



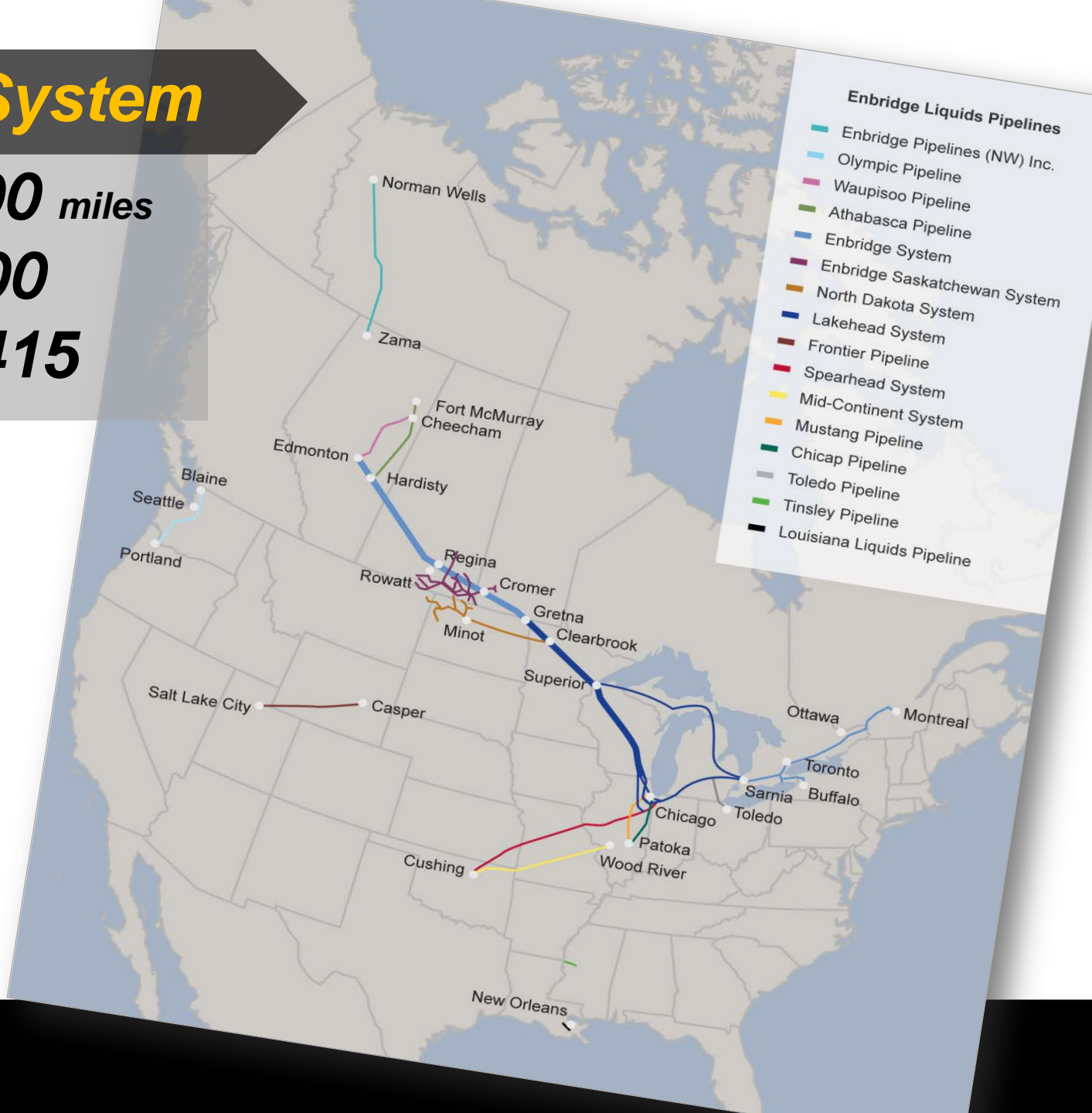
Crack Management – It's a Program
Sean Keane

Pipeline System

Pipeline **15,800** miles

Pump Stations **200**

In-Service Tanks **415**



On Monday, July 26, 2010 a leak was detected near the Marshall, Michigan pipeline pumping station. This would result in the release of approximately 20,000 barrels of crude oil spilling into the Kalamazoo River. This event has profoundly evolved our views on safety culture.

Source area



Kalamazoo River



2,500 people take part in massive cleanup effort



Clean up progresses for two years



Wildlife rehabilitation





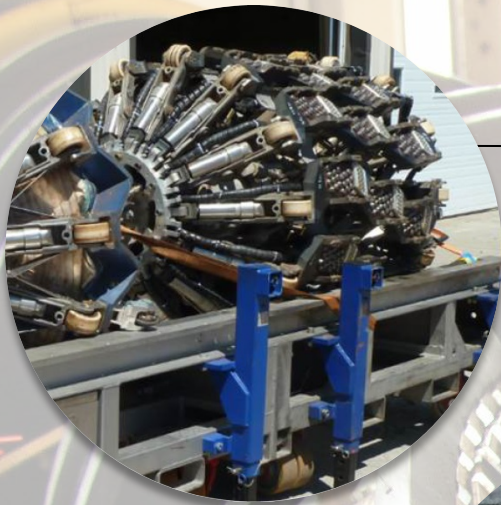
On June 12, 2012 – A river returns to its people.

