



NextGen Performance<sup>®</sup>

## Reliability Improvement A Cornerstone of Profitability

**R**eliability is the cornerstone of any profitable processing industry: hydrocarbon, petrochemical or chemical. It underpins health, safety, and environmental programs, and reliability is also a major determinant of both maintenance costs and overall financial performance of a facility.

KBC offers leading edge reliability tools and techniques, which can be applied to one specific reliability issue or used to develop comprehensive, site wide maintenance strategies. Our proven approach to Reliability Improvement, one component of the KBC FULCRUM Suite for reliability, availability, and maintenance, provides industry with NextGen maintenance and operational asset care programs at a fraction of the cost of other methodologies. NextGen Performance<sup>®</sup> in reliability is achieved by focusing on two major areas - proactive and reactive plans.

### PROACTIVE – RISK-BASED ASSET MANAGEMENT PLAN (RAMP)

The KBC Risk-Based Asset Management Programme (RAMP) is the process of developing operational and maintenance care strategies for the life of an asset based on the technical knowledge, equipment maintenance/failure history, and operational experience provided by multi-functional site teams. This approach combines reliability methodologies and risk-based management techniques to provide leading maintenance and operational equipment care plans at a fraction of the cost of other approaches, tailored to the client's specific operating environment.

Using the RAMP approach, the site team will:

- Quantify the potential business impact of the various failure modes for all critical equipment
- Provide recommendations to mitigate the overall business risk through changes in maintenance practice, operations policy, or, if necessary, through an engineered design change
- Optimise maintenance activities and reduce maintenance work on "low risk" items
- Develop comprehensive and evergreen asset care plans for critical items

Asset care plans developed by RAMP define the inspection, prevention/predictive maintenance, and production monitoring programmes required to achieve the optimum business solution.

### NextGen Performance Tip:

*An unexpected repair costs five to seven times more than the same repair done proactively*

Compared to historical approaches to reliability engineering such as Reliability Centred Maintenance (RCM), RAMP provides equivalent results with less expense and valuable resource time.

The RAMP approach permits rapid development and implementation of highly effective asset care plans directly related to business objectives:

- KBC provides "generic" asset care plans for most types of process equipment (such as centrifugal pumps, or fired heaters) representing the optimal maintenance effort required for mitigating the failure modes inherent in equipment design. These plans are developed prior to the first site visit utilising Failure Modes and Effects Analysis (FMEA) techniques.
- These "generic" plans form the base or platform upon which a complete asset care plan, tailored to the specific site operating context is developed.
- Cross functional site teams utilise risk management techniques to develop equipment specific asset policies using the generic policies as a template and focusing on specific degradation mechanisms related to the operating environment of the equipment.
- Since up to 70% of the total equipment can be optimally maintained using generic policies, RAMP minimises overall development time and optimises valuable resources.

### REACTIVE – DEFECT ELIMINATION - SOLVING PROBLEMS

Plants no longer have sufficient staffing to investigate every incident or issue, regardless of its true importance as determined by business drivers. The KBC Defect Elimination (DE) process recognises this fact, and we use the concept of site wide reliability to prioritise all site reliability, production, and/or safety issues based on the risk they pose if allowed to continue without change.

KBC DE process delivers:

- Business-driven results
- Site-wide reliability and objective risk ranking for optimal selection of issues to investigate
- Well trained investigators
- Fewer long meetings, less resource time required
- Faster results most investigations requiring less than two

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calendar weeks

- Establishes a central investigation data base to promote identification and analysis of "systemic" issues
- Effective management of recommendation implementation process
- Retention of corporate knowledge for long-term leveraging results

### RELIABILITY MODELLING TOOLS

For more comprehensive or complex reliability issues, KBC has state of the art simulation and analysis software tools to assist with life cycle analysis. These tools allow "what if" scenarios to be performed quickly and effectively so that decisions can be tested and justified prior to implementation. Effective reliability modelling and simulation can be a valuable asset regardless of where the client is in their quest for NextGen Performance in reliable operations.

