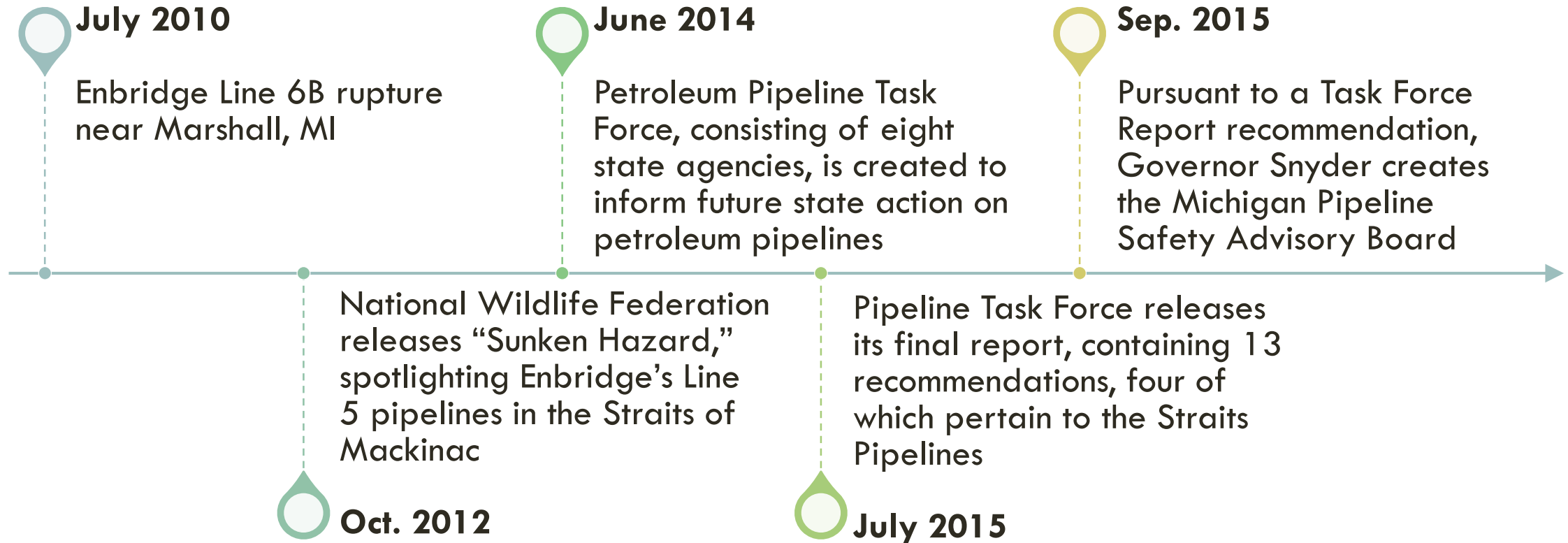


OVERVIEW OF PSAB TO THE U.P. ENERGY TASK FORCE

Sally Talberg, PSAB Member,
MPSC Chairman
July 9, 2019

PRECEDING EVENTS



PIPELINE SAFETY ADVISORY BOARD — A PRIMER

Formed by Executive Orders 2015-12 and 2015-14

16 Board Members, charged with 6 duties:

1. Review information submitted in response to the Task Force Report
2. Advise the Governor on how best to implement the Task Force Report Recommendations
3. Make recommendations regarding emergency response and planning for pipelines
4. Provide recommendations to improve transparency and public engagement on pipelines
5. Identify best practices for pipeline safety and siting
6. Make recommendations on state policies and procedures for pipeline siting

PSAB produced its final report on December 20, 2018, prior to the board's formal dissolution date of December 31.

