

Disaster at Hoskins' Ironstone Quarry, Cadia, Orange, 1921

By CLIVE BEAUCHAMP

Charles Sturt University

The name Cadia is nowadays synonymous with the successful mining operations (copper and gold) of the Newcrest Co. Ltd in the Cadia Valley, 14 miles from Orange in the central west of New South Wales. Mining has been undertaken there intermittently since the late 1840s. In March 1921 the Hoskins Company owned the Iron Duke Ironstone quarry near the Cadia township which experienced a 'premature explosion' resulting in the death of nine workmen. They were buried under a mass of stone and debris. It was the most serious mining accident in the region.¹

In 1851 the New South Wales Geological Surveyor, Samuel Stutchbury, identified signs of copper mineralisation in outcrops alongside the Cadiagullong Creek. According to some sources, the first copper mining started there in 1858 following the first Government grants. Work was suspended but resumed in 1861. In July 1861 the Scottish-Australian Mining Co. (SAMC) leased property at Cadia and began operations at the Oakey Creek Copper mine, later renamed Cadiangullong Copper mine (shortened to Cadia). It was located near the creek. The company had wide mining interests in New South Wales, South Australia and Victoria.² In August 1861, Cornish born Captain Josiah Holman, with extensive overseas experience, was appointed manager of the Cadia copper mine. He was responsible for supervising the sinking of the shaft, construction of the furnaces for smelting purposes and the building of the engine house. In 1862 he ordered and installed a rotative beam engine built by J. Thomas and Co. at the Charleston Foundry, St. Austell, Cornwall. Also in 1862 the company recruited a group of experienced Welsh smelters that included Lewis Lloyd, who later became known as the 'Copper King' of the central west of New South Wales. The copper mining at Cadia at this time had definite Cornish and Welsh connections.³

From the early 1860s a small township was established near the creek. The mining company not only owned the mine but a large proportion of the surrounding area. It leased small parcels of land to their workmen who erected tents and galvanised iron huts. Commercial premises were set up, including a baker, boot maker, butcher and a general store. A galvanised iron dance hall served as a Roman Catholic Church, a small school was built but there was no permanent police presence. The population fluctuated in tune with the price of copper but when prices declined sharply in 1868 both mining and smelting ceased. Nevertheless, some mining activity (often on a small scale) continued sporadically for the next 40 years. This included the extraction of alluvial gold. There was a revival in copper mining during the First World War but demand dipped during the Depression of the 1930s. The township was largely abandoned at the end of the 1940s. From approximately 1900, iron ore began to replace copper as the main mineral mined and this was transported by teams of horses to the

railhead at Orange, while other supplies, such as coke (for smelting), and building materials, were conveyed to the site.⁴

George and Charles Hoskins Co. Ltd

The Cadia Ironstone quarry (Iron Duke) was acquired by the Charles and George Hoskins Co. Ltd in 1907. The English-born brothers were early pioneers at iron and steel making, Charles, in particular, being recognised as the first man to successfully establish the industry in Australia. One of the company's major achievements was to secure the contract to manufacture and supply steel locking bar pipes, as part of the scheme to reticulate water from Perth, Western Australia, to the goldfields of Coolgardie and Kalgoorlie. The project, under the control of Engineer-in-Charge C.Y. O' Connor was completed in August 1904.⁵

In 1899 the Hoskins Company refused William Sandford's offer to sell his Eskbank Ironworks at Lithgow. Later, in 1907, when the 'Lithgow Iron Master' Sandford closed his Eskbank properties following a bank foreclosure, he again offered them to the Hoskins Company. Following negotiations in 1907 between the state government and Hoskins', the company took over as owners of the Eskbank Ironworks, together with the Iron works Colliery and several other Sandford assets. This included Sandford's seven-year contract to supply the state government with its iron and steel requirements. Anxious to obtain reliable sources of iron ore to supply its Lithgow smelters, the company also acquired the sub-leases of ore deposits at Cadia, Carcoar and Tallawang (near Dunedoo). The deposits at Coombing Park, 2½ miles from Carcoar, near Orange, had been held by Sandford under a sub-lease from the Whitney Pastoral Co.⁶

