



# OFFICE OF THE STATE CORONER

## FINDINGS OF INQUEST

**CITATION:** **Inquest into the death of Scott Meho  
KARAJIC**

**TITLE OF COURT:** Coroner's Court

**JURISDICTION:** Brisbane

**FILE NO(s):** COR/03 0315

**DELIVERED ON:** 26 April 2006

**DELIVERED AT:** Brisbane

**HEARING DATE(s):** 18–20 April 2005 and 14–15 July 2005

**FINDINGS OF:** Mr Michael Barnes, State Coroner

**CATCHWORDS:** Coroners: inquest, gas drilling rig accident, supervision on drilling rigs, recommendations concerning the education of drilling rig supervisors and crew.

**REPRESENTATION:**

Counsel Assisting:	Mr John Tate
Next of Kin:	Mr Peter O'Neill
Queensland Gas Corporation:	Mr Ian Blowmendal
Thiess Pty Ltd:	Ms Brad Farr
Century Resources:	Mr Mark Gynther
Mr Jamie Smith:	Mr Phil Hardcastle

# Findings of the inquest into the death of Scott Meho Karajic.

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*The Coroners Act 1958* provides in s43(1) that after considering all of the evidence given before a coroner at an inquest the coroner shall give his or her findings in open court. What follows are my findings in the inquest held into the death of Scott Meho Karajic.

## ***Introduction***

In the early hours of 28 February 2003, Scott Karajic and his work mates on Century Resources drilling rig 16 were nearing completion of the coal seam gas well they had been drilling over the preceding four days. After what the crew considered to be a straight forward and uneventful job, total depth had been reached the day before and they were in the process of removing the lengths of drill pipe from the well for the final time before the well would be capped and they would move on to the next well site.

This task had also almost been completed; the drilling bit had been removed from the well and the last length of pipe was being stacked vertically, beside the mast of the drilling rig when suddenly it plunged below the surface of the ground fatally crushing Mr Karajic against another part of the rig.

These findings seek to explain how the accident occurred and recommend changes to industry practice aimed at reducing the likelihood of similar incidents occurring in future.

## ***The Coroner's jurisdiction***

Before turning to the evidence, I will say something about the nature of the coronial jurisdiction.

### **The basis of the jurisdiction**

Although the inquest was held in 2005, as the death being investigated occurred before 1 December 2003, the date on which the *Coroners Act 2003* was proclaimed, it is a "*pre-commencement death*" within the terms of s100 of that Act and the provisions of the *Coroners Act 1958* (the Act) are therefore preserved in relation to it.

Because the police officer who first became aware of the death considered it to be "*a violent or unnatural death*" within the terms of s7(1)(a)(i) of the Act, he was obliged by s12(1) to report it to a coroner. Section 7(1) confers jurisdiction on a coroner to investigate such a death and s7B authorises the holding of an inquest into it.

### **The scope of the Coroner's inquiry and findings**

A coroner has jurisdiction to inquire into the cause and the circumstances of a reportable death.

The Act, in s24, provides that where an inquest is held it shall be for the purpose of establishing as far as practicable:-

- the fact that a person has died,
- the identity of the deceased,
- when, where and how the death occurred, and
- whether anyone should be charged with a criminal offence alleging he/she caused the death.

After considering all of the evidence presented at the inquest, findings must be given in relation to each of those matters to the extent that they are able to be proved.

An inquest is not a trial between opposing parties but an inquiry into the death. In a leading English case it was described in this way:-

*It is an inquisitorial process, a process of investigation quite unlike a criminal trial where the prosecutor accuses and the accused defends... The function of an inquest is to seek out and record as many of the facts concerning the death as the public interest requires.*<sup>1</sup>

The focus is on discovering what happened, not on ascribing guilt, attributing blame or apportioning liability. The purpose is to inform the family and the public of how the death occurred with a view to reducing the likelihood of similar deaths. As a result, the Act authorises a coroner to make preventive recommendations,<sup>2</sup> referred to as “riders”, but prohibits findings or riders being framed in a way that appears to determine questions of civil liability or suggests a person is guilty of any criminal offence.<sup>3</sup>

### **The admissibility of evidence and the standard of proof**

Proceedings in a coroner’s court are not bound by the rules of evidence because s34 of the Act provides that “*the coroner may admit any evidence the coroner thinks fit*” provided the coroner considers it necessary to establish any of the matters within the scope of the inquest.

