

Sharing good practice 2013/14

IDEAS ON HOW TO MAKE YOUR WORK PLACE SAFER



**ENTRIES FROM THE
MPA HEALTH AND SAFETY AWARDS**

While every industry has unique challenges, all share the burden of contractor/supplier prequalification and review. The PICS consortium and its specialists help organisations manage this process in these industries:

Aerospace	Manufacturing
Building Materials	Mining
Construction	Petrochemical
Energy	Pharmaceutical
Food & Drink	Telecommunications
Hospitality	Waste Management

PICS hosts the MPA Contractor Database. Our services streamline and simplify the qualification process, reducing administration and generating high-quality, client-specific data.

How do Members benefit?

Departmental resource efficiency, a system configured to their internal requirements and access to a large population of contractors and suppliers working throughout the industry.

How do Contractors benefit?

The prequalification process is affordable, uncomplicated, streamlined and backed by a full support staff. They also benefit from using their PICS membership to qualify for other MPA members.

Our Proprietary Toolset

PICS Organizer™

The high function software platform that efficiently connects clients and contractors.

DocuGUARD™

Client configured, full-service process of collecting and verifying relevant prequalification information.

AuditGUARD™

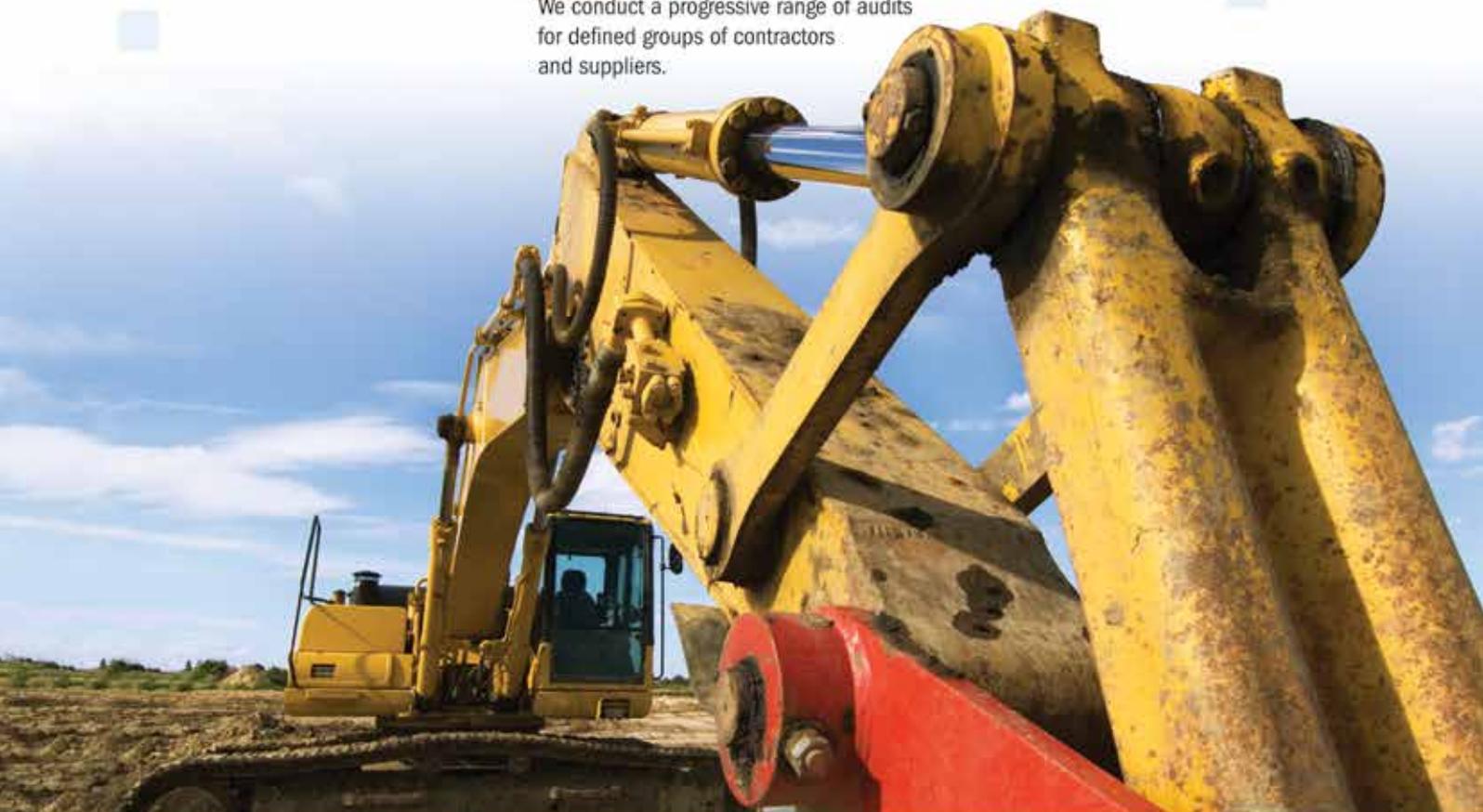
We conduct a progressive range of audits for defined groups of contractors and suppliers.

InsureGUARD™

Insurance certificate management programme to ensure contractors and suppliers meet Members' insurance requirements.

EmployeeGUARD™

Tracks individual employee qualification to satisfy regulatory, site-specific and other requirements.



Contact PICS today to discuss your requirements and learn more about the MPA Contractor Database. Please say that you're a MPA Member to be directed to our dedicated team.



SIEMENS

Unleash potential – with Industry Services

Improve the performance of your machines and plants
with technology-based services

Industry Services

The experts from Siemens are committed to supporting you with comprehensive expertise, providing customised answers to industry-specific requirements and to your individual needs. With technology-based services, they unleash the hidden potential in your production – directly on-site at your location, 24/7.

Siemens' global network of experts helps you measurably improve the performance of your machines and plants – important factors on the road to the future of manufacturing and more nimble, flexible, and intelligent production for a lasting competitive edge.

Higher availability, lower lifecycle costs, and optimal use of all resources pay off: They give you a crucial advantage in the face of increased cost pressure, rising raw-material prices, and stricter environmental regulations.

Unleash hidden potential:

Telephone:
UK: 08458 507600
IRE: 1890 507600

E-mail us:
Sales.gbi.industry@siemens.com
(Product Sales, Quotes, Order & Delivery)

Service.gbi.industry@siemens.com
(Technical Support, Spares & Service Engineers)

Website: www.siemens.co.uk/industry

Answers for industry.

Foreword

Improving health and safety performance remains the top priority of the MPA and its members. We also remain united in seeking to achieve our goal of Zero Harm. Continuous improvement by worker, by member company and collectively as a sector, is vital if we are to succeed. MPA members have proved themselves to be committed to this aim by being unselfish and sharing ideas, best practices and experiences throughout the year at our popular and now established 'Safer by Sharing' seminars and at our site based Health and Safety days. These events are bringing hundreds of practitioners together and the exchanges that take place do clearly make a difference.



In similar vein our annual Health and Safety awards attract huge numbers of award applications in equal numbers from SMEs and the larger companies which are judged independently and celebrated annually at our Health and Safety Conference and Awards event. This publication epitomises the MPA ethos of sharing the best ideas so that all can benefit and hopefully be inspired to think of new ideas which in turn may be shared.

The short listed entries summarised in this document can also be found online at our recently updated, refreshed award winning website Safequarry.com together with all the ideas from previous years and many more routes to best practice. I do hope that you will find the 2013 contributions helpful and worthy of discussion with colleagues as we look forward to receiving new ideas for celebration and sharing in 2014.

Nigel Jackson
Chief Executive



John Crabbe Memorial Trophy for Outstanding Excellence in Health & Safety – CEMEX UK.

Trophy sponsored by Spillard Safety Systems



Sir Frank Davies Trophy for companies with less than 1000 employees – Myers Group.

Trophy sponsored by Mentor Training



Contributors to H&S Awards in 2013

Aggregate Industries
Breedon Aggregates Limited
Breedon Aggregates (Scotland) Ltd
Brett Aggregates
Brett Group
Brett Landscaping & Building Products
CEMEX UK
Charcon Construction Solutions
CoalPro
Colas Ltd
Day Group Ltd
EPC-UK
FM Conway Ltd
Forticrete Ltd
Golder Associates
GRS Bagging Ltd

Hanson UK
Hillhouse Quarry Group Ltd
Institute of Quarrying
John Wainwright & Co Ltd
Kerneos Ltd
Lafarge Tarmac
Midland Quarry Products
Morris & Perry
Myers Group
Northstone Materials
QuarryDesign Ltd
Wienerberger Ltd
Singleton Birch Limited
Smith & Sons (Bletchington) Ltd
Spillard Safety Systems Ltd
Stanton Bonna Concrete

Steetley Dolomite Limited
UK Coal Surface Mining Limited
United Asphalt Ltd
Vision Techniques UK Ltd
Volvo Construction Equipment
WG7 MPA Health & Safety Committee
Whitemountain Quarries Limited



Introduction

This guide summarises the best ideas and innovations from the MPA's Health and Safety Awards 2013 that were featured at BAFTA, 195 Piccadilly, London W1.

Some of the entries are flagged to show that there is a video available – the videos can be viewed at www.safequarry.com. In addition to this year's entries, awards from previous years can also be accessed. The website features a database of incident alerts, toolbox talks and the latest on the industry's hot topics. By registering on the site, you will receive email alerts when new items are added and an 'information basket' where you can store those that most interest you.

The resources are ideal for training purposes and for Continuing Professional Development (CPD). We hope that organisations of all sizes working within the mineral products industry will find them useful and accessible. To ensure that your browsing on www.safequarry.com is recorded for CPD purposes, you do need to log in every time that you access the website.

How to use this guide

This guide is a compilation of solutions that MPA companies have applied to minimise and, where possible, eliminate health and safety risks arising from their daily operations. The ideas and innovative approaches are often very simple and inexpensive and could readily be applied to a range of common industry problems.

It is hoped that by reviewing this guide, particularly those sections relating to your main area of work, you will recognise solutions that could be applied within your own workplace or that will generate an idea for an alternative solution.

The guide has been divided into seven sections to reflect the categories used in the MPA awards. They focus on those areas that have the most impact on improving health & safety in the work place. We have indicated which entries were prize winners, and which have video clips available. To help you locate entries relating to a certain subject, we have provided a keyword index. If you would like more information on an entry than that available via www.safequarry.com, please send an e-mail to info@safequarry.com quoting the entry number which is located immediately to the left of the entry title.

