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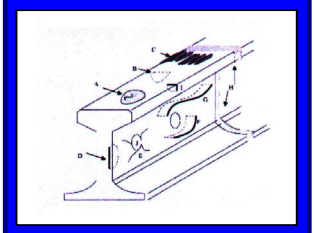
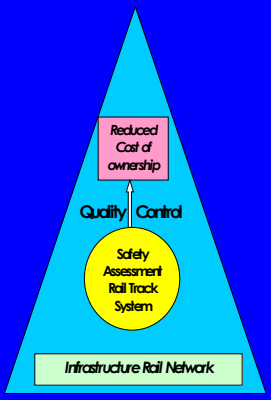
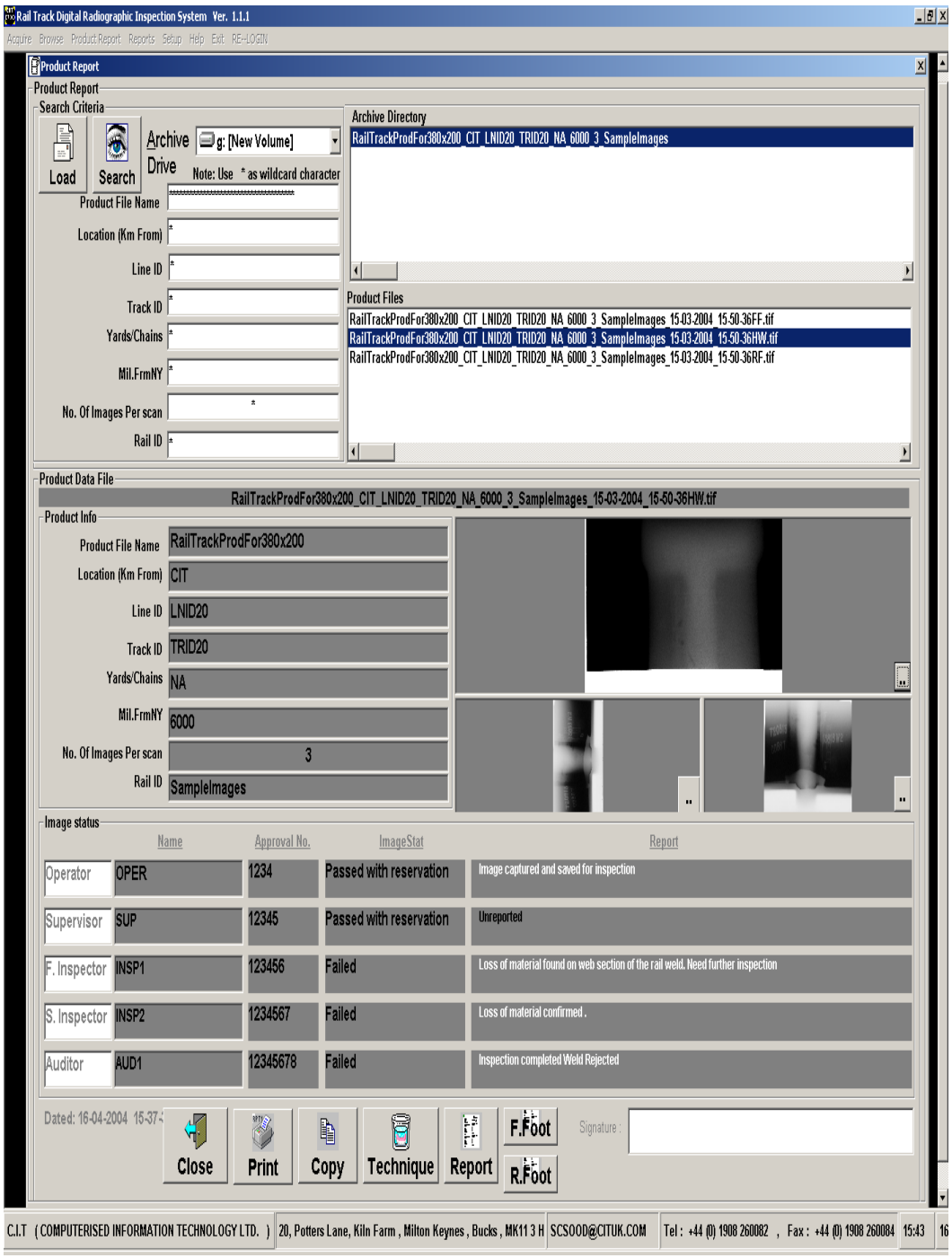
Rail Inspect™

