E²G’s Materials & Corrosion Group has a wide range of technical expertise in industries ranging from Refining and Specialty Chemical Processing to Power Generation & Utilities. Our Materials & Corrosion group has more than 350 years of combined corrosion & metallurgy experience. Below are just some of the ways we can put our wealth of knowledge and experience to use for you:

- Corrosion Control Documents (CCD)
- Integrity Operating Windows (IOW)
- Damage Mechanism Review (DMR)
- Systems and Circuitization/Corrosion Loop
- Crude TAN Studies
- Heater Tube Remaining Life
- High Temperature Hydrogen Attack (HTHA) Remaining Life
- Fire Damage Assessment
- Hydrofluoric (HF) Alkylation
- Material Selection
- Buckeye Sampler
- Special Inspection Procedures

FAILURE ANALYSIS & INCIDENT INVESTIGATIONS

Learning from failures is a key part of continuous improvement. E²G can quickly determine the cause of a failure, and more importantly make practical recommendations to avoid its reoccurrence. In addition to remote failure analysis, E²G experts are available to arrive on site to help facilitate incident investigations as part of a formal Root Cause Failure Analysis (RCFA) or API 585 type protocol. E²G can provide a turnkey solution in leading incident investigations, metallurgical lab analysis, and in repair/replace decisions, which can expedite getting your plant back online.

CRUDE SLATE CORROSION STUDIES

The ability to safely run high TAN or other opportunity crudes including shale/tight oils can make or break refinery profitability. E²G experts will work with you to identify areas of vulnerability associated with running different crudes and develop a strategy to establish specific limits; perform targeted inspection; selectively upgrade metallurgy; or consider corrosion inhibitors. E²G’s materials and corrosion engineers have a wealth of experience with shale Light Tight Oils (LTO) such as Eagle Ford, Bakken and Canadian crudes.
INTEGRITY OPERATING WINDOWS (IOW) / CORROSION CONTROL DOCUMENTS (CCD)

Setting Integrity Operating Windows (IOWs) for equipment is an important component of a successful mechanical integrity program. Our engineers develop customized limits, or “windows” of operation for each process unit to minimize the likelihood of damage. Knowledge of the potential damage mechanisms for a particular unit is critical for the selection of appropriate IOWs. E²G can integrate IOWs into incredibly thorough Corrosion Control Documents (CCD) for every process unit.

FIRE DAMAGE ASSESSMENTS

In the event the unthinkable happens to you, the experienced engineers at E²G can assist by performing a fire damage assessment per API 579-1/ASME FFS-1 Part 11. Our engineers have significant experience using the clues available in the aftermath of an event to help focus inspection efforts to identify components which need to be replaced or refurbished, and those that remain safe for continued operation. Having our experts on site can help reduce costly downtime.

INSPECTION PROCEDURES

E²G Engineers have experience writing custom inspection procedures for use by on-site engineers and field inspectors. These documents can help your facility meet RAGAGEP and achieve regulatory compliance. Some examples include:

- Low Silicon inspection plans
- PSA inspection
- Polythionic Acid Prevention Guidelines
- Low Residual Element inspection
- PMI procedures
- Mix Point and Injection Point Identification and Inspection