

Hamilton 2025

Empowering the Next Generation of Quarry Professionals

**Today I would like to empower the
next generation of quarry
professionals to have 80 healthy years**

Self Preservation

80 years

0

Zero Harm

80

Healthy Years

FOCUS

0 harm

80 years

No work place incidents

on whole of life

SUCCESS

0 harm

80 years

**Do not die
at work**

**Enjoy a productive
retirement**

This presentation is based on my
Health & Safety Training
1982 - 1992

























End





Slide 1

Hamilton 2025 Quarry Conference - Empowering the next generation of Quarry Professionals

Today I would like to empower the next generation of Quarry professionals to have 80 healthy years

Slide 2

Self-preservation

Regarded as a basic instinct

Protecting yourself from harm or death

Slide 3

Life expectancy in New Zealand is around 80 years

Make this your target

Slide 4

Here is a different way of thinking from zero harm

Slide 5

Focus

0 harm

80 years

No workplace incidents

on whole of life

Slide 6

Success

0 harm

80 years

Do not die at work

Enjoy a productive retirement

Slide 7

This presentation is based on my Health & Safety Training
1982 – 1992

Slide 8

3070 Drott

Starting off in the workforce, working alongside others who had seen serious injuries caused by wire ropes

Installed respect and understanding which was the start of my health & safety apprenticeship.

The Health & Safety advice which stood out the most, was when at the age of 17 going to prepare at job at the Port Hills beside Christchurch with a caterpillar D6C my father said there is a lot of under runners up there, if you roll the bulldozer you will die.

Direct to the point, was all that was needed.

We had a different Health & Safety grounding, I got my full truck & trailer licence on my 18th birthday.

Nothing special about this, many other 18-year-olds like me had spent many weekends and school holidays in and around trucks.

Learning the art of driving, loading, repairing and the dynamics of heavy and light vehicles interacting on the road.

This early involvement in the workforce gave a great grounding of work ethics and dynamics of people working together with their differences. Sadly, this has now been lost.

My first paid work in a quarry was on a Drott, which were made by International Harvester, sizing blasted basalt rock over a hardwood grizzly.

Notice, load not tied on, tracks are wedged with two wooden blocks, without knowing it at the time we had situation awareness.

You drove differently loaded or unloaded. If it started to rain you slowed down

If you loaded in the rain, you tied it on as you had steel tracks on wet wood

None of which were written procedures

We learnt by humour & horror

During one school holidays

After a day of filling in a trench with a caterpillar D6B bulldozer with no exhaust muffler, on the way home I asked my father for some earmuffs as my ears were ringing. The answer was no because if a big end went, I would never hear it. Because I didn't know what a big end was, I remained silent.

SO, No earmuffs – reflecting on this, the reason may have been, to ensure full clarity whenever I was being told off.

From the age of 14 I repaired flat truck tyres which had steel split rims.

I was reminded often of a split rim coming off during a tyre being inflated.

The outcome was a body imprint which was left on a workshop roof.

Examples like this stuck in your memory

Slide 9

RB22

Giving things a go

My father told me I was heading up to the Highbank Power Station on the Rakaia River to clean out the sand trap, with a Ruston Bucyrus 22RB dragline.

He asked, Have you done any bucket work?

No I replied. Well head down to the bottom of the yard and dig a new rubbish hole.

Training completed I loaded up and off I went.

Loading trucks with a dragline involves lining up the truck deck, release the drag rope which sends the loaded bucket into free fall. The principle is when the bucket becomes vertical material falls into the deck. During the first truck to be loaded the driver decided to enact the Self Preservation option and jumped out of the cab. Something they all did for the duration of the job.

As the sand trap was made of old thin concrete, to load the bucket, I could only rub along it - leaving lots of windrows which needed sweeping up.

A Caterpillar 944 loader with rear steer and less than average drum brakes was used to clean up these windrows.

With someone at the wheel I lowered it into the canal by the drag rope and later dragged it up by the same means.

Why was this done, why was this acceptable. I will explain

The loader was needed in the canal there were no access ramps.

The dragline on site probably had the capacity for the task at hand

This was confirmed once the loader was back on top

The operator in the loader was another earthmoving contractor helping us on this job

He had known me all my life. Also observed me many times using this machine and other similar models doing craneage around the workshop.