The Government Geologist had estimated that the Carcoar iron ore deposit contained 2,571,000 tons and implied that such an amount would keep the Hoskins' blast furnaces at Lithgow running for 25 years. In reality, only approximately one million tons were extracted. Anxious that the ore body would soon be depleted, (Carcoar closed in 1922), the company reactivated the sub-lease of the Cadia operation (acquired from Sandford). Initially Hoskins' let the sub-lease lapse, but later made an agreement with the Cadia Copper Co. to revive the sub-lease at a rent of £1,000 per annum with a royalty of 6 pence per ton. The Cadia quarry then became the main source of iron ore for the Lithgow smelting works. The company's expectations for the Cadia quarry were buoyed by the Government Geologist's survey that estimated it contained 39 million tons of high-grade ore. Writing much later, in 1969, Donald Hoskins, Charles' son, claimed that the survey estimate: '... was most inaccurate in quality and quantity and that the deposit was not more than 4 million tons'.⁷

The Hoskins' Cadia quarries operated from 1918 and its first deliveries to the Lithgow smelters dated from that year. The company completed the building of a private railway to Spring Hill near Orange, on the Government Western line, 12 miles from the quarry. It also constructed workers' cottages near the railway siding. By 1921 the township contained approximately 300 people and included a boarding house, the Bon Accord hotel, a public hall, a post office and two general stores. On 30 July 1920

when elder brother George sold his 50 per cent interest to Charles Hoskins, the company's name was changed from George and Charles Hoskins Co. Ltd to the Hoskins Iron and Steel Co. Ltd. Charles Hoskins eventually retired as managing director in 1924.⁸

Explosion, Rescue and Recovery

In the early 1920s Cadia's ironstone quarry was considered the 'largest open cut quarry in New South Wales' containing the 'greatest iron ore deposit in the state'. The manager and general superintendent was Mr Thomas Hobbs who had been transferred from the company's Carcoar operation. One hundred and sixty men were employed at the quarry, reportedly extracting approximately 3,000 tons of ore weekly.⁹

The iron ore outcrop covered an area of 40 acres including a 'huge hill' reaching 400 feet above the creek. Three faces were being worked on the hill at the time of the disaster. The quarry was worked by the open-cut method, being stepped at intervals up the steep mountainside, with a connecting zigzag track used to convey the ore from the different cuts to skips. From there, the material was emptied into bins, loaded into buckets and carried by a flying-fox to a terminal point on the Cadia to Spring Hill private railway.¹⁰

At the top of the quarry, the face sloped and was 200 feet wide at the largest point. On the day of the explosion, William Taylor, 'powder monkey' (shot-firer) was preparing a hole for blasting, for at the end of each day's work, a quantity of rock was 'blown up' for removal next day. Taylor was 20 feet above men who were working on the various faces (resembling terraces). At the centre of the face 30 men were working, when at 2.10pm an explosion occurred. With one exception, the men working on the top cut were killed instantly as the result of the explosion.¹¹ In a statement to the press Taylor described what happened:

There was a hiss, then a splutter of flame and I cried out 'look out! I felt something burning my face and hands and then I found myself thrown in the air.'¹²

According to the earliest press accounts, the explosion caused approximately 500 tons of stone and rock to be dislodged from the top face to cascade on the men below. The force of falling rock, which broke into pieces, overwhelmed the men, burying and killing them.¹³

Quarry manager T. Hobbes, together with the overseer, Mr Berecry, immediately mobilised about 100 of the workmen to extricate their comrades. Using ropes to remove the fallen rocks, they worked for 'more than six hours' digging and attempting to move the large boulders. In some cases the rescuers had to crawl on their hands and knees, scraping with their fingers to under-mine the huge rocks. The first body that of Stanley Jenkins, was recovered at 4pm, and the last, George Christie, four hours later. All the victims' bodies were reported as being 'dreadfully mutilated'. Stanley Jenkins, who had been in charge of a horse and dray, had showed signs of life when rescued from under the fallen rock, but when laid down, he passed away. His colleague stated that:

Jenkins shouldn't have been killed. Seeing the tumbling mass of rock and intent of getting his horse out of harm's way, he ran the wrong way. His was the only horse killed in the disaster.¹⁴

The local medical officer, Sir Neville Howse together with a visiting doctor pronounced all nine men as deceased. A unique aspect of the tragedy was that very few of the other workmen were seriously injured.

The victims of the Cadia quarry disaster were named as:

Phillip Bright, (56 years), married, 5 children.

Henry Burns, (50 years) married,

George Christie, (22 years), single.

Stanley Jenkins, (17 years) single.

James Johnson, (46 years) married, 5 children.

Alfred H. Kable (age unknown), single.

