

New Technology for Root Cause / Source Identification Of Unintended Flare & Vent Emissions



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Score



Your Source Emissions Challenge...

How many possible sources are there in your process...?

Hand-held Tooling : Make the Invisible Visible, but...?

Automation and Continuous Monitoring Required

Intelligent Valve & Emissions Management™

Capture Performance Data

Store Performance Data

Analyse Performance Data



Report on actionable
Valve Insights™

Alert on unsafe / intolerable
performance

Identify Recurring Trends /
Failure patterns

Identify & Report Opportunities
for Continuous Improvement

New Through-Valve Leak Sensor

Detection

Quantification

Trending

Reporting

*Proactive
Predictive*

Intelligent Valve & Emissions ManagementTM

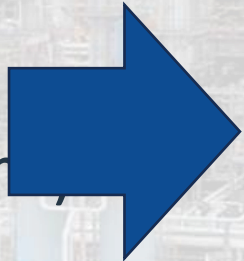
New Through-Valve Leak Sensor

Unique
Secondary
Built
Compatible
Intrinsically
Wireless
Easy
Removal
Lower Cost Installation

Standard
Design
Compatible



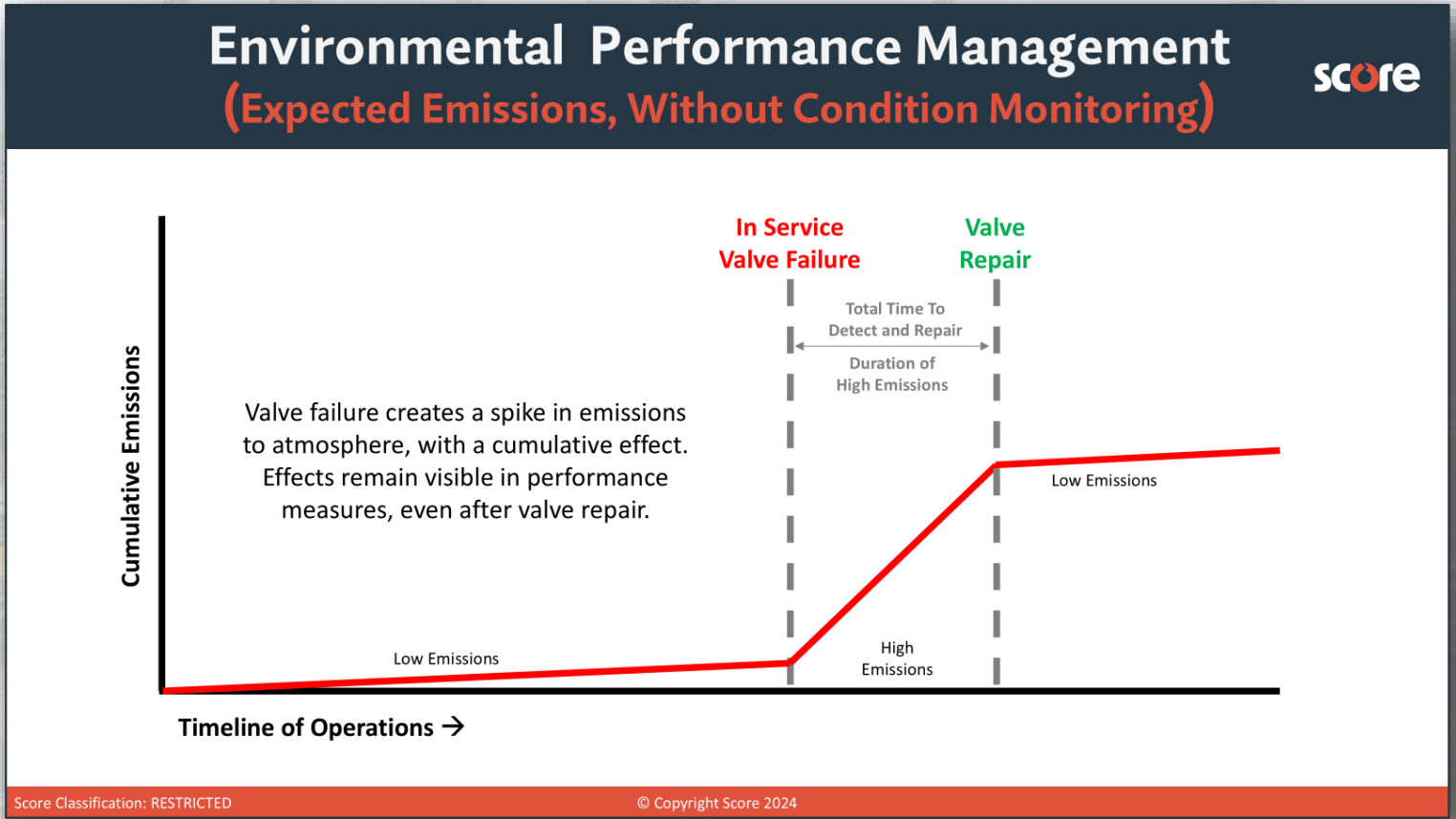
**2012
Technology
Release**



New Through-Valve Leak Sensor

Let’s take a closer look at the “Metrics that matter”...

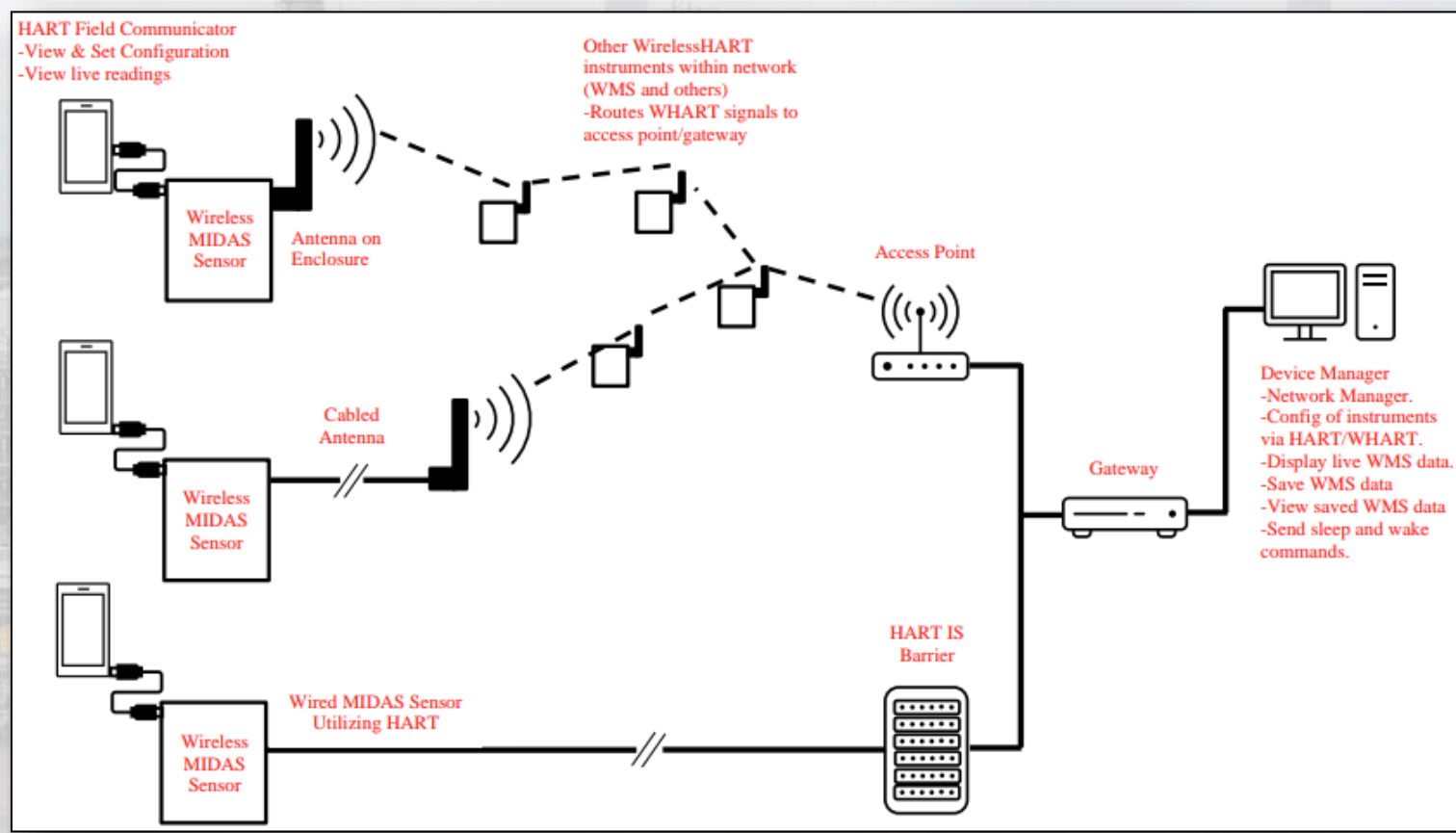
- Familiar Reliability Terms*
MTTD = Mean Time To Detection
MTTR = Mean Time To Repair
- Related Response Terms*
MART = Mean Active Repair Time
MORT = Mean Overall Repair Time