PSAB MEMBERS AS OF DEC. 2018

Pipeline Safety Advisory Board Members

Current appointees of the governor

Keith Creagh (Co-chair)	Director, Michigan Department of Natural Resources
C. Heidi Grether (Co-chair)	Director, Michigan Department of Environmental Quality
Anne Armstrong Cusack	Executive Director, Michigan Agency for Energy
Tony England	Dean, College of Engineering and Computer Science, University of Michigan-Dearborn
Col. Kristie Kibbey Etue	Director, Michigan State Police (Insp. Chris Bush designee)
R. Craig Hupp	Lawyer, R.C. Hupp Law PLLC
Shawn Lyon	Vice President of Operations, Marathon Pipe Line LLC
Homer A. Mandoka	Chairman, Nottawaseppi Huron Band of the Potawatomi; President of the United Tribes of Michigan
Jennifer McKay	Policy Director, Tip of the Mitt Watershed Council
Jeffrey Pillon	Technical consultant with expertise in petroleum supply, energy assurance and Director of Energy Assurance, National Association of State Energy Officials (NASEO)
Jerome Popiel	Coast Guard Liaison (non-voting member)
Bill Schuette	Michigan Attorney General (Matthew Schneider, Laura Moody, designees)
Brad Shamla	Vice President of U.S. Operations, Enbridge Energy Partners, LLC
Christopher Shepler	President, Shepler's Mackinac Island Ferry Service
Michael Shriberg	Great Lakes Regional Executive Director, National Wildlife Federation
Sally Talberg	Chairman, Michigan Public Service Commission

Past Board Members

Valerie Brader	Former Executive Director, Michigan Agency for Energy; Former Co-chair, Pipeline Safety Advisory Board
Carol Isaacs	Designee, Department of Attorney General
Capt. Chris Kelenske	Designee, Michigan State Police
Dr. Guy Meadows	Professor, Michigan Technological University
Craig Pierson	President, Marathon Pipe Line LLC
John Quackenbush	Former Chairman, Michigan Public Service Commission

TWO STUDIES

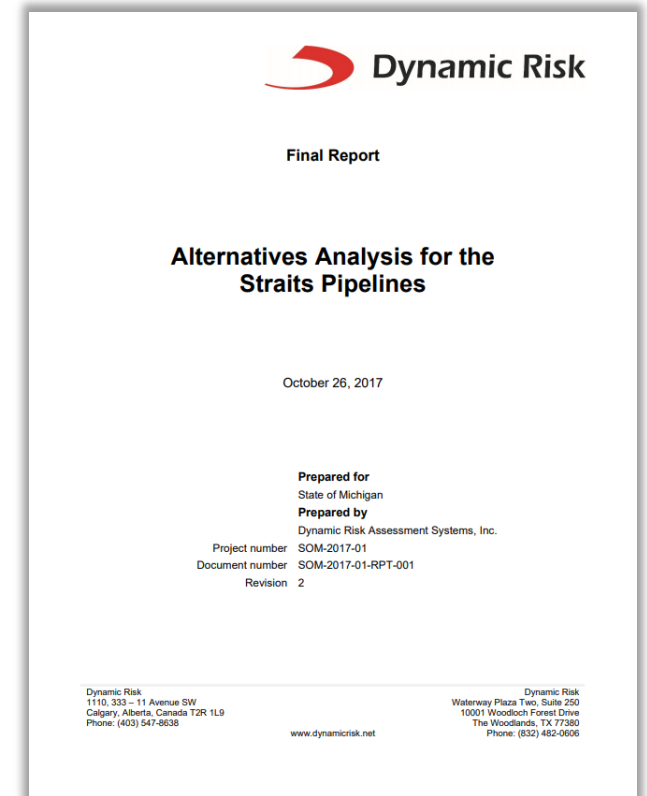
STUDY #1 – ALTERNATIVES ANALYSIS FOR THE STRAITS PIPELINES

Conducted by: Dynamic Risk Assessment Systems

Purpose: Analyze various alternatives to the existing Straits Pipelines

Methodology and Scope:

- ❑ Six different alternatives evaluated
- ❑ Assessed the overall feasibility, costs, market impacts, and various risks associated with each alternative
- ❑ Also analyzed the principal threats to the existing Straits Pipelines and assessed the potential health and safety, economic, and environmental impacts that could result if the Straits Pipelines were to fail