I believe this had a big influence on why they were comfortable to be in the loader.

The deep knowledge of knowing what makes people tick is gained by working with others over a long period.

You learn what to expect from them. You soon pick up if they are distracted, tired or having an off day.

Back then we were risk takers but also risk managers.

Today this might sound strange.

If a poor decision was made, it was the risk taker who suffered the consequences.

Today if a poor decision is made because of the now unlimited regulations, procedures, codes of practice etc it is the manager who may suffer the consequences.

Slide 10**D8 wagon****Emergency Management**

This is one of many photos taken as locals turned up when it was known I was going to unload this machine on to the ground

Another staff member was there with a crane truck to help assemble the blade, then they were heading home.

I then needed to start pre-ripping the job, as the crew were coming in two weeks to start

At 18 or 19 years old this was my first and only time unloading from a railway wagon onto the ground. I decided if it went wrong, it was far better to fall off the openside rather than on to the working railway line.

With care & patience it came off nicely onto stacked railway sleepers.

If I had ended up on the working railway line

I would have created an Emergency Management Plan on the spot 1985 ish

30 years later

Emergency Management Plan Training unit standard 2015 ish

In groups we co-ordinated an Emergency Management Plan for beached dolphins, which we all achieved.

Months later it was with utter horror and disbelief watching on television, people at a beaching site not wearing hi-viz clothing or gloves and children were wandering around freely.

Three unacceptable things covered in our training. Then I wondered why Emergency Management achieved quarry managers had not been contacted.

This was the very type of emergency we had been trained for.

I am not making light of beached mammals; I am drawing attention to the fact people need skills and training for their sites, as this is where it will be used.

I would like to see this training done on sites of the same type eg limeworks, alluvial, hard rock etc

This creates an environment of everyone speaking the same language, the same hazards, sharing knowledge and getting to practical robust plans, which make sense to the end user, therefore understood by the very people for which they are intended.

An example could be

Training on the voltage, height & safe distance of overhead lines including outcomes of contacting different voltages with different types of equipment

To reinforce this training add in situation awareness when you see an excavator travelling on site or just about to move ask the operator “where is the first overhead line you will get to”

The delay of their answer will dictate your response

If it is a quick correct answer, give praise and include this praise in your next health & safety meeting.

A silent reply means your health & safety procedures need fixing.

A fatality may have been 5 – 10 minutes away.

Slide 11

Take 5

D8 Rabbit Island

A tidal channel between Rabbit Island and Bell Island near Nelson was to be pre-ripped, then machinery turned around then a sewer pipeline to be mole ploughed in across the tidal mudflat. By the time everything was ready the tide was coming in and getting late in the day.

The general thinking was, wait for the next suitable low tide, my father thought differently

Slide 12

Discovering the air cleaner housing had a rust hole in it, was discovered the hard way, after 2 divers had managed to remove the drawbar pin and the wire rope was removed from the winch, the bulldozer was pulled to dry land for repairs.

The hole in the air cleaner housing was beside the engine so easily missed

The lesson to take from this is when you are about to do something out of the ordinary make it as ordinary as possible

Using this as an example

Operate in low water rather than high water

Operate in good natural light rather than low light

Using the old benchmark of eliminating a hazard

Any potential harm to these divers would have been eliminated if this had been done at low tide.

When things are speed up is usually when things start going backwards.

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D8's x 3

Situation Awareness

As this paper was developing this came to be the fore

I had been doing it in many degrees unaware of its foundation

The more we become aware of it, the more we can put it to work for us.

Mica R. Endsley Texas Tech University 1995, presented a paper titled "Towards a theory of situation awareness in dynamic system!"

Three excerpts are

"Having an accurate understanding of what is going on"

"Operators/ Managers must do more than simply perceive the state of their environment. They must understand it and adjust to any change"

"Taxonomy of Errors" meaning science of systems

I recommend looking at this paper, it is complex, but I think you will find something which will fit your realm.

Situation Awareness is about noticing things and making changes before an incident occurs.

I currently see regulations being controlled by procedures which in turn are adjusted by incident reports before an environment is changed or corrected.

Most early bulldozers used a small petrol engine to start the main diesel engine. Because of this a gallon tin of petrol was always carried, which was also used as hand cleaner.