This flexibility has been explained as a consequence of an inquest being a fact-finding exercise rather than a means of apportioning guilt: an inquiry rather than a trial.<sup>4</sup>

A coroner should apply the civil standard of proof, namely the balance of probabilities, but the approach referred to as the *Briginshaw* sliding scale is applicable.<sup>5</sup> This means that the more significant the issue to be determined, the more serious an allegation or the more inherently unlikely an occurrence, the

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<sup>1</sup> *R v South London Coroner; ex parte Thompson* (1982) 126 S.J. 625

<sup>2</sup> s43(5)

<sup>3</sup> s43(6)

<sup>4</sup> *R v South London Coroner; ex parte Thompson* per Lord Lane CJ, (1982) 126 S.J. 625

<sup>5</sup> *Anderson v Blashki* [1993] 2 VR 89 at 96 per Gobbo J

clearer and more persuasive the evidence needed for the trier of fact to be sufficiently satisfied that it has been proven to the civil standard.<sup>6</sup>

It is also clear that a coroner is obliged to comply with the rules of natural justice and to act judicially.<sup>7</sup> This means that no findings adverse to the interest of any party may be made without that party first being given a right to be heard in opposition to that finding. As *Annetts v McCann*<sup>8</sup> makes clear, that includes being given an opportunity to make submissions against findings that might be damaging to the reputation of any individual or organisation.

The Act, neither by its express terms nor by necessary implication, rescinds the common law privilege against self incrimination. Accordingly, a witness can not be required to answer questions at an inquest if the presiding coroner considers the answers are likely to expose the witness to a criminal prosecution or disciplinary action. The details of an application made in this case in relation to this aspect of coronial procedure are set out below.

### ***The investigation***

I turn now to a description of the investigation into this death.

Police were immediately notified of the accident and officers from Miles, Dalby and Chinchilla attended. Those officers undertook a brief inspection of the scene, took photographs of the accident site and some particulars of the workmen in attendance. They caused Mr Karajic's wife to be advised of the tragedy and made arrangements for all of those who were on site to attend at conveniently located police stations and give detailed statements.

At about 6.30am on the morning of the accident, Mr Peter Harris, the Deputy Chief Inspector – Petroleum and Gas, from the Department of Natural Resources and Mines arrived at the site. He immediately took up with the police officer in control of the scene and familiarised himself with what appeared to have happened. Shortly after, Mr Karajic's body was moved by the government undertaker and the site was secured. The drilling rig was assessed as being unstable and all equipment was left *in situ* until heavy lifting machinery was able to be brought to the site three days later.

In the days following the accident, all witnesses were interviewed, some on a number of occasions and an investigation focussed on establishing the mechanism of the accident and identifying any underlying contributory factors was undertaken by Mr Brendan Galloway, South West Region Inspector Petroleum and Gas. His report was distributed to those granted leave to appear. As result of some concerns raised by the legal representatives of the family, further inquiries were made by Mr Galloway. Technical information and analysis was provided by Mr Ray Davis, a mechanical engineer from the Safety in Mines Testing and Research Station (SIMTARS). I am satisfied that the investigation was thorough and

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<sup>6</sup> *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361 per Sir Owen Dixon J

<sup>7</sup> *Harmsworth v State Coroner* [1989] VR 989 at 994 and see a useful discussion of the issue in Freckelton I., "Inquest Law" in *The inquest handbook*, Selby H., Federation Press, 1998 at 13

<sup>8</sup> (1990) 65 ALJR 167 at 168

professional and that it addressed all of the relevant issues. Mr Galloway's report was of great assistance when I was familiarising myself with this matter.

