

In coal and gas fired fossil plants, boilers are the most likely source of a forced outage due to the wide array of damage mechanisms affecting tubes, headers and piping. At Structural Integrity (SI), we have the techniques to optimize reliability through condition assessment and lifecycle management of your boiler components.

Traditional fossil-powered generating stations have hundreds of thousands of operating hours and were originally designed for baseload duty. Modern ultrasupercritical plants must endure higher operating temperatures and are constructed from newer materials with complex metallurgy resulting in challenges such as premature creep failures and oxide exfoliation, which can occur even early in life.

Our integrated approach to boiler lifecycle management includes risk-based activities such as cycle chemistry review, inspections, fitness-for-service, and metallurgical analysis allowing owners to operate with greater reliability, availability, and safety.

SERVICES

CONDITION ASSESSMENT

Our boiler asset management program begins with an extensive pressure-part audit, resulting in an assignment of a health index to each component, and reporting recommendations for future inspections, repairs and replacements.

FITNESS-FOR-SERVICE

Fitness-For-Service (FFS) evaluations offer predictions of crack growth and remaining life to help set inspection intervals and supply critical defect sizes to guide disposition of NDE results. FFS assessments explore the impact of changing operations (temperatures, ramp rates) providing insight into failure modes such as leak before break.



TUBE FAILURE ANALYSIS/ CONDITION ASSESSMENT

Our experience with root causes combined with tube failure and condition assessment conducted by our metallurgical lab, results in recommendations saving the plant from potential future failures.



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BOILER INSPECTION

Our team of experienced engineers and NDE professionals use state-of-the-art ultrasonic and eddy current methods to detect and quantify damage in a range of boiler components.



CYCLE CHEMISTRY

We are the industry leader in reviewing cycle chemistry to avoid tube failures due to mechanisms such as corrosion fatigue, under deposit corrosion, pitting attack, and stress corrosion cracking.

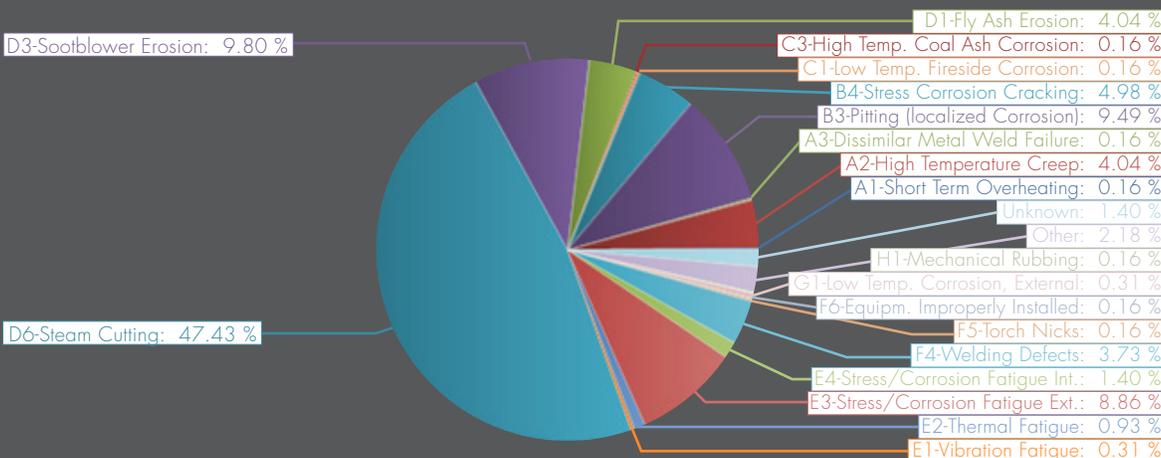
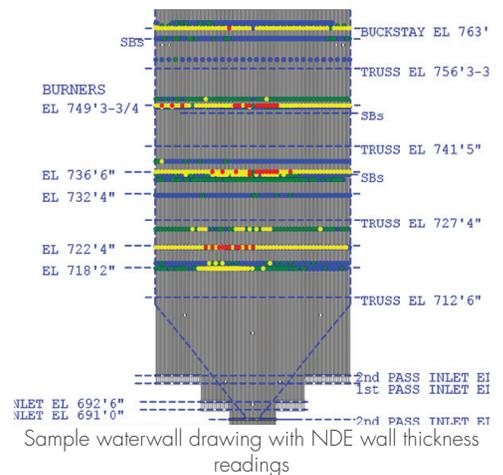
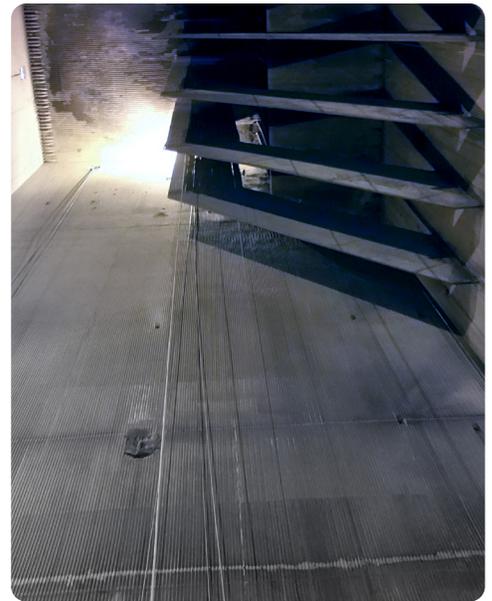
REAL-TIME HEALTH TRACKING

Our SIIQ monitoring solution offers a Header Online Damage Tracking App providing real-time health status of headers and terminal tubes utilizing existing instrumentation and our proprietary algorithms.



PlantTrack BOILER

PlantTrack supports real-time damage tracking continually reporting the instantaneous consumed life of critical components. The software includes a boiler module providing users with a simple user-interface to permanently record tube leaks, repairs, and inspections. PlantTrack supports data mapping to interactive plant-specific drawings utilized for planning.



Typical pie chart for various types of failure mechanisms