

OPS Public Meeting on Pipeline Operator Use of ILI Devices

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Pipeline Inspection Services

Operational Considerations, Tool Selection & Technology Application

- In Line Inspection is an optimized means of managing pipeline integrity
- *“How do we reduce errors & miscalls?”*
- Improved planning and understanding will generate improved results.

Operational Considerations

- Pipeline Questionnaire
 - Why are you running the ILI tool?
 - Pipe Characteristics / Coating
 - Pipe Grade, Weld type, Valves & Fittings
 - Pipeline History
 - Operational factors
 - Product type, Product velocity, cleanliness
 - Environmental
 - Slope stability, Geotechnical

Tool Selection & Technology Application

- Primary and Secondary inspection goals
- NACE RP0102-2002 & 35100, API 1163

MFL example:

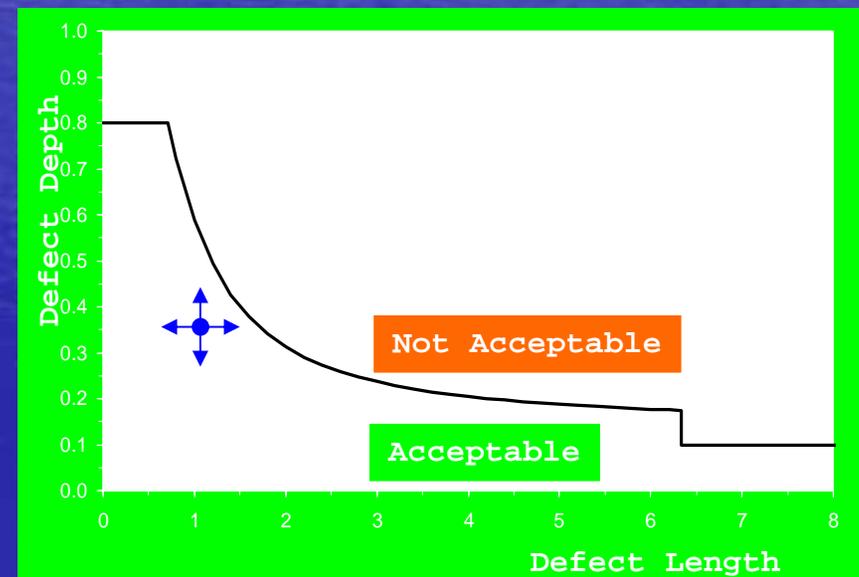
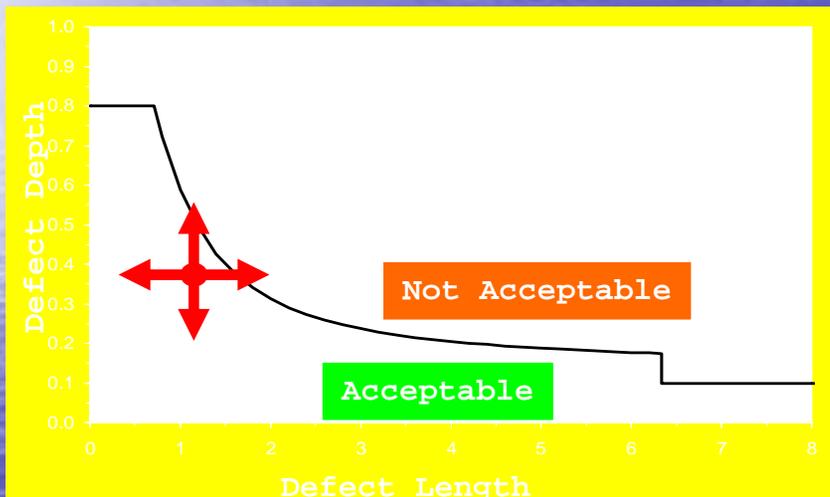
- "High Res" vs "Low Res"
 - Not as clear anymore (high, medium & low)
- Is the distinction of High Res, magnetic saturation or does it also include:
 - Sensor Type (Hall Effect or Coils)
 - # of axes (Single, Dual or Tri-axial)
 - # of sensors
- Understand what you want to inspect and then understand the capabilities of service providers and their tools to achieve desired inspection results.