## ***The inquest***

### **Preliminary hearings and a view**

The matter was initially reported to the coroner at Chinchilla, who held a number of directions hearings in an effort to reach agreement on what documents should be introduced into evidence and under what conditions. Leave to appear was granted to the family of Mr Karajic, Century Resources - the drilling contractor, Thiess Pty Ltd – the project manager and Queensland Gas Company Ltd (QGC) - the leaseholder.

It became apparent that the inquest into this matter would be protracted. Lengthy matters impose significant burdens on circuit magistrates and as it appeared likely that the convenience of the parties would best be served by the inquest being held in Brisbane, I agreed to a request from the Chinchilla Coroner that I assume responsibly for the matter. Therefore a further directions hearing was held in Brisbane on 6 February 2004 when an exhibit list was settled and it was agreed that a view of an operating drilling rig would be of benefit.

On 1 March 2004, courtesy of arrangements made by senior officers of the Mining Inspectorate, in conjunction with senior staff from Century Resources and QGC, the parties travelled to a lease near Surat on which a drilling rig similar to the one involved in this accident was operating. Drilling procedures were demonstrated and explained by the lead investigator and senior drillers.

On 8 March 2004 I was advised that Mr Jamie Smith, the rig manager of rig 16 at the time of the accident, and QGC had each been charged with an offence under the *Petroleum Regulations 1966*. Those offences did not focus on whether the defendant had caused the death of Mr Karajic and accordingly s42 of the Act did not mandate that the inquest be postponed until the charges had been disposed of. However, after hearing submissions from the parties granted leave to appear, I ruled that the inquest should be adjourned until that had happened, as if the inquest was to proceed while the charges were pending, Mr Smith could be expected to successfully raise an objection to answering many questions that would be relevant to the findings I am required to make, on the basis that the answers might incriminate him of the charge he was facing. I considered that it was preferable that he have those charges dealt with because I believed that he would not then be in a position to raise the issue of privilege against self incrimination. The statutory charges were heard and determined on 27 October 2004. They were dismissed.

When the charges had been dealt with and the inquest commenced, Mr Smith's counsel did however raise that issue of privilege against self incrimination. He submitted that, notwithstanding the disposition of the summary, statutory offence, there was a possibility that Mr Smith could be charged with an indictable offence alleging he had been criminally negligent. It is clear that the 1958 Act does not by express provision or necessary implication abrogate the common law privilege

which entitles a witness to refuse to answer questions which may incriminate him or her. However I considered that in the circumstances that prevailed in this case, the possibility that his answers might expose Mr Smith to a prosecution was not sufficiently likely to eventuate to warrant granting the application. The authorities talk of “*a real and appreciable risk*”, “*a genuine and reasonable apprehension having regard to the ordinary operation of the law*” as distinct from “*a slight or remote possibility*.” In this case, Crown Law had been consulted about a possible prosecution and briefed with three statements made by Mr Smith in which he acknowledged the role he played in the accident. Having regard to the way Crown Law considers such matters I concluded that, while there was no strict bar to Mr Smith now being prosecuted on indictment that was most unlikely to happen. Accordingly I ruled that he was required to answer all questions and he complied with that ruling.

After another directions hearing, the inquest proper commenced on 18 April 2005 and proceeded for three days. The hearing was adjourned until 14 July when the evidence was concluded after a further two days of hearing. A total of 13 witnesses gave evidence and 18 exhibits were tendered.

### ***The evidence***

I turn now to the evidence. I can not, of course, even summarise all of the information contained in the exhibits and transcript but I consider it appropriate to record in these reasons the evidence I believe is necessary to understand the findings I have made.

### **Background**

An understanding of the accident requires some explanation of the drilling program being undertaken at the time of the accident and the history of the equipment in use.

In early 2002, QGC commenced developing three pilot programs of drilling for coal seam gas in the Surat basin. It retained Thiess as project manager. QGC sought expressions of interest from well drillers which the project team assessed with reference to matters such as safety record, reputation, experience and cost. As a result of this process, Century was awarded the contract to drill 11 wells.