October 2017

ALTERNATIVES 1-3

Alternative	Type	Description	Study Result
Alt 1-N	New-Build Pipeline	Northern Route (via Canada)	Screened Out – Cost Considerations
Alt 1-C	New-Build Pipeline	Central Route (via Kincheloe)	Screened Out – Involves New Great Lakes Crossing
Alt 1-S	New-Build Pipeline	Southern Route (via Chicago)	Analysis Completed
Alt 2	Spare Capacity	Use Non-Line 5 Capacity	Screened Out – Capacity Not Available
Alt 3T	Alternative Modes	Truck	Screened Out – Logistics Not Viable
Alt 3B	Alternative Modes	Barge: Duluth to Port Huron	Screened Out – Cost Considerations
Alt 3R-N	Alternative Modes	Rail: Northern Route (via Canada)	Screened Out – Cost Considerations
Alt 3R-C	Alternative Modes	Rail: Central Route	Screened Out – Involves New Great Lakes Crossing
Alt 3R-S	Alternative Modes	Rail: Southern Route	Analysis Completed

ALTERNATIVES 4-6

Alternative	Type	Description	Study Result
Alt 4A	New Straits Crossing	Line 5 New Trench Crossing	Analysis Completed
Alt 4B	New Straits Crossing	Line 5 New Tunnel Crossing	Analysis Completed
Alt 5	Existing Routing	Line 5 Status Quo	Analysis Completed
Alt 6A	Decommission Line 5	Partial Decommissioning (use non-Straits portion of Line 5 for UP and/or LP service)	Screened Out – Operational and Integrity Issues
Alt 6B	Decommission Line 5	Full Decommissioning	Analysis Completed
Alt 6B-UP	Decommission Line 5	UP Propane Supply to Rapid River via Truck/Rail	Analysis Completed
Alt 6B-LP-R	Decommission Line 5	LP Oil Production to Marysville from Lewiston via Rail	Screened Out – No Available Rail Infrastructure
Alt 6B-LP-T	Decommission Line 5	LP Oil Production to Marysville from Lewiston via Truck	Analysis Completed

ADDITIONAL FINDINGS

- Levelized cost increases for the various alternatives range from \$0.009/bbl (new trenched crossing) to \$6.492/bbl (rail transport) compared to the status quo.
- For Michigan, a Line 5 closure is estimated to result in an increase in costs for motor fuels of 2.13 cents/gal, equating to increased consumer costs of \$128 million per year.
- The predominant threat to the Straits Pipelines was assessed to be anchor hooking, and the overall probability of the Straits Pipelines failing prior to 2053 is 1.6%
- The study evaluated four options to supply the U.P. with propane in the absence of Line 5. The lowest cost option was estimated to increase U.P. propane supply costs by \$0.10/gal, while the most expensive option increased costs by \$0.35/gal.

U.P. PROPANE ALTERNATIVES

Cost Considerations:

- Market Price Adjustment



- Transport Costs (Truck & Rail)



- Current Pipeline Tariffs



- Incremental Cost Adjustment

Table 4-2: Incremental Cost Summary – Average for November – March

Alternate Supply Option	Market Price Adjustment \$/gal	Rail Costs \$/gal	Trucking Costs \$/gal	Adjustment for Current Applicable Tariff \$/gal	Total Adjusted Incremental Costs \$/gal
Kincheloe, MI Rail to Kincheloe from western Canada, truck to Rapid River	N/A	0.31	0.06	-0.08	0.29
Sarnia, ON Truck from Sarnia to Rapid River	0.29	N/A	0.14	-0.08	0.35
Owen, WI Rail to Owen from Conway, truck from Owen to Rapid River	0.11	0.17	0.09	-0.08	0.29
Superior, WI Truck from Superior to Rapid River	N/A	N/A	0.11	-0.015	0.10

