Rail Business

www.railbizindia.com

Volume 11, Issue 54 - June 2020

Online

Exclusive

Robust Railway Responses for the Tough Times

(Work From Home Edition)

The new field NORM

Vishwesh Chaube
Member Engineering
IR Board

LC Trivedi
General Manager
East Central Railway

VP Dudeja
Vice Chairman
Rail Land Development Authority

Alstom
New Electric Locos for IR

ISSN No. 0976-254X

Better safety for tracks, enhanced safety at work

Vladimir Pavliouk,
Business Development Manager, CTF

Rail traffic generates wear and defects in the contact area between rail and train wheels. Different defects appear even on the most recent and the best maintained networks. Local weld repairs to damaged areas, without any major rail traffic disruption is a recognised need for now and the future.CTF France Sauron has an answer to this challenge: automated welding.

Computerized control of the welding process reduces human error risk, increases weld quality and consistency, allows traceability of all welding events. It also improves safety and comfort of welders by eliminating their exposure to welding fumes and bad working postures.

The technology was first introduced to IR in 2009. Since then it has been successfully used for in-situ reconditioning of CMS crossings. Now Translamatic robotic welding has also been approved for in-situ reconditioning of wheel burns, scabs and cupped welding joints.

'CTF Translamatic robotic welding solutions can make a small but much needed contribution tosafer tracks in India.

Computerized control of a welding process reduces human error risk, increases weld quality and consistency, allows traceability of all welding events.It also improves safety and comfort of welders by eliminating their exposure to welding fumes and bad working postures.

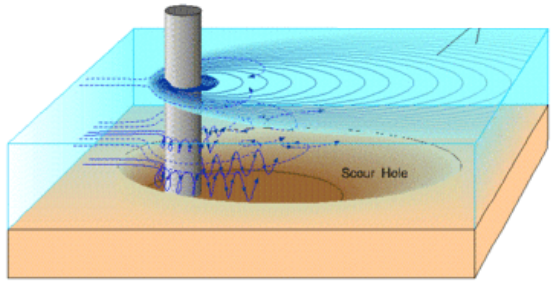
The technology was first introduced to IR in 2009. Since then it has been successfully used for in-situ reconditioning of CMS crossings.Now Translamatic robotic welding has also been approved for in-situ reconditioning of wheel burns, scabs and cupped welding joints.'

Rapid bridge surveys with Doppler profiler

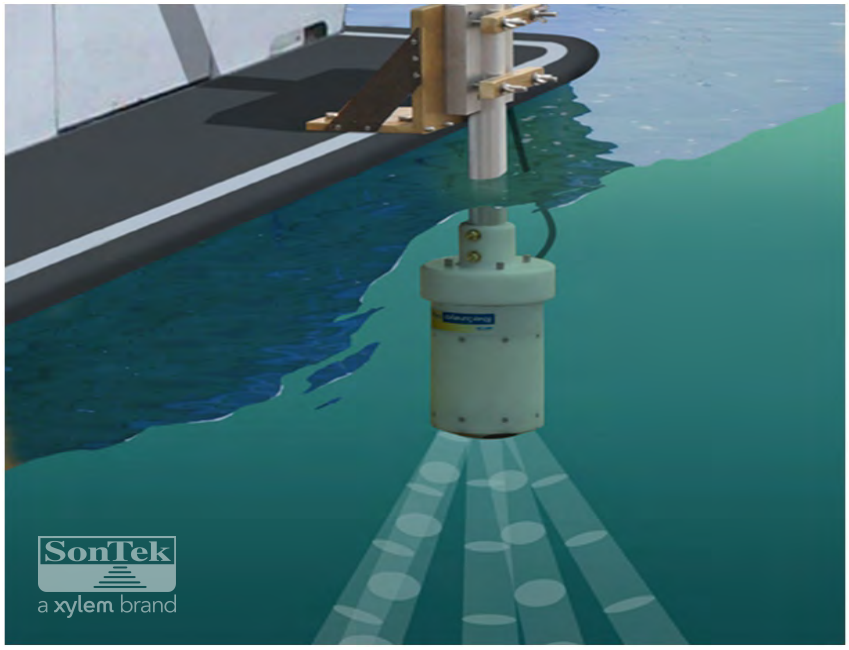
Rajiv Bhatia
Application Specialist, Xylem Analytics

A bridge failure can be catastrophic. The threat for IR is heightened as about 38000 of its bridges are more than 100 years old. The biggest concern is scour, the removal of sediment from and around bridge abutments and piers caused by swiftly flowing water that can comprise the integrity of the structure.