The wells were all relatively shallow by industry standards – approximately 650 metres deep and so Century decided to utilize a drilling rig that they had owned since 1986 but which, in 2002, was stored in South Australia. It had been out of service since 1996. In the 10 years that Century operated the rig they used it exclusively for servicing wells that had already been drilled by other rigs. Significantly, service rigs operate with much lighter drilling tubing than drilling rigs and are considerably smaller.

The rig was transported to Century’s yard at Darra and refurbished to ready it for the Surat basin campaign. No significant modifications were made to it during that process and nor was a risk assessment of it completed as the rig was not erected in the yard. Although Century had a management of change policy that was supposed to be applied in such circumstances, that was not done in this case.

It was then trucked to the Aberdeen field and rigged up. At that stage a Thiess employee undertook a safety audit of the rig. It awarded the rig a score of 435 out of a possible 525. A month later a follow up audit was undertaken and on that occasion the rig was scored at 520 out of a possible 525. That audit looked at whether Century had appropriate personnel, equipment and policies and procedures in place but relied on Century's assertions that staff were appropriately trained and the policies properly applied. It was completed before the rig had completed a well

One of the reasons for the improvement in the audit score was the creation by Century staff of a risk register for the rig. That document bears the signature of Jamie Smith, the rig supervisor, Len Dann who was then the operations manager, Quentin Robson who was then the General Manager and Mark Wheeler the Health, Safety and Environment Co-ordinator who was given the task of ensuring the company's safety plan was applied to the rig when it was recommissioned.

Mr Smith said in evidence that he could not recall playing any part in the risk register's compilation and said that at that time he had no real understanding of risk assessment processes. The register failed to accurately reflect the operation of the rig, particularly in the process of racking back, an activity that is explained later and which was pivotal to the death of Mr Karajic.

During this period, the rig commenced operation and over the next three months drilled 11 wells without incident. During much of that time, a senior and experienced operator, Mr Len Dann, Century's Operations Manager, was on site to ensure the rig functioned properly in its new role and to assist Mr Smith as this was the first time he had been in charge of a rig on a full time basis.

There was conflicting evidence given as to whether the rig workers were told that they should not work below the rig floor when drill collars are being racked back. There is evidence that on occasions they did so.

The rig was then stored at Chinchilla until it was needed to commence drilling at the Berwyndale field.

### **Rig 16 is moved to Berwyndale South**

On 20 February 2003, Jamie Smith and his crew of nine men retrieved the rig from the Chinchilla yard and moved it and the other equipment needed to drill to the site of Berwyndale South well #6. Only three of the crew were familiar with the unusual features of the rig as result of having worked on it previously. The others were told of the differences and advised to consult with the experienced workers if in doubt, but, as seems typical for the industry, they were given no formal training or instruction.

On 22 February, Mr Jepson Giesel, a local water drilling contractor, brought a truck mounted auger to the well site to drill the various shallow holes the rig needed to commence to operate. Mr Smith assisted him position the holes but gave him no instructions as to their dimensions. One of these, referred to as the mouse hole, is



designed to receive a scabbard or sock, which hangs through a hole in the rig floor and protrudes into the ground for some five metres. Lengths of drill pipe are stood in it so that the tops of them are at a convenient height for the workers on the rig floor, which is some 10 to 12 feet above the ground, as they prepare the pipe for connection to the other pieces of tubing which together constitute the drill string.

Mr Giesel said that he had also drilled the holes for the previous wells dug by rig 16 on the Aberdeen field. Early in that campaign, he had initially been instructed to dig the mouse hole with a 12 inch diameter bit but when he advised the person who gave him that instruction, Mr Dann, that it would be easier for him to drill an 18 inch hole, he was told that was acceptable. Accordingly, he dug a hole of that diameter on this occasion also.

