National Energy Board

Office national de l'énergie

The NEB's History and Oversight of Seam Weld Failures

Managing Challenges with Pipeline Seam Welds

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National Energy Board

Canada

Today's Discussion

- Introduction to the NEB
- Analysis of Seam Weld Incidents
- Action taken by the NEB
- Ongoing NEB oversight of seam weld integrity
- Conclusion

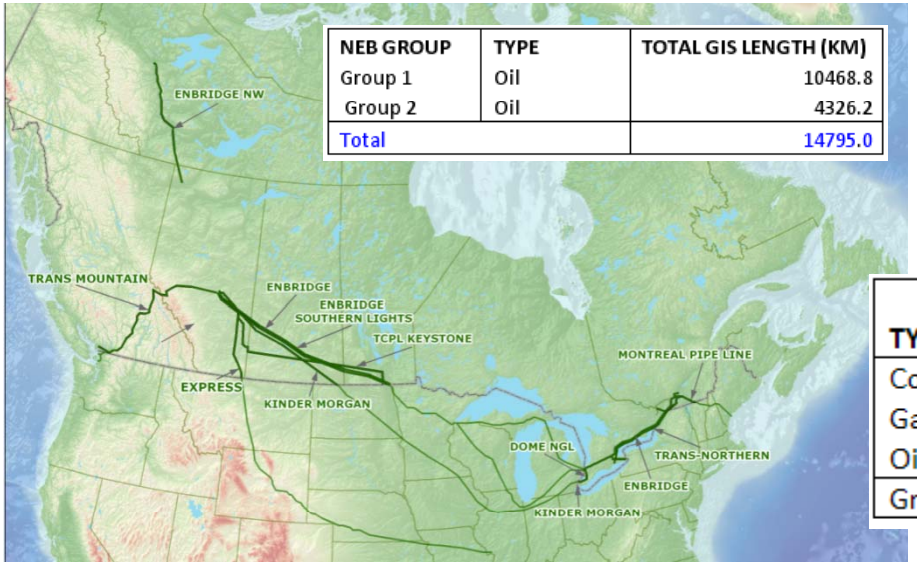
The views, judgments, opinions and recommendations expressed in this panel do not necessarily reflect those of the National Energy Board, its Chairman or members, nor is the Board obligated to adopt any of them

NEB Mandate

- The NEB Regulates:
  - The construction and operation of:
    - Inter-provincial and international pipelines
    - International and designated inter-provincial power lines
  - Oil and gas exploration and production in Canada's North and most offshore areas
  - The export and import of oil, gas, natural gas liquids, and electricity
  - Pipeline traffic, tolls and tariffs

NEB Regulated Oil & Gas Pipelines

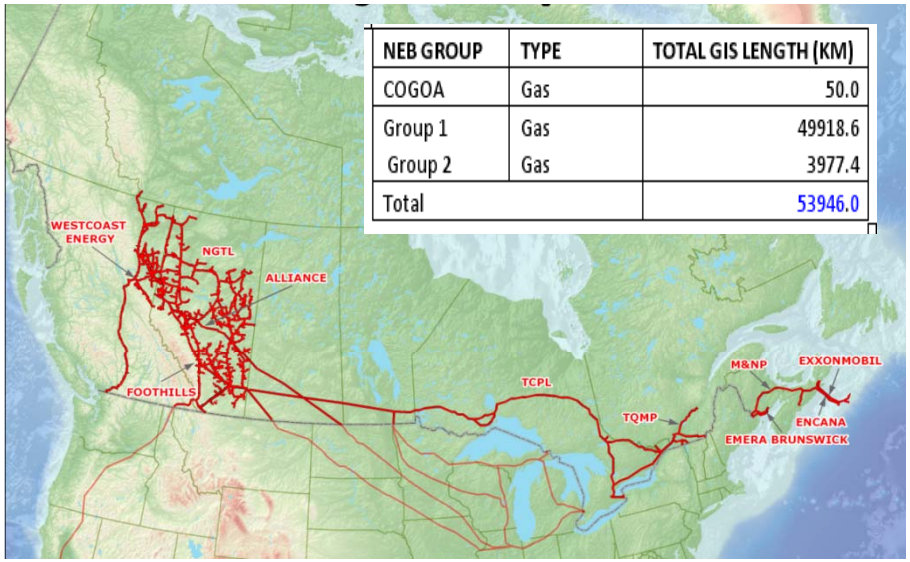
- Oil Pipelines



NEB GROUP	TYPE	TOTAL GIS LENGTH (KM)
Group 1	Oil	10468.8
Group 2	Oil	4326.2
Total		14795.0