The sharing of best practice is crucial in helping the industry to achieve target zero.

Contents



Bitumen, Asphalt & Contract Surfacing 4

Sponsored by the Refined Bitumen Association



Transport Initiatives 19



Contractors Safety 8

Sponsored by PICS



Occupational Good Health 23

Sponsored by Addax International Limited



Engineering Initiatives 10

Sponsored by Babcock International Ltd



Worker Involvement 26

Sponsored by Institute of Quarrying



Leadership, Training & Management 17

Sponsored by MPQC Mineral Products Qualification Council

Index 30

Health & Safety working groups 31



26

Roller path maintenance

Hillhouse Quarry Group Ltd > Hillhouse Quarry



DESCRIPTION

Operatives at Hillhouse Quarry in Troon have designed some equipment to assist with the polishing and reinstating of the dryer drum roller path ring. The apparatus enables blemishes to be removed from the path without exposing the fitters or operatives to any risk whilst the task is being performed.

It consists of a table and rods which hold a plate with fine grinding, countersunk blocks. The blocks have been strategically placed to cover the entire width of the path, and are lightly tensioned using the turnbuckle method. The drum operates normally whilst the

Below, with and without the guarding in place



grinding is taking place with minimal supervision required. The system works with the isolock guarding in place and is clearly visible at all times.

BENEFITS

- No disruption to production whilst completing essential maintenance work
- Extended life of ring and trunnion drive roller, reduced wear on the dryer drum roller path
- Health and safety risks have been eliminated from this task.

34

Hot storage skip safety system

Aggregate Industries > Express Asphalt > Darlaston



DESCRIPTION

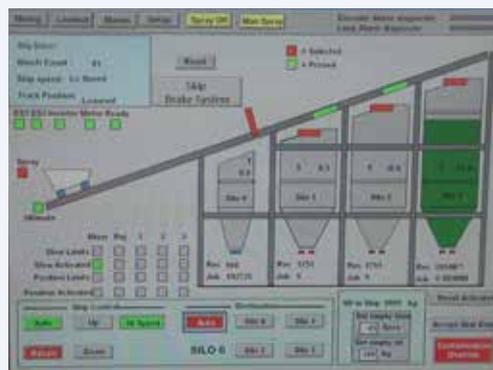
A comprehensive review of the hot storage skip systems highlighted key areas of risk. In particular, the possibility of an unforeseen system failure and the potentially catastrophic consequences due to the close proximity of 160 tonnes of bitumen in storage tanks.

A 'safer by design' working group developed an engineering solution that would absorb a high energy impact in the event of a failure. It would prevent the skip flipping and causing catastrophic damage. The solution was to install a 'skip crumple zone' together with additional structural strengthening. Modifications were also made to the existing PLC software, to include zero and over-speed detection, secondary controls to apply the skip break and travel direction checks.

BENEFITS

- Removal of potentially fatal risk to employees and third parties

- Workforce engaged in finding solution using the 'safer by design' philosophy
- Improved traffic management on site for third parties
- Following change, unrestricted bitumen delivery timeslots were made available
- This approach can be utilised at other asphalt plants.



visit www.safequarry.com for more details or email: info@safequarry.com



13 High High Level Alarm (HHLA) for storage tanks and kettles

CEMEX UK and members of Working Group 7

DESCRIPTION

A High High Level Alarm (HHLA) is the ultimate safety barrier to minimise the potential of overfilling a vessel. It must be accurate, reliable in operation and easy to test. MPA's Working Group 7 involving CEMEX UK, Aggregate Industries, Eurovia, Hanson UK and Lafarge Tarmac, sought to develop a cost effective HHLA that could be easily maintained by site operators and, when tested, would confirm that it was operational, not just that an electrical circuit had been made.

To minimise costs, the design, operation and materials selection focussed on simplicity of fabrication and ongoing maintenance.

The unit works on the principle of a float. A brass ball is set to just below the maximum level in the bitumen storage tank or kettle. If the bitumen level rises to the point of overflow, the ball floats

and releases a limit switch. The switch activates an alarm and turns off the bitumen pump in a kettle, stops a ground based pump or alerts a driver to stop the discharge from a tanker. A ram operated by compressed air is used to test the device as it simulates a bitumen spill by lifting the ball to test the control circuit.

BENEFITS

- The risk of overfill is significantly reduced
- The potential for personal injury and damage to equipment are reduced
- The risk of lost production and environmental damage are reduced
- Low cost, simple and effective system that can be easily retro fitted
- Easy to reliably test and maintain.

152 Clearing blockages using a Thermowrap system

Aggregate Industries > Moorcroft Asphalt



DESCRIPTION

Moorcroft Asphalt Plant is using a novel solution for clearing blockages caused by cold bitumen. The traditional method was to use a naked flame to heat the offending pipe or valve and allow the product to drain under gravity. This exposes the operator to the risk of burns, spillages, fire, working at height and other associated risks. An alternative is to allow the pipework to go cold, disconnect it and then either heat it and clean it out or replace it. This process has similar risks.

The solution was to use the bitumen Thermopipewrap system. This is a simple heated mat, inspired by Formula 1 tyre heater technology. It is wrapped around the item to be warmed and fixed in position utilising a Velcro system. It is then plugged in to a 110v or 240v electrical feed. The Thermowrap heats up to the pre-set

temperature and the solidified bitumen in the pipe, valve or pump reverts back to a fluid state and flows out using gravity. The flow of bitumen is slight as the temperature rises so removal is under tight control at all times.

The Thermopipewrap system is safer and reduces downtime. Costs compared to traditional methods are vastly reduced.

BENEFITS

- Reduction of hazards particularly the risk of fire and spillages
- Improved and safer working methods
- Reduction in costs, plant down time and use of replacement parts
- A happier, safer workforce.





75

Fire box automatic cleaning system

Midland Quarry Products > Quadratic Plant > Cliffe Hill Quarry



DESCRIPTION

The fire box was constantly blocking during production due to the addition of recycled asphalt product (RAP) and other back-fed materials. Operators were required to get inside the mixer and jack hammer the fire box clear every other night to prevent plant breakdowns. This process involved working in a confined space, regular exposure to risks from HAVs and dust whilst working in a hot environment.

To resolve this issue, a small vibrator was installed at the back of each fire box. The vibrators are connected to the control system

enabling them to operate every time a swivel chute discharges. This prevents materials from sticking and building up in the fire box.

BENEFITS

- The fitters no longer have to enter a confined, hot and dusty environment
- The usage hours of vibrating tools has been reduced considerably
- More efficient production and improved team engagement.

82

Silo safety system fully testable at ground level

Aggregate Industries > Asphalt Plant > Melbur Works



DESCRIPTION

A new hydrated lime silo was noted to have powder around the pressure relief valve (PVR) after deliveries suggesting that it was being over pressurised, there were filter problems or issues with the delivery procedure. Warning beacons and alarms were not always visible or audible to driver during discharge and there was no automated shut off at high pressure.

Regular maintenance of the silo safety components required an operative to visit the top of the silo working at heights of nearly 20m. The operative could only conduct simple visual checks that did not represent a true test of the operability of the equipment.

Using MPA guidelines on how to prevent over pressurisation of storage and, working with Hycontrol Ltd, the following changes were made:

- A patented sensor was installed which used the filter air supply to detect if the sensor was blocked, broken or non-operational. It would also indicate if there was no air supply to the filters and clean the sensor. The high pressure activation point was set before the activation point of the PRV, preventing a near miss condition and the discharge of product in to the atmosphere.
- A test mechanism was added to the high level probe that was designed to stop the probe vibrating and then re-start the vibration simulating what would happen when the probe came into contact with the silo material.
- A test was designed that utilised the air supply to filters to lift the PRV plate at the same pressure as it was designed to activate during normal operation. A proximity sensor would detect if the plate had fully raised and seated.

The system would not allow a delivery to take place without a full test of each of the components with the press of one button at the fill point. The simple test takes only 6 seconds and will then open the fill point valve to allow a delivery. If during a delivery the silo reaches high pressure or high level, the system will automatically shut the fill point valve.

New panels have been put in line with where the lorry driver discharge controls are, which show available tonnage readings.

BENEFITS

- Reduced risks of working at heights, slips trips and falls
- Improved driver and plant safety during discharging
- Improved maintenance as the system logs facilitate preventative maintenance.





Bag house guardian

Aggregate Industries > Express Asphalt > Darwen

DESCRIPTION

Express Asphalt was experiencing two to three safety lock-outs per week as the conventional temperature protection of the asphalt bag house using thermocouples was not operating effectively. The 'actual' gas temperatures were often running beyond the 170°C set for the burner.



At high temperatures, the fabric of the filter bags experiences high stress and degrades, which can lead to the ignition of any residual flammable deposits on the outer surface of the bag. Following a bag house fire at another company, the protection systems were reviewed and a new control system was installed called the 'Bag House Guardian'. Instead of looking at actual temperatures it measures the rate of temperature rise and, if it calculates that a thermal lock-out is likely to occur, it automatically trims the burner back to prevent high gas temperatures being produced.

BENEFITS

- No temperature related lock-outs and reduced fire risk.
- Extended bag life, improved filtration and lower emission levels.
- Faster turnaround times for our customers with fewer stoppages
- Cooler plant building and improved energy efficiency.

