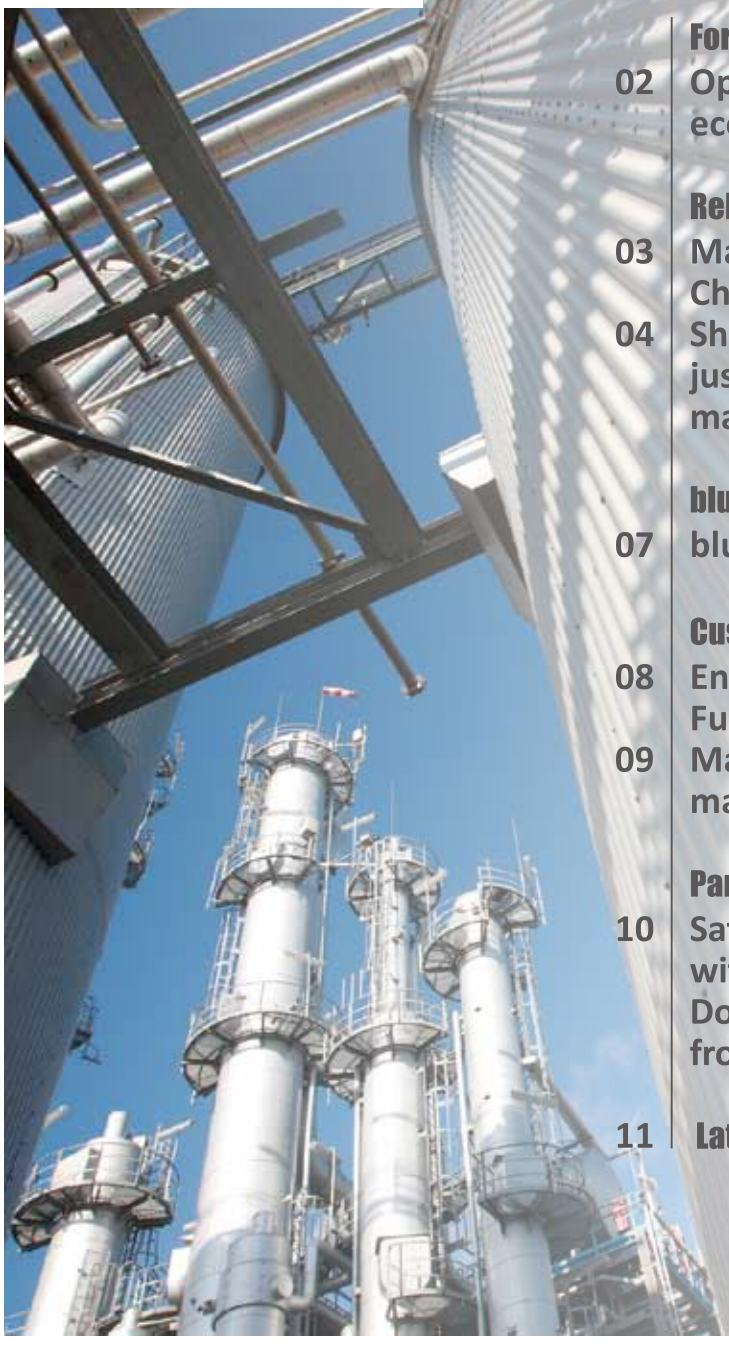
Maintenance in China

This is the printed edition of Siveco China's monthly email newsletter "Maintenance in China". To subscribe to the electronic version or to read previous issues, please register online at www.sivecochina.com. 本期内容另有中文版可供参阅

siveco | compete with maintenance
运营之争 始于维护



Cover photo credits: Evonik Degussa

Optimizing operations in tough economic times

I often tell the story of how I first started to work in the Chinese process industry, struggling to implement preventive maintenance at a Suzhou paper mill, back in 1998. 15 years later, we still face the same challenges, trying to break inefficient "firefighting" habits and to develop sustainable preventive maintenance organizations. Has anything changed? The truth is that subtle positive changes have indeed taken place, but we are still essentially dealing with the same fundamental issues. For interested readers, our 2012-2013 Maintenance in China survey (the largest study of its kind in China with over 1,500 respondents) provides insights into the market and its evolution. The report is available on our website.

Some things haven't changed however: consultants both foreign and local insisting on Western solutions to Chinese problems, solution vendors selling technological miracles ("EAM", "CBM") or slogans ("RCM", "TPM", "Lean"), later blaming customers ("not mature enough") when projects inevitably fail to deliver results. They still believe the Chinese market must become more "like the West".