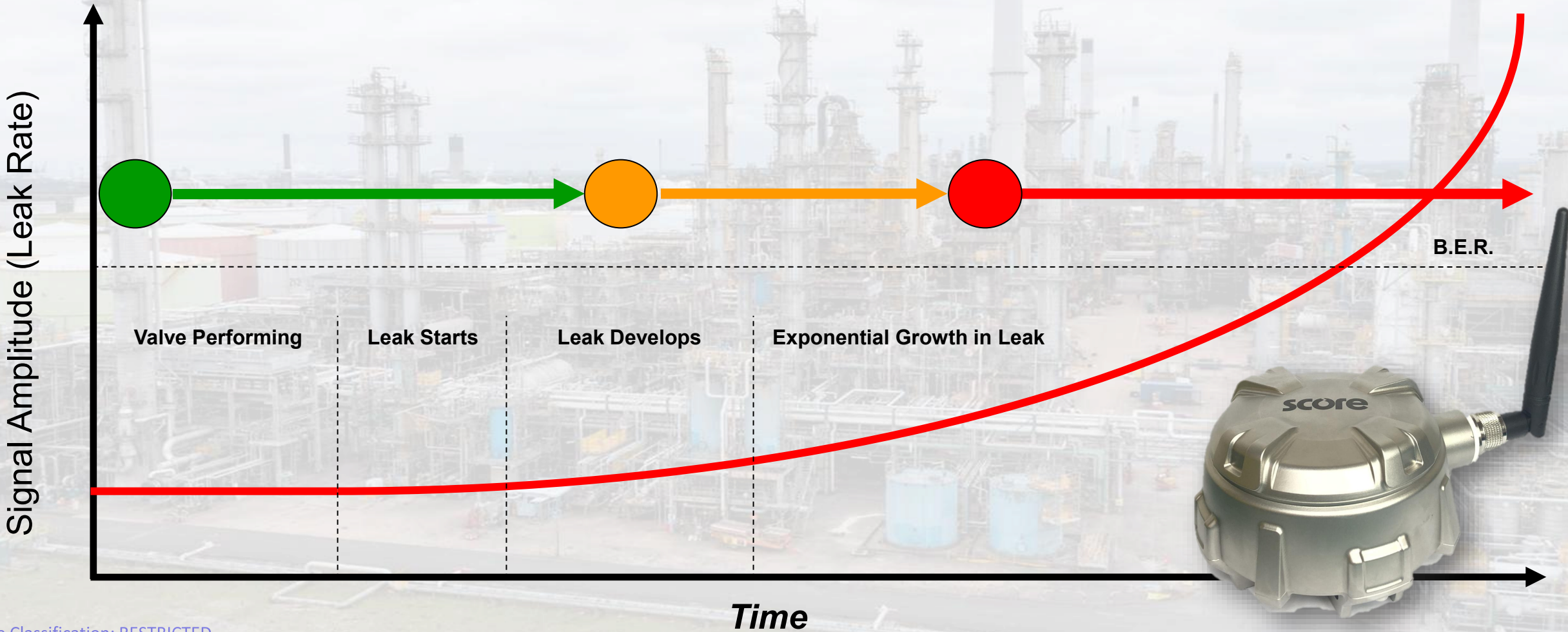
New Through-Valve Leak Sensor

Underpinning Technologies

- Acoustic Emissions (AE)
- HART Communications
