

Friday afternoon, 19 November 2010

A tragedy unfolds: Friday afternoon, 19 November 2010

1. The Pike River coal mine lies under the rugged Paparoa Range on the West Coast of New Zealand's South Island. The mine was comparatively new, having shipped its first coal in February 2010, and the mine workings were not extensive. On the afternoon of Friday 19 November 2010 there were 31 men in the mine.
2. The three Pike mining crews, A, B and C, worked overlapping shifts. A crew worked the night shift, which began on Thursday night at 10:00pm and ended at 8:00am on Friday 19 November. B crew started the day shift at 7:00am and left the portal at 2:50pm to finish their shift at 3:00pm. C crew began the afternoon shift early, at 1:00pm. As recorded on closed-circuit television (CCTV), they entered the portal at 1:13pm.¹
3. Miners who manned the hydro monitor worked 12-hour shifts that ran from 7:00am to 7:00pm. The day shift crew of three men was underground at the time of the explosion.
4. In addition to Pike workers, seven companies had men working underground on contract during the day. Men from each of these companies, save for McConnell Dowell Constructors Ltd and Skevington Contracting Ltd, were in the mine when the explosion occurred.
5. Investigators endeavoured to reconstruct the likely locations of the men who perished.

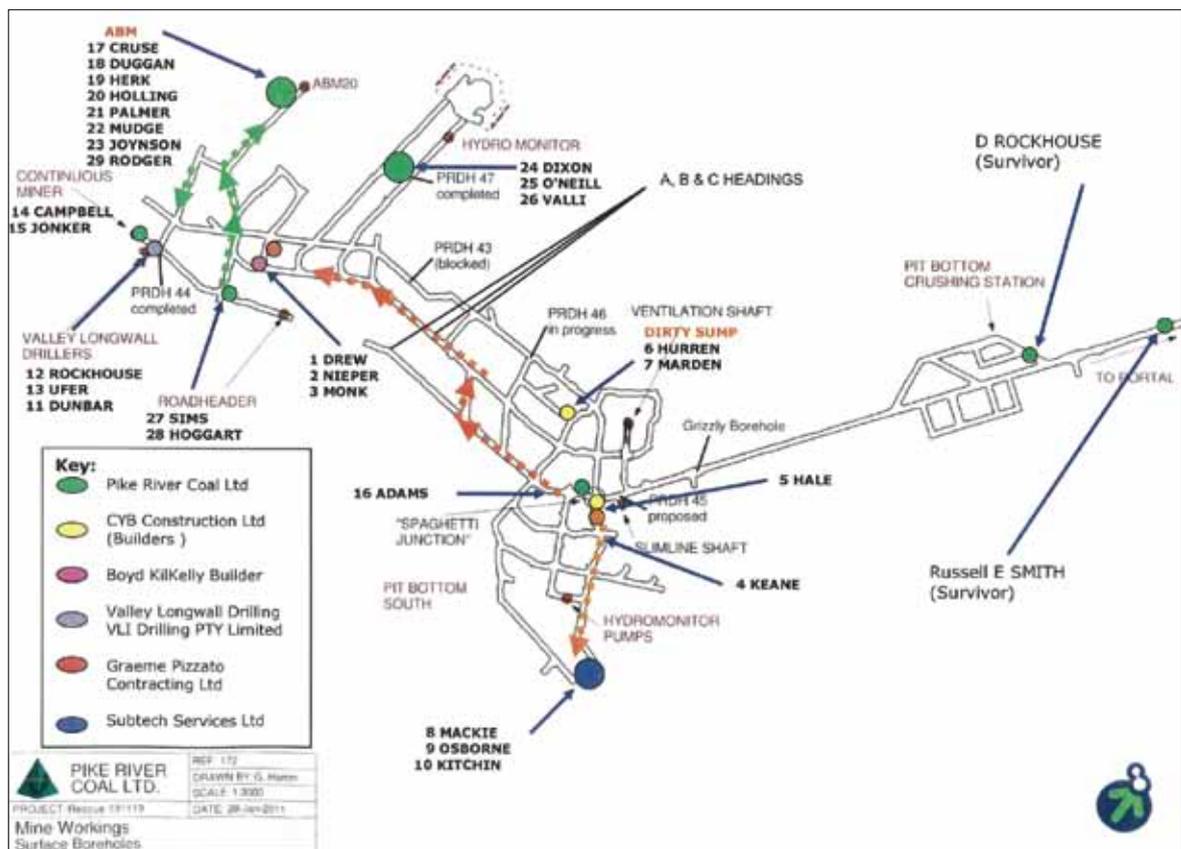


Figure 1.1: Last known position of the 29 deceased and two survivors²

6. The positions can only be indicative. They were fixed from the last sightings of the men by people who were also underground but left before the explosion, and also by reference to the work the men were to undertake that day.

7. Eight men from C crew, Glenn Cruse, Christopher Duggan, Daniel Herk, Richard Holling, Brendon Palmer, Stuart Mudge, William Joynton and Peter Rodger, were manning the alpine bolter miner (ABM), and driving a development road in the north-west corner of the mine. Daniel Rockhouse left the crew, driving a loader to uplift some gravel needed for the roadway. Conrad Adams, the acting C crew underviewer, was last seen near Spaghetti Junction, but could well have headed inbye to rejoin his men at the face.
8. Three men, Allan Dixon, Peter O'Neill and Keith Valli, were manning the monitor in the hydro panel at the most northern location in the mine. Because there were only two men, Blair Sims and David Hoggart, in the roadheader crew – too few to undertake roadway development – they were on maintenance duties near the roadheader. The continuous miner located at the westernmost point in the mine required servicing and engineer Malcolm Campbell and fitter Koos Jonker were undertaking this work.