The setting up of the rig continued the next day and on 24 February drilling commenced. The first stage, which involved drilling the “top hole” to a depth of approximately 300 feet, proceeded without incident and was completed early on the morning of 25 February. In accordance with the drilling plan the drill string was then removed from the hole, *tripped out*, - so that the top hole could be lined with cement.

Because the drill string was to be inserted back into the hole to continue drilling after this cement casing was completed, the drilling tubes were not broken into individual lengths as they were removed from the hole. Rather only every second joint was broken and two pieces of drill pipe, or collars as the more heavily built pieces used at the bottom of the drill string are called, were left joined together to save time.

In most other drilling rigs these stands of pipe or collars are stacked vertically on the floor of the drilling rig – “racked back” in industry jargon. However, as rig 16 is considerably shorter than a purpose-built drilling rig, the stands can not be stored this way as they would extend too far past the top of the rig mast to be stable. Instead, they are stood on the ground, protruding up through an opening created in the rig floor by the removal of some grating. To protect the thread ends of the pipe from damage and dirt, they are stood on a flat wooden pad referred to as a stabbing mat. The mat used in this case was not closely inspected or tested because its structural integrity was not seen as important. In theory it was not load bearing and so one was simply selected from an assortment that was part of the rig’s general collection of gear.

On this occasion, when the collars were being tripped out of the hole and racked back on the mat, one of them broke through it and penetrated into the ground some small distance. The rig manager, Jamie Smith, says when he became aware this had occurred, he ascertained that it had happened because, during the rigging up, one of the crew had mistakenly dug a drain under the mat instead of around it so that it was not properly supported.

After the stands had been run back into the hole, the damaged mat was dragged away and another larger mat put in its place. No record was made of this “near miss” and, as will become clear later, no lessons were learnt from it. The crewman who replaced the damaged mat says the stand of drill collars broke through near

the drain and near the mouse hole but he can't say whether the stand had sunken down into the drain or the mouse hole. Other witnesses put the penetration point a little further away from the mouse hole. The new mat was slid into place by being partially lifted and partially pushed along the ground by a forklift. No detailed examination of the ground it covered occurred and no concerted effort was made to fill the wrongly placed drain.

### **Target depth is reached – the risks of racking back**

The drilling operation then continued. Two days later, at about lunchtime on 27 February, target depth was reached and most of the drill string was removed from the hole and racked back on the new mat. No problems were encountered on this occasion and the string was then run back into the hole for a final time to allow drilling mud to be pumped through it to clean out any debris. This was completed by nightfall and the crew then commenced tripping out for the last time.

Some explanation of this process is necessary. When pulling out of the hole the kelly, which is screwed to the top of the drill string to allow the power of the rotating table to turn it, is disconnected from the drill string. The weight of the string is then held by elevators which lock onto the top of the string, the height of which is controlled by the main winch via the rig mast. When the floor crew break a joint, the freed stand of pipe or collar can then swing clear of the remaining string which is still in the hole.

On a normal drilling rig the stand would then be pushed to one side of the rig floor so that it could lean into finger racks near the top of the rig mast with the bottom resting on the rig floor. On the smaller rig 16, the top of the stand was still positioned into a similar rack but the bottom end was lowered through a hole in the rig floor created by the removal of grating from the rig floor and the bottom end was then positioned on the stabbing mat by the floor men pushing the swinging pipe into position as the driller lowered it by releasing the winch. The driller can not see the bottom end of the stand to know when it is approaching the mat and takes direction from other crewmen. When it has landed he can see that it stops moving downwards, the weight on the gauge on his winch returns to zero and the cable above elevators lose their tension. This enables the derrickman, on the monkey board, near the finger racks, to release the stand from the elevators and secure the top with a piece of rope.

As can readily be appreciated, manoeuvring a stand across the hole in the rig floor is difficult. A stand of drill collar weighs almost two and a half tons and is 60 feet long. It is suspended from the top by the elevators, which can not be precisely manipulated so that the pipe will hang vertically above the position in which it is to be racked. Instead, this positioning has to be achieved by the floormen pushing the swinging pipe while the driller lowers it. Pushing it involves the crewman driving himself towards the hole in the rig floor, some 10 feet above the ground, while trying to control the heavy, greasy, swinging, steel cylinder.

