

Pre-Shutdown Planning with
MIDAS Meter®



Benefits Summary and Case Study



Pre-Shutdown Planning Benefits Delivered by MIDAS Meter®

The Customer's Challenge:

Cost effective planning of shutdown maintenance scope in the absence of hard evidence of the current condition of process valves is near impossible. Inevitably, this lack of evidence leads to many "just-in-case" repairs being needlessly carried out, which results in higher than necessary expenditure and additional workload that delivers little or no benefit to stakeholders.

The Score Diagnostics Solution:

Using Score Diagnostics' MIDAS Meter® to non-invasively survey valves as part of a maintenance planning activity can provide hard evidence of in-service valve condition. Your Asset Integrity and Maintenance teams can then use this evidence to target maintenance interventions and prioritise maintenance budget spending on valves where the maximum benefits can be achieved.

The Equipment/Software:

The MIDAS Meter® is a completely portable and easy to use valve condition monitoring tool which uses an acoustic emission (AE) sensor to detect and measure the high frequency noise generated by the turbulent flow of fluid passing through a leak path. The method allows the user to quickly and easily find leaking isolation valves, control valves, PSVs and steam traps; and to log, store and analyse the data in the field giving immediate results for action or further investigation whilst on site. Furthermore, it allows personnel to benchmark valve performance at any time during the valve's life cycle to enable trending and predictive analyses for input into future inspection and maintenance programmes.

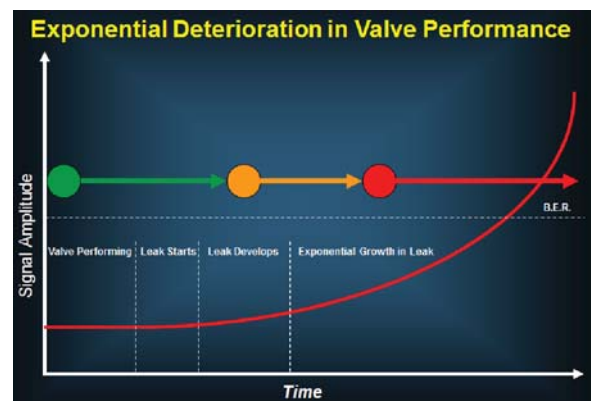


The Implementation:

Our experienced technicians can visit your site and carry out a full survey of all essential valves and quantify any leaks quickly and easily, thereby letting you know their condition and level of deterioration. This survey service allows you to see which valves require maintenance work ahead of your planned shutdown.

Ongoing Value Added:

Ongoing surveys allow you to trend valve performance over time and monitor deterioration of your valves' performance, giving you early indications of any problems, so allowing you to develop preventative valve maintenance plans. This state of the art valve condition and performance monitoring solution takes you from reactive to proactive maintenance by engaging in condition based monitoring and predictive maintenance activities as part of a risk based inspection strategy.



Pre-Shutdown Planning Survey Case Study

Specifying Score Diagnostics' MIDAS Meter®, a customer commissioned a survey on critical blowdown system valves in conjunction with a planned shutdown on three sites. At the time of the survey, several pressure safety and manual isolation valves were also added to the work scope.

The survey provided the following results for 81 valves that had been targeted for maintenance work during the planned shutdown period at three process sites:

53 Valves had No Detectable Leakage

28 Valves had Detectable Leaks

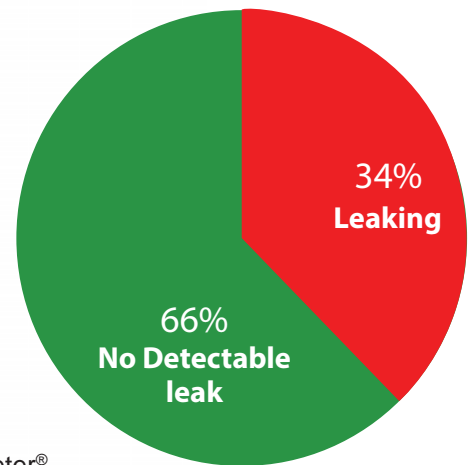
By examining the results, the survey gave the customer's Operations and Maintenance personnel the information they required to prioritise valves for maintenance and order spare parts and replacement valves ahead of the outage, avoiding any risk of extending the planned shutdown periods.

