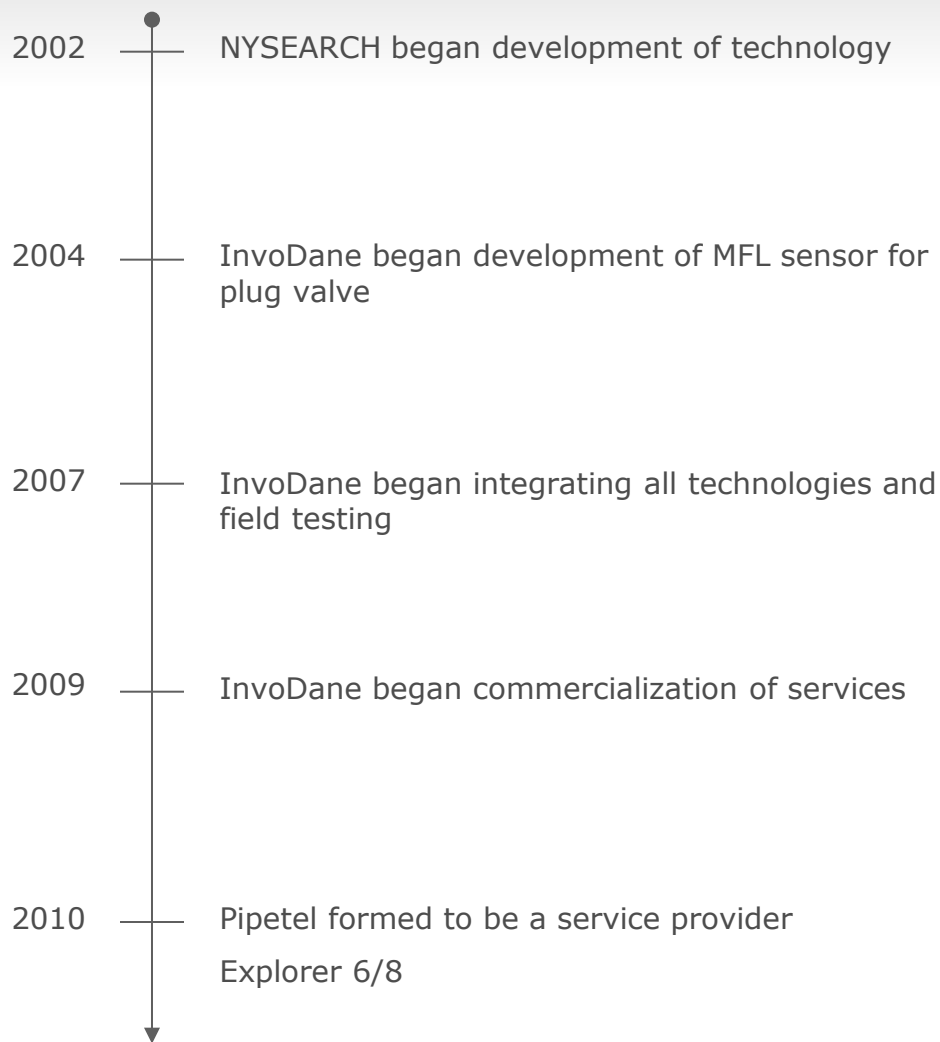


# **Innovative Methods for Assessing Non Piggable Pipelines**

## **Pigging the Un-Piggable**

September 11, 2013