Bridge scour is one of the three main causes of bridge failure (the others being collision and overloading). It has been estimated that 60% of all bridge failures result from scour and other hydraulic-related causes. Water normally flows faster around piers and abutments, making them susceptible to local scour. At bridge openings, contraction scour can occur when water accelerates as it flows through an opening that is narrower than the channel upstream from the bridge. Degradation scour occurs both upstream and downstream from a bridge over large areas. Over time, this can result in lowering of the stream bed



The bridge scour phenomena (source : internet)



and, finally, weakening of the bridge structure.

Gathering data on the bridge scour over a period of years is only the way that early warnings can be issued to strengthen endangered piers and abutments. Bathymetry surveys that measure depth and velocity near the bridge pier are considered the best technique to gather long-term data around the bridge piers.

New detection technology is now on offer. The SonTek HydroSurveyor is an instrument/technology that IR has employed to rapidly measure bathymetry and velocity data. This is an acoustic Doppler profiler (ADP) equipped with five acoustic beams. Each beam measures depth and velocity in sections, gathering data from up to 128 cells at a time. The HydroSurveyor also tracks the bottom at depths of up to 40 meters, providing a map that can identify scour holes. A moving boat survey is carried with the HydroSurveyor M9 instrument that measures five-point depth along with the velocity around the piers as well as 100 meters upstream and downstream of the piers. The studies are being conducted on the changes occurring pre and post monsoon seasons.The HydroSurveyor system employs a 9-beam ADP, using 5 beams at any one moment for depth measurements from a wide footprint on the water bed. This means that the time spent "driving" the boat is minimized in comparison with single beam instruments.

'The HydroSurveyor is unique because it is the only product on the market that is able to make real-time corrections for thermoclines, saline stratification and the effects of boat pitch and roll. User-friendly software provides a central recording and processing platform that enables users to develop bathymetric maps and velocity maps, using properly gridded data points—a function that is automated and fully embedded in the software' ***....Rajiv Bhatia, Application Specialist, Xylem Analytics***

Detecting juvenile rail fractures, much before a disaster

RTI progress Through Smarter Technology
Rail Technology International

Rail engineers have long practiced varying levels of ultrasonic detection for internal defects inrails. Undetected rail fractures left to grow can lead to big disasters; early detection with minimal trackoccupation is gaining new resources and ever changing technologies. The new tends are for high reliability, detection of minute internal flaws and equipment portability so that suspect spots can be reached fast and with minimal disruption to rail traffic.

RTI Australia has introduced equipment that iscompact by design and can be installed on various platforms and be capable of detecting rail flaws at speeds up to 40 kph. The vehicle ultrasonically inspects both rails and accurately records all data

collected against differential GPS coordinates and the kilometre location. High sampling rates up to

4096 samples per frame are achieved allowing the display of complete information for analysis,

not just peak signals. The operator is presented with the collected data on a B-Scan display that gives a true pictorial representation of the rail and the defect.

Moore's law for USFD ?

RTI's 2000SX, designed in 1987 utilised 1 peak sample per frame, the industry standard then. 8000SX introduced in 1998 was considered the highest resolution system (1,024 samples per frame) and now RTI's 8800SX peaks at 65,536 samples per frame. RTI introduced this super high resolution in order to enhance the

Easy portability is provided by the dual mode (road and rail) fitment. The RTI Smart Track Test carriage uses pneumatic cylinders to place the carriage out to gauge where gauge rollers are positioned to hold and control the carriage in place, alignment is adjusted in three axes: longitudinal, lateral and for cant. The height of the carriage above the rail is controlled by height (red) rollers, there is no requirement to lock the test carriage at switches and frogs.