At Siveco, on the other hand, we have over the years developed an offering of maintenance engineering (or consulting) services, designed to address the specific needs of the Chinese market, what I have come to call "maintenance with Chinese characteristics". We make the opposite choice as most suppliers: we believe in inventing a Chinese way. So far experience has proven us right…

The "Siveco way", combining maintenance management know-how (a team we have nurtured for many years) and the use of innovative high-technologies (the bluebee® suite of products "for the worker of tomorrow", named Product of the Year 2012 by Plant Engineering magazine), has achieved excellent results over the years, as illustrated by the various case studies in this newsletter. In fact, we have even started to export our know-how to markets that are considered more mature, for example Southeast Asia.

In the current context of economic slowdown, decreasing investment, rising costs, increasing regulatory oversight... Chinese plant owners' focus is now moving from new construction to optimizing existing assets. This may be a great time for maintenance professionals, as more companies will recognize maintenance as a possible source of savings and profits! Still spectacularly under-optimized and under-leveraged in China, industrial maintenance presents fantastic opportunities and challenges!

In this special "Process Industry" edition of our monthly newsletter, we will look into how to get a maintenance improvement projects approved by top management, based on potential Return on Investment (ROI), in the specific context of China. Customers' stories from the local process industry highlight how Siveco integrate specialist engineering services and the use of technology to achieve results. We will also talk about practical HSE support using the innovative bluebee® solution.

This is the paradox of China, a relatively immature maintenance market, with huge skill gaps, tremendous waste, but a gigantic scale, great openness and opportunities to use new technologies. Harder economic times may succeed the booming years we have known, but experience proves this may turn out to be a good thing for us in maintenance. More than ever, I am convinced that new ways are being invented in China! Exciting times for maintenance professionals!

Bruno Lhopiteau
General Manager of Siveco China

Maintenance engineering support in China

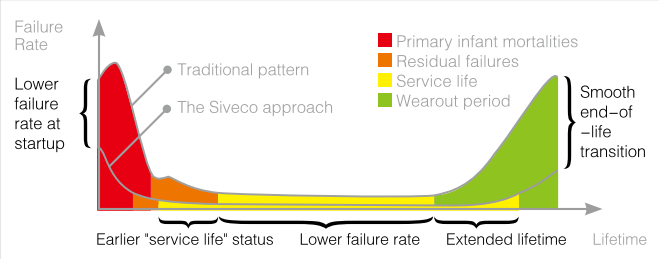
As awareness of maintenance issues improves, we see more companies, local firms and multinationals alike, relying on foreign consultants, often freelancers, from abroad instead of looking for local suppliers. Qualified local suppliers are admittedly very hard to find in the highly immature Chinese maintenance market…

Foreigners can do the job, but tend to face a steep learning curve, adaptation problems and communication issues with their Chinese colleagues … The results obtained are often not sustainable (for example an asset structure in SAP PM that local team can't make sense of)… Costs can be very high (foreigner on expat package, his local assistant, plus all related inefficiencies).

A local alternative exists: Siveco China offers practical no-nonsense solutions to your maintenance needs, with mixed teams of long-time China expats and local engineers we have trained over the years, working alongside plant operators, engineering companies or service suppliers at all stages in a project, from construction to operations.

A full range of local maintenance consulting services

Based on a strong expertise and a combination of Western and Chinese practice unique in China, Siveco China provides a range of maintenance engineering and consulting services catering to specific needs. Siveco can ensure a quick mobilization of multi-disciplinary engineering teams to support industrial projects, with a unique value-added in terms of reliability and maintainability. Our resources include project managers and maintenance experts, as well as automation, mechanical and electrical engineers, utility specialists. Siveco engineers can all easily interact with both Chinese and Western managers and technicians. In addition to our own teams, we draw on a strong network of specialist partners (e.g. civil engineering, condition monitoring etc.). Our skill set is unmatched in China. Our team works in a fully integrated manner, embedded in other suppliers and end-users' own project organizations. As a rule, our services are always result-driven, with clearly identified goals and deliverables.



Typical lifetime of a plant in China

Siveco China has experience in all the services categories listed below.

Maintenance engineering support
- Design review (focus on reliability & maintainability)
- Maintenance strategy
- Initial maintenance plans and detailed maintenance instructions
- Coding and asset tagging
- Definition of critical spare-parts

Coordination of equipment documentation
- From contractors/suppliers
- Maintenance documentation (drawings, PM plans, training manuals)
- Review of as-built drawings

CMMS data preparation
- Experience with SAP, Maximo, INFOR, IFS, COSWIN and many more

Assistance for the selection of maintenance service providers
- Scope of contracts
- Performance targets
- Actual selection process
- Performance monitoring

Commissioning support
- Review of method statements
- Creation of missing method statements
- Onsite support during commissioning

