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Real Time Radiography (RTR)

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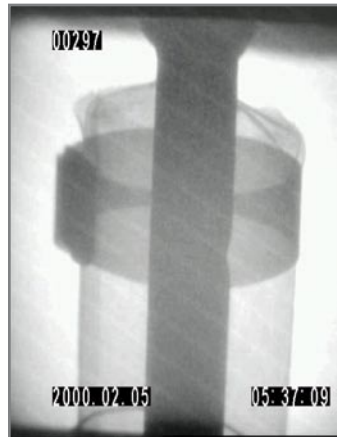
Real Time Radiography (RTR)

Real Time Radiography is a non-destructive test method whereby an image is produced electronically rather than on film so that very little lag time occurs between the item being exposed to radiation and the resulting image. The image formed is a positive image since the brighter parts of the image are where more radiation reaches the part of the screen. The method uses a standard X-ray system with the addition of an image intensifier or other detector to examine components in real time rather than with film. This allows components to be moved and rotated during the inspection, which results in better inspection coverage at higher inspection speeds.

The Open Vision™ Real Time Radiography (RTR) system is a lightweight portable X-ray system for hand-held inspection.

The system includes a highly sensitive X-ray imager and battery-operated 70kV X-ray tube designed for portable field operation. This unit's 4" x 6" imaging area and real-time video allows the operator to quickly scan a range of specimen and pipe sizes. Moving the X-ray source provides 3-D perspective and moving closer to or farther from the specimen allows increased detail resolution or field of view. Images are presented on a high-resolution 7" LCD display or on a heads-up display mounted to a hard hat. A DV SD card recorder can be attached to the system to store the video image or capture still images.





Area of local CUI as seen through the RTR screen



Manufactured defect in 2" piping

Real Time Radiography allows the user to detect corrosion under insulation (CUI) easily and rapidly.

This technique offers the ability to detect areas of corrosion for further evaluation at a reduced amount of labor and materials, thus reducing cost.

RTR is another tool in the "CUI bag" allowing the focus of maintenance and inspection budgets on areas of greater concern (i.e. identifies areas of wet and saturated insulation).

Many variables contribute to the speed of inspection, but on average, the user can inspect 300'-500' of pipe per day.

Additionally, this technique has been used for the location of welds in support of PMI projects.

Technical Specifications

Imaging area	4" x 6" infield of view
Dimensions	13" to 27" X-ray tube to imager (17" throat depth)
Acquisition time	Real time NTSC video (30 fps)
Energy	40/55/70 kV .1/.2/.3 Ma
Spatial Resolution	250 micron (.010")
Contrast Resolution	8 bit 256 grayscale
Weight	17 lbs
Operating temperature	-30°F to 120°F (-34°C to 49°C)
Display	LCD handheld or optional handle mount
Alternate display	Digital video recorder with LCD display and 4 GB SD card





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