

SCORE™ – System for Control Rod Examination

A Highly Effective Solution for Control Rod Examination

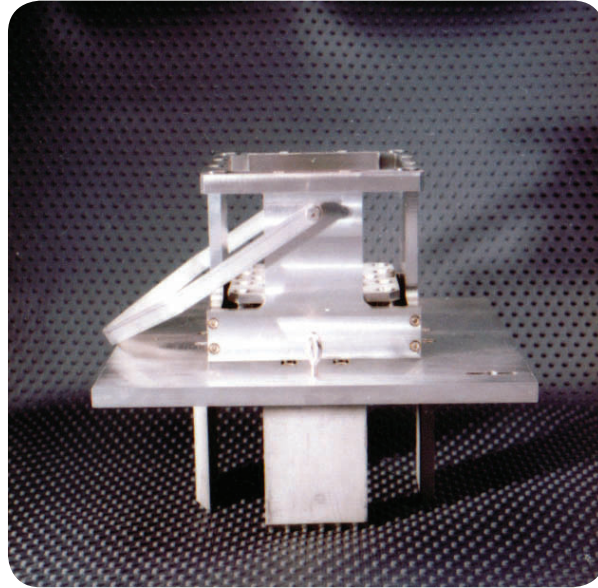
AREVA developed the System for Control Rod Examination (SCORE™) to detect wear on Rod Cluster Control Assemblies (RCCAs) by using both ultrasonic and eddy current techniques. The system can identify wear characteristics to support operational management by providing information on both the volume of material removed and the shape and characteristics of the wear mark itself. The system's computer analysis includes an on-line assessment of the RCCA condition. SCORE has been used successfully at nuclear power plants throughout the United States and Europe.

Thorough, Fast and Reliable

SCORE measures both outside diameter (OD) wear and cracks through the cladding wall. Its ultrasonic technique detects and quantifies the OD wear associated with flow-induced vibration and sliding wear. In fact, the system provides a full-length circumferential wear profile of each control rod. And the computer processes all data on site for rapid assessment. How fast? AREVA can acquire inspection data on an entire RCCA in less than 30 minutes, excluding the time required to transfer the RCCA to or from its storage location.

SCORE Impacts the Bottom Line

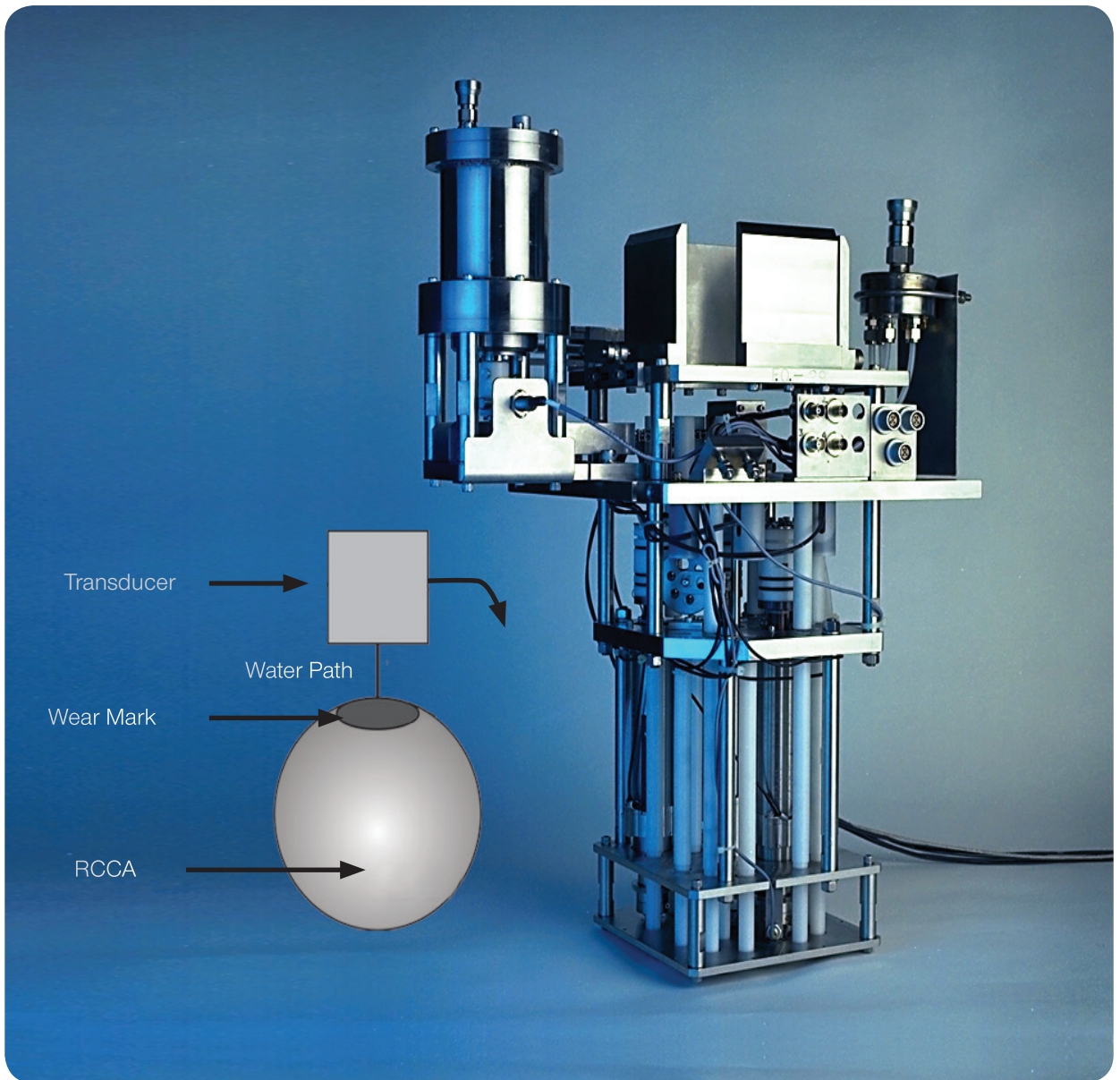
The system can detect OD-initiated control rod flaws as small as 0.0005 inches in depth, delivering highly accurate evaluations of absolute wear. This level of accuracy allows plants to avoid a more conservative and expensive control rod replacement schedule. SCORE can also preclude the failure of control rods that may have been undetected by less accurate techniques. The result? SCORE saves money and provides added safety by eliminating unexpected surprises and expense during plant operation. Plus, recent upgrades to the system's electronic instruments and data processing have further enhanced its reliability, accuracy and speed.



Systems using only eddy current are also available to provide a cost-effective solution for alternate fuel designs.

Features and Benefits

- Employs both ultrasonic and eddy current techniques
- Measures volume, shape and characteristics of both internal and external RCCA defects
- Inspection performed in only 30 minutes – or less
- Saves money by testing absolute wear depth
- Can allow liberalized control rod replacement schedules



A rotating high-frequency transducer detects wear marks as an increase in the length of the water path to the RCCA surface.

SCORE detects control rod failure that other systems miss, eliminating unexpected surprises and expense during plant operation.

AREVA Inc. Corporate Headquarters
 One Bethesda Center, 4800 Hampden Lane,
 Suite 1100, Bethesda, MD 20814

For more information,
 contact your VP, Key Accounts:
 Tel: 434 832 2723 – Fax: 434 832 3840
regional.manager@areva.com – www.us.areva.com

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