For existing facilities
- Facilities assessment or audits
- RCM and FMECA studies
- Maintenance improvement projects
- Integration of maintenance with Lean or World Class Manufacturing (WCM)
- Setting up or improvement of maintenance workshop
- Spare parts localization
- CMMS/EAM audit and improvement
- Training and coaching
- Long-term performance monitoring

Condition monitoring
- Setup of CBM systems (online or offline)
- Assistance in the selection of tools (vibration, thermography, etc.)
- Coaching and long-term improvement

Project staffing
- Full-time onsite maintenance experts (maintenance manager, engineer, technicians) at all stages of the projects

Strong methodological framework offered through
- International standards (e.g. IEC 81346, EN 15341, EN 13269, PAS 55, ISO 31000)
- Technological tools (mobile and back-office systems) used by Siveco service teams

Contact us for your maintenance engineering needs!

Show me the money! How to financially justify maintenance projects to top management

Maintenance is complicated business. As shown during the Q&A sessions at the last Annual Process Industry Engineering & Maintenance Congress (held in Shanghai on September 2012), many maintenance managers are at a loss when faced with the need to financially justify their decisions. The fact is that, when a project is presented for approval to top management, some form of financial justification is normally required.

More often than not, technical managers simply back down and prefer not to propose the project at all. The frown on their bosses face and the inevitable question "can we manage without this?" (the answer of which is, almost invariably, yes) often end discussions before they even really start. They feel they cannot commit to specific savings – "we are not 100% sure we can achieve this". They think that most maintenance actions are justified by risk avoidance (the prevention of possible - not certain - losses) rather than hard financial numbers. They fail to understand that in today's financial-driven world, their boss has to make such commitment (revenue and cost forecast, budget, performance targets etc.) and that everyone knows that there is no 100% certainty that projected figures become reality…

Financial figures related to past disastrous breakdowns (for example revenue losses due to a prolonged production stop a few months before) may be available – but they do not necessarily represent future savings. On the other hand, direct maintenance cost may not be a reliable indicator of improvement. Here is a real-life example: one of our largest customers in China called us for an audit when the CEO found they had used less than 50% of their maintenance Capex: what was thought as a great cost saving in a time of crisis ended up putting the entire business at risk!

As a result, maintenance departments very seldom innovate or drive new improvement initiatives. Improvement projects sometimes emanate from top management instead, in a top-down approach, the maintenance team simply executing orders. In the example above, plants managers desperately cut costs and the group CEO had to involve to actually raise maintenance cost to improve performance.

Once understood that ROI estimates do not have to be accurate predictions (no such a thing exist), but are simply a normal step in the corporate approval process, it is possible to approach the question in a systematic manner. Here is what we recommend:

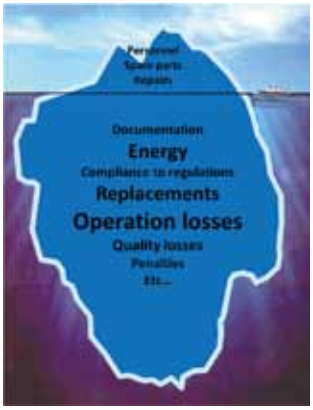
1. Perform an assessment to identify potential savings
2. Study the ROI obtained in similar projects elsewhere
3. Implement project in a controlled manner to reduce risk

The three approaches usually need to be combined: one of them won't be enough.

Perform an assessment to identify potential savings

In the specific context of China, assessing possible ROI is often simpler than one would expect, as maintenance tends not to be optimized: there is a lot of room for improvement. This is not something negative, on the contrary: we, the maintenance people, can have an enormous impact on the company's performance. We should be glad!

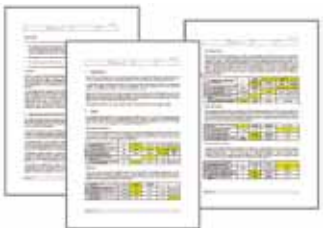
In typical plant organizations, with relatively few employees, ROI will most likely come from avoiding loss (the bottom part of the iceberg below). In larger organizations, such as maintenance service suppliers, direct cost savings may be the main driver. Having said that, the situation differs from one client to another, depending on the type of facilities maintained, their age, the size of the organization and its specific problems. As a rule of thumb, remember the shape of the iceberg – even in the highly optimized Western economies, the ratio between indirect vs. direct savings (respectively the bottom and top part of the iceberg) is over 7 (typically more than 10 in China).



Most Siveco projects start with an initial assessment, either a brief site visit resulting in rough potential benefit estimates, or a more comprehensive audit (which could take several weeks of work) leading to a more complete ROI study. How comprehensive the assessment should be depends on how ROI-driven the organization is (how deep should we go into possible savings estimates) and how much money can be put upfront for such a study (which is not free, this is real high value-added expert consulting that very few companies can perform in China).