 - ✓ Easy Set-Up
 - ✓ Mesh Networks
 - ✓ Repeaters & Gateways

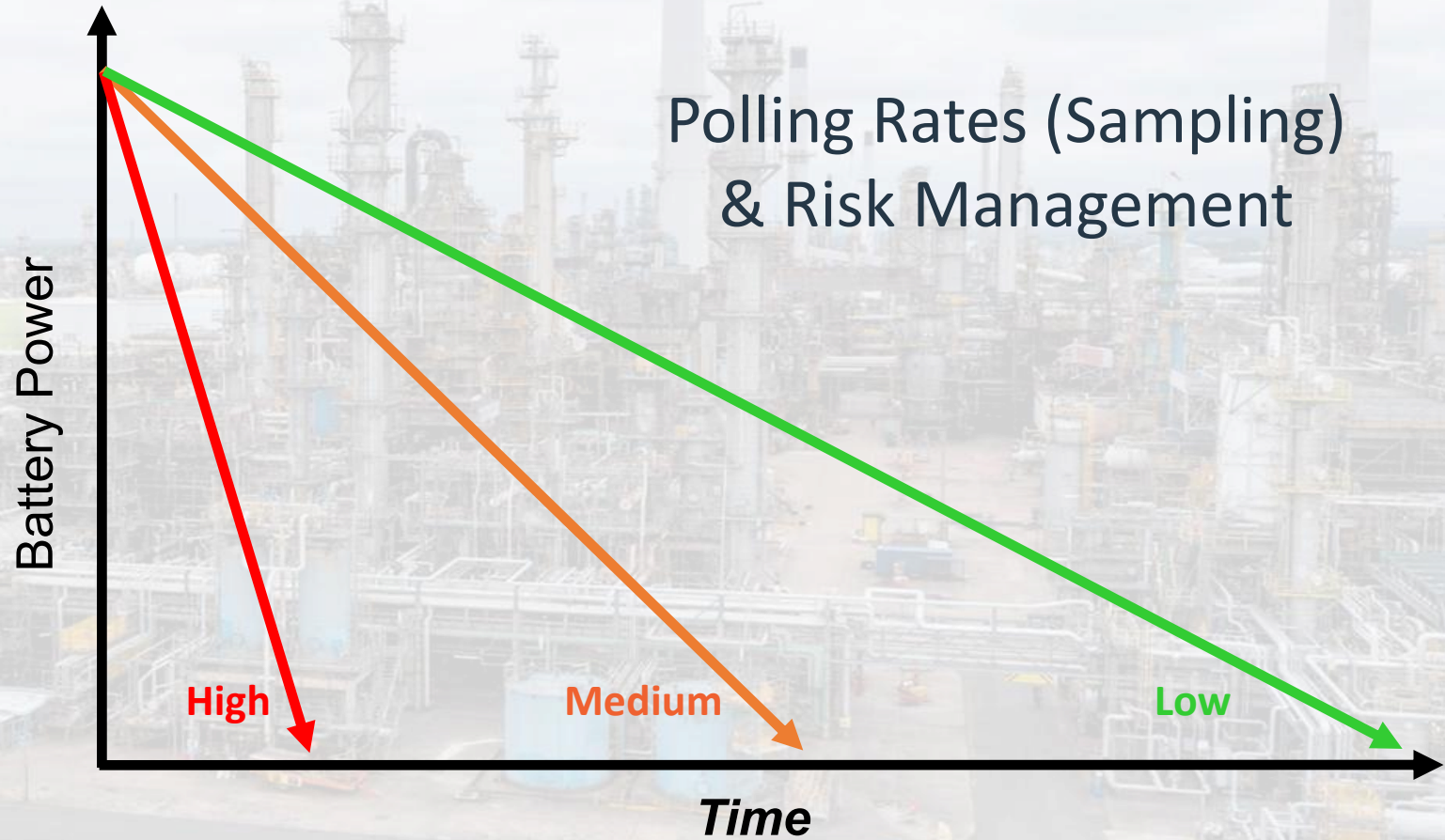


Isolating Valve Life-Cycle Data (RBI v CM)