Tool Selection & Technology Application

- Understand potential sources of error from ILI
 - Feature Sizing (Performance Specification)
 - Positional Errors
 - GPS from Inertial Mapping Unit (IMU) or Chainage
 - Type of excavation (bell hole or entire joint)
 - Product type and velocity effects on data
 - Speed Control / Line cleanliness
- Is the inspection tool capable of finding what you are looking for?

Sizing Tolerances

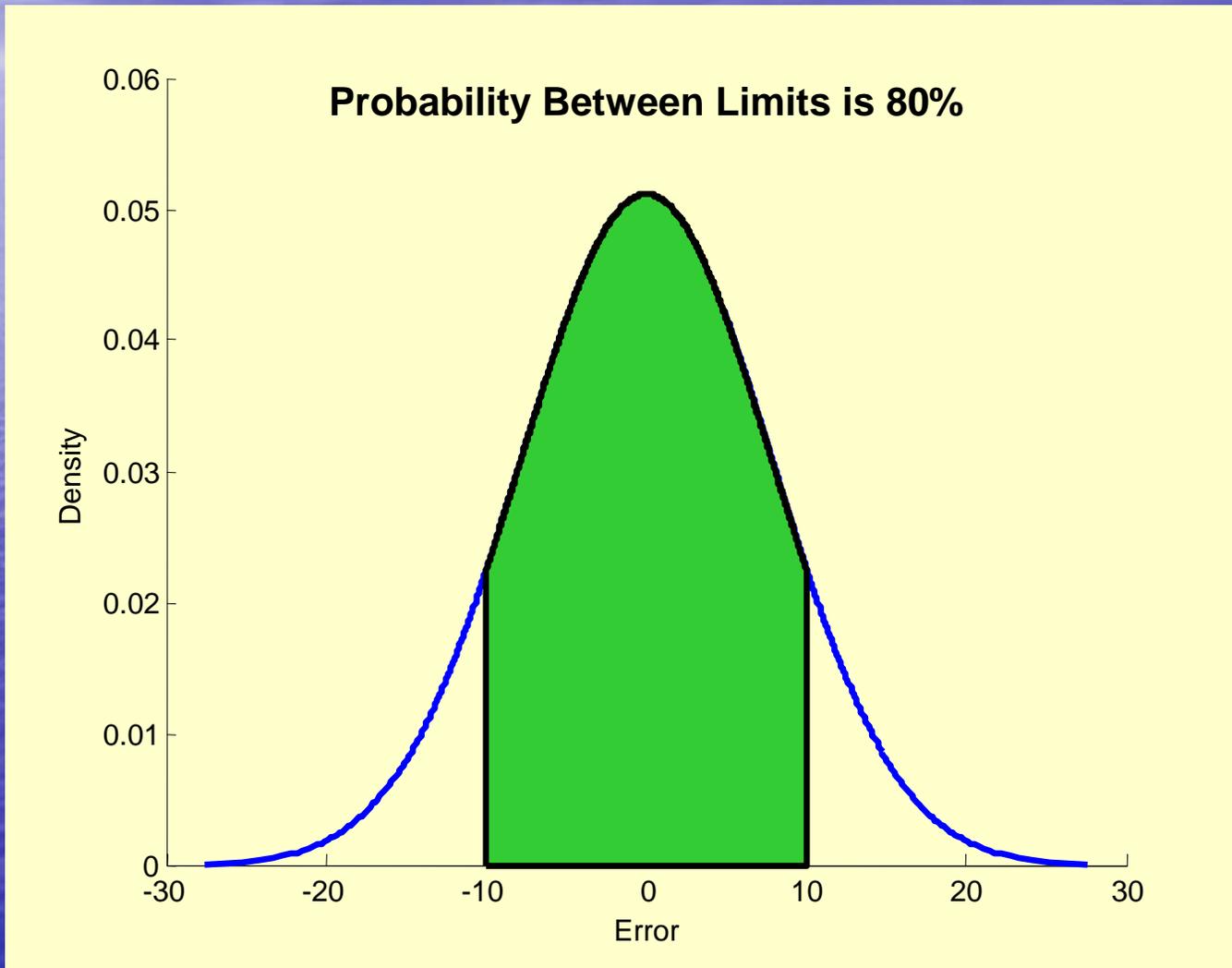
Tighter tool tolerances leads to optimized repair decisions