An example from an automotive supplier located in Wuhan, showed possible savings from refocusing the maintenance team on preventive maintenance rather than "firefighting", a model than had proven costly in terms of losses.

The team calculated avoided losses worth 2.23-3 million RMB per year, more than enough to fund the maintenance improvement project.



Example of automotive supplier

Realistic improvement goals, in terms of preventive maintenance ratio and the resulting breakdown reduction, led to 375,000 RMB expected savings in the first year for the existing plant or 750,000 RMB if including the new phase-2 plant. This did not take into account reduction of production losses and optimization of spare parts and procurement, where problems were known to exist but hard to quantify. Another estimation method was then used, showing consistent figures (300,000-450,000 RMB) thus validating our numbers. The maintenance improvement project was then scoped to achieve ROI within the first year.

Another example of a more comprehensive audit (one week onsite with two engineers working together with the various departments at the plant) at a paper-making plant showed obvious justification for a project, which immediately convinced the board of directors to approve the project.

Example of paper mill

By implementing a robust preventive maintenance program (as compared to almost no preventive maintenance today), the team calculated avoided losses worth 2.23-3 million RMB per year, more than enough to fund the maintenance improvement project. In addition, a "residual value" for the project was calculated, in terms of direct savings in a future IT project (SAP PM implementation, savings in consulting fees and implementation time), covering over 50% of project cost.

Study the ROI obtained in similar projects elsewhere

Various solution and service vendors may present ready-made ROI figures (example 15-30% reduction in spare parts cost), often totally disconnected from industrial reality: for us in China, a clear indicator of irrelevance is when figures are quoted in USD (when was the last time you purchased anything in USD in China?) or based on overtime reduction (does your company even pay overtime?). A few years ago, we ran web searches on content from CMMS supplier's presentations, only to find their ROI figures were cut and pasted from articles on the internet… We encourage clients to take such "ROI" with a grain of salt!

On the other hand, it is not easy to get existing customers to measure and publicize the ROI obtained on their projects (this is related to our third item: "As part of the project implementation, work in a controlled manner to reduce risk"). At Siveco, we systematically encourage customers to do so. After years of efforts, we now have a nice database of customer stories, many with clear benefit statements, and more and more with accurate ROI figures.

This section summarizes recent examples of ROI calculated by our customers:

Changcheng Property Group (CCPG), a large facility management company operating out of Shenzhen, manages residential and commercial properties all over the country. CCPG has calculated the direct savings achieved with our project, based on implementing our web and mobile solution bluebee®:

- **30 million RMB/year** in labour cost (labour represents 70% of their operation cost).
- Indirect savings are harder to compute: increased quality of service, support for business growth and to provide new services (e.g. energy services)...

Remember this is a service company, they do not own the assets they manage hence business losses are not their direct concern (for example asset replacements are the owner's – CCPG's customer – responsibility; savings achieved by the owner thanks to CCPG's improvement program is hopefully translated into better profit margins for CCPG). The experience of CCPG is typical of efficiency savings that can be achieved by large multisite organizations.

Another type of customer is **Shanghai Essilor Optica**l, a manufacturer of ophthalmic lenses. This is what Essilor has achieved in the past two years:

- **MTBF +30% in two years**
- **Downtime first year -13%, second year -38%**. Due to confidentiality reasons, we cannot elaborate on the indirect savings (losses avoided) linked to these reliability improvements, which would involve multiplying downtime reduction by downtime cost/losses… You could take your own production figures and do a calculation to obtain financial values.
- **Monthly cost (except labour, which is stable): from 802k RMB in 2011 (19% attributed to Preventive Maintenance) to 580k RMB in 2012 (with 43% PM).** This proves that PM ultimately costs less than corrective maintenance, although an initial effort is required. **Total 2.6**

A phased approach runs counter to the typical engineer's mindset to cram as much functionality as possible in a project.

million RMB saved compared to the previous year…

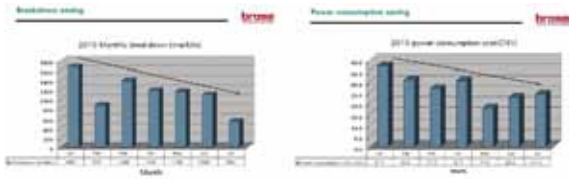
In this case, indirect savings (losses avoidance) represent the bigger ROI. However, direct savings are always easier to measure! This is one of the many paradoxes of the maintenance business… Don't be fooled by this and do not focus on direct costs!

