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Towngas

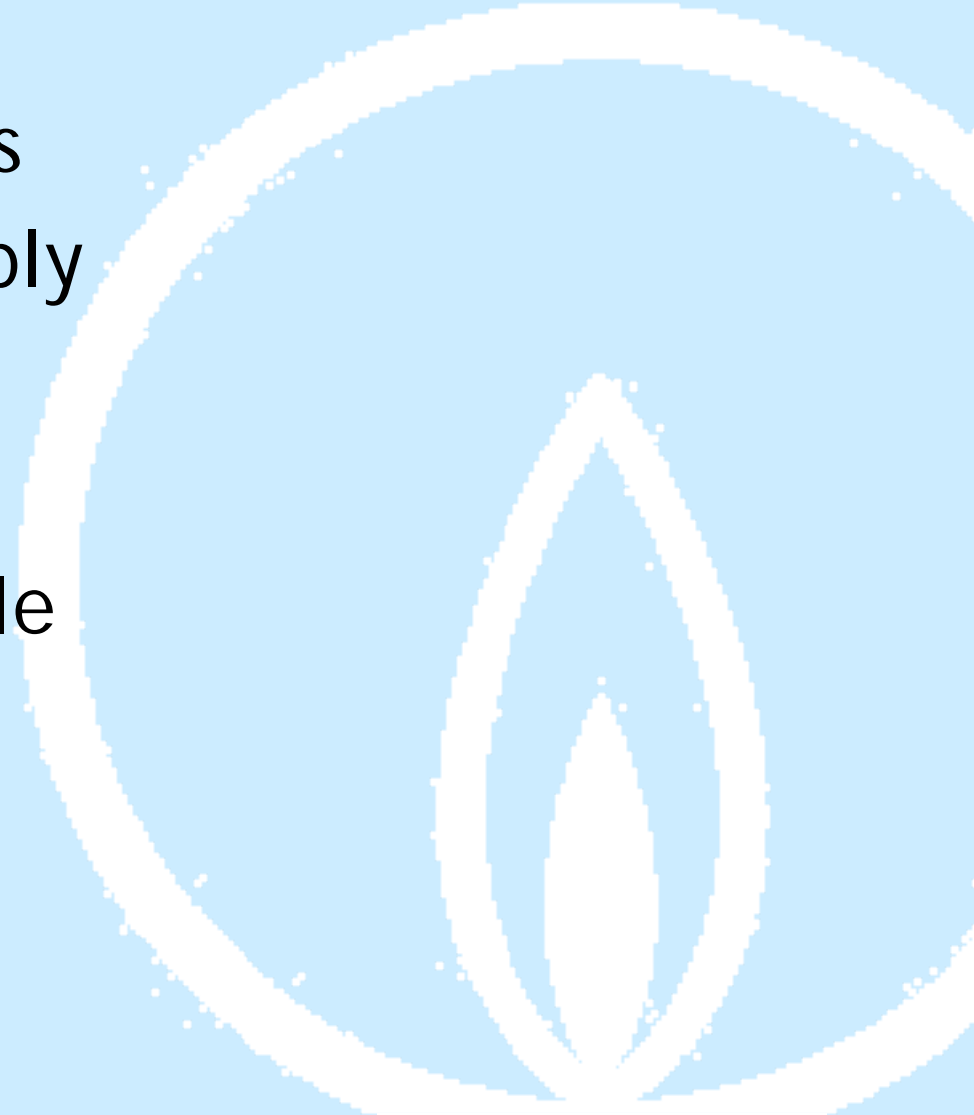
Intelligent Pigging  
Towngas' Health Check for Its  
Transmission Pipelines

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# Towngas' Mission

To provide our customers with a safe, reliable supply of gas and the caring, competent and efficient service they expect, while working to preserve, protect and improve our environment.