9. VLI Drilling Pty Ltd employees, Joshua Ufer and Benjamin Rockhouse, were working at the in-seam drilling rig close to the continuous miner. Joseph Dunbar, aged 17, was in the mine on an orientation visit. He was to start work the following Monday, but he went into the mine with two of the company managers and elected to remain with the drilling crew until the end of their shift.
10. Three builders, Michael Monk, an employee of Graeme Pizzato Contracting Ltd, and Kane Nieper and Zen Drew, employees of Boyd Kilkelly Builder Ltd, were constructing a stopping in a cross-cut deep in the mine. Mr Drew, however, was last sighted in a nearby tool box area and could well have been walking back to the worksite at the time of the explosion.
11. John Hale, an employee of CYB Construction Ltd, was a permanent 'taxi driver', ferrying men in and out of the mine on a drifrunner. He was last seen at pit bottom in stone, but was understood to be en route to Spaghetti Junction. Other CYB employees, Andrew Hurren and Francis Marden, were inbye of the junction, preparing a sump area for concrete to be laid.
12. Terry Kitchin, Milton Osborne and Samuel Mackie, Subtech Services Ltd employees, were installing a water pipe in pit bottom south. Mr Kitchin, however, was last sighted in a roadway near Spaghetti Junction and could have been in transit at the time of the explosion. Riki Keane, an employee of Pizzato, was driving a loader used to remove spoil from the work site. His vehicle broke down near Spaghetti Junction sometime after 3:00pm and he was last seen there, trying to restart the vehicle. Daniel Rockhouse assisted him by obtaining hydraulic oil before he continued driving outbye into the drift.
13. As on any work day, others entered and left the mine at various times. A McConnell Dowell day crew of four men worked in stone, developing a stub to house equipment. The day shift finished at 4:00pm and the crew left the portal in a drifrunner at 3:41pm. The night crew of five workers was on the surface preparing to go underground when the explosion occurred.
14. Four employees of Skevington Contracting were also to finish work at 4:00pm and left the mine on the same drifrunner. Two surveyors, Callum McNaughton and Kevin Curtis, were walking out of the mine and flagged down the drifrunner. Earlier still, about 2:00pm, Lyndsay Main, a Coastline Roofing Ltd builder, finished work early and walked out of the mine about 70 minutes before the explosion. Pike technical staff had also been into the mine to undertake various tasks, but had returned to the surface before 3:45pm.
15. Chance played a big part in which men, and how many, remained underground at 3:45pm.

