



PIPELINES, PROCESS, INDUSTRIAL & IN-LINE INSPECTION SERVICES

YOUR PARTNER SUSTAINABILITY



PIPELINES SERVICES

Pre-Commissioning

Pre-commissioning services for Onshore & Offshore new pipeline construction gives your asset the best possible start up and reduces corrosion, improving efficiency, and prevent hydrates formation.

- ✓ Cleaning
- ✓ Gauging
- ✓ Filling
- ✓ Hydrotesting
- ✓ Dewatering & Swabbing
- ✓ Drying

De-Commissioning

Cleaning of onshore & offshore pipelines to bare metal for preparation of the pipeline towards restoring/enhancing, production/flow, abandonment and provide effective data acquisition whilst establishing in-line integrity inspections.

- ✓ De-Cruding
- ✓ De-Oiling
- ✓ Dewaxing
- ✓ Descaling



PROCESS SERVICES

Chemical Cleaning

Experience combined with modern equipment and the right chemistry to remove fouling, contamination and deposits thus protecting the system from corrosion.

We have sound working knowledge and experience on HRSG systems, coolers, furnaces, pipelines, vessels, heat exchangers, district cooling networks, etc.

- ✓ Acid Pickling & Passivation (CS)
- ✓ Stainless Steel (SS) piping surface treatment
- ✓ Chemical Treatment & a Passivation of District Cooling Networks

Steam Blowing

During Fabrication of piping is under progress during hot working days, an oxide layer is formed on the inside surface of pipes. This layer is known as mill scale, and this must be removed from the system before start-up of the system for service.

Cleaning by steam blowing is carried out essentially for steam piping networks on HRSG's due to the problem of condensation of steam or draining of condensate.

During the start-up of any plant, there is a possibility of the particles left in the piping from the **construction phase** could travel downstream damaging instrumentation and other critical components of the system.



NITROGEN SERVICES

Sensitive Leak Testing

Nitrogen-helium leak detection has long been accepted as the most accurate and applicable way to test hydrocarbon-process pipework for mechanical integrity.

The service is conducted using a mixture of nitrogen and helium gases, which are injected into your process system, thus raising it to the actual operating pressure seen during normal operations.

Leaks can be examined under the most realistic testing conditions possible before start-up.

Purging & Preservation

Upon completion of pre-commissioning services, the pipeline/piping systems are often left inert.

Depending on the time between pre-commissioning and commissioning for start-up, the pipeline can be purged with 99.9% Nitrogen for preservation which will occasionally be necessary to protect the system from corrosion or degradation for a period of time. As nitrogen is an inert gas, it is ideally suited for this type of operation.

- ✓ Nitrogen Purging
- ✓ Nitrogen Pigging
- ✓ Nitrogen Drying
- ✓ Nitrogen Mothballing



INDUSTRIAL SERVICES

Tank Cleaning

Offering Turnkey tank cleaning services towards required for product change of crude oil, heavy fuel oil, gas and chemical storage with fixed and floating roofs for onshore tank farms. Our services are not limited to but include oil recovery, waste management and logistics solutions.

- ✓ Gas Freeing and Inertisation
- ✓ De-Sludging and De-Mucking
- ✓ Tank Washing HPWJ
- ✓ Onsite Oily Sludge Treatment for Product Recovery

Retrojetting

Retrojetting is the use of high-pressure water to clear blockages, mill scales, calcium scales and hydrocarbon from heat exchangers, condenser tubes, pipe systems, large tanks, vessels & columns etc.

Pipe sizes ranging between 4" to 60"

- ✓ Surface Preparation
- ✓ Heat Exchanger Tube Cleaning
- ✓ Vessels, Columns, Tank etc. Internal Cleaning
- ✓ Pipelines Cleaning