# Pipetel



# Pipetel Capabilities

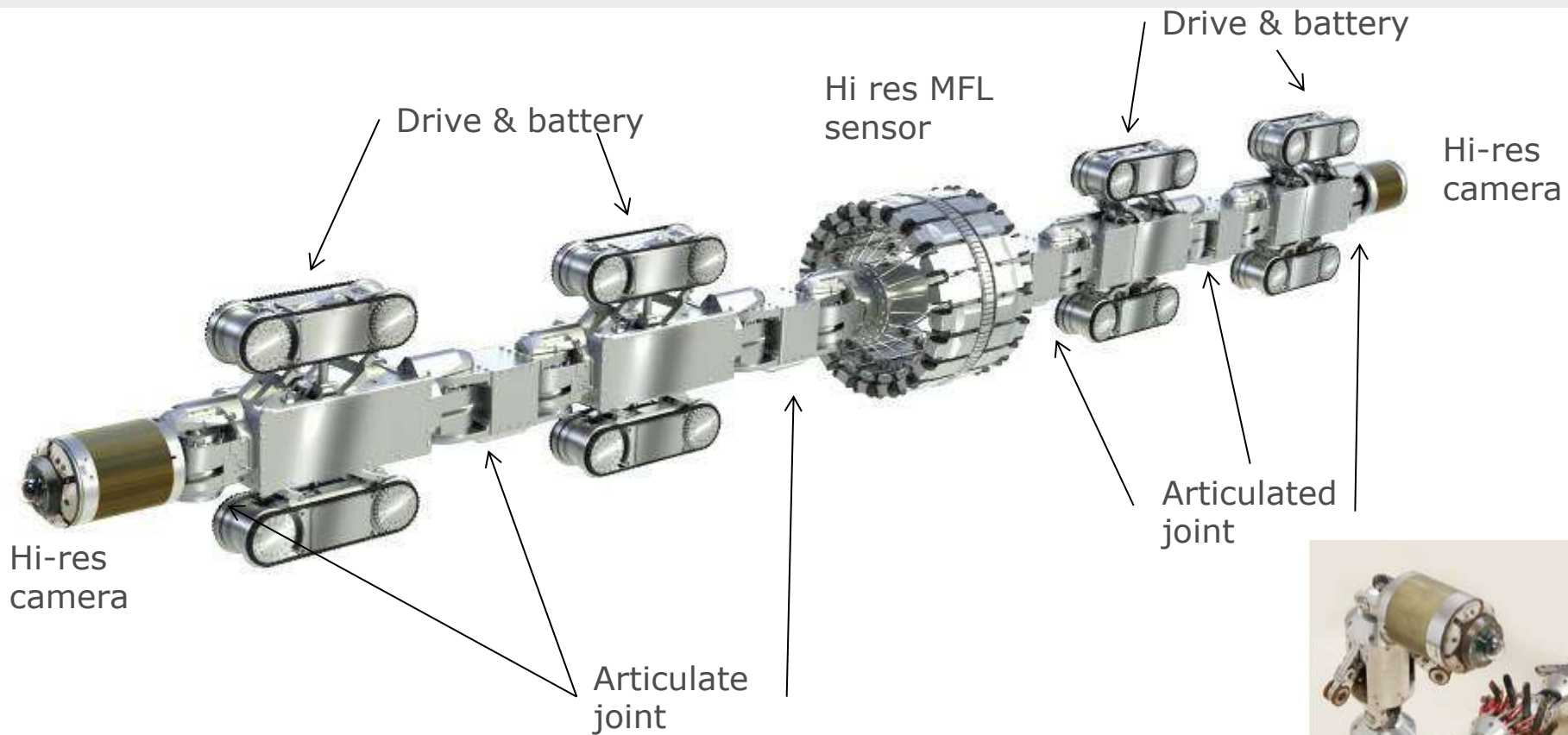
- Live pipelines up to 750 psi
- Self propelled
- Tetherless
- Axial MFL sensor
- Visual inspection



