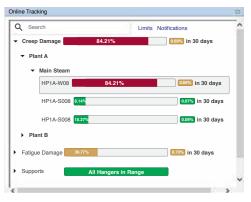


ASSET INTEGRITY MANAGEMENT FOSSIL POWER PLANT EQUIPMENT

Digital Twin Application





Online Damage Tracking of critical plant locations

AN INTEGRATED DATA MANAGEMENT SOLUTION FOR FOSSIL POWER PLANTS

Minimizing risk and maximizing reliability are the key goals for an asset management program. Structural Integrity (SI) has developed the industry leading programs and methodologies to achieve these goals. An essential part of any useful program is a system that will warehouse the associated data. However, simply storing the data is not sufficient. The data management system must be capable of mining and analyzing the data to transform it into information which can be used to make knowledgeable and effective decisions. Through intuitive interaction with this information, knowledge is developed that helps you to proactively manage your plant.

To accomplish this, PlantTrack™ is a web-based system with modules for offline data management and online damage tracking of key power plant equipment (e.g. boiler, HRSG, header, piping, etc.). The offline modules facilitate management of component history and inspection data, and provide tools to transform this data into knowledge for future decision making. The online apps calculate accumulated damage or life expended in real-time – allowing operators, engineers, or managers to track key damage mechanisms as the plant operates through start-ups, transients, and steady state.

BENEFITS OF PLANTTRACK

- Easy, web-based access from different operating systems and platforms
- Flexible graphics with data overlays to aid in visualization
- Ability to utilize standard and custom reports and charts
- Powerful database with advanced sorting, filtering, and data mining capabilities
- Online tracking of component damage based on actual plant operation
- Automated notifications if user-defined, critical damage levels are exceeded
- Central location for plant data and asset management.

PLANTTRACK PROVIDES A MODULAR, SCALABLE PLATFORM THAT CAN SUPPORT MANY POWER PLANT COMPONENTS

- Boilers: Tubing, headers, coal piping, and more
- HEP: Girth and seam welds, hangers, feedwater systems
- Across the plant
- Balance of Plant systems
- Turbines, generators, condensers, etc.

FLEXIBLE GRAPHICS OPTIONS

The PlantTrack application may have:

- CAD isometric or orthogonal view drawings
- Scanned in isometric drawings





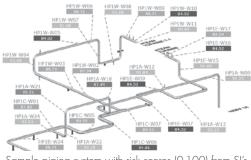
DATABASE TO GRAPHICS CONNECTIVITY

PlantTrack drawings/images are interactive, and selected records can be displayed on the graphics color-coded based on any record field. Examples for HEP/Piping applications:

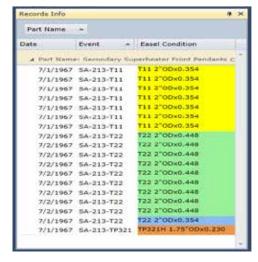
- Weld/hanger inspection findings
- Risk scores from prioritization
- Stress calculation results
- Asbestos insulation locations
- Hardness measurements
- Scheduled inspection locations, etc.

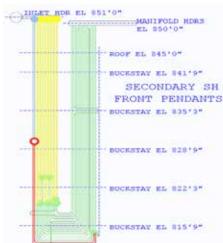
For boiler/HRSG applications:

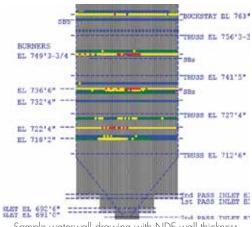
- Tube failures color-coded based on failure mechanism
- Tube repair methods
- Tube materials (material type, outside diameter, wall thickness)
- Wall/Oxide thickness readings, etc.



Sample piping system with risk scores (0-100) from SI's Vindex prioritization approach



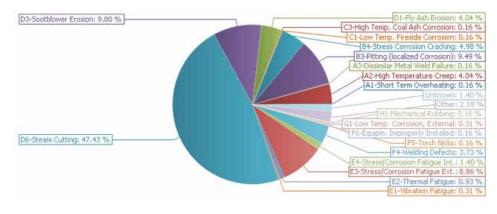


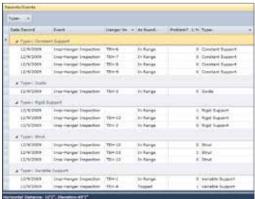


Sample waterwall drawing with NDE wall thickness readings

REPORTING FEATURES

PlantTrack is based on SQL database with advanced sorting, filtering, and data mining capabilities. Quick List and Chart features allow users to quickly design filters and create lists and charts:





Flexible Database Configuration Setup

Authorized users can edit and add new record types, as well as fields associated with records.

EXPANDED RESOURCES AND LONG-TERM SUPPORT

- Helpline, web-based forums, FAQs, User community
- Easy access to add-on modules and services
- Engineering Modules: Vindex, PGTLA, Header
- Services: Inspection and testing (with information upload)