International Cement review

June 2015

Learning from losses

by Kevin Rudd, ICC and Tim Parker, McLellan, UK

Events ranging from explosions to extreme weather can impact on the operations of a cement plant. In the aftermath, specialist and impartial engineering advice is often essential in terms of mitigating insurance claims and returning a cement plant to operation, thereby minimising business losses.

Heavy industrial losses can arise through a variety of circumstances such as mechanical and material failure, fire, earthquakes, floods, explosions and extreme weather events. Depending on the nature, scale and severity of the insurance claim being assessed, a range of specialist and engineering consultancy skills are required in support of the loss adjusters and insurers involved. McLellan's insurance team has been responding to such events for over 20 years and know that they can lead to unique insurance claims within the cement and other heavy industry sectors.

The value of claims can be significant, ranging from a small hundred thousand dollar property damage loss caused by localised machinery damage, to catastrophic events which could not only result in multi-million dollar property losses but which could also cause production to stop, leading to additional multi-million dollar business interruption losses.

A wide range of factors can lead to heavy industrial losses including building collapse, fire and floods, requiring impartial specialist assessment

Root cause analysis

There are typically two generic types of advice that our extensive industry knowledge allows us to provide to insurers. The first is a thorough independent technical investigation and root cause analysis of events leading to property losses. For example, in the case of a kiln refractory failure, McLellan and ICC would assess the kiln design, materials and specifications followed by a review of kiln maintenance records to highlight any potential issues which may have led to long-term damage or deterioration of the refractory and that may have contributed to extensive repair costs. McLellan and ICC may also review the kiln's operational control systems and records for other contributing factors. This type of thorough independent technical investigation and root cause analysis requires an in-depth knowledge of all aspects of the kiln system, from design and construction through to maintenance and operations.

The second type of advice provided by ICC and McLellan relates to the effects rather than the causes of loss incidents. This is particularly important on larger incidents, such as those arising from extreme weather events, major fires and so on. This involves a wider range of engineering services centered around the critical aspect of assessing the scope,

About ICC and McLellan

ICC has over 150 years of combined practical operations, projects, technical management and corporate experience within the cement industry, with a proven international track record in providing specialist technical and economic consultancy services.

Founded in 1927, McLellan has been providing engineering, project management and consultancy services to industry for over 85 years, over which time it has added a diverse range of sectors to its portfolio. McLellan provides solutions to help clients assess the viability of projects, evaluate process technology options and optimise design solutions. It also provides operational support and project management services and has no manufacturing, contracting or other financial interests. One of McLellan's specialist areas is the insurance sector, where the company has extensive expertise and has provided engineering advisory services on a wide range of losses throughout the world.

ICC and McLellan have commenced technical collaboration via a unique, exclusive arrangement where the combination of their knowledge and skills has already achieved successful results. One such area where McLellan and ICC are working together is the insurance sector.

extent and nature of the damage and the adequacy of reinstatement proposals. This can include in-depth review and analysis of associated costs and time lines put forward by the insured and/or McLellan and ICC's own independent assessment of the same, where required.

In both these examples, initial site inspections should take place as soon as practicable after any loss to witness the scene of the incident as undisturbed as possible, to conduct an initial fact-finding exercise and develop a preliminary understanding of the magnitude of the loss, which will help all parties at a later stage.

The collaboration between McLellan and ICC also provides the ability to assess all aspects of the property damage loss and time lines for reinstatement that drive the business interruption loss. This ability ensures that the loss adjusters and insurers are provided with the very best reinstatement critical path timeline and cost estimate information to enable them to make informed decisions in the fair and reasonable settlement of a claim.

As McLellan and ICC have no affiliations to any manufacturer, equipment or consumable supplier, their assessments and advice remains truly independent.

The value of claims can be significant, ranging from a small hundred thousand dollar property damage loss to a stop of production leading to additional multi-million dollar business interruption losses

Technical collaboration

In recent examples of technical collaboration between ICC and McLellan, both organisations have found that their available skills have combined well to complement each other's skill sets, such that assignments are completed in a comprehensive and professional manner. Such technical collaboration and experiences gained between ICC and McLellan has highlighted various advantages to both organisations' client base when combining the knowledge, resources and practices from one heavy industry to another, which can naturally lead to the identification and sharing of both best and worst practices, adding value to future plant operations and a wider view of industry in general when making business critical decisions. Assignments are often undertaken in demanding circumstances and require rapid responses. Again, the combination of the capabilities of the two companies offers fresh and holistic insights for the cement sector.

