SKIPPER NDT

WATER CROSSING

Pipelines crossing water ways are monitored on a regular basis as part of operator's standard integrity management programs.

The objective is to ensure their operational safety and the asset owner compliance with regulatory requirements. PHMSA asks for a 5-year inspection frequency and assessment of the structure condition within 72 hours in case of extreme weather events.

- → 49 CFR § 195.401(b) –address any conditions, including flooding and a lack of depth of cover, that may adversely impact the safe operation of the pipeline.
- → 49 CFR § 195.452 –assess all threats to pipelines, including flooding and hurricanes and take appropriate preventative and mitigative actions.
- → 49 CFR § 195.412(b) – at intervals not exceeding 5 years to inspect each crossing under a navigable waterway to determine the condition of the crossing.
- → 49 CFR § 195.414 - pipeline facilities need to be inspected within 72 hours of an extreme weather event such as flooding.

Currently available methods to monitor pipelines under river crossings are manual with the following drawbacks:

- → **Field operators are exposed to safety hazards**
- → **Data quality impact by manual acquisition method**
  - Limited ability to leverage historical data (poor repeatability / reproducibility).
  - Low data density (unable to create digital twin for advanced pipeline integrity operations such as bending strain assessment).
- → **Operational inefficient**
  - Significant logistics involved (boat / divers).
  - Low turnaround time.

Skipper NDT has developed a technology tailored to complex environments to address the regulatory and operational issues they pose to pipeline operators:

Field operator safety

- → Fully automated data acquisition done remotely

Operational advantages:

- → Can find and map both known and unknown locations of buried metallic equipment
- → Adapted to any type of metallic pipeline diameter from 2" to 48"

High quality data:

- → XYZ accuracy : <1ft (33cm) 90 % confidence interval

High data density allowing advanced pipeline integrity operations such as bending strain assessment

- → High sampling frequency: one point of measurement every 2''

TRADITIONAL APPROACH

INCLUDES

- Electro Magnetic Finders / Divers
- Extended times to obtain data
- Coarse and sometimes inconclusive data acquisition
- Unnecessary safety risks

RESULTS

- Longer inspection times
- Manual data acquisition procedures
- Increased risk
- Lower density/quality data / difficult decision making
- Higher total lifecycle cost due to uncertainty in decision making

SKIPPER NDT'S APPROACH

INCLUDES

- Technology focused solution
- No divers required
- Efficient data collection
- Accurate and repeatable
- Fully documented with electronic records
- Dense, precise data for both the asset location and depth of cover

RESULTS

- 6-10 times faster than traditional inspections
- 100% automated data acquisition procedure
- Reduced risk and operational complexity
- High quality, repeatable data acquisition enabling confident and effective decision making
- Low total lifecycle cost due to optimized decision making

RETURN ON INVESTMENT

With Skipper's modern approach to pipeline water crossing location data acquisition our clients realize an improved return on investment.

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