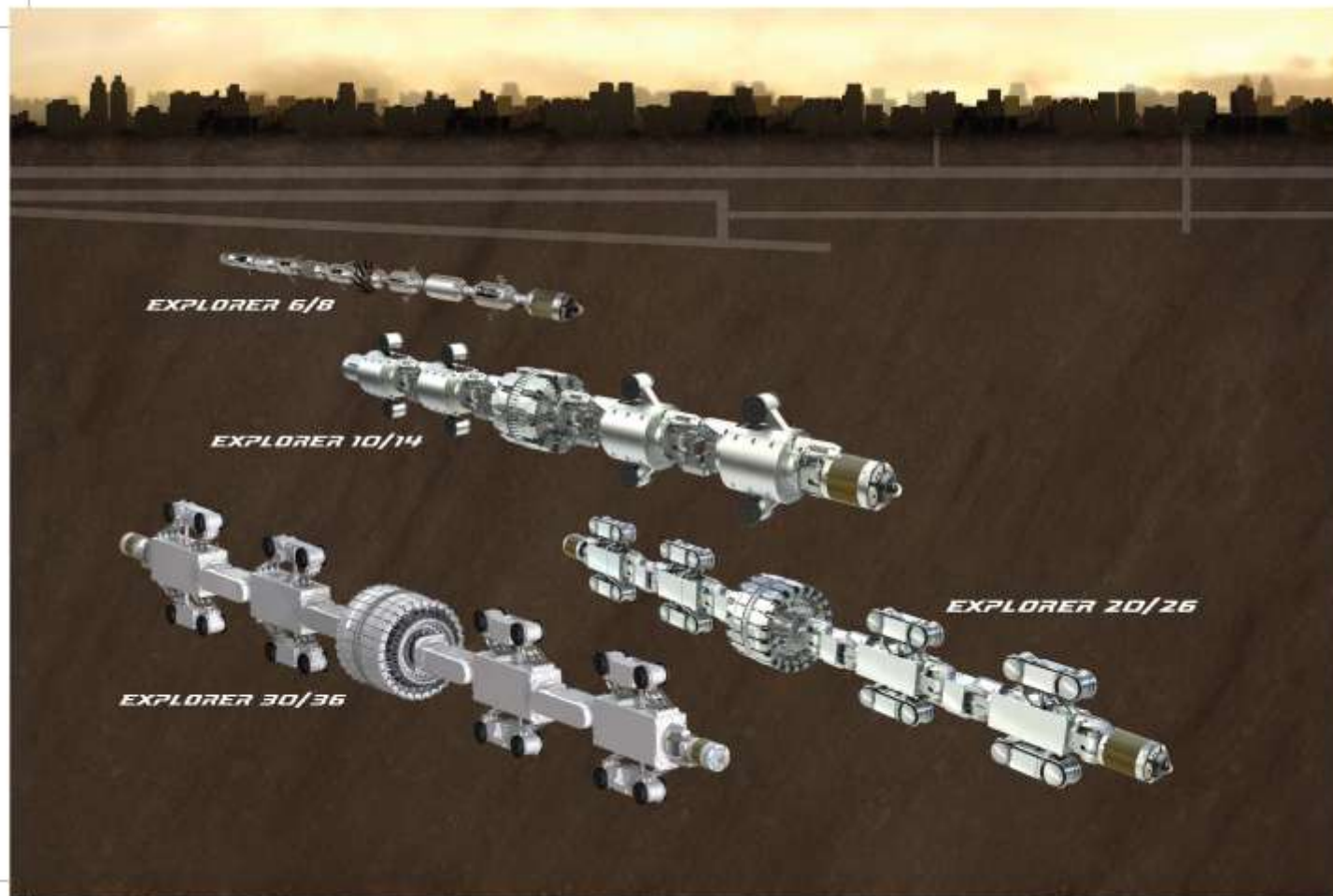
- High, low or no flow
- Valves
- Tees
- Bends
- Vertical segments

***EXPLORER 10/14***

# Explorer



# Explorer Tools



# Inspection Technology

- High Resolution Magnetic Flux Leakage (HRMFL)
  - Magnetizes the pipe and measures magnetic flux
- Remote Field Eddy Current (RFEC)
  - Transmits low frequency alternating current (AC) through the pipe wall
  - Ultrasonic testing (UT) technology without the use of a liquid slug

# Inspection Technology

- Internal video inspection
  - Identify location of dents
  - Unable to size dents

# QUESTAR

**QUESTAR**  
Gas



# **Applications for Explorer**

Where traditional assessment methods may not be feasible

- Pipe within casings
- Water crossings
- Pipeline spans

## **To Date**

- Questar has been a sponsor of the NYSEARCH project since 2002.
- Questar has assessed 10 of its casings requiring multiple sizes of the Explorer inspection tools.