A planned maintenance shutdown

16. Water used in the mine was piped from the Pike River coal preparation plant 8km to the east of the mine, next to the main access road. Because there was to be planned maintenance work at the plant, beginning at midday, underground mining operations were to be halted until water became available again. In the meantime the miners were to undertake pit bottom maintenance tasks.

17. Daniel Duggan was in sole charge of the surface control room. He had started a 12-hour shift at 7:00am. Mid-afternoon he received a phone call from the coal preparation plant to confirm that the maintenance work had been completed and that water to the mine could be restored. He activated the start sequence for the fluming pump system supplying water to the working faces. At 3:44:12pm Mr Duggan used the digital access carrier (DAC) system, which provided simultaneous communication to the work areas at pit bottom, to advise that mining could be resumed.
18. This exchange occurred:
- Daniel Duggan: 'Hello ABM or Road header.'
- Malcolm Campbell: [Eight seconds later] 'Hey Dan, who you looking for?'
- Daniel Duggan: [Three seconds later] 'I was just after ABM and Road header.'³
- At this point an unidentified sound interrupted the conversation. Mr Duggan did not interpret it as an explosion at the time. He recognised the voice from underground as that of Malcolm Campbell, an engineer with a distinctive Scottish accent, who was doing maintenance work on the continuous miner.⁴
19. Mr Duggan continued to make calls using the DAC. Over the next almost four and a half minutes he made calls asking whether there were any 'sparkies' (electricians) underground, anyone at the 'monitor place' and, finally, whether there was 'anyone underground'.⁵ The DAC was functioning, but there was no response to his calls.

Signs that all was not well

20. At the same time as the unidentified noise was recorded on the DAC system, alarms in the control room were activated. This indicated that reporting from underground had ceased. Power, ventilation, pump and gas data were no longer being fed to the control room. Previously, when power to underground had been lost, miners would quickly contact the controller. On this day there were no callers. Mr Duggan also tried ringing different sites underground, using the telephone system which, like the DAC, had a back-up battery system, but there was no reply.
21. Meanwhile Douglas White, the statutory mine manager, Stephen Ellis, the production manager, and George Mason, the hydro-mining co-ordinator, were meeting in Mr White's office in the main administration building. At one point the office lights flickered but no one was concerned. At about 3:47pm Mr Duggan spoke to Mr White and told him they had lost power and communication to the mine. Mr Duggan added that he would contact the communications and monitoring engineer, or an electrician.
22. At 3:48pm Robb Ridl, the Pike engineering manager, and John Heads, a contract electrician, entered the control room. Mr Duggan spoke of his concerns and said, 'I've got a real bad feeling about this.'⁶
23. At 3:52pm Mr Duggan again spoke to Mr White and asked whether the Mines Rescue Service (MRS) should be placed on standby. Mr White replied, 'Oh, we won't go there yet, we'll get someone up there.'⁷ Mr White then left his office and went out to the car park near the administration building, where he spoke to Messrs Ridl and Heads. They noticed an unusual smell in the air, like excessive diesel exhaust fumes. Mr White then returned to his office and between 4:01 and 4:04pm he sent three emails on other matters.
24. The explosion had been recorded on CCTV footage taken by the portal camera. This footage was not seen until some time later. Beginning at 3:45:36pm and continuing for about 52 seconds, there was a pressure wave out of the portal. Movement of a tell-tale indicator tied to the rib opposite the camera showed the duration of the wave, and debris coming from the portal indicated the velocity of the explosion.

An electrician enters the mine

25. Following the car park discussion Mr Ridl approached electrician Mattheus Strydom, who was working nearby. Mr Ridl said there was a power outage in the mine and communications had also been lost. He requested Mr Strydom

to head up to the mine and investigate. Mr Strydom asked whether both 'power and communication' had been lost.⁸ He was concerned. Based on his 28 years of mining experience, he regarded this combination as significant. Messrs Ridl and Heads then drove to the mine and arrived at the portal at 4:03pm.