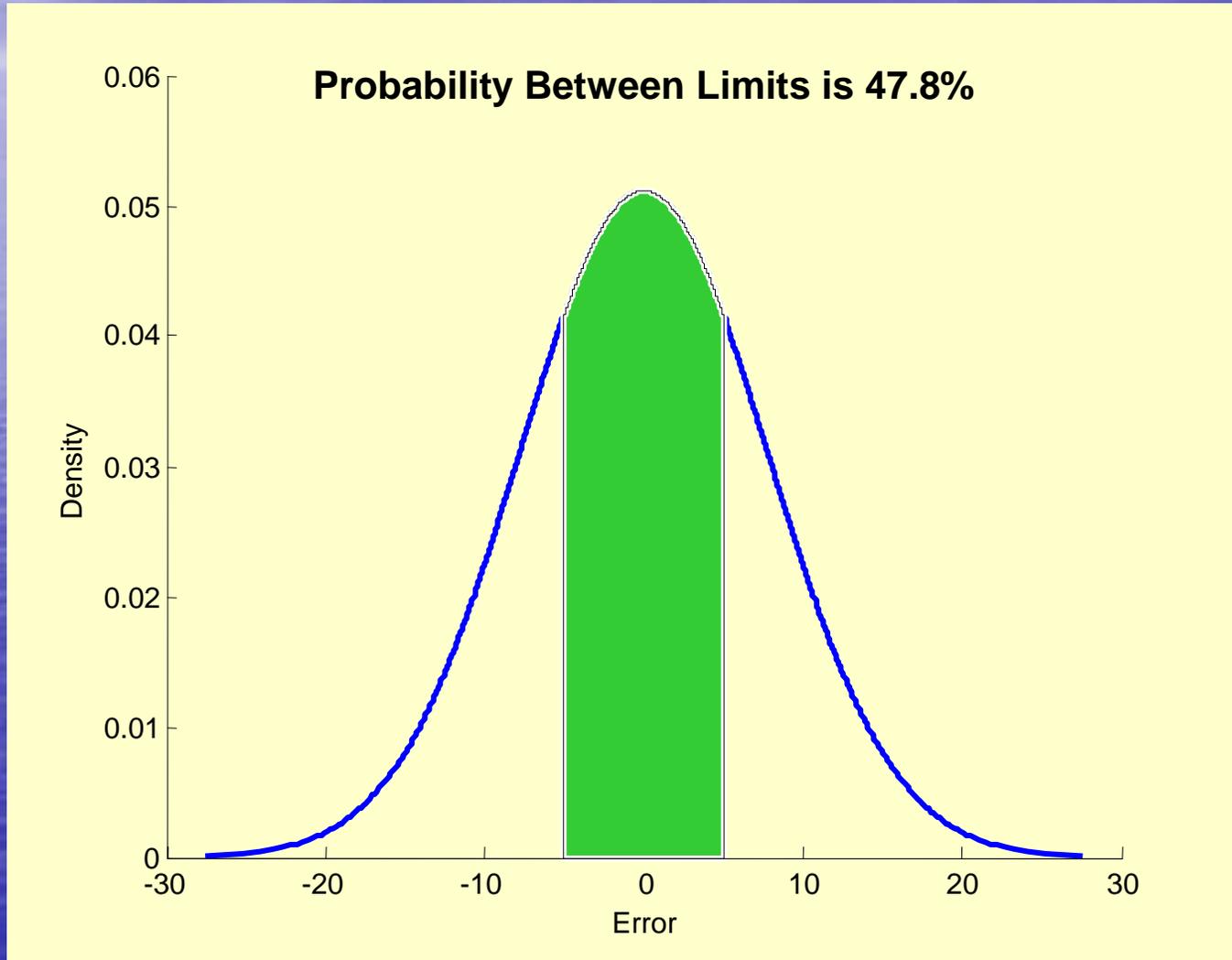
Determination of Sizing Accuracy

- Need both a sizing tolerance and a percent (%) confidence, or
- The standard deviation of the error
- A tool that sizes:
 - $\pm 10\%$ depth with 80% confidenceIs the same as a tool that sizes
 - $\pm 5\%$ depth with 47.8% confidence