# **Tool Performance Verification Process**

Questar created test pipe with known anomalies to verify tool performance.

- Tool run through test pipe before and after each assessment
- Results included in final reports
- Results of test run are compared to actual measurements of test pipe anomalies
- Comparison confirms tools performance

# Preparation for Live Assessment

- Hot tapping of pipeline
- Installation of launcher/receiver
- Loading of Explorer inspection tool into launcher/receiver







**QUESTAR**  
Gas





# QUESTAR



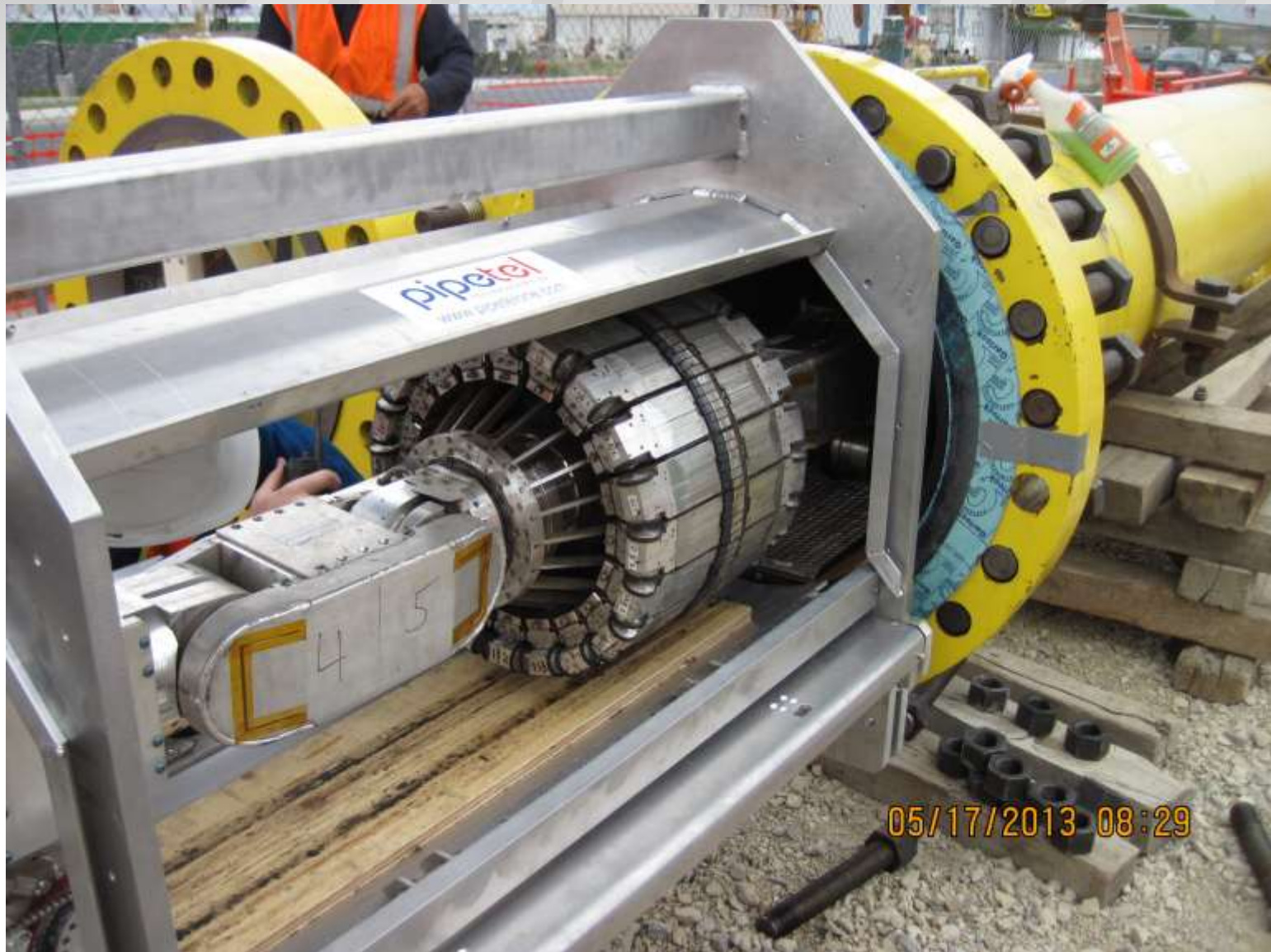
**QUESTAR**  
Gas