26. Mr Strydom obtained from the McConnell Dowell crew a drifrunner they had intended to use to enter the mine at 4:00pm. He commented to the crew deputy, 'I hope this isn't bad.'⁹ Strydom then obtained from the control room a hand-held gas monitor that could test only for methane. Other gas monitors could test for methane, carbon monoxide, hydrogen sulphide and oxygen.
27. Mr Strydom filled the drifrunner with water and set off to the portal, where he encountered Messrs Ridl and Heads. Mr Heads said that he had already checked the portal substation and that power was on there. This indicated to Mr Strydom that the power outage must have occurred at pit bottom in stone, 1900m into the mine. At 4:11pm Mr Strydom entered the portal, without a self-rescuer, and Messrs Ridl and Heads returned to the administration area.
28. After sending his third email at 4:04pm Mr White went to the control room. Mr Duggan told him the situation was unchanged: there had been no response from underground, and no telemetric communication. Mr White said he would drive to the mine and test whether the portal DAC was working. He arrived there at 4:16pm and successfully called the control room. Mr Duggan told him that Mr Strydom was on his way and that Mr Ridl was returning to the portal to check the ventilation. Mr White responded that there was ventilation going up the tunnel.¹⁰ At 4:18pm Messrs Ridl and Heads went back to the portal. The three men discussed the situation and satisfied themselves that there was a ventilation breeze entering the portal. At 4:23pm they left the portal area.¹¹
29. As Mr Strydom was driving up the drift, his first thought was that 'something just didn't feel right'.¹² He noted that reflector sticks, pieces of PVC pipe wrapped with reflector tape, were missing from the conveyor belt infrastructure to which they were ordinarily tied. He wondered whether the sticks had been removed by a fitter, as the belt was to be decommissioned the following week. He also noted a cordite-like smell, which he likened to diesel exhaust fumes. The smell became stronger as he continued up the drift. Also missing were signs that identified the position of fire hoses. Other items attached to the ribs were displaced. He drove past the decommissioned fresh air base (FAB) at 1500m into the drift. The substation at pit bottom in stone was a further 400m inbye. The air became increasingly thick and the engine of the drifrunner began to falter. Mr Strydom looked for a place where he could turn the vehicle around.
30. Then he saw a light in the distance. Relieved, he went on, and recognised a Jugernaut and, some metres outbye of it, the figure of a man lying on the roadway. The man was on his back, with arms outspread and his head pointing outbye. From Mr Strydom's training, he knew this was the typical position of a person killed by explosive forces. Breathing had become difficult and the engine of the drifrunner continued to splutter. This was a dangerous situation. In fear of his life, Mr Strydom put the drifrunner into neutral and it began to run backwards downhill.
31. Then the engine revived. He put the vehicle into reverse gear and continued backing as fast as he could. At one point he stopped and considered driving back up the drift to attempt a rescue. Then he recalled his previous breathing difficulties and he continued to reverse. At about the 1150m mark he backed into stub 2 and then drove forward towards the portal.
32. He reached the portal at 4:25pm, only a few minutes after the departure of Messrs White, Ridl and Heads, and immediately called the control room. He told Mr Duggan, 'You better call the Mine Rescue, we've had an explosion and I've seen a man lying on his back in the road'.¹³ He then spoke to Mr White who, thinking Mr Strydom was ringing from the FAB, instructed him to leave the mine and return to the surface.

Calls to emergency services

33. Mr White then accepted that there had been a major event underground and that emergency services must be

contacted. Mr Duggan phoned the MRS at 4:26pm. At 4:35pm he dialled 111 and spoke to a St John Ambulance operator. He reported a major underground incident, possibly an explosion, and requested as much emergency care as possible. He said 25–30 people were underground, with no one yet accounted for and that he had not heard from those underground 'for almost an hour now'.¹⁴ Mr Duggan then telephoned Coastwide Helicopters to order a helicopter so that Mr White could make a fly-over inspection of the main vent shaft.