Patrick B. McKeon, (60 years), a widower.

John W. Miles (68 years) married, 4 children.

Charles Moore, (54 years), married, 4 children.¹⁵

McKeon had only commenced employment at Cadia a few days before the accident. He had taken the place of a workman who had relinquished his position due to asthma. Another workman, William James Rapley, was considered very fortunate, for he was absent on the day of the disaster, as on the previous day, his brother-in-law had sustained a fatal accident, only one mile from the quarry.¹⁶

Relatives and friends of the Cadia workmen congregated near the quarry site to hear whether their loved ones had perished. Following identification of the nine bodies, the names of the deceased were read out. This led to sorrowful cries from some and expressions of relief from others that their family member had been spared. After consultation between Hobbs and Sir Neville Howse it was decided to transfer the bodies to the small Earl's Hall at Cadia, adjacent to a produce store, two miles away. Volunteers carried the dead bodies on make-shift stretchers over rugged terrain to the Cadia township. An overnight guard had to be posted outside the hall to keep a plague of rats away.¹⁷

Soon after the accident, police sergeant Clark in a statement at the site to the local press, defended Cadia's management and the company's owners. He was quick to state that the accident 'was not due to carelessness on their part'. It was a rather premature comment as it was uttered before the conclusion of the inquest proceedings¹⁸

Quarry manager Hobbs received an urgent wire from the company requesting him to express its deepest sympathy for the bereaved, instructing him to 'do any act necessary for their comfort'. In a separate communication George Hoskins indicated that the company would defray the cost of the burials. Acting Premier, James T. Dooley (MLA-Bathurst), visited the quarry and met with the relatives of the deceased. Commenting on the disaster, he accepted that although the men handling the explosives were 'skilled and competent', it appeared strange that so many employees should be

working while the laying of the blasting charge was in progress'. Dooley stressed that 'in future greater care might be taken to prevent such accidents'. Another visitor to the quarry was Mr G. Bodkin, secretary of the Railway Branch of the Australian Workers Union (AWU). He provided immediate financial assistance to the bereaved families and informed them that they were entitled to £750 under the terms of the Workers' Compensation Act (NSW). Sir Neville House, medical practitioner and Mayor of Orange launched an appeal for the dependents of the nine victims of the disaster.¹⁹

The Funerals.

Although one general funeral for all the deceased was originally proposed, it proved difficult to organise. The local newspaper editorialised claiming that such an occasion would provide an opportunity for the people of Orange, and Cadia workmen, to express their collective grief and sympathy for the victims and their families. Suggestions were also made for a 'common grave' together with the erection of an appropriate monument. Two of the deceased (John Kable and Richard Johnson) were conveyed by train to Bathurst and Sydney respectively to be buried near the homes of their families. On 13 March interment of the remaining seven victims' bodies took place at the Orange cemetery. They were buried in single and separate services. Several clergymen officiated reflecting the different denominations of the deceased. A funeral procession led by the Orange Silver band marched to the cemetery. It comprised representatives of the company, the Cadia workmen, together with members of local fraternal societies. With business activity suspended, the general public lined both Summer and Anson Streets to witness the spectacle.²⁰

Following the funerals, Mr Bodkin announced that he intended urging the New South Wales Government to amend the Mining Act and 'bring quarries under the control of the Mines Department'. He stated that it should 'be compulsory for the workers to be taken out of range while a bore was being charged'. Bodkin claimed that his union had been agitating for this for several years without result. He argued that 'if such a practice had been in force, fatalities would have been avoided. Bodkin added that:

... perhaps now that the greatest mining disaster in this region has killed nine men, something will be done. It was monstrous that any man should be expected to work within a few yards of a man who is ramming hundreds of pounds of powder into a hole and tamping it in preparation for firing it.²¹

Cause of the Explosion

Manager Hobbs, in a press interview, reported that he had been employed by the company for 33 years and in all that time he had never had to report a single accident involving even a broken bone. He also attempted to explain the background surrounding the explosion, outlining how William Taylor had bored a hole in the face for a depth of 20 feet. Two separate charges of gelignite had been fired to 'bull' the borehole. This process, he added, widened the bottom of the hole to allow it to accommodate a bigger charge. The hole was then tested for heat, and after the charge had been fired, Taylor

started to fill the hole with the major charge of blasting powder. After inserting the powder, he was in the act of tamping the hole, when the explosion occurred. Hobbs, finally attributed the cause of the explosion to the fact that 'a piece of lighted fuse had remained from a previous charge and when the main charge of 150 Ibs of blasting powder was inserted the fuse set it alight'.²²

The Inquest.