In an attempt to address these difficulties, the rig crews adopted various approaches to the job. Some looped a short length of rope around the stand being racked and attempted to pull it into position, while others say they pushed as

described above. A third method involved a floorman pushing the bottom end of the collar while standing on the ground below the rig floor.

All of the crew agree that they were given no instruction on this task in the form of a standard operating procedure or a job safety analysis. There is some conflict in the evidence around this issue. Mr Mark Wheeler was the safety officer involved in the recommissioning the rig when it was used in the Aberdeen field in 2002. He wrote a report at that time, which claimed that SOPs were written for the raising of the rig floor and racking back of drill stands. However, in evidence he said that he directed that this be done by the drilling crew working on the rig at that time and that he forgot to follow up that direction to see if it had been done. Century advised the Court that they had checked their documentation and could find no evidence of any such procedures having been written. I find that they were not ever documented and that as a result there was no shared understanding of how these activities were to be undertaken.

Nor were the relative risks of the various possible methods ever resolved. Evidence was given that the senior operations manager issued an instruction that no one was to attempt this task by going below the rig floor to position the tubing that was being racked back, but other workers, including the rig manager, deny any knowledge of this instruction. In any event, if such an instruction was given, it was not always followed.

### **Final tripping out begins**

I now return to a description of the activity on rig 16 on the night of 27 February 2003. The tripping out continued throughout the evening. The heaviest drilling tube is furthest into the hole and so as the job was nearing completion, at about midnight, the task of racking back became more difficult. The rig manager, Mr Smith, noticed that the crew were having trouble pushing the heavy collars across the opening in the rig floor to get them positioned correctly on the stabbing mat. He told Mr Karajic that this could be done more easily if one of the crew worked at ground level and pushed on the swinging stand from there, as the risk of falling through the rig floor was eliminated and the force was applied at a greater distance from the pivot point. He went down below to show how that could be done, but, as usual, Mr Karajic insisted that it was his job and he would do it. A number of his co-workers mentioned, with admiration, Mr Karajic's eagerness to always do his share of the work.

Mr Karajic adopted Mr Smith's suggestion. When he was down below pushing a stand of collars, Mr Smith stayed on the steps of the rig so that he could see the position of the bottom of the stand as it was being lowered and give hand signals to the driller on the rig floor who was operating the winch to lower the stand.

This system was used without mishap until the last stand of collars was placed on the mat. When it was landed and the weight came off the cable that had been lifting it, the derrickman released the stand from the elevators and it almost immediately sank about a metre and then a second later it sank a further five metres. A second stand then followed the first falling stand in quick succession.

Later examination showed that these stands of drilling collars had punched through the stabbing mat and slid the short distance into the space between the mouse hole sock and the hole it was hanging in. The first had plummeted through the bottom of the mouse hole; the second had jammed against the first and the side of the hole. As they fell, the lengths of tubing were drawn closer to the mouse hole sock wedging Mr Karjic between the falling stands and the mouse hole sock.

There was considerable evidence led, and questions asked, in an attempt to elucidate whether the tubing crashed through the mat because it was defective or because it had been placed over the drain that had previously been dug in the wrong place next to the drilling rig sub-frame. I am not persuaded that the exact mechanism of the accident has been established but nor do I believe that is necessary for the purpose of these proceedings. What is clear is that the accident occurred because the equipment being used was not fit for its purpose and the crew were not conscious of the dangers these deficiencies posed.

Immediately the nature of the accident was understood, the mouse hole sock was removed and Mr Karajic carried to a position of safety. First aid was attempted but it was soon realised that Mr Karajic was beyond help. His death was mercifully quick.