34. At 4:45pm Mr Ridl phoned chief executive Peter Whittall in Wellington. He told him that there had been a major event underground and referred to Daniel Rockhouse's phone call from inside the mine, (see paragraph 39).
35. At 5:13pm Mr White flew by helicopter from the Pike River administration area to the top of the main vent shaft. He viewed the auxiliary fan site and returned to the administration area at 5:26pm. He saw smoke and damage and concluded that there had been an explosion.

Daniel Rockhouse

36. Nearing 3:45pm Daniel Rockhouse was in the drift en route to stub 2 to uplift the gravel required for road repairs at the ABM worksite. He stopped at the diesel bay at pit bottom in stone to fill his loader with diesel and water. The loader was parked with the engine running. While he was turning on a water valve there was a bright white flash and he felt an extreme pressure blast. Felled by the explosion, Daniel Rockhouse hit his head and ended up lying on his back. His first impression was that the loader had blown up, but he then realised that the engine was still running, although spluttering. He turned it off. Small amounts of debris fell from the roof and the ribs, although there was no cave-in. Within seconds a pungent strong smell, and dense smoke, reached the area. The atmosphere was warm and breathing became difficult.
37. To escape the effects, Daniel Rockhouse went inbye towards the crushing station (see Figure 1.1). It was clearer, but there was no place of refuge. He donned and activated his self-rescuer and moved back out to the main drift. The self-rescuer did not seem to be working properly so he discarded it. In the drift, next to his loader, he was overcome and fell to the ground again. He shouted for help, but there was no response. His eyes watered, his body tingled and he thought he was 'shutting down'.¹⁵ He lapsed into unconsciousness.
38. After some time he revived and sensed that feeling had returned to his fingers and toes. He was shivering with cold from lying in the mud. He tried to roll onto his stomach and push himself up, but he had no strength. Eventually he managed to stand, fell again and then was able to reach compressed air and water lines that ran along the rib. He turned on an outlet valve on the air line. There was only limited pressure, but enough flow to clear the smoke from around him. The fresh air was 'like gold'.¹⁶
39. After a minute or two breathing the fresh air and relieving the stinging of his eyes, Daniel Rockhouse looked for a telephone. Just inbye of his loader he located telephone 353 and rang the emergency number, 555. The telephone rang, but no one answered before the call was diverted to an answering service. He then dialled 410, the control room number. Mr Duggan answered the phone. Daniel Rockhouse said he was not injured, but that he could not see or breathe. At this point Mr White took the telephone, was told that the air seemed to be clearing and instructed Daniel Rockhouse to 'stay low', get to the FAB about 500m outbye and make contact from there.¹⁷
40. There is no record of the telephone call, or of its timing. However, it is apparent that Daniel Rockhouse made the call at approximately 4:40pm and that Mr Duggan answered it soon after his call to St John Ambulance. Immediately after Mr Strydom contacted him, Mr Duggan telephoned the MRS at 4:26pm. He then called and spoke to the St John operator until 4:39pm, twice mentioning he had not heard from anyone underground. Had Daniel Rockhouse already rung Mr Duggan, he would undoubtedly have said so.
41. It follows that Daniel Rockhouse was unconscious for a significant period, perhaps 50 minutes or so, after the explosion at 3:45pm until he made the phone call about 4:40pm.

