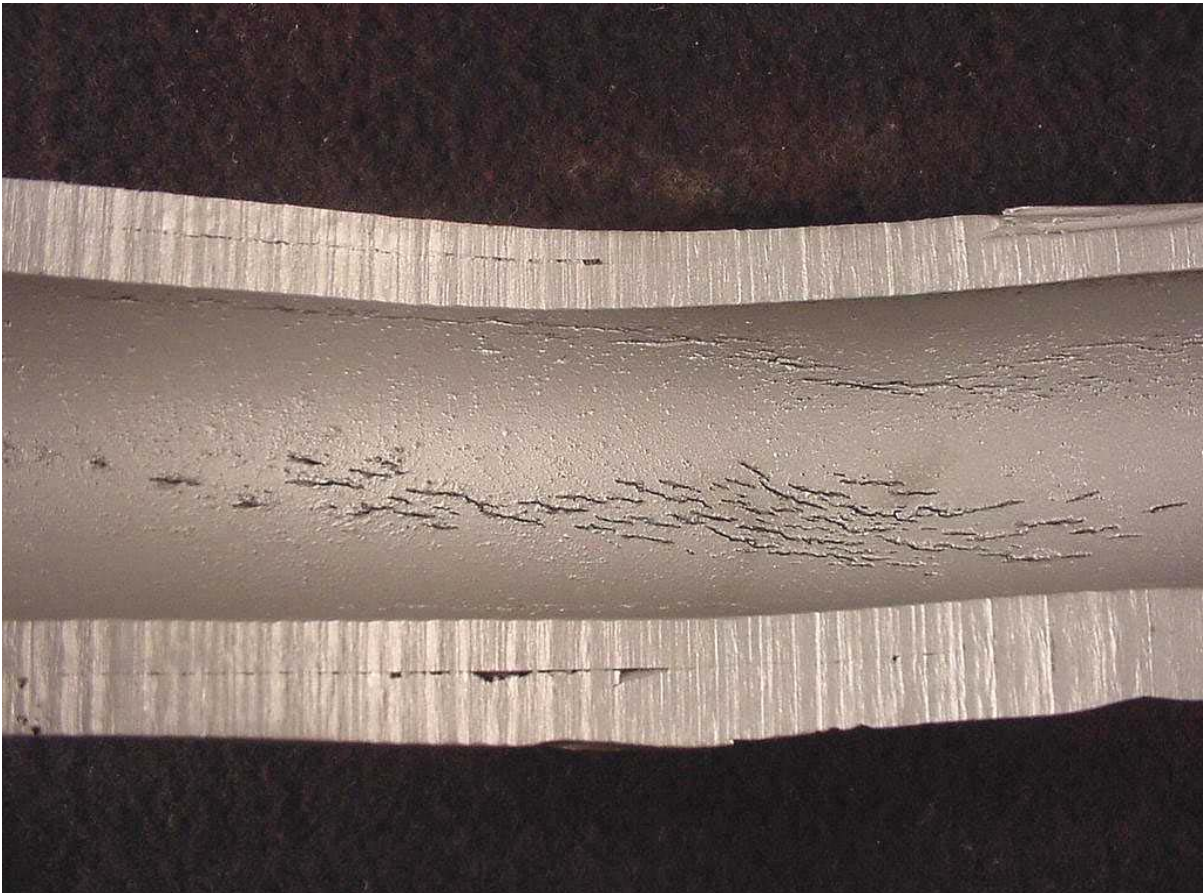


M&M Engineering's Boiler Tube Failure Handbook



Cracks—In or near weld or attachment—Longitudinal



Locations	Waterwall
Boiler Type	Power
Industry	Electric Utility

Appearance	Longitudinal ID corrosion-fatigue cracks
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