“We will remain on site and we will do whatever is required, in the community and on clean-up, to meet our obligations.”

We’ve learned Crack Management is a Program

Layers of Defense

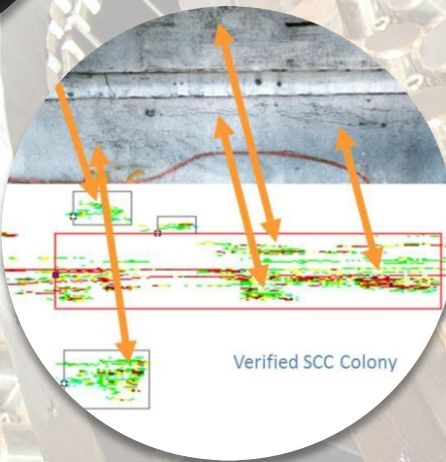




98% of crack susceptible lines inspected since 2010

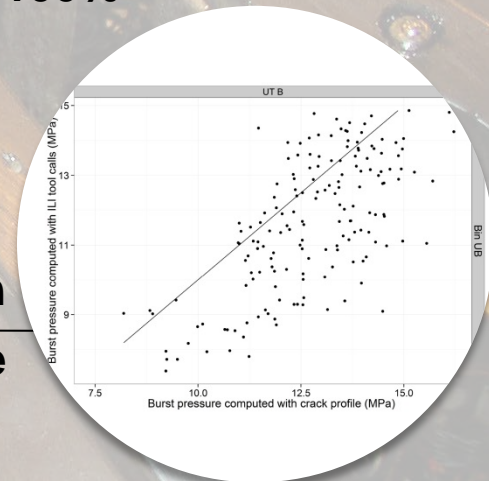
We have the technology

Since 2010, tools are more advanced



POD is approaching 100%

**Industry collaboration
Largest body of knowledge**

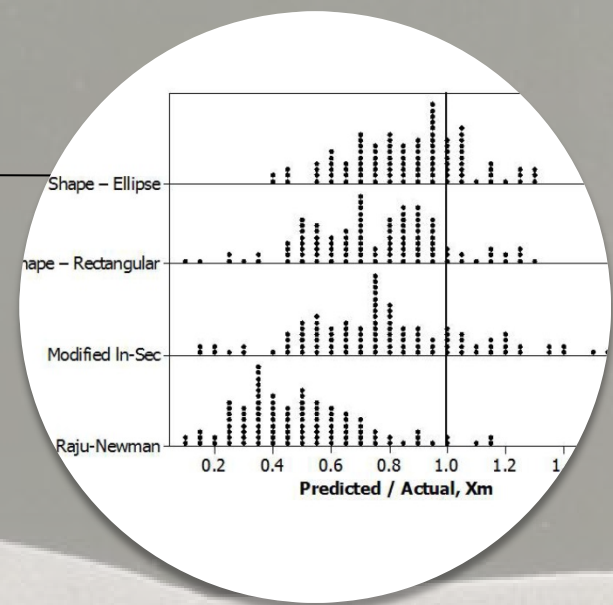


Crack ILI is one of many layers of defense

We have the data & analytics

Heightened data management is essential and Enbridge has invested heavily in this area.

Understanding uncertainty



Integration into engineering assessments



Variety of strategies

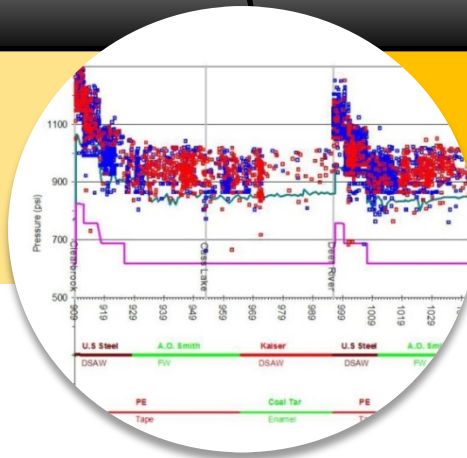
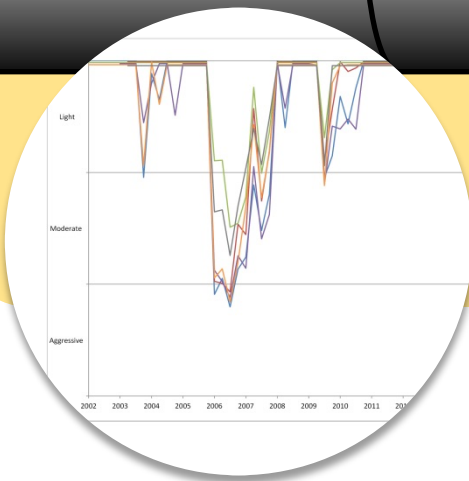
Long-term infrastructure management

Design

Construction

Operation & Maintenance

Decommission



Pipeline Integrity

Crack management

- It's a program
- Technology selection
- Field validation
- Reliability
- Data integration

It's achievable

- Best practice
- Regulations
- Industry sharing

