



# METALLURGICAL SERVICES AND OPERATIONS SUPPORT

## OUR SOLUTIONS

EN Consulting provides in-depth metallurgical and operations expertise. Our diverse capabilities include failure analysis, development of welding procedures, corrosion analysis, review development of pipeline integrity programs, and performing engineering critical assessments (ECA).

With more than 40 years of experience, our experts come from diverse backgrounds, ranging from gas transmission and operations, to manufacturing and line pipe research. Our past projects include some of the first cross-country work on X-70 line pipe runs, development of welding procedures for hot-tapping pressurized pipelines, and failure investigations on a variety of pipe materials, pressure vessels, and pipeline compressor station components. Our experience in the preparation of specifications, steel and line pipe manufacturing, and maintenance of pipeline components provide an added asset to our support services.

## SERVICES PROVIDED

- Failure analysis
- Materials selection
- Pipe, fittings, valves, pressure vessel, induction bends, and coating specifications
- Welding procedure development and qualification for production and maintenance
- Integrity assessments
- Repair/replacement decisions
- Finite element stress analysis

## METALLURGICAL FAILURE ANALYSIS

- Stress corrosion cracking of steel pipelines
- Fatigue cracking of rotors, crankshafts, and other compressor station components
- Pressure vessels
- Internal and external corrosion
- Mechanical damage
- Pipe steel defects
- Seam weld defects
- Girth weld defects
- Hydrostatic test failures