Processed fuel oil temperature fire alarm

Midland Quarry Products > Cliffe Hill Quarry > Marini Plant

DESCRIPTION

Following a recent near hit during burner efficiency trials, it was noticed that if the PFO (processed fuel oil) temperature dropped below 40°C or went above 60°C it had the following two effects

- Air stack emissions went higher
- The burner head became saturated with un-burnt fuel creating a fire risk

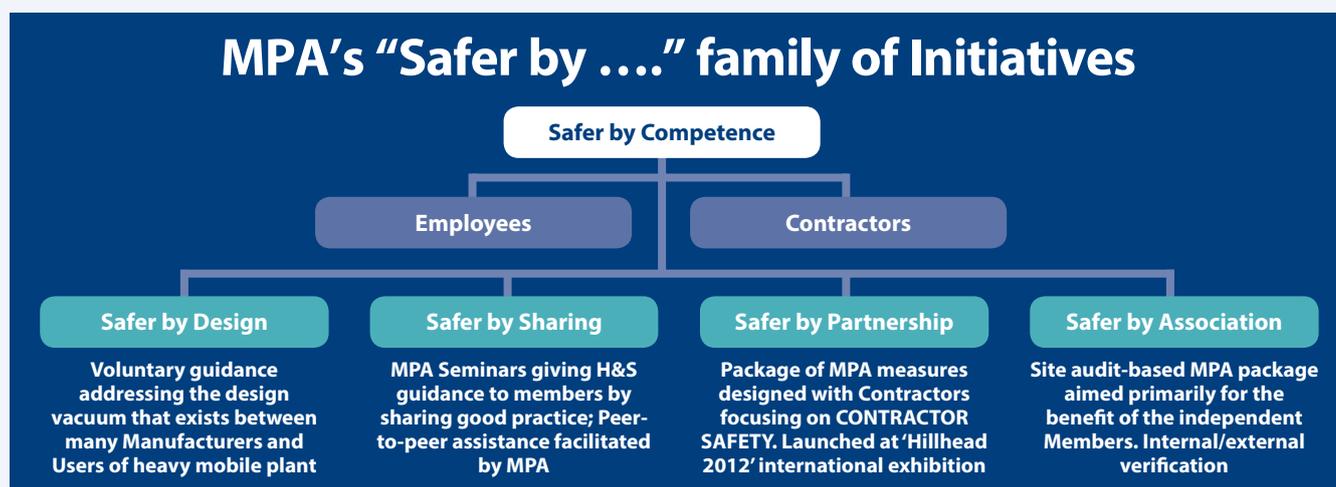
Team member's discussed the issues raised and decided to install an oil temperature probe that displayed the fuel oil temperature in the batcher's control room. The system also gives an audible alarm if the temperature falls below 40°C or is elevated above 60°C. This

enables the operator to turn off the flame off and investigate.

Since this issue was identified and protection put in place to eliminate the potential risk of a fire, MPQ became aware of a burner fire in Northern Ireland. The cause of the fire had been had been traced back to cold PFO.

BENEFITS

- Reduced risk of fire and explosion from un-burnt fuel
- Team involvement to find solution to safety issue
- More effective monitoring of fuel oil temperature
- More effective control of emissions.





92 **360° CCTV and safety enhancements on Impact Protection Vehicles (IPV)**



Colas Ltd > Traffic Management Initiative

DESCRIPTION

Colas Traffic Management Team worked closely with Croma Security Solutions Ltd (CSSG) to develop a CCTV system fitted to an Impact Protection Vehicle (IPV) which would capture data in real time, record and store video footage. The main purpose was to help in the identification of near miss incidents and impacts from third party vehicles.

Following the success of initial trials, a working group was set up between Colas, CSSG, Aone +, HA and TRL. It explored the possibility of including vehicle detection and early warning systems. They developed enhancements which can detect vehicles travelling at speed which have entered an area within a designated distance from the rear of the IPV. The system then warns the speeding vehicle, other travellers and the workforce on the IPV of the potential danger.

Colas are fitting this technology to all their IPV fleet and expect that contractors working for them will also comply with these requirements.

BENEFITS

- The workforce feels safer whilst carrying out their activities
- It has improved productivity and efficiency

- The visual and audible alarms have improved safety for drivers approaching works
- The system has the potential to become a new standard across the industry.



94 **Use of a highly visible arm band to confirm induction**



CEMEX UK > Attenborough Quarry

DESCRIPTION

At Attenborough Quarry, contractors are inducted on both CEMEX's standards and site specific details. This includes CEMEX Worksafe, a five minute risk assessment, a Permit to Work (PTW) which takes into account Safe Systems of Work, Method Statements and Standard Operating Procedures. The overall competency of the contractors to complete the task is also discussed with them.

Following this induction, a highly visible arm band with a pocket is issued to each worker. As a minimum, the Worksafe and PTW are put inside the pocket with all the relevant H&S information clearly displayed on the outside. The individual is required to wear the arm band until the work is completed, inspected and the permits signed off. On site, all staff can clearly see that the contractor has been inducted and issued with the relevant paperwork.

BENEFITS

- Clear indication that contractor(s) have been inducted

- Confirms all relevant permits are in place
- Empowers anyone on-site to question contractors if procedures are not being followed
- Relevant documentation is carried by the contractor during the task
- If relevant, details on individual's medication can be included in the pocket.



visit www.safequarry.com for more details or email: info@safequarry.com



125 Monitoring site boundaries

Hanson UK > Mercaston Quarry



DESCRIPTION

Mercaston Quarry in Derbyshire has over seven miles of fencing, making site boundary inspections difficult to monitor and report.

The site manager came up with the idea of marking routes and photographing defects using GPS co-ordinates. This enables a comprehensive report to be compiled and viewed by all. It becomes even more useful when a break in the fencing has been found, as the fencing contractor can be shown exactly where to make repairs. In the past, a lone worker radio and mobile phone were issued to the contractor doing the fence inspections but the signal could be intermittent. Research showed that certain GPS devices could be tracked online, in real time, allowing the progress of the contractor to be monitored on a computer or smart phone.

Using this equipment enables the site manager to know the exact location of the contractor when he is walking the boundary and to direct him to areas he may have missed. The GPS logging equipment records data with great accuracy and any camera with GPS can be used.

BENEFITS

- Real-time monitoring of person carrying out inspection, reducing lone worker risks
- Accurate reporting system for fence inspections and repairs
- Improved management of the integrity of perimeter fencing
- Improved public safety and reduction of trespass.



28 Overcoming language barriers with safety information

Kerneos Ltd > West Thurrock

DESCRIPTION

Kerneos UK manufactures high alumina cement which is distributed across Europe. Many of the drivers coming to their site do not speak English, making communication of safety rules difficult.

Kerneos developed a pictorial presentation for the drivers which imparts all the information they need but ensures that language is not a problem. To confirm the drivers' understanding of the safety information and the procedures on site, Kerneos also developed a simple, visual test sheet. Drivers have to watch the presentation and successfully complete the test before being allowed to load. Drivers breaching any of the rules are made to retake the test. Repetitive rule breaching leads to the driver being banned from the site.

BENEFITS

- Overcomes the language barrier for foreign drivers
- No accidents involving drivers since this system was introduced
- Positive feedback from drivers.





Engineering Initiatives sponsor

110 Automatic rubber divider extraction machine for concrete flooring manufacturing process



CEMEX UK > Building Products > Floors

DESCRIPTION

In order to cast concrete floor beams, rubber spacers need to be placed in moulds to act as dividers. Concrete is then placed in the moulds. The rubber dividers are extracted during the setting process by operatives working from on top of the casting bed and manually lifting out each of the rubber spacers with a long hook. Approximately 1,200 spacer rubbers per day would be extracted.

Working closely with a local engineering company, a machine was designed to automate the process. A 3-phase bus bar system was installed along the length of each bed to provide the power to drive the machine and operate the hydraulics to lift out 10 rubbers in one action.

BENEFITS

- The operative no longer has to mount the casting beds removing the risk of falling from height with the potential for slips, trips and falls
- Eliminates any possible repetitive strain or manual handling injuries.



Before



After

153 Introduction of a safety netting system for cyclone roofs



Hanson UK > Cement Division

DESCRIPTION

During maintenance work inside a cement kiln pre-heater tower cyclones, operatives are exposed to the potential risk of serious injury from falling debris or refractory material. Although the roofs of cyclones are inspected before entry, the integrity of the roof cannot be assured.

Hanson's Engineering Departments were set the challenge of making it impossible for material to fall from the cyclone roof. They came up with a stainless steel wire netting system. The netting is bolted to the underside of the roof before operatives enter the cyclone. Once installed, it prevents any debris falling from the roof.

BENEFITS

- The risk of a serious or fatal injury from falling debris has been removed

- Operatives are much happier working in a safer environment
- The system can be applied across the industry.





91

Remote geotechnical mapping using long-range terrestrial LiDAR and UAV

QuarryDesign Ltd > TLS and UAV Remote Geological Surveying



DESCRIPTION

Quarries regulations require excavations to be assessed, designed and monitored. In some quarries, the acquisition of reliable geotechnical data may be difficult to obtain safely. If safe access is limited to a few locations in the quarry, the quality of the geological assessment and the subsequent analysis/modelling can also be compromised.

To address this issue, after extensive research, QuarryDesign Ltd invested in a long-range LiDAR scanner and software that extrapolates discontinuity data, produces high quality cross sections and measures lateral displacement between successive scans. The data is further enhanced by using an Unmanned Aerial Vehicle (UAV) and integrating this with the information from the LiDAR survey.

BENEFITS

- Geologists can collect data safely from the periphery of the quarry
- No longer exposed to potential hazards from rock fall, slips and trips
- Greatly reduced the time that the geologist/geotechnical

engineer spends in the quarry

- Discontinuity data can be safely collected for all parts of the quarry
- Quality of the data enables a wide variety of geological and geotechnical data to be extrapolated.



95

Safe removal of shovel tooth from stalled primary gyratory crusher

Midland Quarry Products > Cliffe Hill Quarry



DESCRIPTION

A recent fatality to a worker whilst removing tramp metal from a crusher highlighted the risks of this operation. The sudden, uncontrolled release of energy can send a lethal projectile amongst men working on the task.

MQP fabricated a purpose built, crescent shaped steel plate to manage this risk when removing a bucket tooth trapped in the primary gyratory crusher at Cliffe Hill Quarry. Once all other materials had been removed from the crusher, a jib crane lowered the purpose built plate into position over the trapped tooth. The lifting chains were left in place and to add more weight, the crane 'block' was lowered onto the plate and a 'Pecker' blade was also placed on it. A two man team, both wearing a safety harness, were positioned in the tipper box which had

been previously cleared of all material. They used a thermal lance inserted between slots in the steel plate to dislodge the tooth.

BENEFITS

- A safe and secure work environment to carry out this dangerous task
- Involvement of both contractors and employees in the decision making process.





21

Installation of robots to reduce dust, noise and HAV exposure

Myers Group > Johnsons Wellfield Quarries Ltd



DESCRIPTION

In spite of earlier investment to control stone masons' exposure to occupational health and safety hazards, it was decided that more could be done. Rather than attempting to further control the occupational hazards which included hand arm vibration, manual handling and exposure to noise and dust, it was decided to eliminate the hazards.