TYPE	TOTAL GIS LENGTH (KM)
Commodity	92.8
Gas	53946.0
Oil	14795.0
Grand Total	68833.9

- Gas Pipelines



NEB GROUP	TYPE	TOTAL GIS LENGTH (KM)
COGOA	Gas	50.0
Group 1	Gas	49918.6
Group 2	Gas	3977.4
Total		53946.0

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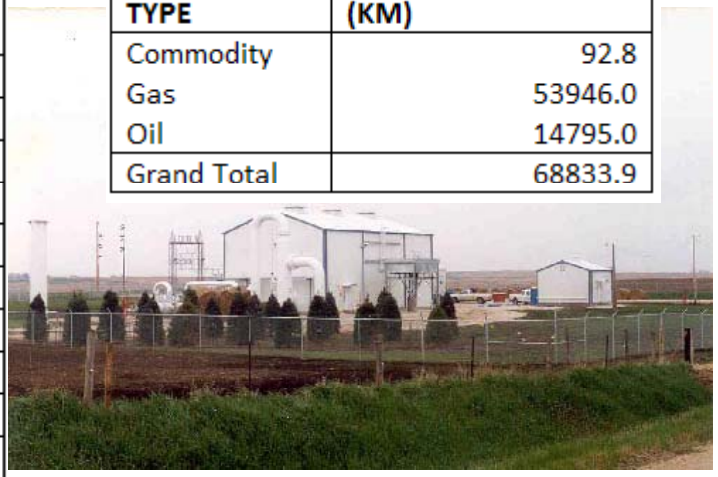
More than Pipelines

Facility Type	#
Booster Pump	3
Cavern	3
Compressor Station	168
Crossover Assembly	56
Custody Transfer Station	1
Delivery Point	5
Delivery Point / Sales Tap	84
Gas Plant	10
Meter Station	1569
Odourant Station	1
Pump Station	95
Receipt Point	6
Regulator Station	1
Relief Station	1
Sales Tap	10
Storage Facilities	1
Tank Farm	1
(blank)	13
Grand Total	**2028**

TYPE	TOTAL GIS LENGTH (KM)
Commodity	92.8
Gas	53946.0
Oil	14795.0
Grand Total	68833.9



