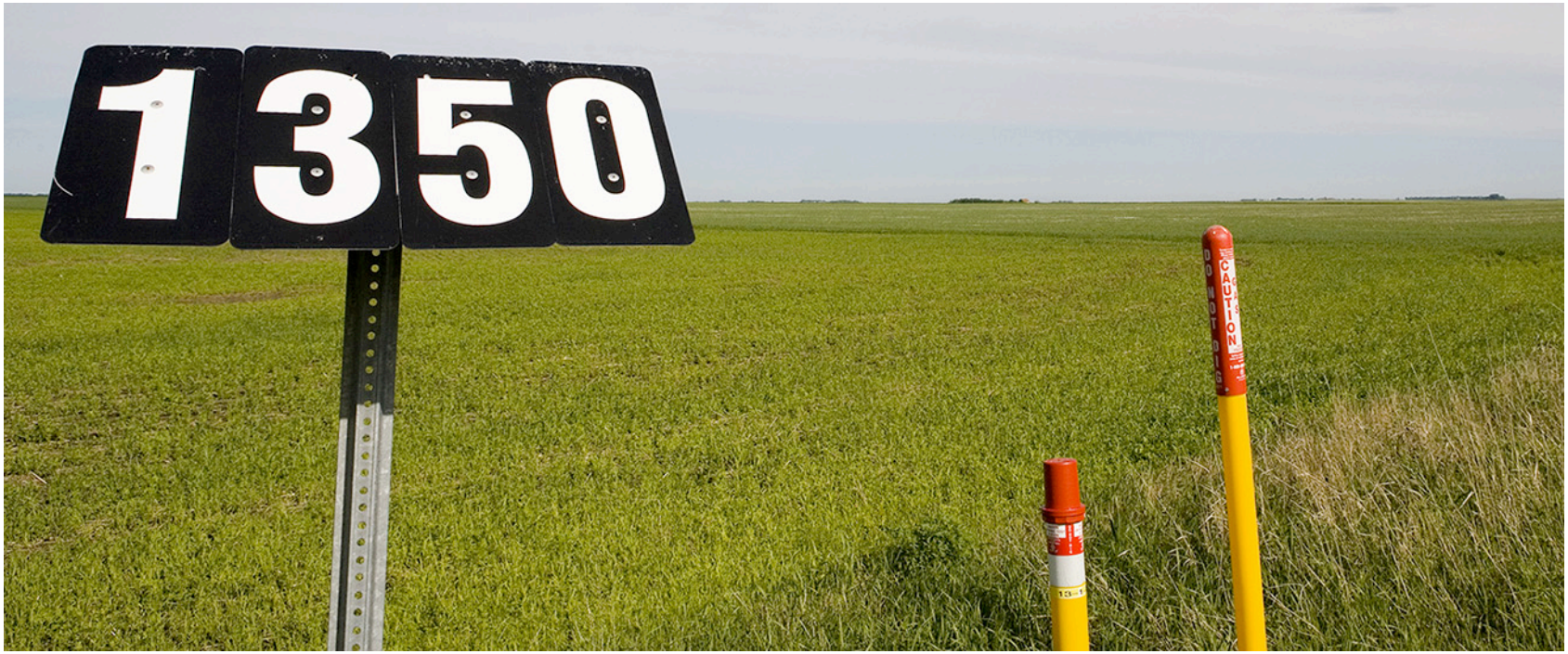


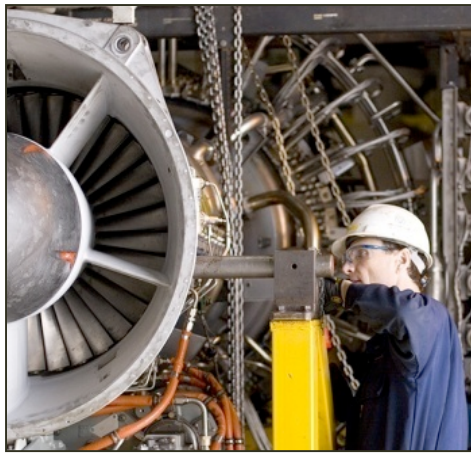
Government/Industry Pipeline R&D Forum June 24 - 25, 2009