A team involving managers and stone masons reviewed various options to achieve this. The solution selected was to install three Staubli Robots which also complimented the CNC routing cabinets.

BENEFITS

- All hazards associated with HAVs were eliminated
- Operatives are now working in a clean, temperature and noise controlled environment
- Manual handling of stone has been almost fully eliminated
- Workers are no longer reliant on wearing RPE or ear protection.
- The robots have increased capabilities and improved accuracy and ensure the reduction of waste.
- The operation can be carried out 24 hours a day, if required.

80

Probe to safely remove stones stuck between dump truck tyres

UK Coal Surface Mining Ltd > Park Wall North Surface Mine



DESCRIPTION

UK Coal removed the manufacturer fitted rock ejectors on all of their fleet of Caterpillar 777F RDTs due to several incidents. However, the removal of the rock ejectors led to an operational problem with rocks becoming wedged between the twin rear wheels on the truck fleet. These rocks had to be removed by manually putting a strap around the rock and pulling the rock out with the aid of the telehandler. This was a time consuming and potentially dangerous task.

An engineering solution was designed and fabricated consisting of a large steel arm attached to the rear wall of an excavator bucket by means of a 'quick hitch coupler'. To remove wedged rocks, the dump truck operator contacts the excavator operator by radio and between them they position the truck so that the excavator can attach the probe and remove the rock.

BENEFITS

- No pedestrians are involved in the operation
- Manual handling and the use of a strap have been eliminated
- Disruption to production is minimal – the operation is completed in five minutes



- Significant time saving on what is a frequent event (several times a shift)
- This previously hazardous task is now safely undertaken.





112 Maerz Kilns – caged access system for internal inspection



Singleton Birch Ltd > Melton Ross Quarries

DESCRIPTION

Singleton Birch Ltd operates four Maerz lime kilns. During operations there are occasions when kiln personnel have to inspect the inside of the kiln. This task exposed the operator to risks from working at height, the potential to fall into the kiln when they leaned through the inspection hatch, or being 'sucked in' by the air movements within the kiln. The operator was required to wear a work restraint harness and a rescue plan was in place.

Oliver Fisher, a trainee kiln operator, came up with the idea of having a hinged access cage. The cage can be swung into place inside the kiln opening, eliminating the risk of falling into the kiln.



BENEFITS

- Legal compliance with regulation 6(3) of 2005 Working at Heights legislation
- This high risk task can now be completed far more safely
- Inspections can now be done by one person
- No requirement for safety restraints and rescue plans
- Can be easily fitted at a cost of £500 per kiln.

31 Safely moving a mini digger around a quarry

Aggregate Industries > Ghyll Scaur Quarry



DESCRIPTION

Although the mini digger used at Ghyll Scaur Quarry was fitted with a buggy whip it was not always clearly visible when moving around the HGVs, dumpers and loading shovels on site.

A steel frame was fabricated that the mini digger was able to track onto and secure itself using its bucket. The frame can then be picked up by a telehandler and transported anywhere on site where the mini digger is needed.

BENEFITS

- The telehandler is clearly visible to other vehicles on site
- The mini digger operator can safely transport the mini digger around the site
- The life of the mini digger's track and roller will be extended.



135 Manual handling risks removed from finished product testing process

Aggregate Industries > Chryston > Landscaping Commercial



DESCRIPTION

At the Chryston works, kerbs and pavers for testing have to be taken from the manufacturing process, cured for a period of either seven or 28 days before being moved and loaded into a test rig. With the product weighing up to 80 kilograms, operators were exposed to significant manual handling risks during the different stages of this procedure.

Following a review the method of operation was changed.

A lightweight roller track was mounted on a pallet truck that could be raised or lowered. This enabled the product to be moved safely and adjusted to the correct height for insertion into the test rig.

A toast rack pallet design was fabricated which enabled the product to be stored vertically and moved without the slabs falling with the possibility of entrapment.

A pendant crane assembly fitted with a purpose made attachment was used to lift the test samples safely from their vertical position in the toast rack and lower them horizontally onto the roller track. After the test, broken pieces can also be lifted using this device.

BENEFITS

- Manual handling risks during the process are either eliminated or so minimal as to be insignificant
- The problem of flags falling during curing or transport has been eliminated
- Proactive involvement of the team in finding a solution.





106 Lifting attachment for safely loading railway sleeper pallets

CEMEX UK > Building Products > Rail Solutions

DESCRIPTION

CEMEX UK was concerned that the customer-supplied equipment for loading pallets of up to 24 railway sleepers onto railway wagons, exposed the operator to manual handling and working at height risks.

The loading equipment had a lifting attachment which engaged the pallet on one side and a swinging bar connected by chains to the attachment, engaged on the other side of the pallet. The swing bar required an operative to physically push the bar with his foot, whilst holding onto the attachment with his hands to connect the pallet.

A new 'Grab' was designed and commissioned. The grab is hydraulically operated by the loader driver, removing any physical contact.



- Eliminated manual handling from the task
- Banksman can confirm the grab has locked from a safe distance
- Removes the need to work at height on the rail wagon.



40 Access and egress improvements for the railhead track selector chute for loading product bins

Lafarge Tarmac > Mountsorrel Quarry > Barrow Railhead

DESCRIPTION

A track selector chute is used to load the final product bins that are used to load the railway wagons at Mountsorrel Quarry. The chute is critical to the process and requires weekly internal inspections and maintenance. To gain access, operators were required to climb over the top of the chute, which is five feet high. Inside the chute they were exposed to the risk of falling 25 feet into the bins.

A new chute was built with side access doors allowing direct access from the walkways and a drop in platform designed that is placed into the bottom of the chute to prevent falling into the bins. Further improvements were made to the guarding on

the walkway and the isolation procedures for the chute were enhanced.



BENEFITS

- Safe access and egress to the chute with the risk of falling from height removed
- Operators are more confident and recognise a clear commitment to improving standards
- Reduced delays and downtime
- This solution is transferable to other similar sites.

148 Eliminating confined space working for maintenance of a septic tank pump

Wienerberger Ltd > Sandtoft

DESCRIPTION

Sandtoft wanted to eliminate the need for an operator to enter a septic tank at six monthly intervals to service, and if necessary, replace a pump. In addition to confined space working there was the added potential hazard of methane being present.

After reviewing a number of options, they installed a duck foot and

slide system on rails that could be winched out on chains, clear of the confined space. The pump and its electrical connections could be worked on at ground level before lowering back into place.

BENEFITS

- Confined space working eliminated
- Regular maintenance is easier and more safely performed.

visit www.safequarry.com for more details or email: info@safequarry.com



124 Marine aggregates cargo calculator

Hanson UK > Arco Humber

DESCRIPTION

One of the most potentially dangerous tasks on board a marine aggregate dredger is entering the cargo hopper to calculate the quantity of material that has been dredged. The operator has to manually measure the distance between the top of the hold and the top of the cargo. He is exposed to the risk of falling from height and cargo collapse.

Hanson's marine aggregate business has developed a laser to

calculate the cargo quantity. The task can be undertaken by one man from outside the hold.

BENEFITS

- Hazards of entering the hold have been removed
- More efficient operation, as only one man is required for the job
- Much more accurate calculation of cargo volume.

147 Using waste product to create robust temporary safety barriers

Stanton Bonna Concrete > Stanton by Dale

DESCRIPTION

Stanton Bonna Concrete often have a requirement for temporary safety barriers to help separate people from vehicles. They wanted a barrier system that was more robust than those currently available on the market or taking measures such as using old oil drums connected with timber.

To meet this requirement they adapted the rejects from the production of twin block railway sleepers. The only modification required was the fabrication and fitting of some box section steelwork which was welded onto the steel tie bar between the two concrete blocks. The total weight of approx 280kg makes it

robust enough to sustain minor impacts but also large and sufficiently heavy to avoid being easily moved or stolen.

BENEFITS

- A robust and effective barrier system that can be semi-permanent
- Easily and quickly installed and removed without the need for digging or drilling
- Utilises a waste product and cheap to fabricate.
- Ideal solution when a permanent barrier is unsuitable or a trial is required.



64 Safe transportation and changing of hammer on drill rigs

Lafarge Tarmac > Tunstead Quarry

DESCRIPTION

The blasting team at Tunstead Quarry were concerned about the safety of the process for transporting and changing the 70kg hammer on a drill rig. The hammer was cylindrical and had no purpose-designed lifting points. Operators were exposed to risks from manual handling, fingertrap and crushing injuries.

The solution was to use a trailer fitted with a powered lifting winch. In addition, a slewing arm was designed to lift the hammer from a frame located on the trailer. The hammer could be slewed across and coupled to the drill stem, or returned to a second frame either in the workshops or on site.

BENEFITS

- Safer operation with manual handling eliminated
- Hammers can be coupled to the drill stem supported by a lifting arm and secured by a sling
- Operator can remove himself from the area where the drill is being extended to couple with the hammer
- Improved efficiency, productivity and reduced risk of damage when the hammer is in transport.





for a safer workforce



A dedicated nationwide training **Service** delivering **Quality** operator and instructor courses that add **Value** to any business.

01246 555222

www.mentortraining.co.uk





143 **A safe working environment for employees with disabilities and health-related issues**



Hanson UK > Formpave > Coleford

DESCRIPTION

As part of its 2020 target towards zero lost time injuries, Hanson UK is utilising a 'Zero Harm' approach to working safety. The actions taken at Hanson's block paving manufacturing plant in Coleford, to support the needs of an employee with severe disabilities and health-related issues, is an example of this approach. It also reflects the strategy of empowering business lines to take ownership of safety issues supported by the company's professional health and safety advisors.

A deaf employee who also has severe speech difficulties, had to undergo emergency surgery. As a consequence of this operation, he could no longer use the existing design of safety harnesses. To help clarify how this might limit his ability to work safely and to identify potential solutions, an internal evaluation was undertaken of the employee working a normal night shift with a specialist independent occupational safety consultant engaged to report and make recommendations.