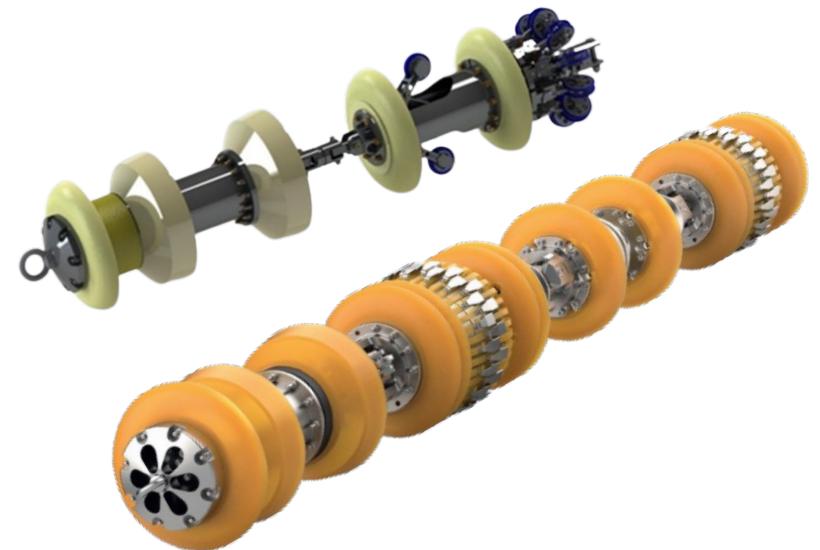
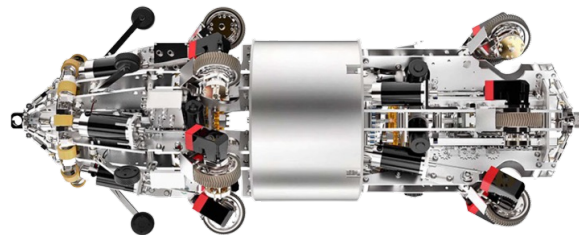
IN-LINE INSPECTION SERVICES

In-line Inspection / Baseline Survey

Geometric deviations of pipe bore are physical defects which have a serious impact on the pipeline safe operations and its lifetime.

Dents affect the safe operation of a pipeline as they affect the flow of the transported medium and tend to create spot-like formations of sedimentation, turbulence, erosion, corrosion, and hydrates.

- ✓ Geometrical / Caliper Survey
- ✓ Magnetic Flux Leakage (MFL)
- ✓ UT (WM-CD)
- ✓ Self-Propelling Tool (SPT)





FLUSHING & MEDIA FILTRATION

District Cooling Networks

The purpose of establishing high volume/velocity circulation is to reduce the risk of damaging the permanent system namely the pumps, chillers, condensers and instrumentation associated which would result in reduced lifetime and huge maintenance costs if not attended prior to commissioning.

Compliance Standard BSRIA AG1 / 2001.1

- ✓ Chemical Cleaning
- ✓ Flushing
- ✓ Passivation with Corrosion Inhibitor
- ✓ Preservation with Biocide

Lube / Hydraulic Oil Systems

Oil Flushing is the circulation of lube oil at high velocities (turbulent flow). This high-velocity flow causes the fluid to become a washing medium due to the molecular implosion, thus removing adhered contaminants from the subject equipment namely compressors, lube-oil systems.

Compliance with NAS and ISO 4406 standards.

- ✓ Gas and Steam Turbine Systems
- ✓ Lube Oil Systems
- ✓ Hydraulic Oil Systems

Aviation Fuel Hydrant Networks

The various controls and procedures reflect a philosophy of product testing, traceability and segregation to prevent contamination and to ensure that the fuel is on-specification at point of delivery to aircraft.

Compliance Standards JIG1, JIG2 & JIG3

- ✓ Pneumatic Testing
- ✓ Soak Testing
- ✓ Pressure Test with Fuel
- ✓ Flushing



OILFIELD SUPPLY

- ✓ **Process Instrumentation**
- ✓ **Valves & Fittings**
- ✓ **Design, Supply & Fabrication**

- ❑ SAFETY RELIEF VALVES
- ❑ HYDRAULIC VALVES, FITTING & ACCESSORIES
- ❑ PRESSURE & TEMPERATURE GAUGES, TRANSMITTER
- ❑ CHART RECORDERS
- ❑ FLOW MEASUREMENT
- ❑ VALVES & STRAINERS
- ❑ HYDRAULIC HOSES
- ❑ SCREW PUMPS
- ❑ PROGRESSIVE CAVITY PUMPS
- ❑ PIG LAUNCHER / RECEIVER



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