Jet Fuel Line Inspection

Airport hydrant systems must be regularly inspected to validate the safety and integrity of their fuel line assets. The testing and pre-commissioning of jet-fuel pipeline systems for the aviation industry is a critical operation that must be carried out to ensure a clean supply of fuel to aircraft. Applus+ has developed customized technology for the inspection of airport hydrant system fuel lines, meaning that most of an airport’s difficult-to-inspect pipelines can be inspected.

Applus+ technology, involving pipeline inspection tools (PIT), Ultrasonic techniques and corrosion mapping is unmatched in terms of coverage, detectability and maneuverability.

**HYDRANT INSPECTION TOOL**

- Identify internal and external corrosion.
- Identify metal loss due to mechanical damage.
- Identify metal loss due to manufacturing.
- Identify pipe deformations, ovalization, buckling, dents, laminations, segregations and pipeline displacement strain when XYZ measurements are performed.

**KEY FEATURES**

- Diameter 6”-14”.
- Pipe wall thickness from 1.5mm up to 60mm.
- Unbarred tees, bore restrictions.
- Small radius bends [10 bends].
- Back to back bends.
- No launcher/receiver facilities required.
- Minimal pipe wall contact, no damage to coated surface.
- Provides ultra-high resolution data.
APPLICATIONS

Inspections involve the full lines running from the storage facilities to the manholes near the airport gates, including the following assets:

- Risers
- Piping vaults
- Hydrant fuel lines
- Jet fuel
- Tank farms
- Runways
- Aprons

BENEFITS

- Detecting system degradation in a timely manner, thereby enabling targeted repair and maintenance work to be carried out and avoiding the need for full system replacement.
- Accurately assessing the remaining life of the system.
- Reducing system downtime and maintaining productivity, with the resultant cost savings.
- DTI Trekscan certified by TüV-NORD and used in European airports.
- Ultrasonic technology delivers accurate, quantitative results.
- Minimal line modifications required.
- High percentage first run success rate.
- On-site field data reporting, real-time inspection.
- No magnetization of pipeline thereby eliminating demagnetization repair.

OPERATING PRINCIPLE

The orange pipe is used as a launcher for the DTI Trekscan which is connected with a communication cable on a hand winch. The winch can lower and lift the tool within the branch line.

An ATEX safe (explosion free) environment will be created by a small hose on the side of the pipe (purge nitrogen into the system) before the inspection run.

The communication cable is connected on a laptop to look for anomalies during the inspection. After inspection, a Data Quality Assessment (DQA) is performed.

LIMITATION

- Long horizontal parts, because the tool uses gravity as movement.
- As a solution for long horizontal lines, Applus+ can provide other inspection tools like Bi-Di free-floating tools as DTI Trekscan or Tethered pipeline inspection robots with rotating ultrasonic transducer head which provide a 100% circumferential coverage.

REPORTING

All defects will be subject to a B31G MAOP calculation. If necessary additional assessments can be made:

- Corrosion assessment.
- Mechanical damage.
- Manufacturing metal loss.
- Pipe deformation.
- Laminations.
- Fit for service assessments.
- Pipeline displacement strain assessment is possible when optional XYZ measurements are performed.

Full integration with following services:

Applus+ provides the following services as individual packages or combined to provide a total asset integrity management programme.

- Advanced NDT inspection services
- Risk based inspection (VAIL Software)
- Identify and analyse risk factors
- In service inspection
- Remaining life calculations
- Failure analysis