As a result of this, the following actions were taken at the plant:

- A review of all working areas looking at access for rescue. This resulted in two areas being reclassified to restricted access
- A specialised rescue harness was purchased for the disabled employee
- All risk assessments were reviewed and, where appropriate, amended
- A 'man down' alarm and fire alarm for the deaf were purchased



- A pager which vibrates and displays a message when the fire alarm is activated was issued to the employee
- Additional CCTV has been installed across the site with all locations visible on a display screen in the control cabin
- An additional fire alarm with a visual beacon has been installed in the warehouse
- Completion of a full lone working risk assessment
- Visual/audible beacons have been installed on all fork lift trucks
- Additional convex mirrors installed to aid visibility
- Competency assessments completed in November 2012.

BENEFITS

- The employee can now work safely
- Safety of site improved for all employees
- Clear demonstration to employees of commitment to safety
- On-going systems in place to ensure SSOW is maintained.

108 **Persuasive story telling – engaging our workforce**

CEMEX UK > National



DESCRIPTION

CEMEX wanted a new way to help embed crucial safety concepts with employees. After extensive research 'Persuasive Story Telling' training sessions were developed. This has been achieved with 'Cardboard Citizens', a charity working with the homeless, using theatre to get messages across and to help influence change in attitudes.

The goal is to improve the method of communication used when imparting information from Safety Alerts, Tool Box Talks, Incident Reports etc. Some managers and supervisors struggle to communicate the information in an effective way that is remembered by the audience.

'Persuasive Story Telling' takes the information and builds it into a

memorable tale using personal experience or relating it to relevant real life events. It gives people the full picture of what creates hazards or causes incidents and the consequences for individuals arising from their behaviour.

Whilst safety training through drama is being used within the industry, CEMEX UK uses theatre to enhance communication skills, rather than raising general health and safety awareness. Working with 'Cardboard Citizens', CEMEX UK will coach key individuals to help deliver this as an in-house module across the workforce.

BENEFITS

- Better retention of key messages
- Improved engagement with the workforce
- Reduction in behavioural related incidents.



23

Safety leadership at Myers Group

Myers Group > Barr Street > Huddersfield



DESCRIPTION

Myers Group has been awarded the Sir Frank Davies Trophy for companies with less than 1,000 employees. This award follows the implementation of a range of strategies to improve the group's health and safety performance.

An in-house safety leadership programme was developed to raise safety awareness and capability, with two levels – Managing Safety Excellence and Supervising Safety Excellence.

Managing Safety Excellence is a three day course spread over three weeks covering topics such as leadership, safety culture, incident reporting and investigation, manual handling and risk assessments. It is highly interactive and has been well received by the 45 managers that have participated so far. Supervising Safety Excellence is a one day session, covering the salient points from the management course to educate supervisors enabling them to support management as they implement the changes in a consistent manner. The Managing Director has introduced each course and participated in the first wave of training.

A Training and Competence Manager has been recruited to help implement a Workforce Competence Strategy and the aim is to attain QCF based competence in all levels of the business from L2 – L7.



A survey of the safety culture within the group has provided a benchmark and will be repeated at regular intervals to monitor progress. Safety statistics are reviewed by the Group Health and Safety Committee.

BENEFITS

- Significant increases in incident reporting since training began
- More effective incident investigation and remedial action
- Regular updates and toolbox talks given across the group
- Safety culture, awareness and competence are improving
- The initiative has helped to build trust within the company.

149

Changing the safety culture at Sandtoft

Wienerberger Ltd > Sandtoft

DESCRIPTION

In 2009, the management at the Sandtoft site recognised that they had a poor safety culture and performance. A wide range of safety initiatives were implemented that have resulted in a significant improvement in safety performance:

- Recognition by the management team that health and safety was a collective responsibility and would require their leadership
- Encouraging incident reporting and monitoring follow-up action, using a mapping process of incidents to help identify safety hot spots on the site
- Creating risk assessment teams and introducing systems of observing individuals performing tasks and providing safety feedback
- Introducing a wide range of communications to impart safety knowledge
- Holding regular meetings to review safety with detailed reporting of safety statistics

BENEFITS

- The organisation has been RIDDOR free since April 2011
- No lost-time accidents since March 2012
- A positive and pro-active safety culture
- Improved housekeeping across the site
- Individual and collective ownership of safety
- Increased levels of competence in recognising and managing risk.

visit www.safequarry.com for more details or email: info@safequarry.com



142 Automatic speed reduction for fork lift trucks

Forticrete Ltd > All sites



DESCRIPTION

Fatalities and serious injuries involving pedestrians and mobile plant (both forklift trucks and front end loaders) are a common problem. Forticrete and sister company Ibstock Brick contacted fork lift truck suppliers to determine what automated systems were available to help minimise this risk. They discovered that, whilst there were adequate alarms and sensors available, there were no automatic speed reduction systems.

They worked with a manufacturer, Linke, to develop a safer fork lift truck and introduced other measures to minimise the risks.

General specification for the system:

- Speed limited to 5kph in reverse and 16kph moving forwards
- 2 sets of rear facing ultrasonic sensors (6 units in each) mounted in the specially designed counter-balance weight for protection, to provide zonal coverage behind the truck
- Left and right side ultrasonic sensors (two units in each) mounted on vertical cab cage to provide additional coverage over the rear wheels and to extend rear end coverage.
- Audible and visible warnings for the driver inside the cab. Frequency of light and sounds intensifies as the truck gets closer to an object or person when reversing.
- Vehicle rate of acceleration reduced in both forward and reverse modes.

OPERATION When reversing, the sensors detect persons or objects at approx. 3-4m, alert the driver through the audible and visible signals in the cab and automatically reduce the vehicle speed through the transmission, to a crawl speed of 1kph at a distance of

about 1m from the object or person. This allows the driver to get close to objects in a tight working area at a very slow speed.

OTHER MEASURES At some sites, product stacking was altered to eliminate the need for large fork lifts. Drivers, pedestrians and managers were educated *before delivery* about the vehicles capabilities and the benefits of the technology. One-way systems and Pedestrian-Vehicle Separation through barriers, walkways or line separation were reviewed and enhanced. Pedestrians were made more visible with high-visibility clothing for all work wear.

BENEFITS

- Driver behaviour has changed as a result of driving the adapted vehicles
- Less damage, extended truck life with potential lower costs
- A safer working environment for all
- Cooperation with suppliers in developing the safety systems
- Potential for the process to see wider adoption by other manufacturers.



22 Traffic management isn't a 'WASTE' of time

Myers Group > Myers Skip Hire



DESCRIPTION

The H&S adviser and station manager at Myers waste transfer station conducted a traffic management survey due to safety concerns. The site operatives provided feedback on issues and ideas for improvements. The following changes were made:

- Automatic barriers were installed at both yard access points which gave operatives full control of traffic movements within their workspace
- A raised curb was installed at the entrance to help minimise the risk from a potential blind spot and create a divide between vehicles and operatives
- Site rules on tipping, vehicle movements and 'no go' areas were developed with drivers and operatives.
- Skips were relocated allowing easier access for vehicle loading, unloading and reduced reversing

- Tasks involving operatives were relocated away from the traffic routes
- Standards of housekeeping were improved.

BENEFITS

- Safer working environment with operatives controlling traffic movements and physical barriers between operatives and vehicles
- Site security improved and clear rules in place for all site users.



visit www.safequarry.com for more details or email: info@safequarry.com

62 **LGV in-cab communication system****Lafarge Tarmac > Logistics****DESCRIPTION**

Lafarge Tarmac has developed and deployed an in-cab communication system that makes communications with their drivers much safer and has “managed out” the use of mobile phones in LGVs when moving.

Using GPS and a web-based interface, the ‘caller’ is able to establish whether a vehicle is travelling or stationary, and view the driver’s acknowledgement of any messages sent. When a ‘caller’ sends a message, a visual and audible ‘caller’ message is received at the vehicle by the driver. The driver simply acknowledges the caller’s request by using a ‘one-press’ button returning ‘message received’.

The cab phone is de-activated when the vehicle is in motion, reducing distractions for the driver, although emergency contact is available.

On receipt of a message, the driver parks the vehicle in a safe position where the existing cab phone technology is re-activated as the vehicle’s ignition is switched off and handbrake applied.

In the event of internet failure, a back-up message saving system is maintained. A reporting package allows the system’s usage to be reviewed and further preventative actions introduced.

**BENEFITS**

- Office staff are able to contact drivers in vehicles in a safe and controlled manner
- Improved driver concentration by de-activating the cab phone whilst driving
- Improved monitoring and management of calls to LGVs.

70 **VT Overview™ – all round view for dump truck****Vision Techniques UK Ltd****DESCRIPTION**

Following the Pennyvenie fatalities, the driver’s visibility from the cab of the dumper at Lafarge Tarmac’s Wensley Quarry was reviewed. It was felt there was the potential that all the information from the numerous mirrors might not be taken in before setting off.

To overcome this concern, Vision Techniques supplied their new VTOverview system which provides a single point of focus to the driver. This system combines the images from four ultra wide angle cameras into a single image providing a bird’s eye view. From one monitor the driver can see all round the vehicle up to 6m out at a glance with no blindspots.

BENEFITS

- Reduced distraction for the driver
- Enhanced safety as the driver is aware of all potential hazards around the vehicle
- Safer manoeuvring, easier to avoid spillage with the potential to puncture tyres.



Drivers view all round the vehicle from his monitor



6 H&S sub-committee traffic management document

CoalPro > Surface Mining Traffic Management



DESCRIPTION

Following the tragic deaths of two fitters at Pennyvenie Surface Mine, CoalPro developed Traffic Management Guidance. This document draws on both the lessons learnt from the accident and pre-existing best practice. CoalPro worked in consultation within Banks Mining, UK Coal, Scottish Resources Group, Celtic Energy and Miller Argent to produce the final document which was published in July 2012 and is available on the CoalPro website.

Previously, no guidance had been produced that was specific to the large earthmoving equipment used within the mining environment and operations carried out within the surface mining industry. The document gives guidance on traffic management from the initial site planning stage, to ensure potential hazards can be eliminated through site design. Whilst focussing on three key areas, safe workplace, safe vehicles and safe driving & plant operation, the document highlighted issues such as:

- Segregation of light and heavy vehicles on main haul roads
- Exclusion of light vehicles from operational dig areas
- Improved radio protocol and controls
- Use of observation points to prevent the need for light vehicles to enter the dig area unnecessarily
- Improved all-round visibility on large vehicles
- Awareness of buggy-whip.

BENEFITS

- Widely endorsed by coal and other related industry bodies such as QNJAC
- Enhanced learning, and it has created a new safety culture within the industry
- Steady reduction in RIDDOR injury rates in the surface coal mine industry.