On 11 March 1921, the Deputy Coroner C.E. Hayes opened the coronial inquest into the disaster. Following formal identification proceedings, the inquiry was adjourned until 17 March. It was delayed to allow the Chief Inspector of Mines to attend. When the inquest were resumed at the Millthorpe Courthouse, near Orange. the main participants were Police Sergeant Byrne in charge of the proceedings; Mr J.B. Jacquet (NSW Chief Inspector of Mines); Assistant Inspector M.D. Milne and Mr T. Bodkin, Secretary of the Railway branch of the Australian Workers Union (AWU). Representing the relatives of the deceased and the AWU was Mr J.B. Moffatt,²³ together with solicitor Mr Burns representing the company G. and C. Hoskins.

Principal witness, William Taylor, testified that he was working on the top of the quarry preparing to charge some holes that had been made by his assistants Messrs Jenkins and Bruce. He explained that at 10.45am he was working on the hole directly above where the men killed were working. After 'bulling' the hole, pouring in water then putting in the tamping rod to test the hole, he discovered that it had not been adequately 'bulled'. 'It had not done its work properly and he decided to wait' he said. Later, at approximately 1 o'clock, he returned to treat the hole and inserted a few plugs of dynamite. Then, he said, 'he put the tamping rod in the hole and 'found that everything was all right'. He claimed that he had left the rod in for 35 minutes. Taylor maintained that he instructed Bruce to re-insert the rod and 10 minutes later he withdrew it finding the hole 'cold'.²⁴

Taylor, in oral evidence, stated that he then put 160 Ibs of blasting powder in the hole ready for the firing. At 2.10pm, he was about to place a bag over the hole when he saw smoke rising from it, and at the same time the charge fired. He was aware of a distinct 'hissing and spluttering'. He recalled crying out to warn the men below but admitted that 'it was too late: it happened so suddenly that there was no chance of saving the men'. As the hole exploded he was thrown down the hill and suffered singeing of the face and hands.²⁵

Responding to cross examination, Taylor was adamant that he had not been smoking prior to the explosion. In reply to another question he informed the inquest of his mining experience. It extended over 30 years in Australia and New Zealand including two and a half years at Cadia, and 13 years at Lucknow near Orange. He indicated that he had been employed at other open cut quarries and their practices were similar to those used at Cadia. Explaining that he normally fired approximately 250 holes a day, he maintained that he always exercised great care with explosives. He told the inquiry that he had experienced other mining disasters, for example, in Western Australia where he was the sole survivor of a party of seven. Taylor stated that (as a safety measure), he had ordered the men back twice before the charge was fired. He

maintained that, on occasions he had quarrelled with the men for not retreating before a charge was fired. Taylor said that he had never had a complaint from any miner for not giving a warning. Chief Inspector of Mines, Mr J.B. Jacquet was questioned by Mr Moffatt about general safety issues in quarries. In reply he stated that although his experience was mostly in metalliferous mines, in his opinion, 'quarries where high explosives are used require the same amount of supervision'. He emphasised that in an open cut quarry such as Cadia 'there is always danger'²⁶.

The Chief Inspector disclosed to the inquiry the relatively poor or non-existent government control over quarries. Jacquet explained that the New South Wales Department of Mines did not have power to examine or inspect quarries in the state. He added that there were no regulations covering them. Responding to a question as to how future explosions could be prevented, he insisted that 'men should withdraw a long way at a safe distance when a bore hole is being fired'. He also informed the inquiry that in his eleven years as the State Chief Inspector 'many thousands of these bore holes had been bulled, recharged and exploded'. In his experience, he said 'there had been no instance of a premature explosion occurring in metalliferous mining'. His final comment was: 'if a hole is swilled out with water it is only necessary to wait half an hour before inserting the major charge'.²⁷ As to the cause of the explosion Mr Jacquet advanced the theory that, 'A piece of smouldering fuse must have come in contact with the blasting powder causing the explosion'. The coroner finally found that a premature explosion, which occurred accidentally, had caused the deaths of the nine men; that all reasonable care had been taken and that no blame was attached to anyone.²⁸

The disaster was not the only accident experienced at the site: another fatal accident occurred at the Cadia quarry in May 1928 when workman James Hegarty (66 years) was struck by a large rock when unloading a truck. He was conveyed to Orange hospital where he died.²⁹