A Pipeline Operator's Perspective Anomaly Characterization

Arti Bhatia, Alliance Pipeline

ALLIANCE® pipeline

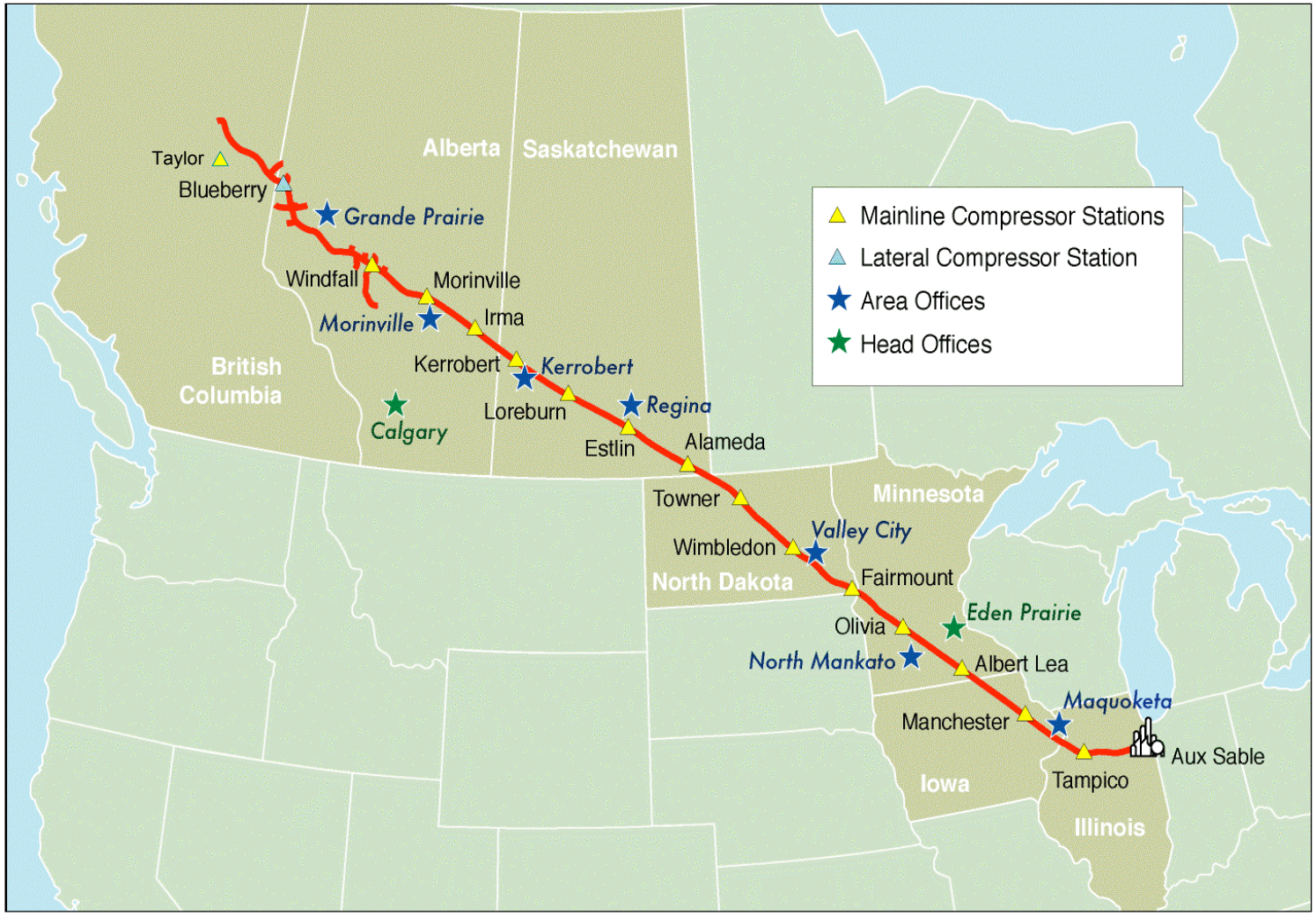
The Alliance Pipeline System



- Commenced operations on December 1, 2000.
- A high pressure, high energy gas, 2300 mile (3,686 kilometre) pipeline system from northeastern British Columbia to Chicago “hub” where it terminates and connects to other pipeline systems that carry natural gas to other markets and the heavily populated northeastern United States.
- In Canada, the system primarily consists of 211 miles of 42-inch and 758 miles of 36-inch CSA Grade 483 (X-70 grade) steel pipe. In the United States, the system consists of 888 miles of 36-inch (X-70 grade) steel pipe.
- Connects to natural gas liquids (NGLs) extraction and fractionation facilities near Chicago; owned and operated by Aux Sable Liquid Products.

ALLIANCE® pipeline

The Alliance Pipeline System



Run to Run Comparisons Using the Same Technology

- ILI baseline of entire US system from 2002 to 2005. Restarted the program in 2008.
- 36 inch mainline targeted completion in 2010/2011. Two runs within 8-9 years.
- BJ High Resolution integrated Tri-axial Magnetic Flux Leakage (MFL) Tool with inertial capabilities (Vectra).
- BJ High resolution Caliper Tool (Geopig).
- Pipeline Centreline analysis benefit with inertial data, reviews line lowering, bending strain.
- Number of reported calls in the two runs, advances ILI reviews past the spreadsheet.

ALLIANCE® pipeline

Current Benefits of Advanced Tool Design for Pipeline Operators

- Dent sizing with MFL tools which is based on a specific tool and sensor design
- Mechanical damage characterization with MFL:
  - Wrinkles, buckles and kinks

Interactions with Secondary Features and Assess Combined Influences

- Metal loss in dents
- Dents on girth welds
- Strain in dents
- Cracks in dents
- Axial loads and corrosion

Future Inspection Tools and Sensors

- Development of combination tools with multipurpose:
  - Coating disbondment
  - Axial loads
  - Measurement of pipe grades
  - Induced current
  - Mill features
  - Features in seam welds, girth welds