NIPA Service

Above-Ground Inspection and Integrity Analysis Approach for Unpiggable Pipelines Systems

- Predictive analytics powered by ROSEN's Integrity Data Warehouse (IDW)
- Non-intrusive integrity assessment and targeted inspections
- Seamless integration with NIMA integrity management workflows
- Accurate pipeline defect mapping and screening with GIS integration
- Compliance with ISO 22974 and NACE Direct Assessment standards



Pipelines can be deemed unpiggable for physical constraints, complex configurations, or economic factors. In such cases, NIPA provides a fast, cost-effective solution to assess pipeline integrity. NIPA offers a quick response screening of pipeline integrity and helps operators manage these complex assets or prioritize pipelines and budget for inspection, either by NDT or ILI, supporting informed decision-making and efficient resource allocation.

NIPA integrates data from multiple above-ground inspections with predictive integrity analytics, improving overall data quality and delivering greater confidence in Direct Assessment (DA) programs. By combining a range of above-ground surveys with extensive engineering expertise, NIPA follows a DA-style methodology aligned with NACE and international standards:

- ANSI/NACE SP0502-2010 – ECDA
- NACE SP204 – SCCDA
- NACE SP206/08/10/16 – ICDA
- ISO 22974 – Pipeline Integrity Assessment
- ISO15589 or NACE SP0169 – Pipeline Cathodic Protection

Integration of Integrity Analytics

Our Integrity Data Warehouse (IDW) holds data from over 26,000 in-line inspections, covering more than 800,000 km worldwide. This extensive database supports predictive modeling, allowing us to forecast conditions of uninspected pipelines based on actual historical inspection data. Using pipeline route information and key parameters, we create predictions on pipeline integrity, dividing pipelines into sections to maximize accuracy and providing aspects such as maximum defect depth and density. Data for integration is collected during above-ground inspections or provided separately for preprocessing, ensuring that only the most representative and up-to-date data is utilized in our modeling predictions.

Inspection Capabilities

We offer a wide range of above-ground inspection methods that, when combined, enhance accuracy and deliver comprehensive integrity assessments. Advanced NDT technologies can also be applied based on specific damage mechanisms to ensure thorough evaluations. Our inspections are carried out exclusively by highly trained ROSEN personnel to ensure optimal results.

ROSEN
empowered by technology

Above-Ground Inspection

- LSM: Large Standoff Magnetometry
- CIPS: Close Interval Potential Survey
- DCGV: Direct Current Voltage Gradient
- ACVG: Alternating Current Voltage Gradient
- GIS: Geographic Information Systems
- Conventional UT
- LRUT: Long Range UT
- MRUT: EMAT Guided Wave Range UT
- SRUT: Short Range UT
- PAUT: Phased Array UT
- MFL Scanner
- UT Drone Inspection
- Coating Integrity and Assessment

*UT = Ultrasonic Testing

Direct Examination / Non-Destructive Testing

- Conventional UT
- LRUT: Long Range UT
- MRUT: EMAT Guided Wave Range UT
- SRUT: Short Range UT
- PAUT: Phased Array UT
- MFL Scanner
- UT Drone Inspection
- Coating Integrity and Assessment

Benefits

- Expertise in predictive integrity analytics using machine learning and Bayesian inference for accurate defect assessment.
- Global insights from the IDW, covering over 800,000 km of pipelines across all diameters, pressures, and media.
- Integration and overlay of multiple inspection data sources for enhanced internal and external anomaly detection.
- Flexible and scalable approach enabling customized assessments tailored to specific pipeline conditions, materials, and operating environments – for inspection of discrete areas to full pipeline inspection.
- Ensures regulatory compliance with Direct Assessment (DA) methodologies while extending capabilities beyond corrosion to identify ground movement, dents, gouges, and bending strain.
- Provides precise pipeline mapping and baseline data to detect geohazards and other integrity threats early, enabling proactive anomaly management.

ROSEN Swiss AG
Obere Spichermatt 14 · 6370 Stans · Switzerland

Phone: +41-41-618-0300
info@rosen-group.com
www.rosen-group.com

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