

M&M Engineering's Boiler Tube Failure Handbook



Crack—In or near weld or attachment—Longitudinal (random)



Locations	Waterwall, Economizer
Boiler Type	Recovery
Industry	Pulp and Paper

Appearance	Multiple cracks associated with attachment on outside of tube
Mechanism	Corrosion-fatigue
Comments	External attachment provided a restraint and associated high operating stress. This, together with marginal water chemistry particularly during startup, leads to corrosion-fatigue cracks