133 360° surround view camera systems – kill the blind spots

Spillard Safety Systems Ltd



DESCRIPTION

Spillard Safety Systems have developed a 360° all round vision camera system working with a company that originally developed the technology for the high end luxury car market. Utilising its knowledge of blind spots on mobile plant, Spillard Safety Systems has expanded the capabilities to enable the camera system to be installed onto dump trucks, excavators, dozers, compactors, telehandlers, articulated dump trucks and road haulage trucks. The product and concept is still in the early stages of its development, however, feedback from customers has been extremely positive.

BENEFITS

- Overcomes the possibility of visual overload using up to eight mirrors and camera
- Drivers of mobile plant have all round visibility

- Safer environment for all on site.



155 Audio warning system for tailgate operation

Morris & Perry > Gurney Slade Quarry

DESCRIPTION

When two new tipper lorries were delivered to Gurney Slade Quarry they went through a risk assessment. The air operated tailgate was assessed as creating a potential hazard. When operated from within the cab an operator might be unaware of a person within close proximity who would be at risk of injury. To

minimise the risk of this happening, an audio warning system was installed that would give notice to anyone in the vicinity before the tailgate was lifted.

BENEFITS

- Potential hazard from tailgate operation is reduced.

visit www.safequarry.com for more details or email: info@safequarry.com



Visual indicators to prevent slow speed shunting collisions on railhead

Lafarge Tarmac > Mountsorrel Quarry > Barrow Railhead

DESCRIPTION

In 2011 and 2012, the 3m tonne per annum railhead at Barrow on Soar experienced three instances of very slow speed shunting collisions within the sidings, causing damage to wagons and infrastructure and disrupting the railhead operations. The accidents were caused either by parked wagon sets 'partially fouling' points so that wagon sets on adjacent lines could not pass without touching, or by over shunting wagon sets into the stop blocks.

A review noted that there were no visual markers to show whether the parked sets were sufficiently clear of the points to allow safe passage. Operators were using their judgement and experience to 'visually assess' whether there was sufficient clearance. The solution was to mark back from the stop blocks and points the clearance distance by painting the track sleepers in red – creating a clear visual marker – without creating a trip hazard. The method of working was adjusted so the shunting was undertaken at normal speed until the last three wagons and then slow speed until beyond the markers.

A further collision highlighted the need to improve procedures on the setting of points. Traditionally, ground staff would visually check the point lever and move it to the correct location. However, the standard hand pull lever is accessible for others to move in error. The new procedure is that any movement of wagon sets is authorised through the Person In Charge within the control cabin.

They note the correct setting for the track points and only they can authorise the point lever to be moved and set in place. To communicate to others working in the sidings that points should not be operated or moved, a simple indicator plate has been made which fits over the point lever. It is bright yellow and states DO NOT PULL.

BENEFITS

- The likelihood of slow speed shunting collisions greatly reduced
- No further collisions to date and method of working has improved
- Involving the workforce in the review resulted in more ownership of safety
- Very cost effective and visual solutions that can easily be applied elsewhere.



151 Driver aid – high visibility paint on LGV auto sheet arms

Smith & Sons (Bletchington) Ltd > Enslow > Kidlington > Oxford

DESCRIPTION

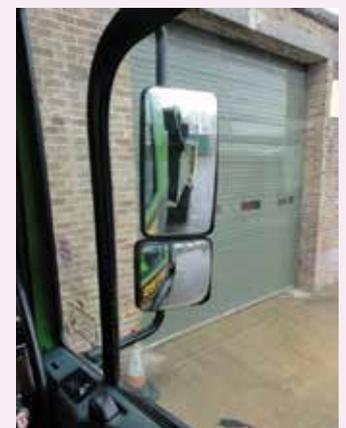
LGV drivers regularly have to reverse their tipper vehicles into sites with narrow access routes. The automated sheeting arms are fixed to the outside of the tipper body and project beyond the sides of the tipper body. There is a risk when reversing into narrow sites, that the arms will hit gate posts, lights, walls etc. The drivers highlighted the difficulty in seeing the automated sheeting

arms through the wing mirrors, when reversing – particularly in poor weather conditions and in the dark. In response to this, the vehicle workshop staff decided to paint

all LGV automated sheeting arms with high visibility yellow paint in order to make them much more visible.

BENEFITS

- The LGV drivers can clearly see the automated sheet arms when reversing
- A significantly reduction in the number of accidental damage claims
- Reversing is easier and safer.



visit www.safequarry.com for more details or email: info@safequarry.com

146 Elimination/reduction of vibration and noise during pipe casting

Stanton Bonna Concrete > Stanton by Dale



DESCRIPTION

Stanton Bonna Concrete was finding it difficult to control the noise created by vibrations during the production of larger diameter pipes using a vertically cast concrete pipe machine. This process consists of gradually filling a mould with concrete to form a cylindrical pipe which is lifted clear of the core and outer mould before curing. During the fill and pressing process, vibration is applied by electric motors that operate at a constant speed. The noise emitted by the machine varied significantly, and at particular points, possibly due to resonance, operators could feel the noise energy as WBV.

Following reviews and meetings with operators, maintenance and production staff, a potential solution was proposed – the installation of a continuously variable speed drive to the vibrator. This could be used to adjust the speed such that the noisy ‘resonance frequencies’ were avoided.

An inverter which allowed variable vibrator speeds was installed together with a control system which allowed for both manual and automatic adjustment to achieve the required vibration at the lowest possible noise levels.

The operator is able to reduce the speed of the vibrator as he hears the noise building. Once sufficient data has been built up for the different products, it is envisaged that the control system will operate automatically.

BENEFITS

- A noise reduction of 10-15 dBA achieved in the loudest part of the cycle
- Over the whole cycle, an overall reduction in noise exposure of 5 dBA
- Operators report that the noise energy waves have been eliminated or greatly reduced
- The system enables fine tuning of the vibration for optimum product quality
- The system is being developed for automated application across all pipe sizes
- Reduced wear and increased life of the vibratory system.



102 **Drill rig hammer cradle****CEMEX UK > Halkyn Quarry****DESCRIPTION**

During a safety workshop at Halkyn Quarry, occupational health hazards related to manual handling were discussed. The changing of the hammers on the drill rig was highlighted as it required an operator to lift and hold the hammer whilst it was being attached to the drill rig. Not only did this involve lifting a heavy object, the person holding the hammer was under the rig mast whilst the coupling took place. The workshop came up with the idea of a special rig to hold the hammers whilst fitting or disconnecting. The rig is also be used to transport the hammers to and from the workshop.

BENEFITS

- Eliminated potential for a musculoskeletal injury
- Reduced risk of hand injury during coupling operations
- Avoids risks from being under or in close proximity to the drill rig mast
- Worker involvement in finding solutions reinforces safety culture on site.

120 **Designing a healthy workplace****Hanson UK > Craig yr Hesg Quarry****DESCRIPTION**

Craig yr Hesg quarry near Pontypridd is a high silica quarry. The potential hazard from respirable crystalline silica (RCS) is of particular concern to all associated with the operation.

The followings steps have been taken to help minimise potential exposure to RCS.

Industrial air conditioning units have been installed in the control cabins and a boot wash placed next to the office and welfare facilities entrance.

The primary crusher operator's station has been moved to a dedicated remote control room which has been redesigned to create an air lock between it and the quarry. There is a shoe cover dispenser in the entrance to the control room and the crusher operator has control over entry into his 'Clean Side'. Once in the

crusher control room, the operator does not wear work clothing or boots. A carpet has been fitted to distinguish between this area and other workstations. The operator has had significant input into the design of his workplace and it is through his dedication that this area remains a silica dust free zone.

BENEFITS

- A significant reduction in the levels of RCS in the workplace
- Improvements reinforce Hanson's commitment to the health of its employees
- Site personnel see their ideas being enacted and experience the benefits first hand
- Improved the culture on site particularly with respect to health.

'Silica': a turning point

Europe to decide legislative future for *Respirable Crystalline Silica*

Social dialogue agreement

The EU Social Dialogue Agreement covering respirable crystalline silica (RCS) was signed in 2006. This multi-sectoral agreement is monitored by NePSi (Negotiating Platform for Silica) that, today, comprises 16 signatories, each being a European Industry Sector Trade Association, along with their employee Social Partners: 'IndustriAll – European Trade Union'.

The NePSi Employers, supported by the MPA and the HSE have registered their preference for inclusion of respirable crystalline silica in the EU Chemical Agents Directive, though this piece of legislation is not currently up for revision.



An impact study has been commenced at the behest of the European Commission's Directorate-General 'Employment' which will provide an informed view.

Biennial reporting

Every two years, commencing in 2008, the NePSi Secretariat invite the submission of data from all 16 industries across each of the 28 EU member states, as well as voluntarily from a number of countries outside the EU.

The resultant NePSi data is expressed in the form of 12 Key Performance Indicators (KPI) that due to their positive trending in successive 'reporting years' demonstrate that the industries concerned are behaving responsibly by assessing exposure risk of their workers to respirable crystalline silica and taking appropriate control measures. It is commonly acknowledged by employers, unions and authorities that the Agreement delivers the required level of protection and the training of the workers, minimises their exposure through implementing good practices. For the participants in NePSi, the EU (NePSi) Agreement is a tangible success.

Construction industry

Although NePSi accounts for around 2 million European workers, the European construction industry remains outside the Agreement, despite major efforts to convince the European bodies representing construction employers and their unions as to the benefits.

2014 reporting 'window'

Between 15 January and 14 March 2014, the industries will again collect and submit data to NePSi to produce a new set of the KPIs for 2014.

Reporting is simple, you just need to confirm that you assess the risk to which your workers are exposed and apply health surveillance protocols and training. You also will be asked to confirm that you take measures to reduce exposure to Respirable Crystalline Silica and that you protect your own workers. It is about showing that your organisation is responsible.

Please do not miss this opportunity!*

Future direction for RCS?

The EU 'Carcinogens & Mutagens' Directive is to be revised. In 2014, the European Commission will produce a draft revision, with the European Council/Parliament co-decision procedure likely to commence in 2015.