A rescue

42. After the phone call Daniel Rockhouse followed the compressed air and water lines along the rib and proceeded outbye. As he found outlet valves he opened them and breathed in fresh air. He left the valves open, thinking this would improve the atmosphere. About 300m outbye he encountered a vehicle stationary in the drift. A few metres beyond it, he found Russell Smith lying semi-conscious on the ground, with his eyes open, but rolling back in his head. He could hardly speak. He was not wearing a helmet and light. Daniel Rockhouse removed Mr Smith's self-rescuer from his belt, opened it and tried to insert the mouthpiece into the other man's mouth. He could not do so. Daniel Rockhouse discarded the self-rescuer, lifted Mr Smith from behind and dragged him outbye towards the FAB.
43. Mr Smith was also in C crew. He had missed the bus to the mine and was late for the 1:00pm start of the shift. He was driving into the mine when the explosion struck. Minutes before he had passed the McConnell Dowell drifrunner heading outbye. He received no warning before there was a flash of bright light and a deafening noise, followed by a shock wave. The pressure was unrelenting. In an attempt to escape it, Mr Smith lowered himself to gain protection within the cabin of the vehicle. As breathing became difficult he attempted to remove a self-rescuer from his belt, but he was in an awkward position and could not do so.
44. Mr Smith could remember nothing after this. He had no recollection of his rescue by Daniel Rockhouse. He came to in an ambulance en route to Greymouth Hospital. Subsequently, he realised he had minor pitted abrasions to his face and back. His speech was affected in the short term, as was his respiratory system.
45. On reaching the FAB, Daniel Rockhouse propped Mr Smith up in a sitting position against the rib and said, 'I'll be back in a sec.'¹⁸ The FAB was a shipping container converted to include a two-door sealable entrance. Daniel Rockhouse thought it would provide a fresh air source, a telephone and spare self-rescuers. In fact, he found it had been decommissioned.
46. After venting his anger, Daniel Rockhouse returned to Mr Smith, got him to his feet and continued to drag him in an outbye direction. After a time he paused and asked Mr Smith whether he could walk. He tried, managed a few steps, but then fell. Daniel Rockhouse lifted him up again, and found that, if he supported Mr Smith, they could walk in tandem, with Daniel Rockhouse holding the rail of the conveyor belt to his left side for support. Periodically the pair stopped and looked inbye, hoping to see other lights coming down the drift. There were none. Daniel Rockhouse continued to open air valves as they went. To motivate Mr Smith, he told him to think of his family and to keep his legs moving for them.

Two miners walk out of the portal

47. As they progressed outbye, the atmosphere became clearer and it was easier to breathe. Natural ventilation provided a fresh air flow inbye from the portal. At 5:26pm the two men completed the 1500m walk from the FAB to the portal. From the time of the phone call at 4:40pm it had taken them 46 minutes to walk out of the mine. No one was there to meet them. Daniel Rockhouse used the DAC to call the control room for help. Vehicles arrived at the portal within minutes. Mr Smith was incoherent and Daniel Rockhouse broke down. Paramedics gave both men oxygen and they were taken by ambulance to Greymouth Hospital.

The emergency response

48. By 5:30pm the emergency response was well under way. Police, the New Zealand Fire Service, the MRS and St John Ambulance personnel were en route to or at the mine. Help from overseas would arrive over succeeding days, as a major search and rescue effort was launched to save the 29 missing men.

ENDNOTES

- ¹ References to times throughout this chapter are taken from various sources, including equipment at Pike and from other organisations. The sources are not synchronised. As a result, there may be minor discrepancies between the times quoted from different sources.
- ² Department of Labour, Last Known Position of Deceased and Two Survivors. Final Version, 28 January 2011 (DOL Investigation Report, Appendix 3), DOL3000130004/2. ('A, B, & C headings' locations added to the map by the commission)
- ³ Department of Labour: Transcription of the 'DAC' Underground Radio Communication System, 1 August 2011, INV.03.21043/32.
- ⁴ Daniel Duggan, transcript, p. 1581.
- ⁵ Department of Labour: Transcription of the 'DAC', INV.03.21043/32.
- ⁶ Daniel Duggan, transcript, p. 1585.
- ⁷ Ibid., p. 1586.
- ⁸ Mattheus Strydom, transcript, p. 1037.
- ⁹ Ibid.
- ¹⁰ Department of Labour: Transcription of the 'DAC', INV.03.21043/32.
- ¹¹ Video recording, 19 November 2010, CAC0018.
- ¹² Mattheus Strydom, transcript, p. 1040.
- ¹³ Ibid., p. 1047.
- ¹⁴ Audio recording, 19 November 2010, CAC0047.
- ¹⁵ Daniel Rockhouse, transcript, p. 1076.
- ¹⁶ Ibid., p. 1077.
- ¹⁷ Ibid., p. 1080.
- ¹⁸ Ibid., p. 1086.