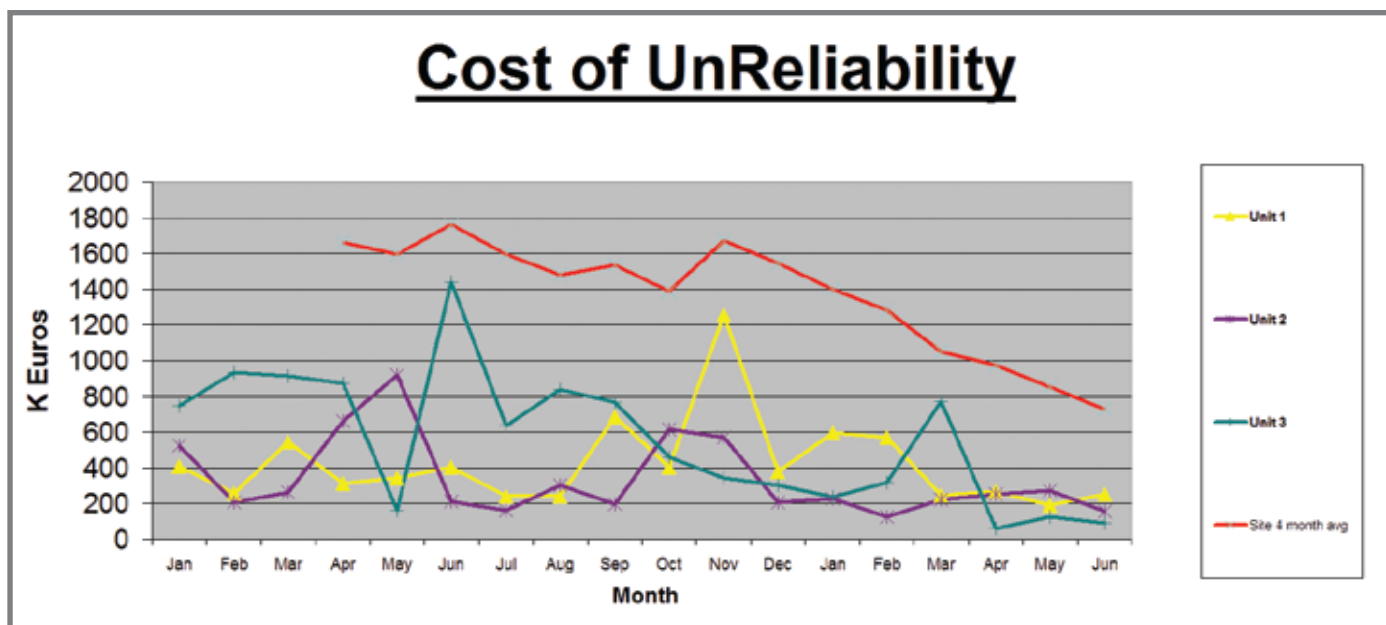
- For clients in the early stages, reliability modelling can pinpoint significant detractors of overall process reliability for quick analysis and solution, yielding quick profit improvements.
- For clients with established reliability foundations, reliability modelling can help identify those reliability issues that have the highest probability of causing lost profits.

### TOTAL SITE WIDE RELIABILITY

The KBC philosophy of total site wide reliability offers clients a complete service organisation that can address almost any issue affecting the operational performance of a facility. From strategic planning, organisational structure, human performance improvement, and energy optimisation to equipment reliability, KBC has the expertise to assist clients in achieving NextGen Performance.

### THE BENEFITS

NextGen Performance requires a fundamentally reliable operation. Maintenance and operational care programs are central to this. Unique KBC solutions to implementing Reliability Improvement typically reduce cost of unreliability, including maintenance costs, by 40% and increase plant reliability and availability at the same time.



### Your Company + KBC Produces *NextGen Performance*<sup>n</sup>

We collaborate with our clients to create unique solutions to their specific challenges. Some of these challenges may include:



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#### Strategic Challenges

- Effective Business Strategy/Decisions
- Increased Return on Investments
- Enhanced Returns on Acquisitions/Divestitures
- Reduced Risk (Strategic, Capital, Other)

#### Market Challenges

- Enhanced Yields
- Effective Responses to Crude/Feedstock and Product Markets
- Improved Financial Performance
- Market Risk Management

#### Environmental Challenges

- Reduced Emissions
- Enhanced Compliance

#### Operating Challenges

- Improved Organisational Effectiveness
- Reduced Maintenance Costs
- Improved Energy Efficiency
- Behaviour-based Reliability/Performance
- Improved Safety Performance
- Operational Risk Management

For more information on how KBC can help you achieve Next Generation Performance, please visit [www.kbcat.com](http://www.kbcat.com), contact us at [answers@kbcat.com](mailto:answers@kbcat.com), or call AMERICAS +1 281 293 8200 • EMEA +44 1932 242424 • ASIA +65 6735 5488