New Through-Valve Leak Sensor

- Power Management
- Wire v Battery
- Compromise
- Wake-Up Function
- Advantages



New Through-Valve Leak Sensor

Continuous Improvement Metrics...

- MTBT = Mean Time Between Testing
- MTBF = Mean Time Between Failures
- MTBM = Mean Time Between Maintenance
- MTBI = Mean Time Between Interventions

VALVE SIGHTS™

“Time is of the essence...”



Onshore Refining Facility Flaring Incident

A six-day **flaring event caused significant disruption** to the local community with residents describing the noise as “like a jet engine”. It led to **over 900 complaints**, the highest ever recorded for a single environmental event in Scotland.

SEPA investigation found that:-

- Smoke emissions exceeded legal limits for 110 minutes (more than seven times the permitted 15-minute duration).
- Noise pollution was significant, confirmed by monitoring in the community and resident statements.
- Existing contingency plans weren’t followed to a high enough standard.
- Poor maintenance, a lack of understanding of the site’s steam balance, and outdated risk analyses contributed to the incident.

Operator fined £176,000

after pleading guilty to breaching its environmental permit

Potential Impacts / Annum

Local

- 1 North Sea Platform Environment
- 12m m³ Flared Gas
- \$1.38m Equivalent Sales Value

Global

- 1,000's Sites Environment
- 138,549m m³ Flared Gas
- \$16Bn Equivalent Sales Value



First Projects (WIP)

North Sea (NCS)

- 6 New Platforms
- Normally Unmanned
- 474 Sensors
- 147 Valves
- V-MAP® G3 Integration
- Automated Alarms, Alerts



Benefits of Intelligent Valve Monitoring™ : A Business-Wide Perspective

	Detect Poorly Performing Valves	Quantify Performance Degradation in Valves	Trend Degradation in Performance Over Time
Maintenance Engineers	Easy Inspection / Failure Modes Detection	Prioritised / Targeted Resources Deployment	No Unplanned Shutdowns or In-Service Failures
Reliability Engineers	Early Identification of Degradation / Failures	Optimized Shutdown Planning	Minimized Downtime / Maximized Uptime
Asset Integrity Management Engineers	Risk Based Inspections / Visibility of Degradation	Proactive and Preventive Maintenance	Predictive Modelling of Failure Modes
Control Room Operators	Enhanced Monitoring and Troubleshooting	Loss Prevention and Reduction	Operating Profit Maximization
HSEQ Team	Risk Management and Compliance	Emissions and In-Service Failures Reduction	Optimized Operational Performance
Site Management Team	Risk Management and Compliance	Loss Reduction	Optimized Operating Performance / Profits

Moving from a “**reactive maintenance response**” approach to “**optimised asset management**”, through quantitative evidence

Process performance driven by monitoring analytics

MIDAS[®] Valve Insights[™] Delivering :-



OPTIMISED INTELLIGENT
VALVE & EMISSIONS
MANAGEMENT[™]



MINIMISATION OF
OPERATIONAL RISKS



MINIMISATION OF
OPERATIONAL COSTS



MAXIMISATION OF
RELIABILITY / UPTIME



MAXIMISATION OF
PROCESS PROFITABILITY

So, no more disrupted family dinners and you can sleep like this happy baby every night...



New Through-Valve Leak Sensor

Accelerating your journey to net zero emissions

For more information, please contact us at :-
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www.score-group.com

Any Questions?

score
Global expertise. In operation.



Score Website



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