Ah the good old days cleaning your hands with leaded petrol, great way to find out where any cuts were, before enjoying high octane sandwiches.

Any operator could give an accurate answer, when asked of petrol level. Diesel level, oil levels and position of engine gauges

Diesel level used to be checked by dip stick, if the dip stick was missing you pulled out the strainer and had a look, Rarely did machines run out of diesel

Fuel gauges became more common around the time machine cabs became the norm. The operator became less aware and ran out of fuel

A low-level light was then fitted, still run out of fuel

A warning buzzer was then added still run out of fuel

Today just adding more layers is the norm

If the first level is not working, make changes so that it does.

Today I see people too comfortable, after a prestart, tool box meeting, correct PPE, they have met the regulations so can relax.

Slide 14

D9G

Fatigue Management

First mining site in Western Australia I started on this Caterpillar D9G. This was a new site clearing bush for haul roads, tailings dam, stockpile areas etc 6 days per week

Early on, my Sundays were spent ripping & pushing a stockpile in the gravel pit for the following week

Not much different from my working life in New Zealand.

Except in Western Australia, because I had only taken the odd day & statutory holidays off

After 12 months I was informed by Perth Office I had 5 weeks of overdue leave that I had to take.

I tried, but failed to get it paid out.

So, at the age of 21 I flew around the world by myself to get rid of my annual leave.

Problem fixed. Back to work.

On many mine sites dirt bosses taught me a lot about fatigue management when they spoke everyone listened. When it came to fatigue management they kept everyone close.

They were around camp as crews left / returned, they popped in at crib time on night shifts. I was unaware of this at the time, without it being obvious they were checking everyone's health & wellbeing.

A simple direct statement from them got things back on track.

This is something I took on board

You need to know and understand your staff.

This cannot be achieved in an office.

Managers need to be seen on site spending time with staff

Spending time one on one creates respect of management and understanding of the individual

Because of this you will see an issue early before it becomes a problem

Still at my first mine site, the company I was with won a large contract close to Perth.

All those involved in the tendering process celebrated with drinks in the board room, The owner walked in & told them they can only celebrate this job at the end of the contract, if we are still in business and no one has been seriously harmed.

This filtered back to company mine sites, this was around 1987.

The best morale booster for staff is being reminded the owner is passionate about their wellbeing.

Slide 15

Liebherr 984

This was my favourite site.

8 and 1 roster. This being the good old days meant 8 weeks on 1 week off.

We were close to the sand dunes of the Great Sandy Desert.

The closest to a serious incident on any mine site was at this site when a camp cook had a suspected heart attack. When the flying doctor was informed of the symptoms and only 20 minutes of oxygen available, advice given was “use it sparingly”, see you in 2 ½ hours as they were on another job.

Discipline

Guarding the old favourite

I continue to read Health & Safety bulletins of guards being removed and interlocks bypassed

Only then to be reminded once again about procedures and training and hazard management.

No reports of discipline are shown

Is there a hesitation to discipline because fear of personal grievance claims ?

You are better suffering a Personal Grievance rather than living with having had a person under your control having suffered a serious injury or death.

Slide 16**Look up and live**

This is the 30-metre face at Milburn Limeworks in Otago.

Normally drilled and blasted at 30 metres. This section was taken down to the bottom of a natural gut which had contained marine mud.

After a week of cleaning out the marine mud and trimming the face and top edge, I had a good knowledge of this corner, which dictated the drill pattern and where I started drilling.

Then this was drilled and blasted to floor level to re-establish the 30-metre face.

The controls on an Air trac drill rig are on the drill mast, which just happens to be the most noisy and dusty part of the machine and the closest to the edge.

Self-Preservation, Situation Awareness and Expectation Bias was reinforced with look up and live.

My father told me I needed to gain an A grade Quarry Managers Certificate. The normal route was to gain shot firers, B grade and then A grade

It was decided to bypass the others and go straight to A Grade which included a drilling and blasting exam, A grade was 3 written exams.

The reason behind this is my father did not have a good relationship with the Chief Quarry Inspector. Mainly because both thought they were in charge. My father thought this may impact on my efforts, with the B grade being an oral exam

Off I went to courses ran by the then Mining Inspection Group, which was headed by Inspectors who had many years of experience in the industry.

No school qualifications, my top mark was 75% on the law paper. Credit to the then local inspector Michael Firmin.