Cadia: post-disaster

The Hoskins' Company experienced serious financial and labour problems during the 1920s. Forty Cadia workers together with approximately 200 men at the Hoskins' Ironworks, Lithgow were retrenched in August 1921. Management attributed the job losses to the existence of the dumping of foreign iron and steel in Australia. Other reasons given included the introduction of the 44-hour week and 'excessive pay demands'.³⁰

During the 1926-27 period, workmen at Cadia were involved in a long company-wide strike. Originating at the Hoskins' Lithgow Steelworks, a total of 17,000 men were affected at Lithgow, Cadia and Excelsior (near Capertee). The Federated Engine Drivers and Firemen's Union withdrew its members from the steelworks in protest against management's refusal to grant a wages increase. With the workforce at the Lithgow blast furnaces, coke ovens, steelworks and the state coal mine all on strike, there was little demand for Cadia's raw material and so it closed down. Officially, it ceased ore production in 1927.³¹

Following the death of Charles Hoskins in 1926, his sons Cecil Harold and Arthur Sidney, in 1928 implemented their father's plan to transfer the company's operations to Port Kembla. It was proposed to establish there a fully integrated steelworks with access to a deep-water harbour. In order to finance the plant, and involving a merger, a new company was formed, the Australian Iron and Steel Ltd (AIS). The merger involved Hoskins', the English company Baldwins Ltd, Dorman Long Ltd and Howard Smith Ltd. All of Hoskins' assets including Cadia were included in the merger. Cecil Harold became company chairman and a joint director of AIS with brother Arthur Sidney.³²

At the request of the Government, so to meet the demands of the Second World War, the Australian Iron and Steel Co. re-started operations at the Cadia quarry in 1943. The private railway line to Spring Hill was reopened and ore was transported to Port Kembla and Newcastle for processing. As the revival of mining was only short-term (until the cessation of the war), workers were housed in a 'tent city'. By 1947 all major mining activity had ceased. Some Crown land was leased for pastoral activity and also some was appropriated for the soldier settlement scheme.³³

Contemporary Cadia

In the post-World War Two period there was frequent prospecting in the Cadia Valley. Exploration by Newcrest Mining Co. Ltd between 1992-96, led to the discovery of a large gold-copper ore body at Cadia Hill and Ridgeway. The deposits have been described as a 'world class, giant cluster'. Currently ore is mined at Cadia open pit, Ridgeway underground caving mine, and at Ridgeway Deep Block cave mine.³⁴ Therefore, mining has returned to the valley on a large scale, accompanied with the trappings of modern technology. The impact on the economy and infrastructure of the surrounding region has and will, in the future, be substantial.

Endnotes

¹ Alan Stanford, *Treasures of Cadia*, Newcrest Mining Ltd. Melbourne, Vic. 2012, pp. 97-98; *The Sydney Morning Herald* (hereafter *SMH*), 11 March 1921.

² Ed. Malone, *The Cadia Valley Mines: A Mining Success Story*, Australasian Institute of Mining and Metallurgy, Carlton, Vic. 2011, p. 47.

³ Stanford, *Treasures of Cadia*, pp. 33, 37. Lewis Lloyd became a very successful mining entrepreneur in New South Wales and was best known for his ownership of the Lloyd Copper Mines at Burruga near Bathurst.

⁴ Frank A. Byrnes, 'Chronicle of Cadia', *Quadrant*, vol. 22, 1978, pp. 52-53.

⁵ George Parsons, 'Hoskins, Charles Henry', *Australian Dictionary of Bibliography* (hereafter *ADB*), vol. 9. <http://adb.anu.edu.au/biography/Hoskins-charles-henry> accessed 14 August 2012; For history of the pipeline, see, Richard, G. Hartley, 'River of Steel: A History of the Western Australian Goldfields and Agricultural Water Supply 1903-2003', Water Corporation and 'Golden Pipeline' National Trust, Perth, 2007.

⁶ Donald G. Hoskins, *The Ironmaster: The Life of Charles Henry Hoskins*, University of Wollongong Press, Wollongong, 1995, pp. 44-67.

⁷ Donald G. Hoskins, *Sir Cecil Harold Hoskins, The Hoskins Saga*, Halstead Press, Sydney 1969; R. Ian Jack and A. Cremin, *Australia's Age of Iron: History and Archaeology*, Oxford University Press, Melbourne, 1994, p. 119.