Nokia Beijing is a large manufacturing facility making mobile phones. The project was run in a strict phased approach, with ROI measurement and no/no-go decision at each phase. These are the results obtained from the first phases:

- **Downtime rate reduction by 15% (target was 7%)**
- **MTBF increase by 12.7% (target was 5%)**
- **Inventory accuracy increased from 67% to 96% (stock value remained stable)**

As a company like Nokia is naturally very secretive with their financial information, we don't have the downtime cost that would allow us to calculate savings (I reckon our readers could make their own estimates). A very rough calculation only taking into accounts the time saved by production operators adds up to **500k RMB per year** – this is really the tip of the iceberg.

Brose Wuhan, a supplier to the automotive industry, has obtained ROI in less than a year through energy savings alone. Figures from the financial department (typically conservative) show **a sharp decrease in energy consumption as well as downtime, equivalent to ROI for the project within one year.**



The calculation doesn't take into account less measurable objectives of the project, related to maintenance preparedness for increased production volume, which would have been unmanageable with the previous maintenance organization. This is an example of direct payback (easy to measure energy bill reduction) – nice to have but not the real objective of the project – with much larger, but not measurable, risk-related benefits – the actual objective from a management standpoint. Without direct savings however, the project would have been much harder to justify…

Implement project in a controlled manner to reduce risk

The few examples above show customers who have made the effort to measure the results obtained during the project implementation. All the above are our customer's own numbers, not ours: this is not marketing, but reality. Although some of our customers are reluctant to talk about ROI, for various reasons, we always encourage them to do so!

This leads us to the last section of our article: how to manage projects. In order to reduce project risk, and thus more easily secure top management approval, we suggest our clients to breakdown their improvement projects in phases, each with a clear scope and measurable goals. At each phase, a no/no-go decision is made whether or not to continue, which considerably reduces risk for the customer. The Nokia project is a perfect example of this approach .

We note that this phased approach runs counter to the typical engineer's mindset, which is to cram as much functionality, as much scope as possible in a project. It also conflict to what most procurement departments want, i.e. price reduction. For example, if the improvement project is based on the implementation of a CMMS, with a first phase focused on recording breakdowns (cause, impact), engineers may also want to have work management, planning functionality and other gimmicks unrelated to the first phase improvement goals. Procurement on the other hand may not care about ROI at all, only price – regardless of negative consequences on ROI. For such a project, the scoping and contracting process should be kept under control by top management, i.e. by those with a clear understanding of the project goals.

In conclusion

Our experience shows that the best way to launch a maintenance project is for the maintenance manager to propose a ROI-driven approach to his top management.

- This should be based on an **initial assessment**, presented to top management, **backed by similar experience in other companies in China.**
- **The figures may not have to be accurate** – they are only estimates, which top management should be able to understand (their own targets, budgets, etc. are also estimates) – **but they have to be realistic.**
- We recommend **targeting ROI within a year.**
- **The project itself should be structured to reduce risk**, split in multiple phases, each with clear measurable goals.

If you are a maintenance manager, we can help you through this process and assist you in talking to your top management.

If you are a top manager, we can coach your team to go through this process and help them come up with improvement suggestions instead of being only reactive.

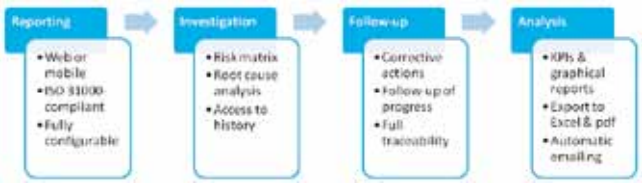
All case studies mentioned in the article are available online at www.sivecochina.com

bluebee® HSE Incident Reporting

bluebee® HSE Incident Reporting is a web and mobile solution designed to let companies gain control of their HSE, without the pains usually associated with IT solutions. The solution allows the central HSE team to monitor what happens on site, to gather data and facilitate corrective and prevention actions, and to provide support to key personnel onsite. For site users, it allows full traceability of all incidents and follow-up actions. HSE Incident Reporting is compliant with the ISO 31000 Risk Management series of standards.

Easy-to-use yet comprehensive

bluebee® HSE Incident Reporting covers all aspects of incident reporting, with easy-to-use, intuitive design. It is designed for fast implementation, with little or no end-user training.



Reporting an incident

Users log in on the website or with the mobile app to report an incident. The intuitive user interface guides the users though a structured reporting process, with mandatory fields depending on the type of incident. New incidents are automatically routed to relevant personnel, with email notifications. The system includes all standard incidents types and can be further configured or customized, for example with new incident types, company-specific terminology, specific escalation workflows, etc.

Investigating an incident

HSE personnel study the incident, provide additional information, assign risk level and launch detailed onsite investigation. Investigators (in-house or external parties) record evidence and findings (reports, photos, records), indicate the root cause (full symptom-defect-cause-action tree), define and assign corrective and preventive actions. The full history of previous incidents, with corresponding root causes, is available to assist users in the investigation process.