Rail Track Safety Monitoring Management System







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Thermit Weld, Switch Blade, Radiography of Rail Tracks (TSRR)

Background

Safety assessment of Rail against failures is a paramount factor to avoid rolling stock accidents. The safety assessments rely heavily upon NDE methods results, which depend upon routine NDT inspections. Statistically several accidents have been analysed where track have contributed to the cause of the failures. Hence on-stream safety assessment system is proposed which provides information from which repair and remedial maintenance can be scheduled and promptly carried out.

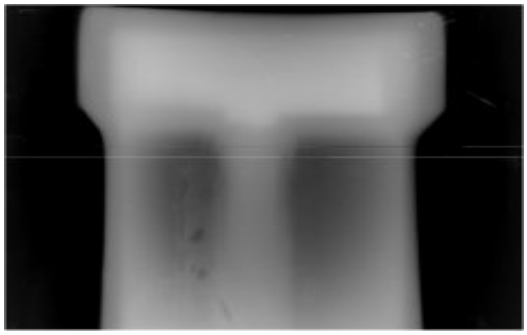
Within the Rail Track Thermite welds, switchblades and fish bolts failures can be examined radiographically. This has only become possible with the technological developments of the Digital Radiography solutions.

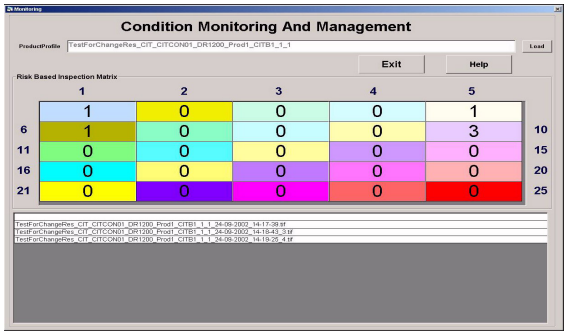
Digital Radiographic inspection enables an inspector to interpretate a radiographic image of the internal structure of the area under examination. Various defects, welds, details and metallurgied non-uniformities become partially visible. From the historical experiences and international standards the inspector can positively conclude the report from the image.

All the inspection images and data are saved on the risk based inspection method from which predictive maintenance can be accomplished. This information adds a new dimension of on-stream safety assessment.

Main features

- Fast and efficient Risk Based intelligent feedback system
- Reusable digital imaging plate technology
- On-stream electronic storage and archiving of radiographic data
- Powerful Product Inspection Software Package





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System Description

The Rail Inspect Digital Radiography Safety assessment package is a powerful management and Quality Control system that hosts the radiographic Images and other document records captured, Stored, Retrieved, Report generation and Advanced Radiograph Analysis for the entire infrastructure of the rail network.