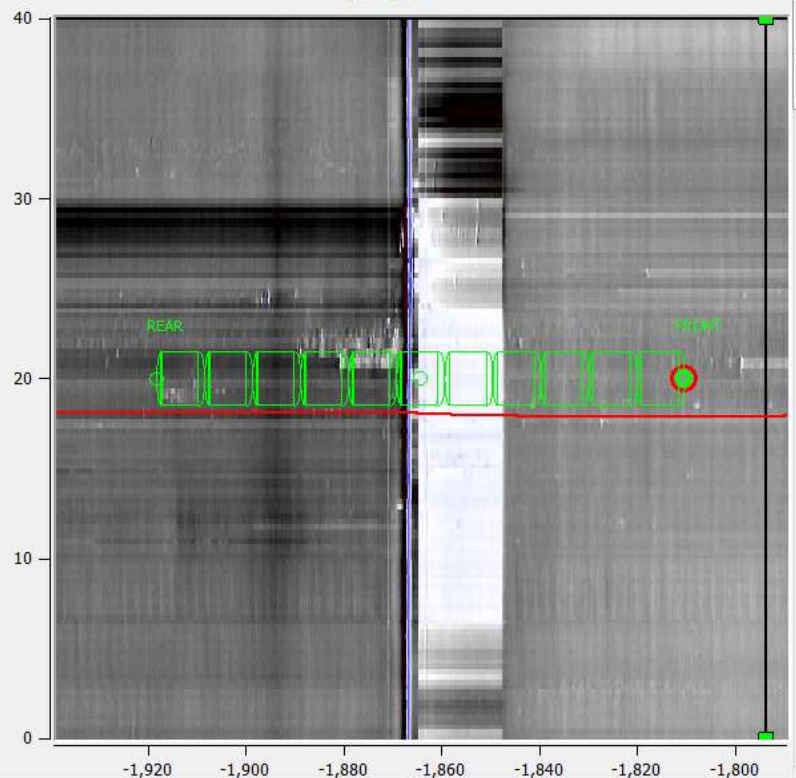


# Assessment Results

- Anomaly information
  - Type, stationing, orientation on pipe
  - Calculated safety factor
- Pipeline features
  - Measured casing length
  - Taps, tees, bends, etc.

▲ STR102 FL19 FinalFeat...  
20130604-131731-001  
20130604-131731-002  
▲ STR102 FL23 FinalFeat...  
20130529-150851-001  
20130529-150851-0...  
20130529-150851-003

Circ Distance (Inches)



Feature Table

Type	Sub-Type	Position	Angle Position	Length	Width	Depth
Feature	Installation	-2360.9	159	0	0	0
Weld	Weld	-1866.9				
Weld	Weld	-1216.1				
Feature	NA	-757.5	157	0	0	0