# Towngas' High & Intermediate Pressure Transmission Network



# Transmission Pipeline Failure

August 2000 Carlsbad, New Mexico, US

- 1950's pipeline, 30" diameter, 675psi (46bar)
- Cause: Internal corrosion
- 12 people killed at camping site



# Commonly Accepted Pipeline Integrity Assessment Methodologies

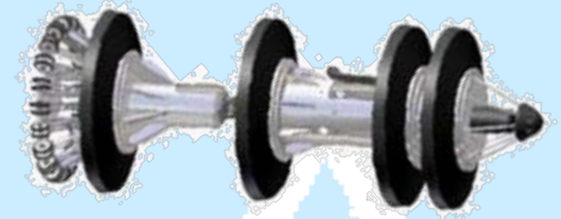
- Internal inspection devices
  - intelligent pigging
- External inspection techniques + Direct assessment
- Hydrostatic test

# PIG?

- Why is it called a PIG?
  - Sounds like a pig screeches?
  - ... A "Pipeline Inspection Gauge"

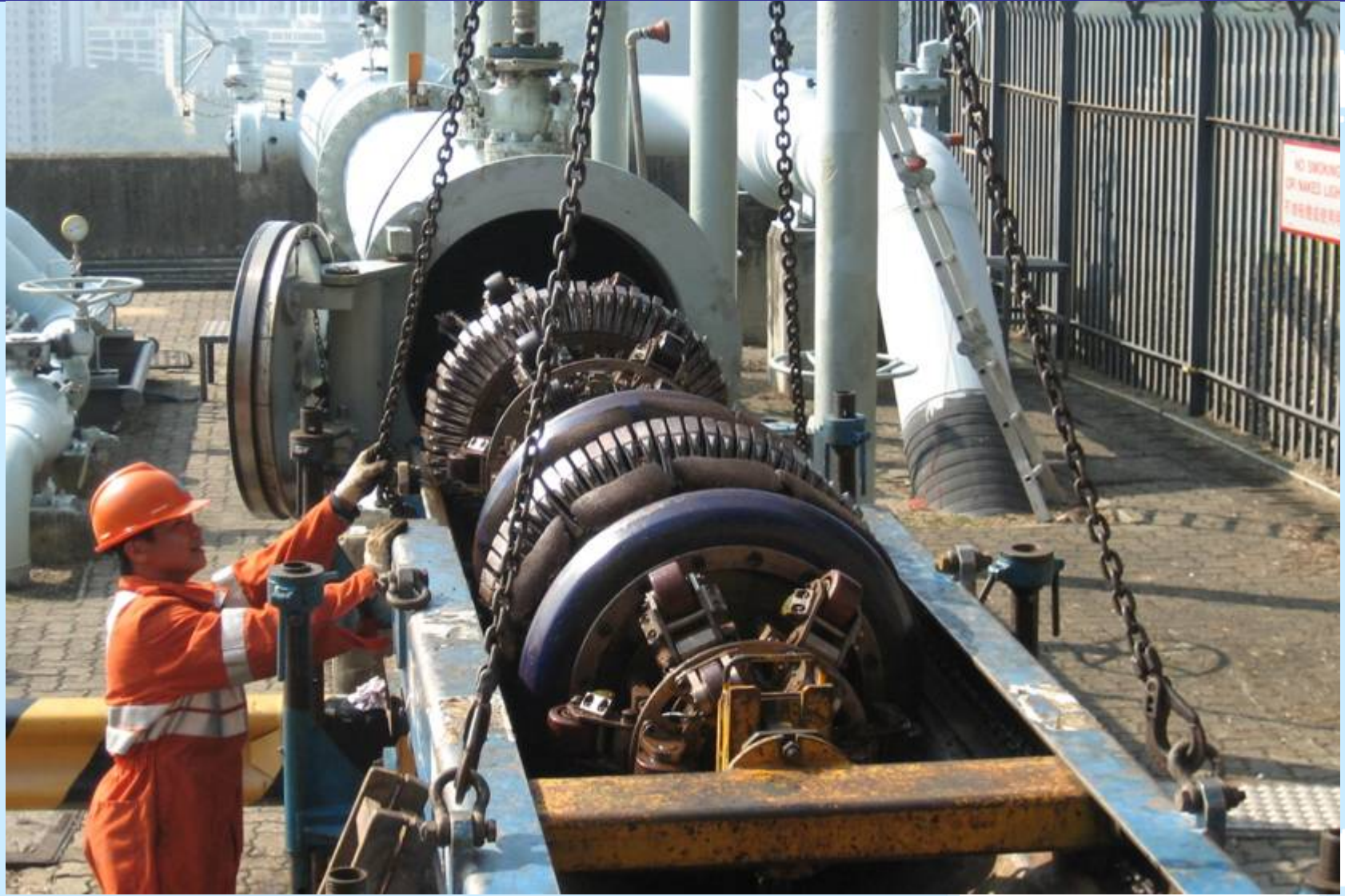
# Intelligent Pigging

- A wide range of inspection tools for:
  - Diameter / geometry measurements
  - Pipeline profile
  - Leak detection
  - Temperature / pressure recording
  - Metal-loss / corrosion detection
  - Crack detection
  - etc.