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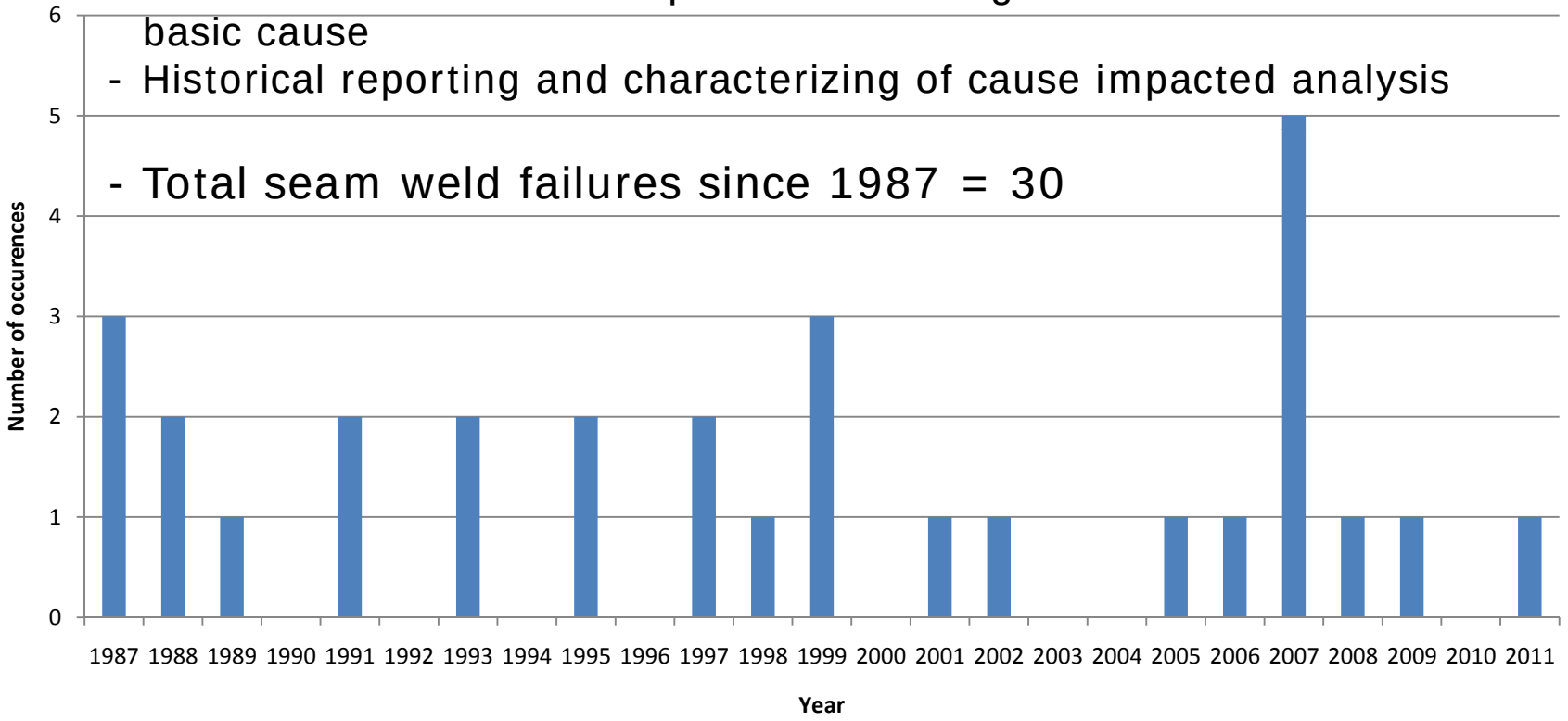
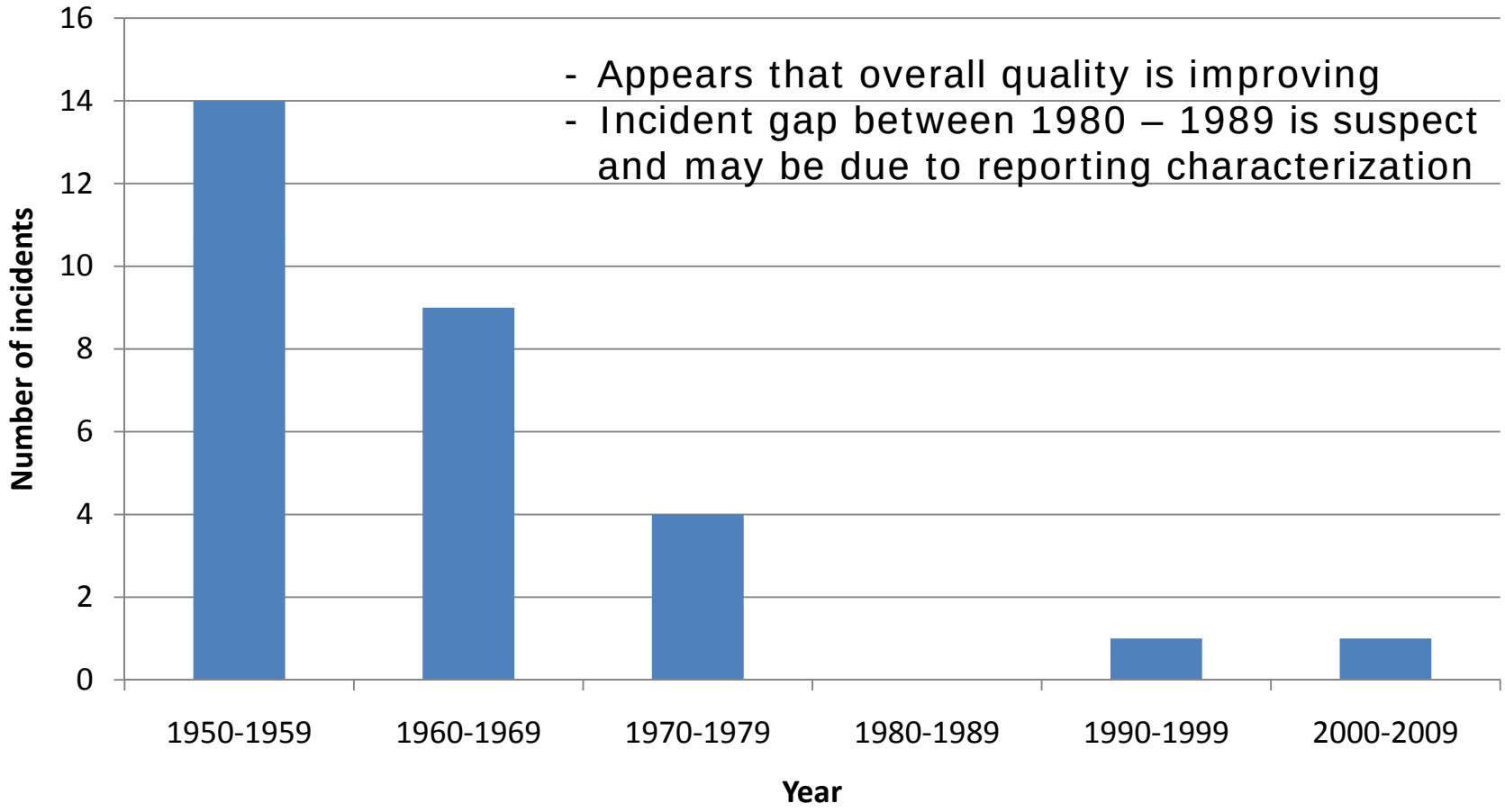
Long seam weld failures by year