ICC and McLellan have developed and entered into a technical collaboration agreement to offer clients within the

Shared markets

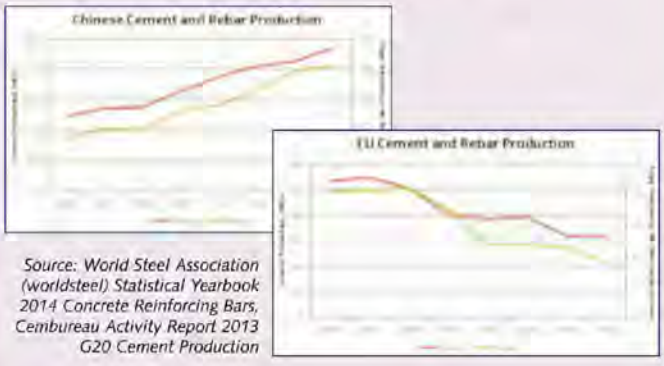
The term 'heavy industry' covers common ground in a number of cases. The cement and steel sectors have had a relationship for many years with reinforced concrete being the best example of the close interrelationship between the industries. While the demand for reinforced concrete is reliant on the construction market, the cement and steel industries have very different operating dynamics. The graphics below clearly indicate the correlation between the cement and rebar.

Both cement and steel have distinct product groups, but understanding what these are and how they work may not be clearly apparent. The established markets in Europe have seen a decline in these sectors, while the USA has seen greater stability. China continues to grow, at least at present, with other emerging markets such as Brazil likely to make a longer-term impact.

Reinforced concrete is critical to the construction of modern infrastructure and commercial, industrial and residential buildings. While both cement and steel are components in reinforced concrete and share the same market driver, both products have very different operational considerations (process, scale, investment costs). An understanding of one may not necessarily denote an understanding of the other. In addition to the reinforcing steel requirements, embedded steel plates, structural steel, cladding stairs, walkways and handrails are likely to be built upon the reinforced concrete foundation. Each of these steel products have very different market characteristics when not a commodity grade such as rebar.

The cornerstone of any industrial investment decision is understanding if and where you have a market for your product, not only in the near term but also over the longer term. The appraisal of a wider view of products and processes will provide a better perspective on the evaluation of a market, technology or project. While no one has a crystal ball for the future, the use of robust forecasting techniques, detailed data analysis and sound engineering provides a strong basis for making investment decisions.

Having an independent and objective view when analysing data and discussing technical solutions at a level removed from the client is critical to making sound investment decisions and importantly may provide a more holistic view than those derived from the client's core industry alone. Many investing organisations have focussed groups of skill sets within their own specialist sectors. However, retaining resources permanently within their own organisations for project support for short durations with a low frequency requirement may not be practically and commercially viable.



Source: World Steel Association (worldsteel) Statistical Yearbook 2014 Concrete Reinforcing Bars, Cembureau Activity Report 2013 G20 Cement Production

heavy industry sector a wider perspective of technical, commercial and financial consultancy services. Together, McLellan and ICC are greater than the sum of their parts by operating across a broad range of industries. The cement and steel industries are core sectors within which a portfolio of services can be provided including civil, electrical and utilities engineering and project management. Their insurance specialists provide comprehensive consultant engineering, quantum, costing and other specialist advisory services depending on the specific nature and complexity of an insurance loss. The breadth of experience provided by the collaboration gives a bespoke view on a variety of heavy industry sectors and clients benefit from the unique understanding of a wider industrial context to make confident decisions.

ICC and McLellan offer a single point of contact for a range of services including:

- scoping, feasibility and due diligence studies
- tendering and tender evaluation support
- lenders engineer and technical advisory services
- material, process and logistics engineering
- expert witness services
- supervision and monitoring of factory acceptance and performance tests
- complete project lifecycle assessments
- on- and offsite project management and implementation
- insurance specialist services such as causation investigations, original design and construction adequacy assessments, chemical/biological/geotechnical/hydrogeological and structural investigations and assessments, condition surveys, site monitoring, discrete element modelling (DEM) and finite element modelling (FEM).

Making robust business decisions has always relied on clear, impartial and factual advice being available on a timely basis. ICC and McLellan fill this need by communicating an independent and unconstrained view for the relevant company, institution or government to make business-critical judgments in uncertain times. ICC and McLellan are committed to providing trusted strategic advice and extensive technical support, which is confirmed by continued repeat business and quality reputation within all sectors of business operations.