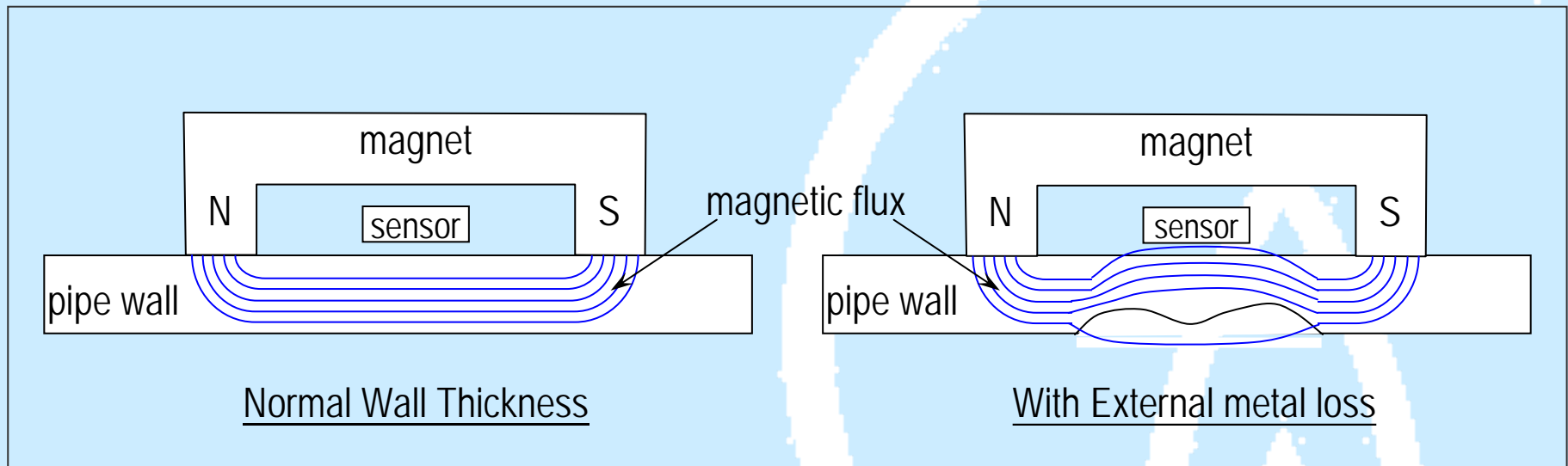


# "The PIG"