⁸ Stanford, *Treasures of Cadia*, p. 80.

⁹ *SMH*, 11 March 1921.

¹⁰ *Barrier Mail* (Broken Hill), 11 March 1921.

- ¹¹ *SMH*, 12 March 1921.
¹² *Ibid.*
¹³ *Ibid.* 13 March 1921.
¹⁴ *Ibid.*
¹⁵ *SMH*, 11 March 1921; *Orange Leader*, 14 March 1921. The Orange medical practitioner and Mayor, Sir Neville Howse was the first soldier from an Australian military unit to be awarded the Victoria Cross, for bravery in the Boer War.
¹⁶ *SMH*, 14 March 1921.
¹⁷ *Orange Leader*, 11 March 1921.
¹⁸ *SMH*, 12 March 1921.
¹⁹ *Ibid.*, 15 March 1921.
²⁰ *Orange Leader*, 14 March 1921.
²¹ *SMH*, 14 March 1921.
²² *Barrier Mail*, 11 March 1921.
²³ *SMH*, 18 March 1921.
²⁴ *Ibid.*
²⁵ *Ibid.*
²⁶ *Ibid.*
²⁷ *Orange Leader*, 18 March 1921.
²⁸ *Ibid.*
²⁹ *SMH*, 26 August 1927.
³⁰ *Ibid.*, 30 August 1921.
³¹ *Ibid.*, 30 August 1927.
³² *Brisbane Courier*, 18 May 1928.
³³ Stanford, *Treasures of Cadia*, pp. 125, 137.
³⁴ Malone, *Cadia Valley Mines*, pp. 2-9.

AUSTRALIAN MINING HISTORY ASSOCIATION INC.

Patron: Professor Geoffrey Blainey, AC

Objectives

- The objectives of the Association shall be:
- To promote and co-ordinate national activities and programmes related to mining history.
- To encourage the study, discussion, writing and publication of mining history.
- To encourage the identification and preservation of records, sites, relics and materials relevant to Australian mining.
- To act as a focus for correspondence between those persons within Australia and overseas interested in mining history.
- To disseminate information of interest to members through a newsletter and/or journal.
- To undertake activities in areas of common interest, at the request of the membership.
- The property and income of the Association shall be applied solely towards the promotion of the objects of the Association and no part of that property or income may be paid or otherwise distributed, directly or indirectly, to members, except in good faith in the promotion of the above objects.

Membership

Membership shall be open to any individual or institution possessing an interest in mining history and/or the preservation of mining sites and materials.

Fees

Fees are set at the Annual General Meeting. Information on current rates can be obtained from the Association's Secretary or on our web page at: <http://www.mininghistory.asn.au>

Officers

Patron: Prof. Geoffrey Blainey, AC

President: Dr Ruth Kerr, OAM

105 Highland Tee, St Lucia, Qld 4067.

Tel. 07-38709588. r.kerr3@uq.edu.au

Vice President: Dr. Ross Both, Tel, 08-

83736451. rossamb@bigpond.net.au

Secretary/Treasurer: Mr Mel Davies, OAM,

Economics, Business School, M251,

University of Western Australia, Crawley,

WA 6009. Tel. 08-64882926

mel.davies@uwa.edu.au

Committee

ACT

Dr Barry McGowan:

barry@cyberone.com.au

Prof Ken McQueen:

Ken.McQueen@canberra.edu.au

SA

Dr Peter Bell: pbell.2@bigpond.com

Mr Graham Hancock:

ghancock4@bigpond.com

NEW ZEALAND

Dr Philip Hart: PRHart@Waikato.Ac.NZ

Dr Brian Hill: brhill@senet.com.au

NT

Dr David Carment:

David.Carment@bigpond.net.au

Dr Beverley Phelts:

ntresearchservices@yahoo.com.au

NSW

Mr Greg Knapman:

leonieknapman@bigpond.com

Dr Adrian Hutton, ahutton@uow.edu.au

QLD

Dr Kett Kennedy: kethk@bigpond.com

Dr Jan Wegner: janice.wegner@jcu.edu.au

TAS

Mr Greg Dickens: gdickens_27@bigpond.com

Mr Nick Haygarth: lakelea22@yahoo.com.au

VIC

Dr Michael Williams, Mrs Nick Williams:

nicola.williams@monash.ed.au

WA

Ms Wendy Carter:

wendycarter01@bigpond.com

Mr Howard Tew: timbak@southwest.com.au