NOT QUITE WHAT IS SEEMED

When the manufacturer of a brass valve received notification of a claim relating to the flooding of a luxury 10 storey London apartment block, it was alleged that material and manufacturing defects had resulted in the failure of the valve and was therefore the immediate cause of significant property damage amounting to several million pounds. It seemed a clear-cut case, but by applying lessons learnt handling many similar losses, Vince Skipper, specialist Liability adjuster at Integra Technical Services, was able to bring his expertise to the claim investigation and adjustment.

BACKGROUND

A report from a market leading forensic engineer identified that a part of the brass valve (a nipple) had suffered stress corrosion cracking (SCC), which is a recognised phenomenon with brass components in certain environments. SCC of brass, like other alloys, only occurs in the simultaneous presence of a tensile stress (residual or applied) and a specific corrosive environment. The nipple in question is combined with other parts to create the valve and this had cracked causing water to escape. The allegation was that the nipple had been manufactured from an inappropriate alloy and/or had been overtightened on assembly.

Having implemented the five-step process (opposite), Integra Technical Services were in a good position to update the insured and their insurers, providing them with a good understanding of the claim, the potential cost and likelihood of defending it.

FIVE STEP PROCESS

1. Is the manufacturer aware of issues with the part in question? As Vince explains "Sometimes, the manufacturer might be aware of a faulty batch or may have past experience of similar issues."
2. Clarify the failure rate with the part in question. Have there been other similar incidents?
3. Review the claimant's evidence and consider whether to get a second opinion. According to Vince "We would get our own expert opinion 90% of the time, especially when considering the claim quantum in this particular case."
4. Select your expert carefully. Vince suggests "This is key, and where the loss adjuster can bring their own experience to bear."
5. Consider whether the claimant has effectively mitigated the loss.

THE PEER REVIEW

Mike Broadhurst is Technical Authority – Metallurgy for Intertek Production & Integrity Assurance (formerly known as CAPCIS Ltd, a materials and corrosion consultancy and industrial offshoot of the University of Manchester) was appointed to review the expert opinion. Mike explains "I wasn't happy that the metallurgical examinations had been undertaken properly based on the photographs presented in the various reports produced by the other parties' experts. As with any investigation the devil is in the detail, a peer review of reports can only take you so far, where possible you always want to examine the damaged parts first-hand."

A detailed destructive examination involves examining the microstructure of the alloy, the fracture/crack surfaces using equipment like electron microscopes; undertaking chemical analysis using sensitive techniques to identify any corrosive species that are present; and checking to make sure the component was manufactured to the design requirements. Apart from a physical examination a review of the system's operating and service histories, inspection records etc from installation up to the time of failure is also important in building the picture to identify the mechanism and ultimately the cause of failure. According to Mike "It is important to go into each investigation without any preconceived ideas and follow the evidence. You have to carefully assess and interrogate each piece of evidence and see how these interrelate before putting forward any ideas as to what happened."

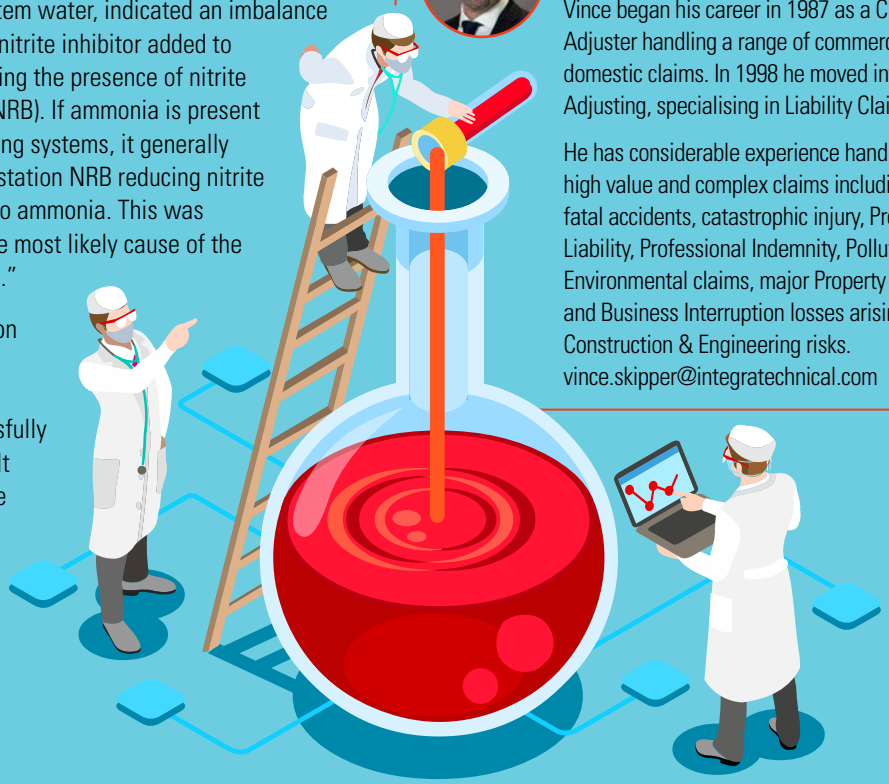
Similar to a police detective, after many hours of examinations and testing different hypothesis the metallurgist started to build a picture. The results of Mike's investigation confirmed that the mechanism of failure was stress corrosion cracking most probably due the presence of ammonium compounds in the system water - the causes of failure were not those put forward by the other experts.

Having got an identical valve from the manufacturer and the nipple progressively tightened, a rubber o-ring seal at the bottom of the nipple split just beyond the recommended torque. This would have caused the valve to leak when the system was first pressurised after installation - overtightening of the nipple was therefore discounted.

The alloy used to produce the nipple conformed with the design specification requirements, no significant manufacturing or material defects were found. This alloy has been used for decades by many OEMs in the manufacture of brass fittings for use in water systems and has a proven track record. The use of an inappropriate alloy was therefore discounted.

Scrutiny of the operating records, in particular chemical analyses of the system water, indicated an imbalance in the demand of a nitrite inhibitor added to the system suggesting the presence of nitrite reducing bacteria (NRB). If ammonia is present in heating and cooling systems, it generally comes from an infestation NRB reducing nitrite corrosion inhibitor to ammonia. This was considered to be the most likely cause of the failure of the nipple."

With this information to hand Integra Technical Services was able to successfully repudiate the loss. It all goes to show the importance of clear methodology when reviewing potential liability claims.



MEET THE AUTHORS

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Mike is an industrial metallurgist with over 35 years' experience, specialising in failure analyses and investigations and the provision of expert opinion and advice covering a wide range of industries and components. He has written over 1,000 confidential reports and opinions detailing a wide variety of failure investigations covering personal injury claims through to losses of major items of plant and equipment. mike.broadhurst@intertek.com

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Vince began his career in 1987 as a Claims Adjuster handling a range of commercial and domestic claims. In 1998 he moved into Loss Adjusting, specialising in Liability Claims.

He has considerable experience handling high value and complex claims including fatal accidents, catastrophic injury, Product Liability, Professional Indemnity, Pollution/ Environmental claims, major Property Damage and Business Interruption losses arising out of Construction & Engineering risks.
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