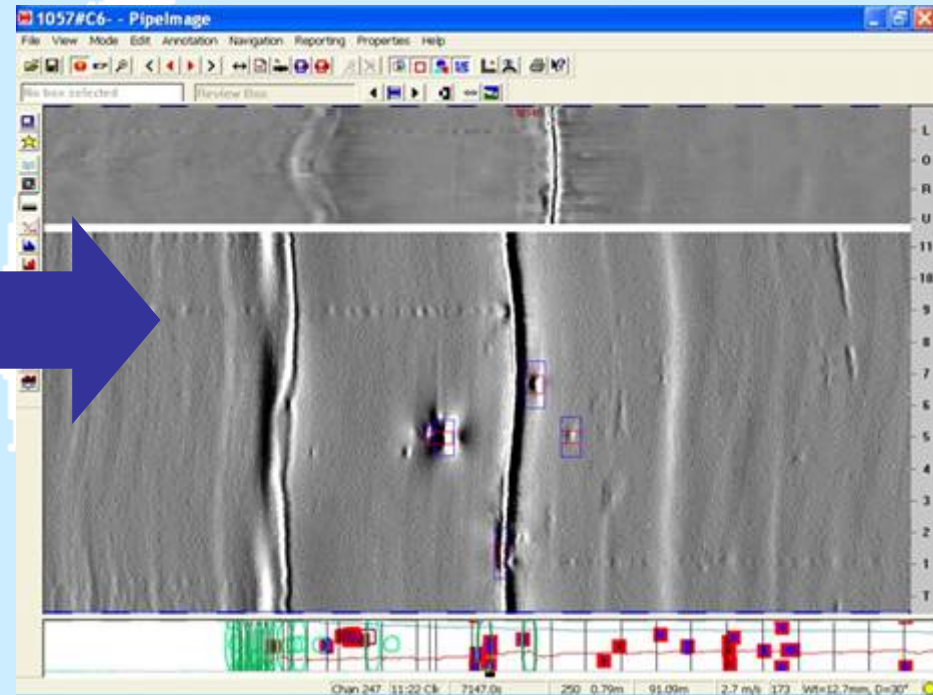
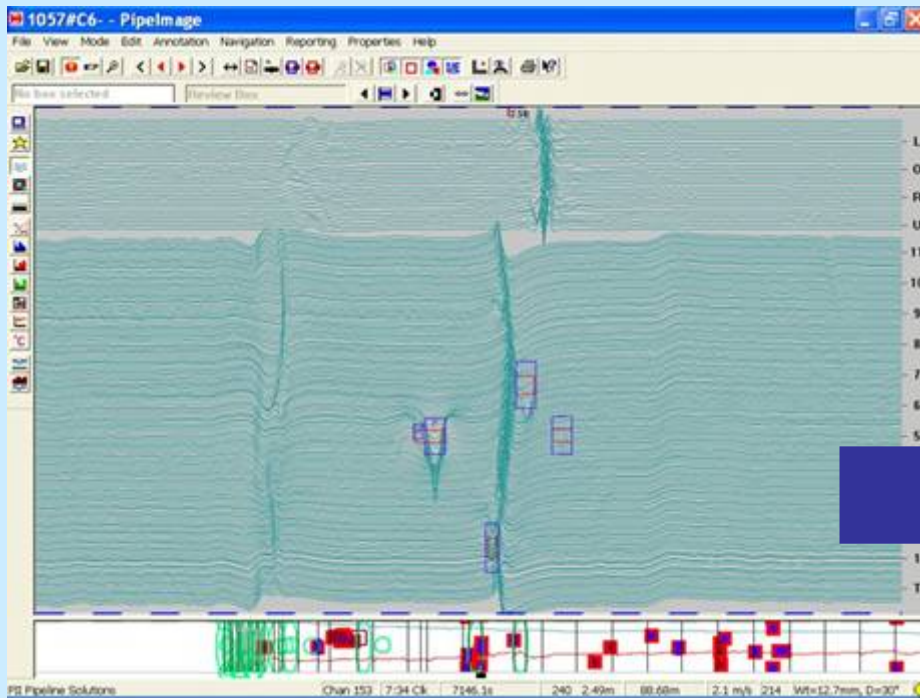