Possible consequences

The 'Carcinogens' Directive includes a number of obligations that could cause significant damage to the European mineral products industry, without the balancing benefits for protecting the occupational health of workers:

- adverse public perception (operational restrictions; planning refusals; etc)
- application of addition laws (REACH; environmental; labelling; transport; etc)
- changes in compensation rules
- inflated insurance premiums
- requirement for 'closed systems'
- exposure 'as low as technically possible'
- records to be kept for 40 years.



Carcinogens and Mutagens Directive

Chemical Agents Directive

* For further information, contact helpdesk@nepSIDATA.eu



154 Making incident reporting work

Golder Associates > Attenborough House



DESCRIPTION

Golder Associates highly value incident reporting as a means to learn from potential safety issues and to encourage employee engagement with safety. In recent years it has developed a range of measures to help staff recognize and report issues. The system has evolved into the 'Learnings Database'. Staff are encouraged to report potential hazards and are formally recognized for their contributions to health and safety. This helps to encourage similar levels of participation by their peers.

Techniques employed to encourage worker involvement include:

- Development and monthly publication of a H&S dashboard to summarise reporting performance and significant learnings, emailed to all employees.
- Teatime talks and safety alerts for the key trends and significant learnings
- Safety campaigns and training targeted on reported issues
- Safety tools and procedures updated based on employee feedback
- Recognition and one to one safety conversations for those engaging with the system, encouraging those not yet involved, to explain the benefits.
- Paper pads to enable staff to record events they see on sites when they don't have access to the online reporting system

- A new hazard identification exercise based around a large floor plan of a fictional project. Participants 'move around' the project and have a more stimulating learning experience
- A 'Point of Work Safety Plan' tool for use in the field, bridging the gap between a previously prepared safe system of work and conditions experienced in situ.

BENEFITS

- 'Learnings' reported have increased from 74 in 2007 to 1,350 in 2012
- Further significant growth in reported learnings in 2013
- The Total Recordable Case Rate in the UK and Ireland has also fallen to zero.



57 One Goal vision – documenting and improving safety

Lafarge Tarmac > Aberthaw Cement Plant



DESCRIPTION

Following the launch of the company's 'One Goal' safety initiative, the Aberthaw Plant Laboratory Team created a front line application to apply in their area. Using Queen's 'One Vision' combined with the football theme of 'One Goal' a method of documenting and improving safety was created.

By recording safety concerns on sticky notes – attached to stands for recording; actioning these concerns – sticky notes moved to the goal mouth; and completing – sticky notes moved to the back of the net guarded by Freddie Mercury, a visible means of engaging with and improving safety was created.

The team meets weekly to review outstanding actions and any other safety communications published during the week. Safety documentation is also reviewed – STOPS, Near Misses, SOPs and Risk Assessments. The programme will be rolled out to three other departments by the year end.



BENEFITS

- Greater sense of ownership – the department has an improved awareness of the company's safety initiatives and approaches
- With ownership of tasks, there is a greater drive to develop tasks and see them through to completion
- Making a safer working environment.

visit www.safequarry.com for more details or email: info@safequarry.com



51

Replacing mobile plant windscreens & related tasks

Lafarge Tarmac > Burnley Wharf



DESCRIPTION

Whilst completing a risk assessment of replacing a windscreen on a loading shovel it became very obvious that a satisfactory 'safe method of working' was not easily achieved and that there was still a high level of risk involved in the task.

The team felt passionately that a proper structure would significantly reduce the risks associated with the task.

The team held several 'brain storming' sessions to come up with a solution, including a discussion with an approved tyre company engineer. A working drawing was produced and the team fabricated and built a platform gantry, using materials left over from maintenance tasks.



BENEFITS

- Ability to access the cab's windscreen with a sure footing and the engineer can work safely at height
- Substantially reduces the manual handling risk.

66

Lone working system for support service employees

Lafarge Tarmac > Cross Green Contracting Office



DESCRIPTION

Following a number of incidents both within the business and the wider community, lone working was banned and all 'at risk' workers had to be accompanied at all times. This policy remained in place for two years. While significantly reducing incidents, it was a costly system to operate and caused significant logistical problems within the operation.

To help address these issues, Reliance Technology were contacted and requested to supply a lone worker device. Following trials, over 100 employees received these devices and have been trained in their use. A number of further improvements were identified which included improved communication, response times, panic alarms, operation and ease of use. Supply chain partners have also been offered the system on a trial basis, with a view to adopting it.

Lone workers are now monitored as soon as they activate the device, 24/7, 365 days a year.

The introduction of the lone worker system has been widely accepted by employees and a number use them whilst away from work, particularly during leisure activities.

BENEFITS

- A managed lone worker system with 24/7 coverage via manned monitoring



- Defined response levels to incidents
- Improved internal process covering Risk Assessments and Method Statements for support service staff
- Significant cost savings
- Confidence in employees when lone working
- Ease of use in charging, activation and operation plus a roving SIM card option
- Protection for supply chain partner employees
- Extended protection for employees beyond work.

104 **'Don't Walk By' videos**

CEMEX UK > Leamouth Wharf

**DESCRIPTION**

A short video was filmed showing the quarry when performing normal day to day activities. The video was shot from the highest point on the processing plant.

It was then shown at an Area Safety Forum where many in the audience had never visited the site. Attendees were split into groups of four and asked to note down any observations, good practice, potential hazards and to identify practices that could be improved. The groups were given five minutes to discuss their observations and a spokesman for each group was nominated.

The video was then shown again and the nominated spokesman called out STOP when a good practice, questionable activity or behaviour was identified and they explained what the group had identified. Over 20 situations, possible improvements and best practice were identified, discussed and listed.

This approach demonstrates that what becomes normal and routine is not necessarily good practice. The video was also

shown to the workforce at the site along with the list of situations observed. As a result of this feedback, a number of improvements were implemented at this site.

BENEFITS

- Helps the process of reviewing and challenging routine practice
- Enhances awareness of staff when reviewing H&S on their own or other sites
- Sites filmed are able to implement changes leading to a safer working environment
- Good practices observed can be discussed and replicated at other sites
- Helps the process of continually improving H&S standards
- The process is repeated three times a year using different sites.

61 **15 years Lost Time Incident-free**

Lafarge Tarmac > Cauldon Cement Plant

DESCRIPTION

Cauldon quarry is a 1.2 million tonnes per year quarrying operation with 12 members of staff operating a day shift pattern. On 1st August 2012 the team achieved 15 years of LTI-free working which is still running to date.

Several factors contributed to this:

- Team participation and commitment
- Clear focused drive in resolving issues as they occur
- Regular team meetings and discussions
- Ideas sharing
- Actively using the knowledge of the team members to improve safety
- Setting and maintaining high standards in all areas i.e. housekeeping

A high level of importance is placed on training, with a commitment to gaining vocational qualifications. This is supported via in-house assessors and verifiers to support all operators, fitters

and managers to attain their relevant qualifications/standards.

All unsafe acts or conditions are reported quickly and closed out effectively with feedback given. All members are encouraged to challenge each other if they see anything that could lead to harm, and they are empowered to take action on safety within their scope, and to report anything outside this.

BENEFITS

- 15 years continuing record LTI-free
- No absence from work through injury
- Raised safety awareness across the whole team and employee empowerment
- High levels of attainment to aspire to
- Proactive approach to hazard identification and positive approach to Near Miss reporting
- Positive challenge of unsafe acts or conditions with high rate of close out
- Setting and maintaining high H&S standards.



127 Replacing top edge protection

Hanson UK > Whatley Quarry

DESCRIPTION

Developed by the workforce, a new procedure has been introduced to replace crest top edge protection after blasting. It makes the task much safer and eliminates many of the associated risks.

The distance of the standoff from the crest is assessed based on information contained in the post blast inspection and must be a minimum of five metres. The standoff is marked by a trained, competent person using weighted traffic cones adapted to take a flag. The flag is set at eye level of the FEL driver. A painted hatched line may be used as a back up.

On approaching the standoff line, the FEL bucket is kept low to the ground with the material bucket tipped into position rather than placed on the ground and pushed forward (which could

cause additional pressure on the crest and dislodge some ground). This also ensures the bucket does not obscure the line of site. Scalpings are used since they stand up better and provide higher edge protection. More can be added using the same process if the required height is not met.

Where there is evidence of break back or any other fault at the crest, the area can be further demarked to preserve the five metre rule to the unprotected face.

BENEFITS

- Safer process for the FEL driver
- Allows adequate and defined top edge protection to be installed.



www.safequarry.com – the Mineral Products Health & Safety hub

View the videos of best practice as highlighted in this document.

- Incident alerts
- Hot Topic alerts
- Toolbox talks
- Hundreds of examples of best practice

Sharing health and safety resources helps us all work towards Zero Harm.

Register now!