Error and Confidence



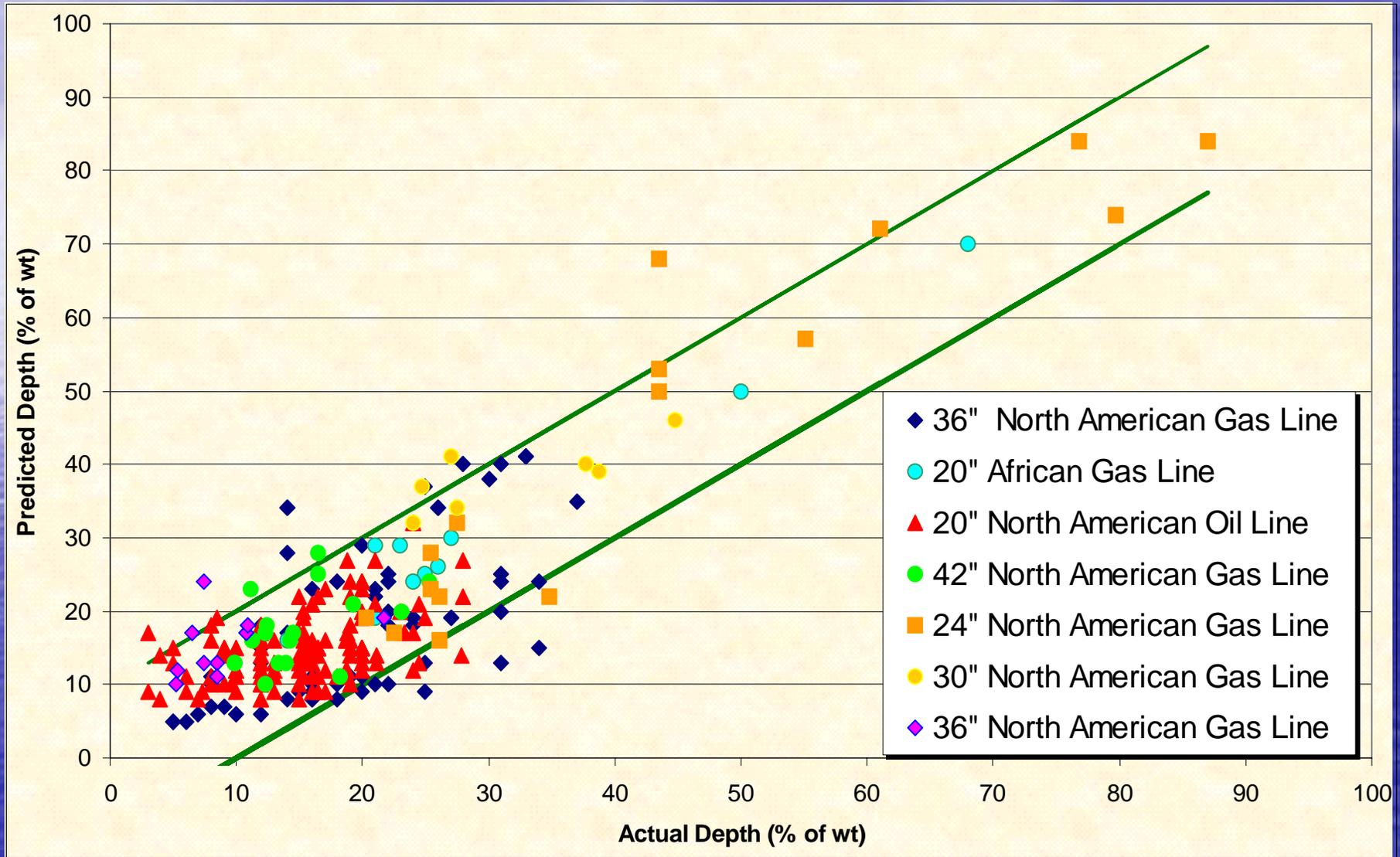
Error and Confidence



“In the ditch” Considerations

- Errors can and do occur in the ditch
- Just because the pipe is exposed and a technician physically has touched the pipe doesn't mean that the field results are correct
- Qualify your field personnel similar to the qualification of ILI service providers

Verification Results – Data Validation



Conclusion

- Errors Exists (Measurement and Assessment)
- Understand the pipeline integrity issues that are being monitored as much as understanding service provider and tool capabilities.

Thank you!

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