# Magnetic Flux Leakage Technology



# Visualizing Anomalies



# Verifying Anomalies Detected

- Example of Site Measurements

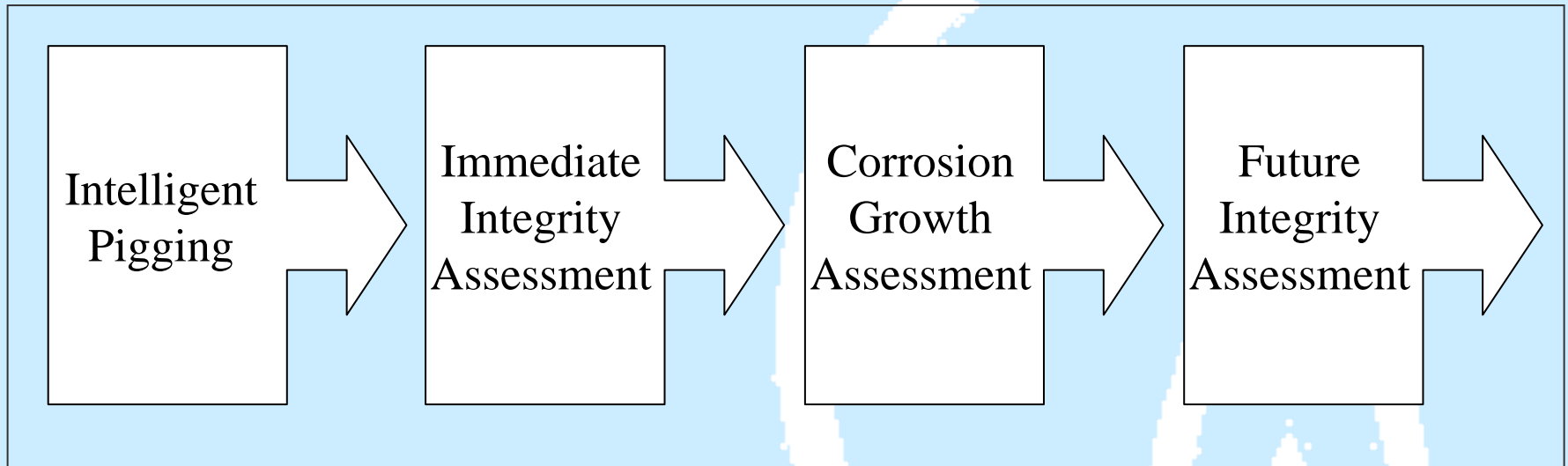