INDEX

Title

	Page number	Entry number	Asphalt	Cement	Concrete products	Contractors	Dust	Incident alerts	LGV	Lime	Maintenance	Marine	Mobile plant	OHS	Quarry	Rail and wharf	Readymix	Surfacing
Bitumen, asphalt & contract surfacing																		
Roller path maintenance	4	26	•								•							
Hot storage skip safety system	4	34	•															
High High Level Alarm (HHLA) for storage tanks and kettles	5	13	•								•							
Clearing blockages using a Thermowrap system	5	152	•								•							
Asphalt plant fire box automatic cleaning system	6	75	•								•			•				
Silo safety system fully testable at ground level	6	82	•						•		•							
Bag house guardian	7	32	•															
Elimination of a fire risk by fitting a processed fuel oil temperature alarm	7	71	•															
Contractors safety																		
360° CCTV and safety enhancements on Impact Protection Vehicles (IPV)	8	92				•			•									•
Use of a highly visible arm band to confirm induction	8	94	•	•	•	•					•	•			•	•	•	
Monitoring site boundaries	9	125				•					•				•			
Overcoming language barriers with safety information	9	28		•					•									
Engineering initiatives																		
Automatic rubber divider extraction machine for concrete flooring manufacturing process	10	110			•										•			
Introduction of a safety netting system for cyclone roofs	10	153		•							•							
Remote geotechnical mapping using long-range terrestrial LiDAR and UAV	11	91													•			
Safe removal of shovel tooth from stalled primary gyratory crusher	11	95									•		•		•			
Installation of robots to reduce dust, noise and HAV exposure	12	21			•		•							•				
Probe to safely remove stones stuck between dump truck tyres	12	80									•		•		•			
Maerz Kilns – caged access system for internal inspection	13	112								•	•							
Safely moving a mini digger around a quarry	13	31											•		•			
Manual handling risks removed from finished product testing process	13	135			•									•				
Lifting attachment for safely loading railway sleeper pallets	14	106			•								•	•				
Access and egress improvements for railhead track selector chute loading product bins	14	40									•				•	•		
Eliminating confined space working for maintenance of a septic tank pump	14	148																
Marine aggregates cargo calculator	15	124										•						
Using waste product to create robust temporary safety barriers	15	147			•													
Safe transportation and changing of hammer on drill rigs	15	64									•		•	•	•			
Leadership, training & management																		
A safe working environment for employees with disabilities and health-related issues	17	143			•										•			
Persuasive story telling – engaging our workforce	17	108																
Safety leadership at Myers Group	18	23						•										
Changing the safety culture at Sandtoft	18	149						•		•								
Transport initiatives																		
Automatic speed reduction for fork lift trucks	19	142			•								•					
Traffic management isn't a 'WASTE' of time	19	22							•		•		•					
LGV in-cab communication system	20	62		•					•									
VT Overview™ – all round view for dump truck	20	70							•				•					
H&S sub-committee traffic management document	21	6							•				•		•			
360° surround view camera systems – kill the blind spots	21	133							•				•					
Audio warning system for tailgate operation	21	155							•									
Visual indicators to prevent slow speed shunting collisions on railhead	22	41													•	•		
Driver aid – high visibility paint on LGV auto sheet arms	22	151							•									
Occupational good health																		
Elimination/reduction of vibration and noise during pipe casting	23	146			•										•			
Drill rig hammer cradle	24	102									•		•	•	•			
Designing a healthy workplace	24	120					•							•	•			
Worker involvement																		
Making incident reporting work	26	154						•										
One Goal vision – documenting and improving safety	26	57		•				•										
Replacing mobile plant windscreens & related tasks	27	51											•	•		•		
Lone working system for support service employees	27	66				•					•							
'Don't Walk By' videos	28	104															•	
15 years Lost Time Incident-free	28	61		•														
Replacing top edge protection	29	127											•		•			

HEALTH & SAFETY WORKING GROUPS

Cement

Lionel Burch	Lafarge Tarmac
Raymond Parrott	CEMEX
Mike Cowell	Hope Materials
Alison Shenton	Hope Materials
Mark Underwood	Lafarge Tarmac
Iain Walpole	Hanson
Meirion Webber	Kerneos

Lime

Kye Brown	Singleton Birch
David Brown	Steeley Dolomite
Lionel Burch	Lafarge Tarmac
Julian Clayton	Steeley Dolomite
Paul Geaney	Lhoist
Andrew Jones	Lafarge Tarmac

Safer by Partnership (Contractor Safety)

Ian Baggelaar	Hanson
Sharron Brady	Lafarge Tarmac
Darren Broadhead	Aggregate Industries
Kye Brown	Singleton Birch
Cedric Hollinsworth	MPQC
Peter Luxmore	CEMEX
Jason Moore	Hope Materials
Rosamund Seal	Aggregate Industries
Richard Solly	Rema Tip Top
Andy Taylor	CEMEX
Mark Underwood	Lafarge Tarmac

Transport & Hauliers

John Anderson	Hanson
Tom Clubb	Brett Group
Dominic Day	Day Group
Nick Elliott	Hope Construction Materials
Trish Jagger	MPQC
Sean McGrae	Lafarge Tarmac
Paul Needle	Smiths of Bletchington
Peter Parle	FM Conway
Jeff Stobbart	Aggregate Industries
Ben Street	Midland Quarry Products
Rob Wilkinson	CEMEX

Plant & Processes

Darren Broadhead	Aggregate Industries
Andy Taylor	CEMEX

Contract Surfacing

Rob Allen	Cleehill
Jon Medforth	Lafarge Tarmac
Paul Pattison	Eurovia
Geoff Shearn	John Wainwright & Co
Pat Sheehan	Colas
Ben Slack	Lafarge Tarmac
Darren Stokes	Tripod Crest
Neville Thomas	CRH Plant
Glyn Williams	Lafarge Tarmac
John Winson	Aggregate Industries

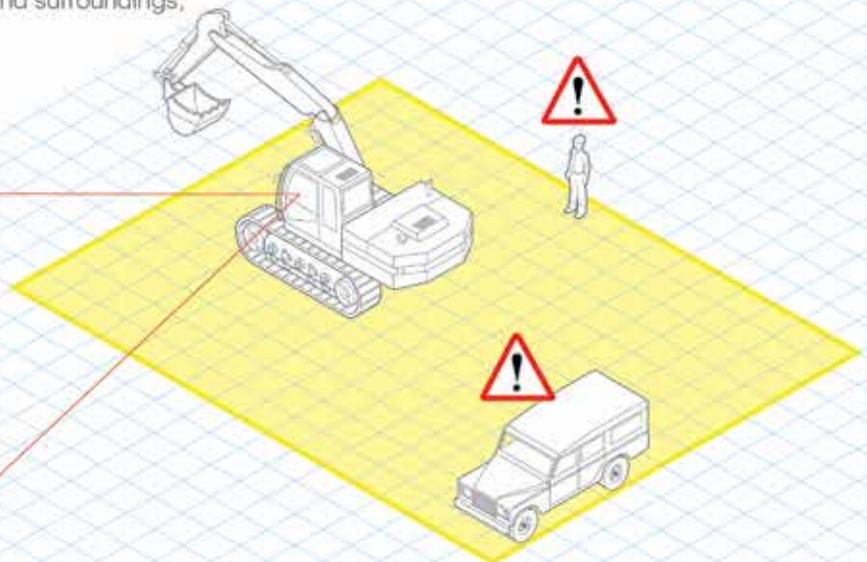
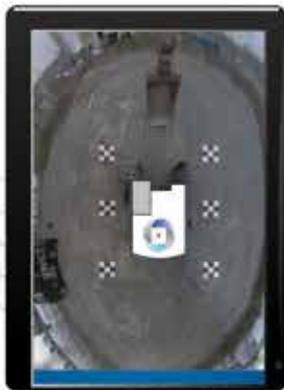
Bitumen

Matt Avery	Aggregate Industries
Jason Barker	CEMEX
Ian Burrows	Eurovia
Gary Dowell	Hanson
Mike Linley	Total; RBA
Arnold Marsden	Lafarge Tarmac

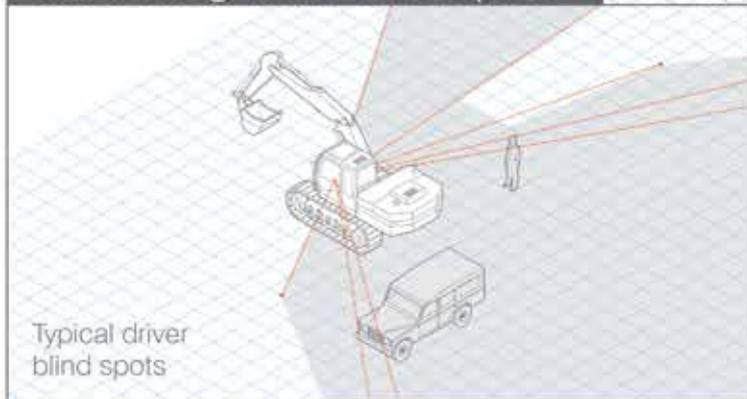
Kill the blind spots... before the blind spots can kill.

Optronics 360 is the world's first 360 degree surround view camera system for industrial and commercial vehicles. It takes visibility up to the next level – literally.

Optronics 360 consists of a combination of a camera system, a monitor and a high performance programmable electronic control unit (ECU) that uses heavy duty image processing to display a 360° quadraspheric bird's eye image of the vehicle and surroundings, eliminating blind spots.

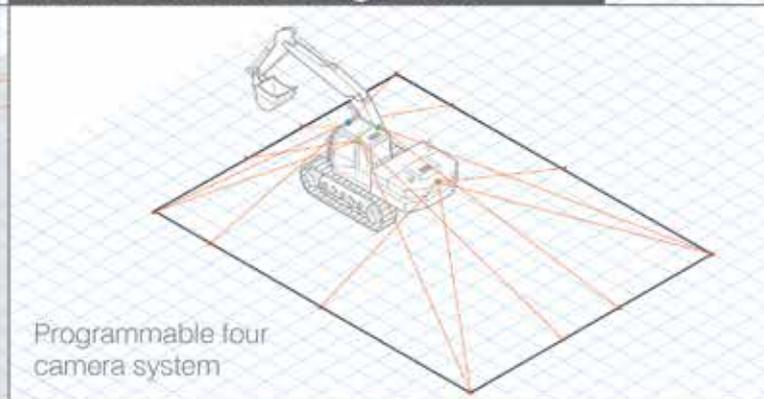


Eliminating driver blind spots



Typical driver
blind spots

Multi-camera image data



Programmable four
camera system

COMPLETE FLEXIBILITY FOR VEHICLE, SITE AND ENVIRONMENT

FOR MORE INFORMATION CALL

01902 79 79 30

email: sales@spillard.com www: www.spillard.com



SPILLARD
safety systems

VOLVO CONSTRUCTION EQUIPMENT WHERE SAFETY IS NO ACCIDENT



Commended
ENGINEERING SERVICES
Sector Award



VOLVO CONSTRUCTION EQUIPMENT



Visit the Health and Safety Hub for the Mineral Products Industry – www.safequarry.com

Free access to essential information to help make your workplace healthier and safer:

- 100s of videos highlighting health and safety innovations and best practice
- Extensive library of incident alerts
- Industry guidance from HSE, NePSi, QNJAC, QPT, MPA and others
- Auto-email alerts when key health and safety information is added BUT only to those who are REGISTERED!
- Has your email address changed? If so, you will need to RE-REGISTER. It takes just 90 seconds! Easy!
- Track your usage for CPD reporting



Essential Health and Safety Information for anyone working in:
**Aggregates; Asphalt; Cement; Dimension Stone; Lime; Mortar;
 Precast; Ready Mixed Concrete; and Silica Sand industries.**

Register now!



essential materials
 sustainable solutions

Mineral Products Association

Gillingham House
 38-44 Gillingham Street
 London SW1V 1HU

Tel 020 7963 8000
 Fax 020 7963 8001
info@mineralproducts.org
www.mineralproducts.org
www.safequarry.com