Export Table CSV

GoTo

Notes

## Inspection

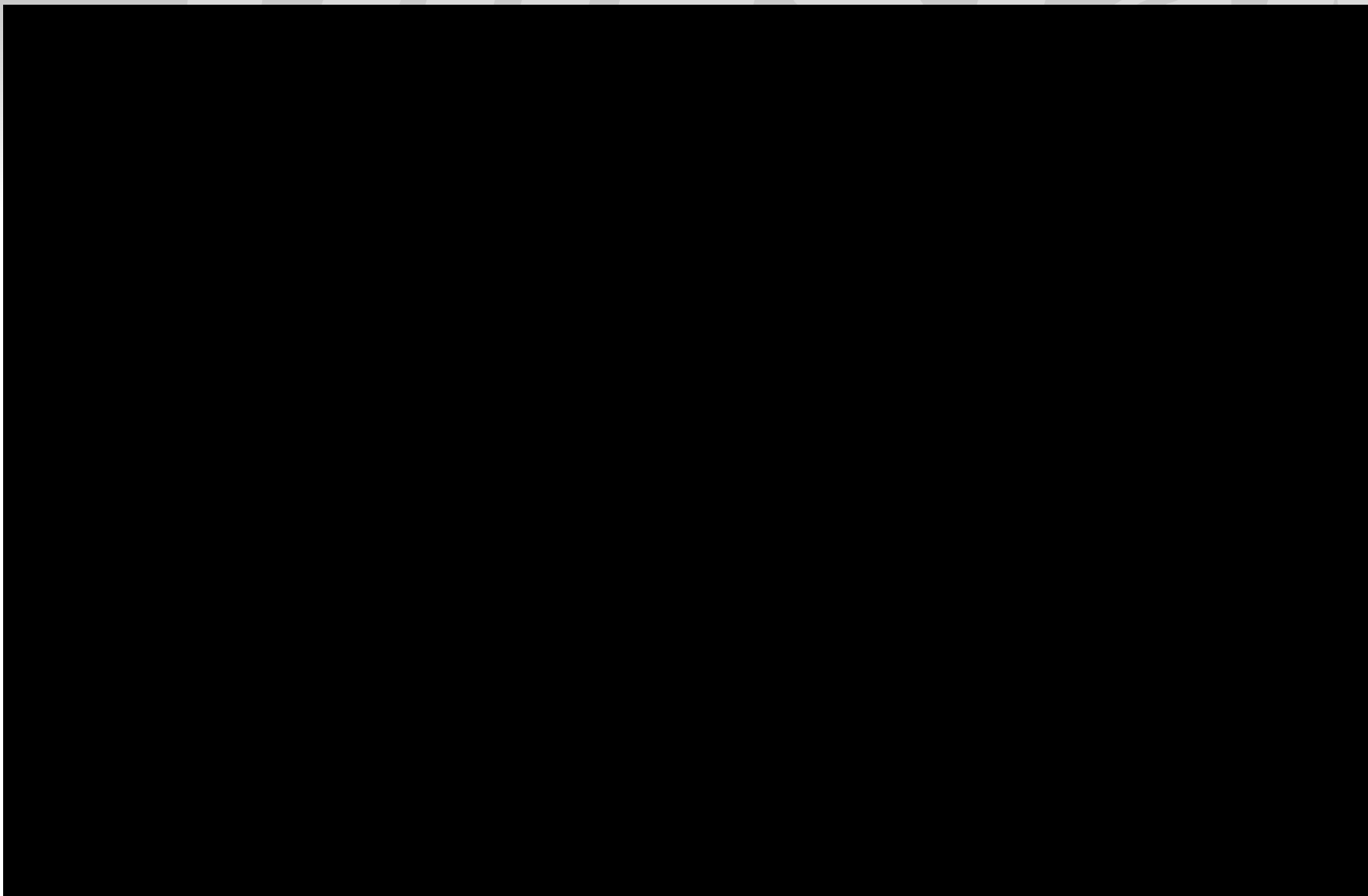
20130529-150851-002  
Scan Type: X1014  
Total Samples: 34826  
Start Position: -2463.12 Inches  
End Position: -721.873 Inches  
Total Distance: 1741.25 Inches