Following up corrective and preventive actions

People in charge can update status and provide detailed reports (modifications made, training performed, etc.) with photo evidence. HSE users can track all ongoing actions, with full visibility into delays, completion, problems thanks to color codes and email warnings.

Analysis and reporting

The embedded reporting facility provides comprehensive KPIs and reports, integrated into the users' screens, covering all aspects of HSE: lost time, statistics on incident types, root causes, impact, delayed actions etc. Graphical reports provide easy-to-use drill-down capability and direct access to relevant records in the system. Reports can be emailed automatically or on-demand, in pdf format.

Scalable and expandable

HSE Incident Reporting is a standard module in the bluebee® cloud suite of products for Risk Prevention and Facilities Management. The system has already been implemented on a large scale for hundreds of sites, with thousands of web users and hundreds of mobile users. When needed, the functional scope can be expanded, for example to cover safety audits using tablets.

Incident Reporting can be used online in cloud mode (also known as SaaS – Software as a Service) by individual sites or installed on the customers' own servers for large multisite organizations – for example large industrial corporations or technical service providers.

Ensuring maintenance readiness at Fushun Mining Group's ATP project

Fushun Mining Group ("FMG", www.fkyyy.com) is a large state-owned mining company located in Fushun, Liaoning Province, China. One of the world's largest oil shale producers, FMG operates the largest oil shale plant in the world consisting of 220 sets of Fushun-type retorts, yielding 330,000 tons of shale oil annually. In this process, finer particles of oil shale are discarded, resulting in waste and environmental pollution. To make full use of resources, FMG invested 800M RMB to build the first Alberta Taciuk Processor (ATP), designed to treat small-size oil shale that can't be processed in Fushun retort, with a capacity of 6,000 tons per day.

From construction to maintenance, specific challenges

ATP construction started in early 2006 and was completed in 2010. Commissioning took several years to complete until late 2012, reflecting the great complexity of the facility. FMG's management team, recognizing the maintenance challenge presented by the new plant and its imported technology, decided to tackle the problem and contacted Siveco. China's largest maintenance consultancy, Siveco is known to have pioneered the concept of implementing maintenance systems during the construction of a plant, thus supporting start-up and enforcing good maintenance practices from day one.

Typical plant documentation and maintenance preparation challenges, met in construction projects all over the world, tend to be exacerbated in China, where operators lack the long track record of their Western counterparts. In addition, greenfield projects in China often present specific challenges, as for the ATP plant its uniqueness, size and complexity.

FMG also realized that simply cutting and pasting a Western management model would not work in China. Foreign engineering companies involved in Chinese projects, especially those lacking local experience, often fail to recognize the specific needs, strengths and weaknesses of Chinese maintenance team, and get bogged down in misunderstandings. Siveco, with its in-depth knowledge of "maintenance with Chinese characteristics" was a good match for this project.

Building the maintenance system

FMG hired Siveco to implement the new plant's maintenance management system in time for startup. The contract was signed in June 2012 covering the maintenance system itself, as well as start-up assistance to ensure smooth handover from commissioning to operation.

Specific goals for the project included:

- Building a complete plant database, to avoid omissions or mistakes in the transfer of technical documentation from construction to maintenance.
- Ensuring work safety, through strict operating procedures and tracking of employees' qualifications and licenses.
- Enabling feedback from event and failures (symptoms, failure, actions, etc.), in order to create usable historical records for improvement purposes.
- Implementing the preventive maintenance strategy from the first day of the operation and developing good habits of regular analysis.

To achieve these objectives, Siveco implemented a maintenance management system (CMMS), integrated with a document management system (DMS) and a mobile solution for plant inspections. The Siveco project team provided maintenance engineering services onsite, working alongside the ATP maintenance team for a five-month period, until the system was put into use in December 2012.

The maintenance system, ready for startup

By the end of the project, FMG's objectives were achieved:

- The plant was fully documented in the CMMS and DMS, including equipment structures and related documentation, technical specifications, spare-parts lists, contracts, standard work instructions, etc. The entire database was built on standard coding rules, allowing quick retrieval of information.
- The system provides full support and traceability of work procedures: maintenance work orders, work permits, inspections. The bluebee® mobile solution, used for plant inspections, enables strict supervision of field work through scanning of barcodes and onsite data capture, without having to rely on paperwork.
- The work order system ensures incidents and work done are reported in a structured manner, to form comprehensive and usable historical records. The planned maintenance system allows automatic generation of preventive maintenance schedules and assessment of their execution.
- Finally, Key Performance Indicators (KPIs) and analysis reports were defined in the system, to support the maintenance team's regular review meetings. Reports comply with the international standard EN 15341 Maintenance Key Performance Indicators.