The investigation described earlier commenced later that morning when officers from the Petroleum and Gas Inspectorate arrived at the scene. An autopsy was conducted on Mr Karajic's body later that day in Toowoomba. The pathologist was of the opinion that the death was due to crush injuries to the upper chest and neck

### ***Findings required by s43(2)***

I am required to find, so far as has been proved, who the deceased was and when, where and how he came by his death.

As a result of considering all of the material contained in the exhibits and the evidence given by the witnesses, I am able to make the following findings.

**Identity of the deceased** – The deceased was Scott Meho Karajic

**Place of death** – Mr Karajic died at a gas drilling site near Condamine, Queensland

**Date of death** – He died on 28 February 2003

**Cause of death** – Mr Karajic died as a result of multiple crush injuries to his upper chest and neck sustained in a drilling rig accident.

### ***Preventive recommendations – riders***

Section 43(5) of the Act prohibits a coroner from expressing any opinion on a matter outside the scope of the inquest except in a rider which is, in the opinion of the coroner, designed to prevent the recurrence of similar deaths.

This case raises a number of issues which warrant attention from that perspective.

The most startling is how, despite an apparently comprehensive, interlocking system of safety policies and audits, the most basic and, in practical terms, obvious dangers were left unaddressed.

QGC had a safety and health system which they contended was “*fully integrated with other management systems*” and audited. Their project manager, Thiess, persuaded QGC that it had appropriate systems and procedures to govern workplace health and safety, and Thiess carried out an evaluation of Century’s safety policies before it was awarded the drilling contract and performed an audit of rig 16 before it commenced drilling. Century sent a safety officer and senior operations manager to assist with the commissioning of the rig and had a system which required all aspects of the rigs operations to have job safety analyses undertaken and SOPs developed.

There is no evidence that any of the individuals involved in this multitude of safety orientated processes engaged in intentionally misleading or deceptive conduct or that any of them was cavalier or reckless as to safety.

However, despite all of the documentation, checking, auditing and reviewing, even after the rig had drilled 11 wells, the workers did not have a shared understanding of some basic operational aspects of the rig, such as where the drains should be laid around the rig, how the collars should be racked back and whether it was safe to work below the rig floor. Nor had sufficient attention been given to the adequacy of some of the equipment used; for example multiple lengths of drill tubing weighing many tons were routinely stacked on old and decaying mats that were dragged into place with no regard to their capacity to support the load being placed upon them or whether the ground beneath them might affect this. So inadequate were the racking back procedures on the rig as it was configured at the time of this death that even during the inquest no method could be described that all of the witnesses were willing to accept was safe.

Century was able to eliminate these dangers by redesigning the stabbing mat so that it now has structural integrity and is an integral part of the rig sub-frame and by the placing of barriers around the floor opening and the under floor area. The ease with which this was done naturally prompts the question: “*Why was it not done sooner?*”

Criticism flowing from *post facto* analyses is sometimes sought to be deflected by suggestions that hindsight gives insight not previously available. I readily accept that just because a risk is made manifest by a deadly event, it does not necessarily mean that it could reasonably have been detected and the event averted. The forensic process can sometimes give the false impression that chains of causation are linear, when in fact complex activities like gas drilling happen in multifarious planes simultaneously, often with little time to consider how one development will impact on another aspect of a situation. However, that doesn’t mean that individuals should not be called to account for not responding to what they knew or should reasonably have known having regard to the responsibilities they accepted.

Inadequate responses and gaps in systems have to be identified if they are to be avoided in future.

In my view, in this case there is evidence that suggests numerous individuals could have responded better to things they knew or should have known and some of the procedures put in place to ensure risks were properly managed did not do so.

As mentioned earlier, before the Aberdeen campaign in 2002, Rig 16 had, never been used for drilling wells. It was considered suitable to convert to this purpose for this drilling program because the wells to be drilled were relatively shallow and simple. It is clear that senior people within Century and the rig crews recognised that the attributes of this rig impacted on the way it was to be operated but despite that, the different risks posed by those changes were not properly managed at a number of levels.