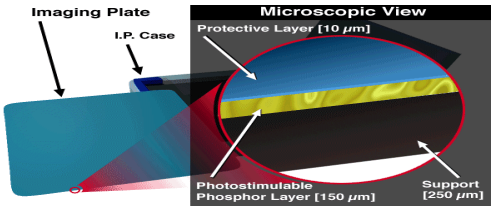
TSRR system consists of:

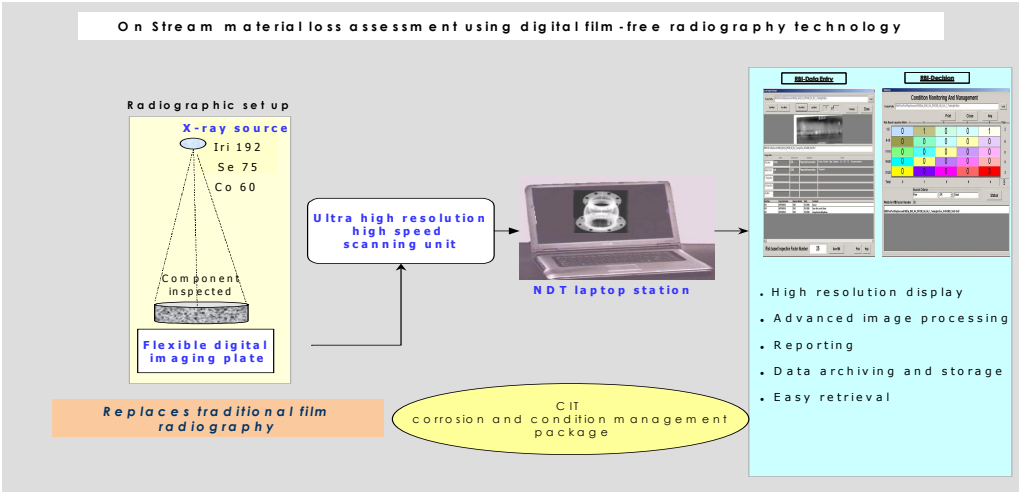
1. Field mobile radiography systems for capturing of digital radiograph images in the field. The number of units depends upon the production throughput. The data captured is saved in a structured capacity that can be uploaded or downloaded from the central system.

2. Central supervising system for archiving of all data and inspector reporting.

3. Risk based assessment, monitoring maintenance planning and feedback system

The Digital Radiography replaces Conventional Film Radiography with Flexible Reusable Digital Imaging Plates. This technology allows acquisition of digital radiograph images that can be stored electronically and easily transmitted and retrieved.





- Fast set-up
- Results within minutes
- Eliminates chemicals, films, dark rooms
- Uses existing radiographic set-up
- Reduced radiation strength value
- Reduced exposure time
- Environmental-friendly
- Automated reporting

The software application also includes high security at all levels; operator, supervisor, inspectors, auditors, and end customers.

The system can be upgraded to include a global positioning system to point the location of the item being inspected and also linked to the satellite communication for transmission of the images to the central location.

The economic benefits result in Reduced Cost of Ownership with faster access to information for predictive planning and maintenance to meet the regulatory requirements and the safety of the plant.

Rail Inspect Digital Radiography Technology provides a powerful means to the rail authorities to monitor the state of the rails from which corrective action should be taken.

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Technical Specifications

- Risk Based Inspection : Intelligent query search based upon RBI factor
- Inspection throughput : 15-20 Minutes per Thermit Weld
- NDT sensor or scanning resolution : *DR 1000*: 254 & 423 DPI
  : *DR 1200*: 150, 300, 600 DPI
  : *DR 1400*: 150 to 1270 DPI
- Radiography display units : 2040 x 1536
  : 2560 x 2048
  : 3884 x 2400
  : 3600 x 2560
- Radiography method

  - First View : Railhead & web Base
  - Second View : Foot View Front
  - Third View : Foot View back
- Radiation type : X-rays/ Iridium 192/ Se75/ Co60
- Health & Safety radiation area : 2 Meters safe working area
  : uses flexible radiation
- Shielding for protection : To comply with the radiation safety code
- Local regulations & rulings : Health & Safety department

For further details contact Sales department
Computerised Information Technology Ltd
20, Potters Lane, Kiln Farm, Milton Keynes, MK11 3HF, UK
Tel +44(1908) 260082
Fax +(44) 1908260084
E-mail: scsood@cituk.com
www.cituk-online.com