TWO STUDIES

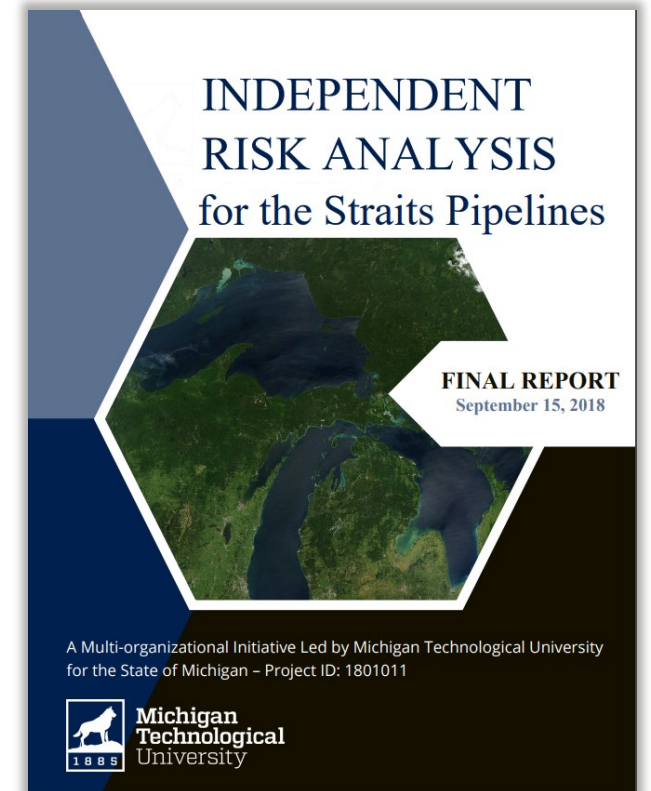
STUDY #2 – RISK ANALYSIS FOR THE STRAITS PIPELINES

Conducted by: A multi-organizational consortium led by Dr. Guy Meadows of Michigan Technological University

Purpose: Analyze the duration, magnitude, and assorted impacts associated with a “worst case” spill

Methodology and Scope:

- Define “worst case” spill scenarios
- Model the fate and transport of released product
- Analyze the implications for spill response and cleanup
- Assess the potential public health, ecological, and other broader impacts
- Compute the total potential liability of a worst case spill



September 2018

SELECTED FINDINGS FROM THE RISK ANALYSIS







- An unmitigated release of 58,000 bbl of oil, caused by a double rupture of the Straits Pipelines and failure of the primary and secondary safety valves, would yield an estimated \$1.88B in total liability.
- Of this figure, approximately \$500 million pertains to cleanup costs, \$460 million for recreational damages, and \$680 million for lost income to local businesses.
- In total, more than 400 miles of shoreline *could be* impacted, while 47 wildlife species of concern and 60,000 areas of unique habitat *could be* at risk.
- The overall risk of fatalities or short-term or long-term human health effects from a spill are relatively low, and the larger concern is adverse impacts to mental health.

MICHIGAN PETROLEUM PIPELINE TASK FORCE RECOMMENDATIONS

Straits of Mackinac		Status
1.	Prohibit the transportation of heavy crude oil through the Straits pipelines.	✓
2.	Require an independent risk analysis and adequate financial assurance for the Straits pipelines.	✓
3.	Require an independent analysis of alternatives to the existing Straits pipelines.	✓
4.	Obtain additional information from Enbridge.	C
Statewide		Status
1.	Coordinate mapping of existing pipelines among state agencies.	X
2.	Ensure state agencies collaborate on emergency planning and spill response.	C
3.	Ensure coordinated emergency response training exercises and drills.	C
4.	Ensure regular state consultation with the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) on hazardous liquid (including petroleum) pipelines.	C
5.	Consider legislation requiring state review and approval of oil spill response plans, improved spill reporting, and more robust civil fines.	X
6.	Evaluate whether to establish a hazardous liquids pipeline safety program in Michigan.	✓
7.	Consider legislation or rulemaking to improve siting process for new petroleum pipelines.	X
8.	Consider issuing an executive order creating an advisory committee on pipeline safety.	✓
9.	Create a continuing petroleum pipeline information website.	✓

✓ = Complete; X = In Progress; C = Ongoing

PSAB CHARGES

Executive Order 2015-14 Charges	Status
1. Review and make recommendations for statutory, regulatory, and contractual implementation of the <i>Michigan Petroleum Pipeline Task Force Report</i> .	
2. Identify areas of best practice in pipeline safety and siting across the United States that could be implemented in Michigan.	
3. Review and make recommendations on state policies and procedures regarding emergency response and planning for pipelines.	
4. Review and make recommendations on state policies and procedures regarding pipeline siting.	
5. Review information submitted to the state in response to the <i>Michigan Petroleum Pipeline Task Force Report</i> .	
6. Provide recommendations to increase transparency and public engagement on pipelines.	

✓ = Complete; ✕ = In Progress; C = Ongoing