- Seam included straight and spiral
- Failures defined as leaks or ruptures
- Includes failures where imperfection in long seam was immediate or basic cause
- Historical reporting and characterizing of cause impacted analysis

- Total seam weld failures since 1987 = 30

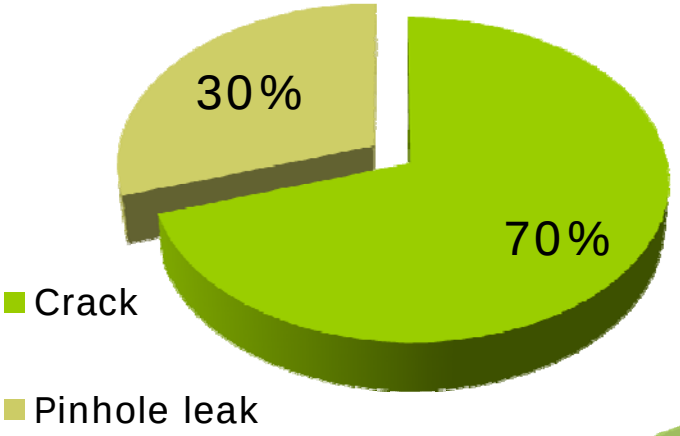


Seam weld failures vs Year of pipe installation