Inspectors focussed on what we needed to know to pass.

Which is, also what we needed to know to run a safe productive site.

This was taught from their experience

Slide 17**Roadtrain****Common Sense**

The main frustration I saw by others over many years when unit standard based training came in was “This is a waste of time; it is all common sense”

This was from people who had been on one site 10 – 20 + years

At this point they lost interest

What is common sense?

Can it still be applied to our ever-changing world. I see common sense as local knowledge

In the past people lived in the one area most or all their lives so from an early age they soon learnt what could harm or kill them by bearing witness to others finding out the hard way.

Today our world is too broad and fast changing for sense to be common in all areas.

At one mine site sometimes, scorpions would be in the camp lawn and on the concrete walkways. It was common sense for visitors to use the concrete walkways when going to the showers barefoot, but it was local knowledge to wear jandals.

You need local knowledge to be safe in your working environment

This photo was taken in the mid 1980's combination of common sense and local knowledge at the time.

Back then If two items of plant were needed at a site, it was common sense to take them at the same time.

If this did not fit within the law of the land

It was also common sense to take the back roads.

It was local knowledge by the local traffic police, that back roads are only used by locals and overloaded trucks

So, when caught loaded with a D8 bulldozer without an overweight permit, along with the front axle of a carryall on board with the rear axle happily trailing behind on the road.

It was common sense not to be caught again.

It was also common sense to chain the D8 forward on the trailer, so the carryall did not drag the bulldozer off.

Standard safety feature on a 1950's Le Tourneau carryall, was when ever it was towed along a public road or the cutting edge

was replaced the push bar which comes off the front yoke was pinned holding it in the raised position.

Slide 18

D8 2U

No rippers, no blade down pressure, no fancy hydraulic blade tilt. You did the job with what you had.

No steps, no handrails

No slips, trips or falls.

No OPS, no FOPS, TOPS or ROPS

If something went bad it was usually very bad.

If something was not right, you stopped fixed or changed it then carried on. We expected unplanned things to happen.

A severely damaged limb in the past may have been chopped off
- think wire ropes & mangled bits

Because of technology, cell phones, air ambulances & modern medicine has greatly improved this.

But in doing so, the focus on self-preservation has reduced.

Today help is only a phone call away. This gives people too much comfort, along with no fault A.C.C. and paid leave

2011 Christchurch Earthquake

This earthquake tripped a few circuit breakers in the quarry I was running, unaware of the level of the devastation in the city, quarry structures were checked, circuits breakers reset, back producing.

This was a mistake, for the rest of that day help was not, only a phone call away as all emergency services were overloaded in the city.

Making Emergency Management plans null and void

If there is a serious event in your area this may be a very good time to shut down early. This could be a road accident or something similar

Hold a Health & Safety meeting with one thing on the agenda

Someone close to here may not be going home today. If it can happen around the corner, it can happen here.

Making time for this unplanned meeting reinforces their safety is not a given.

This also breaks the routine of going to work and returning home each day with no change.

Let an unexpected event break the complacency. Create conversation about unexpected events on the job which then becomes the topic in lunchrooms and at home.

Slide 19

group in pit

This is my favourite photo, early 1990's Western Australia

1 Caterpillar 773, 3 777 and a 16G grader

See how close the crew is, people engaged

Every meal break was a toolbox meeting

If something was being changed, everyone knew about it

There were different job titles, but one thing we had in common, we all had safety critical roles.

We looked after each other.

Summary

Owners / Managers

When paying for Health & Safety training ensure it will reduce the chance of injury or death at your site (s) and / or benefits your staffs wellbeing.

A remote mobile crushing site needs different first aid training from an extractive site near a city.

Human Resources

Spend time at the coal face in their world. Early morning starts, night shift and meal breaks.

Do not just add more layers, change whichever is not working or replace it.

Get people to do what they are good at.

Stop doing what does not work.

Go through your procedures and replace the word should – SHOULD give people options

The next generation

Use self-preservation, situation awareness, expectation bias, include those around you.

Understand “value of life”

This can be used in the content of risk analysis and resource allocation.

Use it to quantify the benefit of avoiding a fatality, also look at “statistical value of life”. These are economic and philosophical measures.

I will end with this - the highlight of your career will be when you retire in good health and wellbeing.