According to Director Sun Yongshu: "**Our maintenance system covers both the front-end (technicians working onsite) and the back-end (technical management team). Already considered a milestone in the industry, this project provides critical support for the long-term operation of this technologically-complex plant by our local team.**"

Maintenance support for new Sino-US manufacturing plant

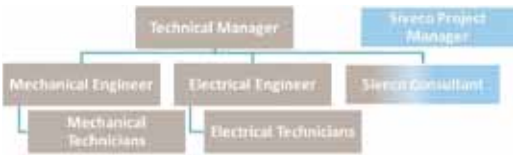
Daramic (www.daramic.com) from the US is the world's leading manufacturer of high performance polyethylene battery separators, supplying more than 50% of the world's demand. To consolidate its leading position in China, Daramic signed in 2010 a joint-venture agreement with the largest local Lead Acid Battery producer. The JV Daramic Xiangfan Battery Separator Co., Ltd. is located in Xiangyang, Hubei province.

To better serve the local market, the JV has built a new facility with two production lines, representing 35M sqm of capacity, in a two-step process. Most equipment was imported second-hand from Europe.

Siveco's one-year mission

Daramic selected Siveco to provide maintenance engineering services for the new plant. A long term contract was established to dedicate a Siveco consultant for a one-year full-time mission, to support the implementation of good maintenance practices, including:

- Definition of the maintenance strategy
- Organization of the maintenance department
- Building up of the spare-parts stock
- Development of troubleshooting and preventive maintenance guidelines
- Implementation of maintenance methodologies
- Setting up accurate technical documentation
- Start-up assistance for new production lines



The appointed Siveco consultant, working with support from the Siveco back-office team, was immediately deployed onsite in Xiangyang, at the beginning of June 2012.

Building an efficient maintenance organization

One of the roles of the Siveco consultant was to take a step back from the day-to-day events and to advise the local technical manager on how to organize an efficient maintenance department. As the factory was new, all the procedures had to be written, management tools and others KPIs needed had to be set up, local teams had to be trained and coached.

Localizing spare parts procurement, a risk-based approach

Having the right spare parts at the right time is the first requirement to ensure reliable operation of the production line. In Daramic's case, with used equipment coming from Europe, spare parts proved to be a major challenge. How to replace parts no longer produced? How to handle the very long and irregular lead-time for imported parts? How to maximize the use of China-made parts to replace costly European parts?

The Siveco consultant was in charge of leading a review of safety stocks and implementing related actions:

- A criticality analysis was performed for each PID (Process and Instrumentation Diagram), to establish the list of critical parts in a systematic manner.
- A weekly KPI was defined to follow up progress.
- The final Critical Spare Parts list contained more than 250 references of critical spare parts.
- For each critical spare, a risk assessment was done as to the possibility to localize its procurement, weighing in critically, cost, lead time, quality, and after-sales service.

The Siveco consultant, thanks to his long maintenance experience both in China and Europe, was uniquely positioned to assess the pros and cons of European versus local suppliers, based on the systematic risk analysis.

Continuous improvement

As soon as production started, the Siveco consultant set the continuous improvement process in motion. Inspired by TPM methods, every week a meeting is held to analyze every single event and to define corrective and preventive actions. The Production and Technical departments, but also HSE when needed, work hand-in-hand during the analysis sessions, to achieve results that will benefit everyone in the plant.

A consultant in working overall

According to Zhanjun Zhao, the General Manager of Daramic Xiangfan Battery Separator Co., Ltd.:

"**The Siveco maintenance consultant wears working clothes like all the other maintenance workers. When his technical assistance is needed, he is personally involved in repairs, troubleshooting and machine modifications. When the Siveco consultant is not at his desk, you will sure find him somewhere in the plant!**"

Safety first, no compromise on safety with bluebee® on Bartec mobile devices

In the oil & gas and chemical industries, technicians work in potentially explosive areas. Workers using Siveco's bluebee® mobile solution "for the worker of tomorrow" for commissioning, inspections and maintenance, require explosion-proof, intrinsically safe, mobile devices.

Siveco has established a close partnership with Bartec (www.bartec-group.com), one of the world's leading providers of innovative safety technology. Bartec has developed an explosion-protected version of the Motorola MC series, easy to handle, based on the usual Windows® Mobile environment, with real-time data exchange (WLAN and Bluetooth) and scanning (barcode and RFID) capability. These high-performance devices are IECEx, ATEX and UL certified for use in hazardous areas (Zone 1 and 2).

While some companies operating process plants are reluctant to invest in relatively expensive hardware (which should however never be compared to consumer-grade mobile phones), others make dangerous compromises and purchase cheaper, sub-standard devices. Bartec is the only supplier to have obtained regulatory approval to produce and market ATEX-certified mobile devices in China, ensuring the highest level of safety.

