



Field Services and Repair



Field activities to bring a pipeline back to its design standard – or to a defined level of economic use – in order to extend its safe and economic life.

PEOPLE | TECHNOLOGY | SERVICES | PACKAGES | EXECUTION EXCELLENCE

ACTIVITIES CARRIED OUT IN THE FIELD BY PII, OR UNDER PII SUPERVISION

OBJECTIVE

To restore a pipeline to safe operating condition, or to extend its service life.

SCOPE OF SERVICE

Specialist Assistance

Operators may not necessarily have the in-house resources to carry out certain specialised activities on their pipeline.

PII offers a comprehensive range of specialised in-field and repair services, including:

- Repair
- In-situ material property determination
- Above-ground surveys
- Route surveys
- Pipeline modifications and equipment procurement
- Coating and CP system evaluation and optimisation
- On-site NDT/NDE
- In-field project management

PII Field Teams will take full responsibility for such projects, supervising and co-ordinating work carried out by others, on behalf of the operator. There is assurance that the job is done to the highest standards, with minimum disruption to the operation of the system.

FEATURES OF THE SERVICE

- Experienced teams carry out the work on your behalf, in compliance with relevant codes and following best industry practices
- Services are available anywhere in the world, through regional PII offices
- Information-gathering for newly-acquired systems, and for old-established systems

BENEFITS OF THE SERVICE

- Expert attention adds value to assets
- Operators are free to focus on their core business activities
- Timely repairs avoid costly future replacements
- All work will comply with relevant regulations
- To ensure minimum downtime and long-term satisfaction, all work is carried out in consultation with operators



Components	Activities	Deliverables
Repair	Selection of a technique that delivers a long-term pipeline repair, in accordance with the operator's needs and preferences	Pipeline repaired and ready for long-term use.
In-situ Material Property Determination	Determination of pipe material characteristics as a basis for integrity planning. Principally offered for purchased systems, or for older systems where material data is unknown.	Report detailing pipe material properties, or reports utilizing this data for other calculations, determinations and integrity plans.
Above-ground Surveys	Range of surveys available to suit the specific needs of a program. Includes evaluation of coating condition; soil conditions and types; CP systems.	Report(s) detailing and analysing the survey results.
Route Surveys	Ground based or aerial surveying of a pipeline to look for third party activities in or near the pipeline corridor; to identify possible leak conditions; to ensure the ROW is free of excess growth; and to record pipeline location (for old or acquired systems).	Right-of-way report.
Pipeline Modifications and Equipment Procurement	Management of temporary or permanent pipeline modifications to ensure full bore capacity for the running of in-line inspection tools.	Inspectable line, with detailed reports of all pipeline hardware left on the pipeline or used to complete the project.
Coating & CP System Evaluation and Optimization	Evaluation of a pipeline's external coating and its impact on CP system performance.	Report on pipeline coating and CP system with recommendations for necessary remedial actions.
On-site NDT / NDE	Management of pipeline excavation and direct assessment of critical pipeline anomalies. <i>Our sister company, GE Inspection Services, adds to our capabilities by offering a wide range of direct inspection and assessment capabilities.</i>	A detailed inspection or maintenance plan.
In-field Project Management	Supervision and co-ordination of field activities on behalf of clients.	Program execution to pre-defined time, cost and quality standards. Includes: reports detailing field operations; justification of in-field decisions; cost accounting summaries.

Case History



The ESR technique is fast and safe, allowing the pipeline to remain in production throughout the application procedure, and returns the repaired section to full strength.

Epoxy Sleeve Repair delivers immediate \$5 million savings

As part of its Main Oil Line System Petroleum Development Oman (PDO) operates an onshore sour crude line commissioned in 1987. A PII inspection revealed internal corrosion along the full length of the pipeline. Pitting was as deep as 80 percent wall thickness.

To establish how seriously this limited the life of the pipeline, PII carried out a probabilistic FFP assessment. Future corrosion growth rates were estimated, and the probability of failure of the pipeline was determined in relation to the number of repairs required to deal with the most severe corrosion. For example, it was determined that repairing the 24 deepest pits would extend the life of the pipeline by two years.

The assessment also considered – and rejected – the possibility that the growth rate for corrosion

would outpace the ability to carry out repairs, and confirmed the practicality of controlling corrosion by a strategy of re-inspection and repair.

PDO made epoxy-shell repairs at the sites of the most severe corrosion, postponing the need for replacement of sections of the pipeline, and creating an immediate saving of \$5 million.

Epoxy Sleeve Repair