Video

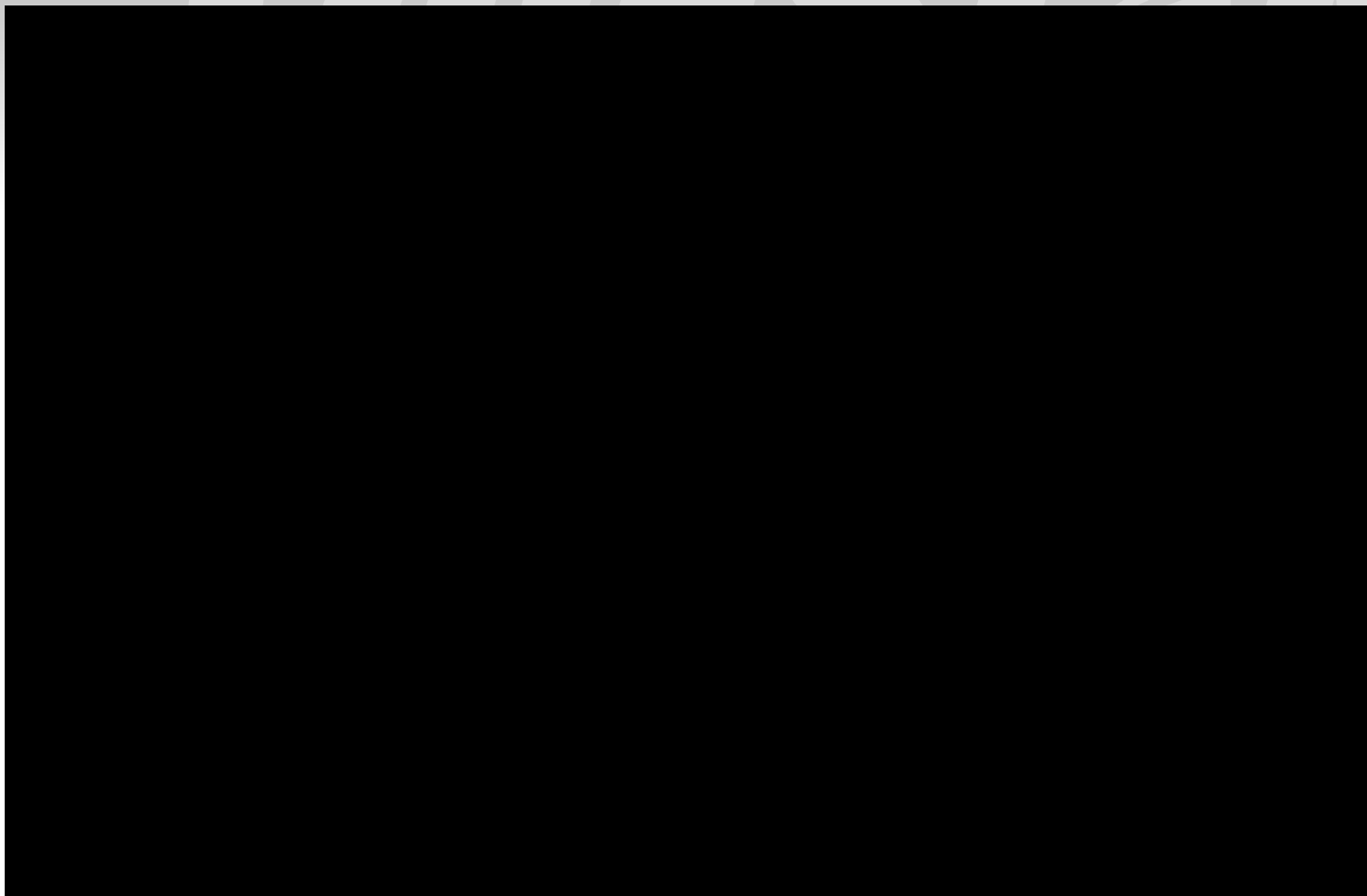


Rotation Control









## Summary

- Information gained is comparable to traditional In Line Inspection tools
- Appropriate inspection method where other assessment methods are not feasible

QUESTAR

# Questions