Qualimet

WELDING & METALS ENGINEERING

November 2012

EVERYBODY'S Crane is Cracked

Many people in construction don't realize that every structural steel member—even when it's brand new—contains tiny cracks known as microfissures.

These microscopic "starter" cracks, which are too small to detect with nondestructive testing, can originate as flaws during rolling and cutting operations. They also occur in welded joints as a byproduct of the welding process. In fact, **no weld is ever "perfect";** every weld will contain microscopic cracks.

Under the cyclic loading conditions and typical stresses encountered by lifting equipment, this kind of starter crack can eventually propagate (a process called "fatigue crack growth") to the point where it will be detectable via nondestructive testing.

If the crack is not addressed, additional loading cycles within the equipment's rated capacity can eventually lengthen the crack to the point that it becomes a potential failure site.

One goal of equipment inspection, then, is to inspect the equipment's structural steel members at intervals that are:

- long enough to be economically feasible, yet
- frequent enough to catch developing cracks **after they have become detectable but before they become a significant failure risk**

Practically speaking, the tendency of fatigue cracks to propagate over time is one reason that cranes have finite life spans; eventually, the cost of repairs becomes prohibitive.

Qualimet works with clients to develop and carry out inspection schedules appropriate for their equipment's age and operating conditions. All inspections are carried out by CSA W178.2 Certified Inspectors and CGSB certified technicians working under the direction of a Professional Engineer. Qualimet itself is certified as an inspections organisation by the Canadian Welding Bureau under standard CSA W178.1, "Certification of Welding Inspection Organizations".

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Qualimet also designs repair welding procedures for the repair of structural welds and structural steel.

For more information, or to discuss your crane certification and repair requirements, please contact Sherman at 780-641-0753, or email: sherman@qualimet.ca

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