The survey results also allowed the customer's Operations and Maintenance personnel to confidently dismiss 66% of their planned valve repairs – based upon the evidence that those valves did not have any detectable leaks – resulting in a direct repair costs saving of **£126,765**, plus labour costs associated with the removal, testing and reinstatement of **£23,220**.

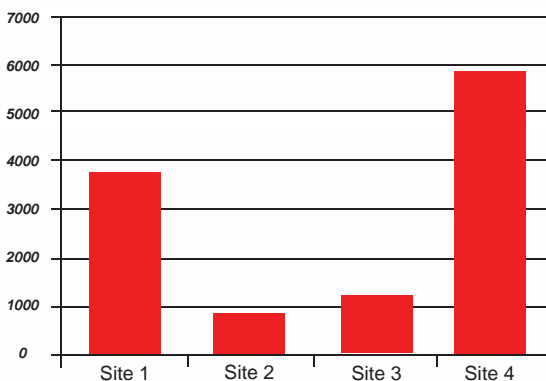
By engaging in these condition and performance monitoring activities, Midas Meter® has taken this customer from reactive maintenance “just-in-case” to proactive maintenance “with cause”. Helping them focus and prioritise budget expenditure and actions on valves where maximum benefits could be achieved and avoid unnecessary repairs, delivering major cost savings.

Looking at the leakage rates split per site, the customer could also easily identify which valves and sites should be prioritised for maintenance, with Site 1 offering the best available return on maintenance investment, being the cause of the majority of the losses:

Valve Survey Results



Product Losses by Site



The MIDAS Meter survey highlighted that the total process fluid losses, based on the calculated leakage rates, were:-

- **6,200** litres/minute of gas leaking to flare, through damaged valves.
- **19.2** litres/minute of liquid, leaking to drain, through damaged valves.

These leaks represent an annual commercial loss value equivalent to **£207,642**, on the basis that the sites were operational for 50 weeks per year.

With survey costs of £18,613 and maintenance cost savings of £149,985 taken into account, **this survey helped the customer save £339,014 for the trading year.**



It is known that leaking valves represent major safety and environmental risks and are a major source of lost profits. Finding and fixing these leaks is therefore a major driver for process plant operators. Score's non-invasive MIDAS Meter® Acoustic Emission (AE) Leak Detection equipment finds leaking valves more quickly and easily than conventional methods or instrumentation can.

MIDAS Meter® provides a leak detection system that is:

- Portable and Intrinsically Safe (IS) certified for use in hazardous environments
- Non-invasive, ensuring minimum or no disruption to operations
- Integrated with a hand-held computer (PDA) that provides data storage and analysis capabilities whilst in the field and with desk top database and reporting capabilities back in the office

MIDAS Meter® can be deployed in support of:

- Asset Integrity Management (AIM) requirements with its ability to trend leakage over time and so enable a predictive maintenance strategy, based on Reliability Centred Maintenance (RCM) principles to be implemented for the valve population
- Risk Based Inspection (RBI) programmes, for example, in conjunction with setting PSV recertification intervals and benchmarking valve performance during plant commissioning or start-ups
- Pre-shutdown planning activities to maximise return on investment from prioritised maintenance
- Trouble shooting to identify problem valves so potentially avoiding unnecessary shutdown

The unique benefits of this step-change technology:

- Increased plant safety, availability and operability with consequential cost savings
- Avoidance of environmental issues resulting from hydrocarbon emissions to atmosphere
- Recover lost profits from product leaks via flare lines, vents and drains

MIDAS Meter® delivers a proven valve monitoring technology with a track record of over 20 years and is used by major companies in the oil & gas, petrochemical, utility, energy and process industries throughout the world.



Score Diagnostics Limited

Intelligent Valve Monitoring™

www.midasvalvediagnostics.com

*For further information or to request a quotation, please contact us at:-
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