Don't settle for services, demand results from Condition Based Maintenance

Condition monitoring has a troubled track record in China, a 15 years history of high hopes yet disappointing results. Stories abound of portable instruments, purchased with the promise of obtaining rapid reliability improvements, being left gathering dust on a shelf. A few years down the line, it is not uncommon for companies to blame the hardware and to purchase another set of instruments or perhaps an online monitoring solution from another vendor. Suppliers active in the Chinese market are often hardware providers, with neither operational experience nor service capability apart from the mandatory training session, often provided free of charge.

In 2010, Siveco launched a partnership with Vantech (www.vantechinst.com), the Chinese distributor of ACOEM. Under the 01db-Metravib and OneProd brands, ACOEM offers comprehensive products and services comprising smart monitoring, diagnosis and solutions, drawing upon its unique expertise in the field of vibrations and acoustics. The joint offering ensures that the condition monitoring system supports customers' maintenance strategy: Siveco designs and implements the overall project, integrating Vantech technologies and expert services as required. Long-term coaching and follow-up maintenance consulting services by Siveco teams guarantee measurable and sustainable improvement.

Joint customers include papermaking giant International Paper, where Siveco conducted a company-wide (15 packaging plants) maintenance improvement project. Maintenance plans were re-engineered based on the Reliability Centered Maintenance (RCM) approach, vibration analysis tools were implemented with Vantech's strong technological support, achieving quick improvement in machine reliability and cost savings. Other Vantech references in China include Anshan Iron and Steel, BMW, CNPC, GE Plastics, Sany Precision Machine and SINOPEC.

Join Siveco's Value Added Partner Program (VAPP) at www.sivecochina.com/VAPPen

First Siveco contract in Taiwan: Kaohsiung County Renwu Waste Incinerator

2012-12-27

Siveco was awarded a contract in Taiwan by SITA Waste Services (www.sita.hk), the operator of the Renwu Waste Incinerator in Kaohsiung. The project covers the implementation of a maintenance management system, with a step-back-step implementation approach aimed at promoting maintenance improvement at the plant, through a progressive structuring of the maintenance activity towards systematic analysis and preventive maintenance.

The facility is designed to incinerate 1,350 tons each day of blended non-hazardous combustible solid waste with a weighted-average heating value of 2,300 kcal/kg. The energy generated is converted to a total of 33 MW of electricity. The plant is owned by the Kaohsiung County Government and operated by SITA Waste Services under a 20 year contract. Since December 2000, the facility is managed by a high-caliber crew trained by SITA for the purpose of maximizing energy efficiency and meeting the most stringent environmental protection standards in the world. SITA Waste Services is a subsidiary of Suez Environnement, world leader exclusively dedicated to water and waste management services, with over 65,000 employees.

The choice of Siveco was based on the company' successful experience at another SITA facility located in mainland China. SITA, in joint venture with the Shanghai Chemical Industry Park (SCIP), has designed, built and

operates a 60,000t/year hazardous waste incineration plant near Shanghai. It is the reference plant for China both in terms of size and technology, compliant with EU emission standards.

Siveco to provide maintenance engineering services for chemical plant in Malaysia

2013-06-06

Siveco China was selected to provide maintenance engineering services for a 500 MUSD petrochemical complex currently under construction in Malaysia. The project scope includes data collection for the future SAP Plant Maintenance system.

This latest deal confirms Siveco China's growing position in the Malaysian market and demonstrate the firm's ability to compete against well-established players in markets considered more mature than China. Unlike previous Southeast Asia projects signed with the EPC company, this contract was signed directly with the plant owner. Siveco benefits from its extensive experience of greenfield construction projects, acquired over the years in the booming Chinese market, and strong back-office engineering capability at the company's Shanghai and Chengdu offices.

Other Siveco customers in Malaysia include Ranhill Powertron II (combined cycle power plant), Boustead DCNS (shipyard) and International Paper (packaging plants). Similar projects have also been delivered

in Brunei, Indonesia, Singapore, and, much farther away, in Sudan.

For more latest news, see www.sivecochina.com/VAPPen

700 Customer Sites in China

Siveco is China's largest maintenance consultancy with 700 customer sites, 4 offices, 45 full-time consultants and a network of certified partners providing complementary services. Since 2008, Siveco China also operates a R&D center dedicated to the bluebee® mobile solution, named Product of the Year in 2012 by Plant Engineering magazine.

Plant Engineering PRODUCT of the YEAR 2012

Customers include ABB, Arkema, Evonik, Fushun Mining Group, Hanwha Chemical, International Paper, Nokia, Saint Gobain, Sichuan Lutianhua, etc.

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For more information,
call our national hotline 4006-300-213
or send us an email at info@sivecochina.com.
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