External Corrosion

Close / Touching Metal Object

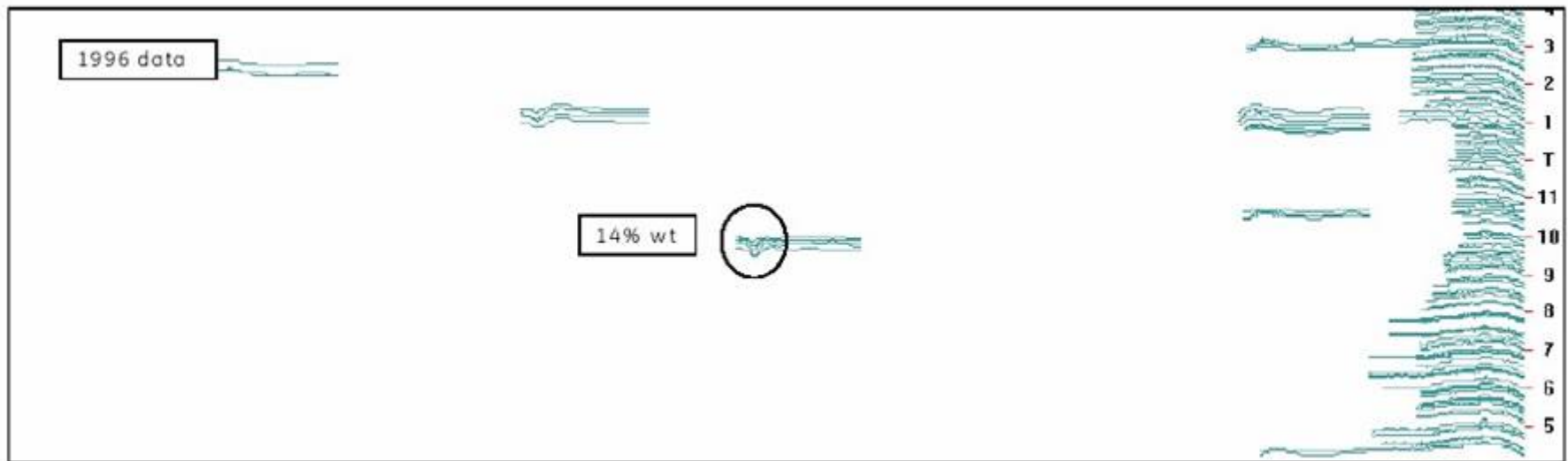
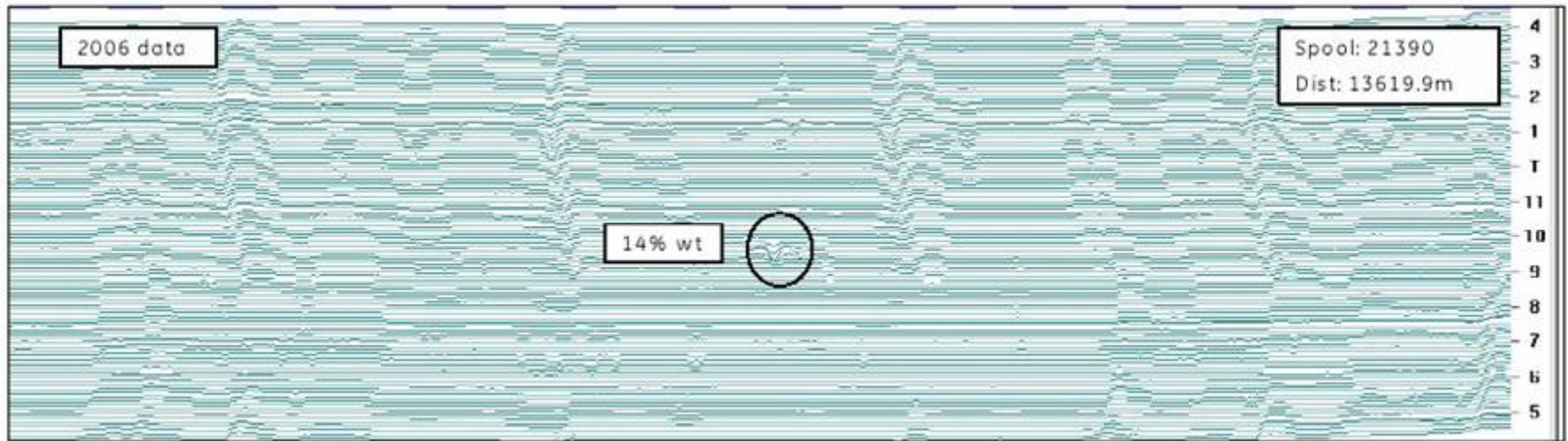