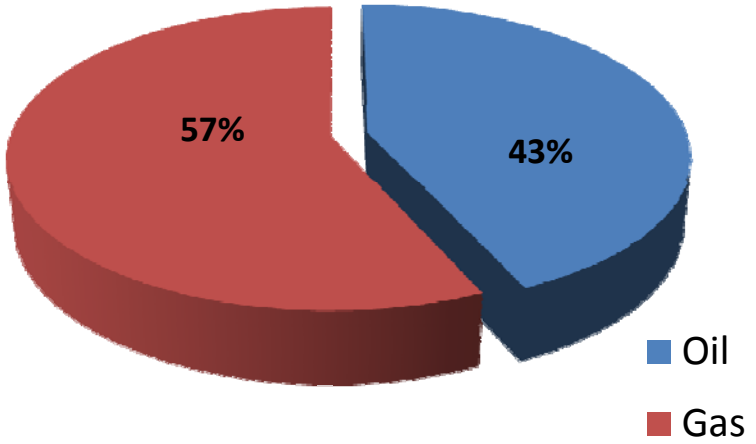


Comparison of Seam Weld Failures

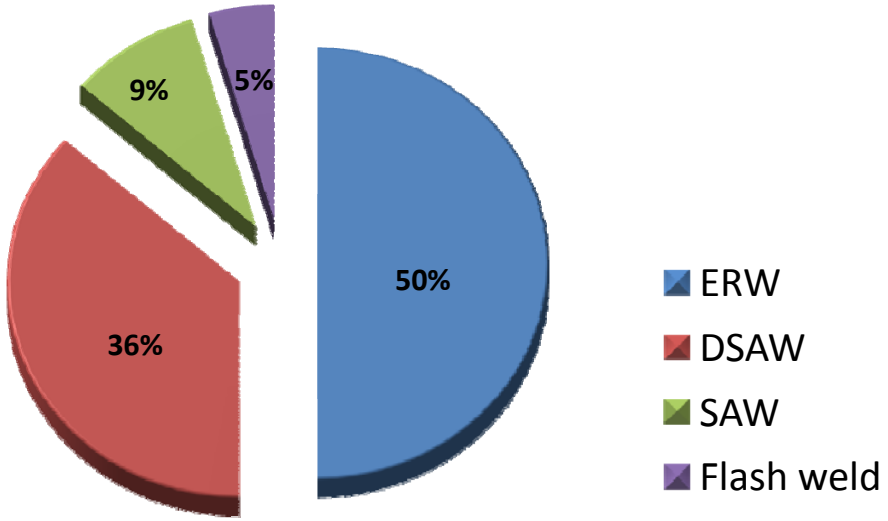
- Type of Seam Weld Failure



- Type of Product Transported



- Type of Seam Weld



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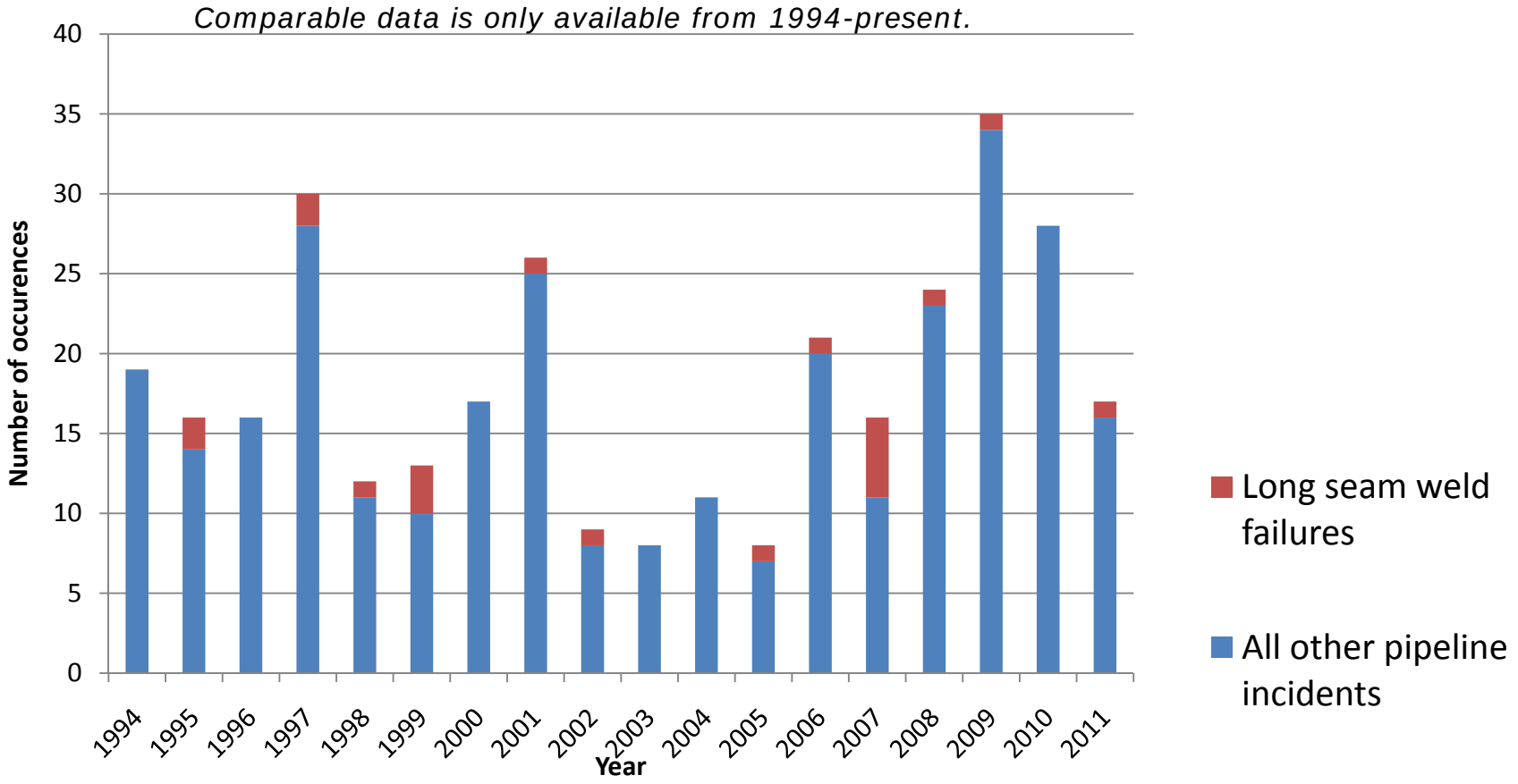
Long seam weld failures vs. all pipeline incidents



