

## METALLURGICAL CONSULTING / MATERIAL TESTING / FAILURE ANALYSIS

RPC offers remedial assistance to industry on a broad range of material problems. Our team of industry experienced professional engineers and welding technicians, in conjunction with a fully equipped, in-house, ISO 9001:2015 qualified materials testing facility, is utilized for fast turnaround and excellent service.

Since 1962, RPC has been performing metallurgical root-cause failure investigations as well as assistance in preventing re-occurrences. These failures occur in all types of environments and has led RPC to work extensively in industries such as pulp and paper, nuclear, fossil fuel plants, oil and gas, marine, aerospace, manufacturing, offshore, and many miscellaneous facilities throughout the region.

### SERVICES

- Failure analysis
- Component life assessment
- Metallographic (grain size, inclusion content) evaluation
- Materials selection and identification
- Weld procedure qualification testing
- Corrosion testing and consultations
- Chemical analysis and material identification
- Videoscope inspection

### QUALIFICATIONS / CERTIFICATIONS

- CAN/CGSB-48.9712 – Lvl. 2 Liquid Penetrant & Mag. Particle Certified Inspectors
- CSA W178.1 - Certification of Welding Inspection Organizations
- CSA W178.2 - Level 2 & 3 Certified Weld Inspector
- APEGNB - Professional Engineer
- Quality Management System is registered to ISO 9001:2015

## NDT INSPECTION & FIELD TESTING

RPC provides a wide range of Non-Destructive Test (NDT) inspections as well as videoscoping, high & low temperature ultrasonic flowmetering, hardness testing, positive material identification, and strain gauging. Testing can be performed on-site or in our lab using liquid penetrant, magnetic particle and ultrasonic examination. In addition, RPC is an Authorized Exam Centre (AEC) for NRCAN NDTCB (non-destructive testing certification body).

## IN-SITU REPLICATION METALLOGRAPHY - HIGH TEMPERATURE DEGRADATION

This is a cost effective, specialized practice of non-destructive testing performed in the field. The process involves polishing a surface area as small as 1in<sup>2</sup> and extracting a copy of the component's microstructure. The copy is then evaluated through metallographic examination that can reveal critical details and determine the following:

- Creep damage for high pressure & temperature equipment
- Expended life assessment
- Cracks and analysis: SCC, weld flaws, crack origins
- Grain size and microstructure distribution
- Thermal degradation of stainless-steel equipment
- Assessment of components that underwent fire damage

## CONTACT

For further information regarding our services please contact:

Jack O'Connor, P.Eng.  
Materials Engineer, Physical Metallurgy  
Tel: 506.452.1212  
Email: [info@rpc.ca](mailto:info@rpc.ca)

Flow metering and strain gauging:

Leo Cheung, P.Eng.  
Director, Industrial Research and Engineering  
Tel: 506.452.1212  
Email: [info@rpc.ca](mailto:info@rpc.ca)