# From Intelligent Pigging to Integrity Assessment



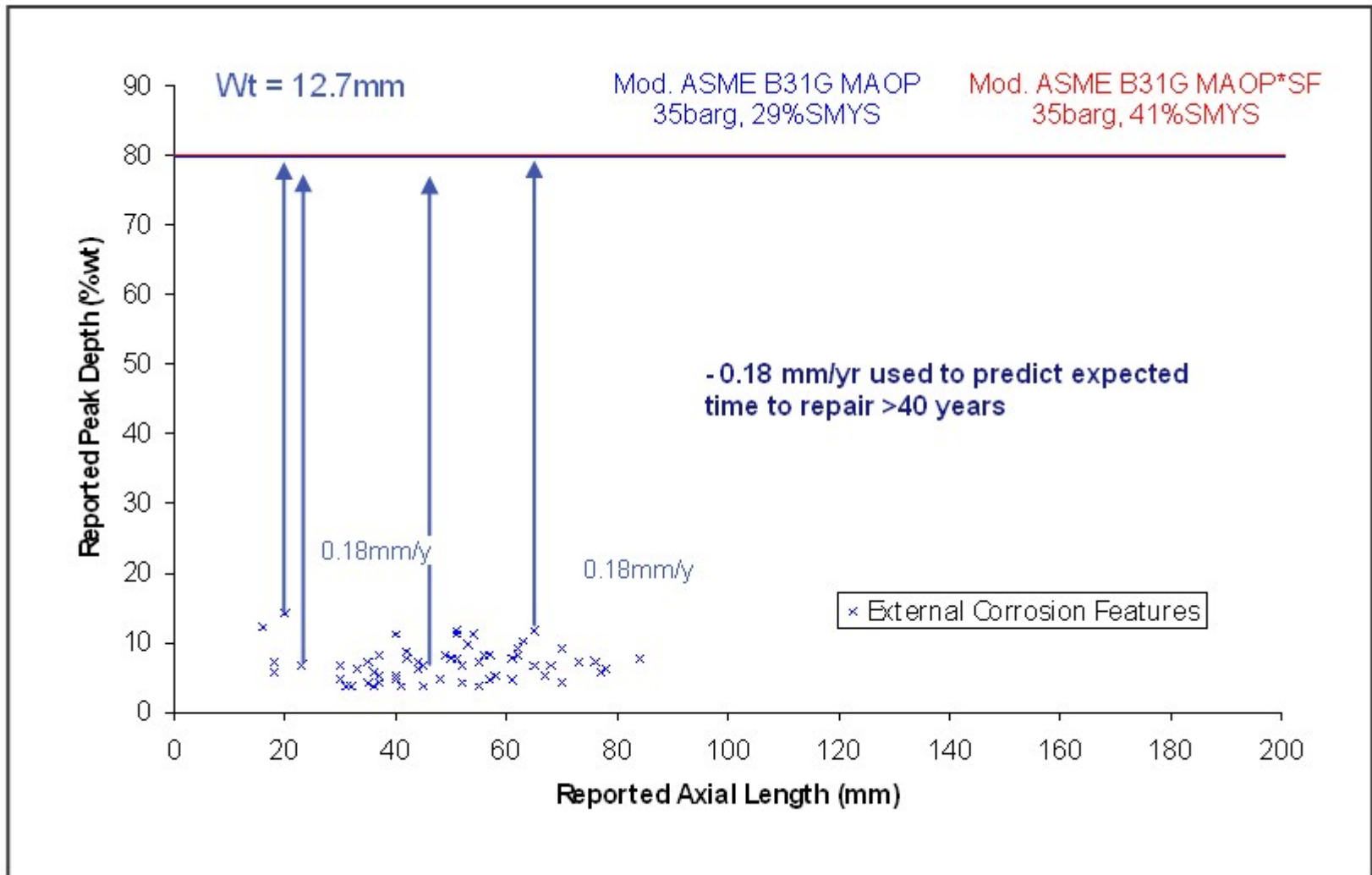


# Future Integrity Assessment Determining Corrosion Rate





# Future Integrity Assessment Determining Maintenance Interval



# Conclusion

- MFL Intelligent Pigging - a good tool to assess the current condition of steel pipeline
- Useful information revealed by making use of consecutive inspection results, integrity assessments and other available pipeline data
- Informed decision on maintenance schedule and re-inspection interval made using such a risk-based approach



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