Total number of pipeline incidents since 1994 = 306
Total number of long seam failures since 1994 = 20

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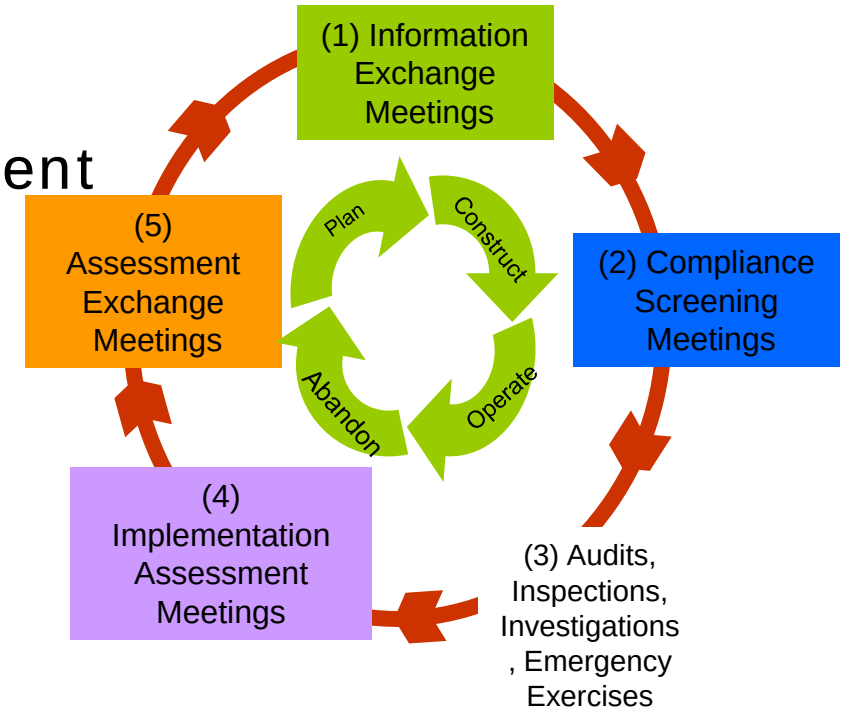
Actions taken by NEB

- Historically numerous internal reports were completed that examined long seam failures
- Seam failures are a concern but not the largest contributor to failures on NEB regulated pipelines
- Reports identified that ERW seams had more quality issues
- Low frequency and high frequency ERW both had quality issues
- Recommendations that seam quality requires continuous monitoring
- Current regulatory and standards requirements for integrity management programs that examines all hazards should
- Regulatory and standards requirements for Management Systems should continue to improve seam quality

Oversight of Seam Weld Issues

Compliance Verification Plan

- Compliance Meetings
  - Information Exchange
  - Compliance Screening
  - Implementation Assessment
  - Assessment Exchange
- Inspections
- Audits
- Investigations



What is next?

- Still observing seam weld quality issues on new pipe manufacturing – not acceptable
- Continue reinforcing benefits of Quality Management Systems to improve quality during manufacturing
- Issued Notice of Proposed Regulatory Change (NOPRC) requiring companies to have Management Systems
- Revising existing OPR-99 regulations
- Working through Canadian Standards to review adequacy of existing requirements and if changes are needed

Questions?