, page 6) 16 puts the probability of a release of product from the tunnel at "virtually zero," going so far 17 as to state that "there is no credible scenario that would result in a release of product from 18 the tunnel into the Straits." (Warner testimony at 28:14-16). In my opinion, this is a false 19 statement that minimizes the risk of an explosion which cannot be said to be "virtually 20 21 zero." An explosion within the tunnel could feasibly be caused by a hydrocarbon release

from the pipeline that generates a heavier than air vapor release. In this scenario, the vapor

release would quickly settle in low spots given the tunnel elevation profile. Then all that is

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required to create an explosion is an electrical spark within the air/fuel cloud. An ignition
 can be caused either by the equipment maintained within the tunnel (e.g. the sump pump),
 or brought in with a worker, or even by static electricity —to create an explosion.

Although the tunnel's design includes a ventilation system (see Exhibit A-11)—and that 4 system is important to have-it is not infallible and cannot completely eliminate risk, 5 especially given the large diameter of the tunnel which hinders the ability for the ventilation 6 7 system to sweep released vapor from the tunnel. One intended purpose of the ventilation 8 system is to sweep any released fuel vapor out of the tunnel or reduce the amount of released fuel vapor so that it is out of the flammability range, such that it will not ignite 9 and detonate. But in evaluating the proposed system and summarizing their key findings 10 11 to the Commission, the testimonies of Mr. David Chislea, Mr. Daniel Adams, Mr. Philip Martin Ponebsnek, and Mr. Warner omit the difficulty in controlling the fuel air mixture 12 within the tunnel, which increases the possibility of multiple detonations/explosions within 13 14 the tunnel. The ventilation system alone may help, but will not prevent, an explosion from 15 occurring following the accumulation, or pocketing, of vapor in the tunnel.

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17 It is my understanding that all electrical equipment installed in the tunnel will comply with 18 Class 1, Division 2 specifications. This fact does not alter my opinion that the MPSC staff's 19 witnesses inappropriately minimize the risks presented by the tunnel.<sup>1</sup> Such an electrical 20 classification relies on adequate ventilation which will not be operated as a day-to-day 21 practice and thereby ignores the additional risk of a crude oil or propane pipeline release 22 within the unique confines of the tunnel. The more stringent Class 1 Division 1

<sup>&</sup>lt;sup>1</sup> Exhibit A-13, "Tunnel Design and Construction Report Michigan PSC Case No. U-20763," p.8 of 26.



specifications intended to avoid the source of an electrical ignition would be a more 1 2 appropriate measure. However, even this higher rating will not completely prevent an explosion from other ignition sources within the confines of the tunnel in the event of a 3 pipeline release within the unique location. 4 5 It is important to note that crude oil, and especially propane, in a confined space can 6 7 generate a tremendous amount of pressure, especially upon detonation. Propane has a broad 8 flammability range coupled with a lower autoignition temperature which makes this material easier to detonate or explode. In this way, propane differs from water or other 9 materials that are typically transported through pipelines. In fact, based on the volatility of 10 11 propane, the Tunnel Project is atypical, and I am not personally aware of other similar projects. A release in this unique environment carries the risk of both loss of human life 12 and the release of crude oil and propane into the Great Lakes as an explosion in such a 13 14 confined structure will most likely violate the tunnel's secondary containment intent. 15 None of the Staff witnesses-Mr. Chislea, Mr. Adams, Mr. Ponebsnek, nor Mr. Warner-16 have provided a sound scientifically-based reason to support the Staffs' conclusion that the 17 Tunnel Project will prevent a release such that the risk can be said to be "negligible." 18 Indeed, any release that does occur, either by an explosion within the tunnel or a release 19 from the tie-in pipeline on either side, has the potential to be catastrophic. An explosion 20 within the tunnel could cause a high-pressure event usually, but not always, followed by 21 22 multiple fires and explosions, such as the 36-hour long fire that was the result of a vapor

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1		cloud that was ignited in 1999. <sup>2</sup> Blast forces of this magnitude have the potential of
2		shattering concrete, especially segment concrete linings. In short, an explosion would cause
3		a high-pressure event that would put the concrete structures at risk. This in turn runs the
4		risk of releasing material into the Straits.
5		
6		In short, there is no absolute when dealing with crude oil or propane in a tunnel. A low risk
7		does not equate to no risk. Crucially, an engineer needs to design a pipeline as if a release
8		will occur and the Commission should evaluate the proposal in the same way.
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10	Q.	In their analysis of the Tunnel Project, and, specifically, when Mr. Warner concluded
11		that the risk of a release would be "negligible," did the witnesses presented by the
12		MPSC Staff correctly consider the capacity of the proposed pipeline segment that
12 13		MPSC Staff correctly consider the capacity of the proposed pipeline segment that would run through the tunnel.
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<sup>&</sup>lt;sup>2</sup> <u>https://www.mlive.com/news/2017/04/enbridge\_line\_5\_spill\_history.html</u> (last accessed 12/11/2021)