For example:-

- Century had a “management of change” policy that could have assisted in identifying key areas that required attention but the policy was not applied.
- When the rig was refurbished after a decision was made to take it from storage and use it at Aberdeen, no risk assessment was done then because the rig was not erected.
- Rig 16 was sent into the field with the same risk register and SOPs that were used by the other rigs. These SOPs contained information that could not be applied to rig 16 and were silent on activities that were part of rig 16’s normal operation.
- The risk register was signed off by the rig manager, the safety officer and the operations manager. All gave evidence. None could explain the inadequacy of the document they signed. I was left with the distinct impression that this process was more concerned with form than substance. The safety officer left the site before the rig had completed a single well or even been through a drilling cycle.
- When the first stabbing mat failed, no investigation of the cause was undertaken and there was no consideration of the suitability of the system being used. Another mat was simply dragged into place. When it also failed, Mr Karajic was killed.

Steps have been taken since the incident to reduce the likelihood of a recurrence. As mentioned, the rig was effectively modified and the Department of Natural Resources and Mines issued a safety alert as did Century Resources. Further, a number of other recommendations made by the principal investigator Mr Brendan Galloway, whose report was of great assistance to me, have also now been implemented. However, after the taking of evidence was completed a number of meetings of the parties who participated in the inquest were co-ordinated by the Inspectorate and the results of those meetings have been conveyed to me together with further submission of the parties. All of this activity has been of great

assistance to me. As a result of considering the material so generated I consider further reforms are needed if similar accidents are to be avoided in future.

All of the physical shortcomings of Rig 16 which contributed to this incident and the inadequacy in the rig's safety documentation have been addressed.

Many, or even most, of the systemic shortcomings that have been identified as contributing to this accident have been addressed by the enactment of the *Petroleum and Gas (Production and Safety Act) Act 2004*.

For example, that Act requires an operator of a drilling rig to have a safety management plan that contains a safety assessment consisting of the systematic assessment of the risks and the measures undertaken to control them. The plan must also contain a skills assessment detailing the competencies and experience that will be needed by the crew operating the equipment and the training program which will be utilised to ensure they acquire the necessary skills. All operators must employ an executive safety manager, one of whose duties is to ensure appropriate SOPs are in place and complied with. If these requirements are complied with, increased safety will undoubtedly result.

The new Act places much greater focus on training, supervision and assessment of workers' competencies but seems to envisage the continuation of the "on the job training" that has characterised the industry since its inception.

I am of the view that it is time to consider moving away from this paradigm. Equipment is becoming increasingly complex and workers increasingly mobile. Credentialing is accepted in almost all occupations and usually includes formal qualifications. Currently, the only qualification a rig manager needs is a trade certificate relating to a blow out preventer. In my view, more needs to be done to ensure that those working in this inherently dangerous environment, and those supervising them have formal qualifications which will be recognised, at least Australia wide.

### **Recommendation – The development of an education package**

*The Act, by s669, authorises the making of regulations for safety requirements that can cover all aspects of petroleum and gas drilling. I recommend that the Petroleum and Gas Inspectorate consult with participants in the gas drilling and extraction industry to design an education package that should then be mandated by regulation. I recommend that the package address the training needs of rig workers, supervisors and senior drilling company personnel.*

*In the case of rig managers and supervisors, I recommend that the education package mandate a tertiary education course as a component of the required qualifications.*

It was also submitted that I should recommend that the Department of Natural Resources and Mines review the Petroleum and Gas Inspectorate to ascertain whether it is sufficiently resourced to undertake a proper level of inspection and audit throughout the industry. For obvious reasons, I only ever have exposure to

the operations of the Inspectorate when they have been involved in responding to a fatality. One can readily appreciate the desirability of the Inspectorate also having a proactive function such as I am aware is exercised by their colleagues in the metalliferous sector. However, I have no evidence of the other activities of the Petroleum and Gas Inspectorate and do not therefore have sufficient basis for making any comment about the need for change. Accordingly I decline to do so.

This inquest is closed.

Michael Barnes  
State Coroner  
13 April 2006