Accident Report

Unnamed Raft Fatality

"Toilet Rapid", Shotover River on 7 March 2004

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Maritime Safety

MARITIME SAFETY AUTHORITY OF NEW ZEALAND

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REPORT NO: 04 3477

VESSEL NAME: UNNAMED RAFT

CASUALTY DETAILS:

Date of Casualty:	7 March 2004
Time of Casualty:	0800 hours, New Zealand Daylight Time (NZDT)
Casualty Type:	Fatality
Casualty Location:	"Toilet Rapid", Shotover River, South Island, New Zealand
Weather Forecast Area:	River
Date MSA Notified:	7 March 2004
Date Investigation Started:	7 March 2004
Date Investigation Completed:	9 September 2004
Investigator:	Zoe Brangwin & Grant South

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REPORT NO: 04 3477

VESSEL NAME: UNNAMED RAFT

VESSEL DETAILS:

Ship Name:	***Unnamed Raft***
Ship Category:	Commercial Passenger Raft
Certified Operating Limit:	Enclosed Limit
Owner:	Queenstown Rafting Limited

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SUMMARY

On 7 March 2004, a rafting trip was conducted on the Shotover River, South Island, New Zealand. Three rafts, carrying a total of 21 passengers with a guide in each raft and a Safety Kayaker departed Deep Creek on the Shotover River.

Raft 1, which included the deceased, was the lead raft. All three rafts successfully negotiated the first three rapids of the "Mother" section of the Shotover River. However, on entering "Toilet" rapid, ***Raft 1*** caught a rock and was turned sideways onto the river flow and hydraulic action of the rapid. This cause ***Raft 1*** to flip and all the passengers and guide fell into the water. The majority of the passengers were able to make it safely to the river bank, but the deceased and another passenger were swept through the next two rapids with the Safety Kayaker and the guide in ***Raft 1*** following. The other passenger was rescued by the Safety Kayaker and the deceased was picked up by the guide in ***Raft 1***. However, attempts to resuscitate him failed and he was pronounced deceased by emergency personnel who had been summoned to assist.

1. KEY EVENTS

1.1 On 6 March 2004, at 0800 hours New Zealand Daylight Time (NZDT), a fax from Australian Pacific Touring (APT) arrived at the Queenstown Information Centre (QIC), which acted as APT's agent for bookings in Queenstown, requesting a ticket for Client One (*See paragraph **2.2.1**)* to go rafting with Challenge Rafting (*See Paragraph **2.1.1**)*.

1.2 On 7 March 2004 at 0747 hours, Client One arrived at the QIC to pay for his rafting trip.

1.3 Shortly after, Queenstown Rafting Limited (QRL) staff arrived at QIC to check in clients.

1.4 At approximately 0815 hours, the clients boarded the Queenstown Rafting bus.

1.5 The bus departed QIC at approximately 0820 hours.

1.6 At 0830 hours, the bus arrived at Cavells, the Queenstown Rafting base. The group met Guide One (and Trip Leader), Guide Two, and Guide Three who were the raft guides for the trip. They also met the Safety Kayaker for the trip who would accompany the rafts in his kayak and act as a safety back up in the event of any clients falling in the water.

1.7 At 0835 hours, the clients were given a "wet-suit" briefing, explaining what they were going to wear and what they could take with them.

1.8 At approximately 0855 hours, the clients changed into wetsuits and were issued with other safety gear including a helmet, booties and lifejacket.

1.9 At 0915 hours, all 21 clients, 3 raft guides and the Safety Kayaker departed Cavells by bus for the trip to Deep Creek; the "put in" point on the Shotover River (*See Appendix 1 - Map of Shotover River)*.

1.10 On the bus, Guide One gave a pre-safety briefing. He went through the QRL company terms of waiver and made clear to the clients the following points:

- Participation in rafting activities involved a degree of risk and QRL could not absolutely guarantee participant safety.
- The clients had to declare that they were physically fit and had no medical condition that could be affected by rafting.
- Any client could elect not to proceed with the trip prior to departure.
- A release of QRL, its management and staff of all claims in regard to loss or damage of personal possessions and/or injury.

1.11 Guide One then handed a form on a clipboard to all the clients that set out the terms and asked them to print their names, their country of origin and to sign it. All clients signed the form. They were also shown a multi language safety card.

1.12 At approximately 0940 hours, the bus arrived at Deep Creek.

1.13 At 0950 hours, Guide Two gave all the clients a safety briefing which included what to do if they fell out and if the raft flipped, and also how to pull people back into the raft. They were also shown how to sit in the raft and also how to float feet first downstream in the white water position.

1.14 The Safety Kayaker briefed the clients on what to do once in the water; where to swim to and where and how to hold onto his kayak. He also told them not to grab hold of his paddle or him, and if the kayak flipped to let go.

1.15 Guide Two reminded the clients of the need to disclose any medical conditions that might be affected by rafting and advised them that this was the last opportunity to leave the trip. There were no comments at this time.

1.16 The clients were split in to three groups of seven. Each group was assigned to a raft. Client One was assigned to ***Raft 1***. Guide One was in charge of this raft. The clients lifejackets were checked by the guides to ensure they fitted and were tied correctly.

1.17 At 1015 hours, the trip with three rafts departed Deep Creek. ***Raft 1*** was leading *(See Appendix 1- Map of River*).

1.18 Prior to reaching the "Mother" section of the rapids (*See Appendix 2 – Photograph 1),* the clients were safety briefed again and put through practical drills of how and when to paddle each raft as instructed by each guide.

1.19 At 1110 hours, ***Raft 1*** reached the top of the "Mother" section. Client One was positioned at the front left of the raft.

1.20 About three quarters of the way down the "Mother" section of rapids, is a rapid called "Toilet" *(See Appendix 2 – Photograph 2)*. Guide One stated they were not on the right line for entering Toilet rapid, which is located on the true river right when looking downstream. They entered the rapid on the true river left and Guide One realised they might have some difficulty negotiating this rapid. In the event, the nose of ***Raft 1*** caught on a rock at the top of the rapid and turned it side on to the river flow and into the hydraulic action of the rapid. The hydraulic action of the "Toilet" flipped ***Raft 1*** over and everyone, including Client One, fell out. This was at approximately 1118 hours *(See Appendix 2 – Photograph 3)*.

1.21 The raft was then about one metre from the left bank (true river left). Guide One got on top of ***Raft 1***, which had been turned upside down when it flipped. There was about 30 metres of calm water before the next rapid called "Oh Shit" *(See Appendix 2 – Photograph 2)*. Guide One yelled at the clients from ***Raft 1*** to swim to the left bank *(See Appendix 2 – Photographs 2 and 3)*. Two clients made it to the left bank and three were pulled into the raft that was following behind, guided by Guide Three. At that point the two remaining clients from ***Raft 1***, Client One and Client Two, were still in the water.

1.22 The Safety Kayaker instructed Clients One and Two to "swim to shore".

1.23 Clients One and Two ended up behind ***Raft 1***. The Safety Kayaker stayed with them, instructing them to swim. They made an effort to climb to the left side of the river but kept rolling over each other and couldn't get a grip on the rocks. The Safety Kayaker said that they seemed to be in a bit of shock at this stage.

1.24 ***Raft 1*** then hit and became stuck on "Oh Shit" rock *(See Appendix 2 – Photograph 2)*. The Safety Kayaker's kayak hit the side of ***Raft 1*** and he saw Clients One and Two go under the raft momentarily. They then surfaced and floated downriver. The Safety Kayaker paddled after Clients One and Two, who had cleared "Oh Shit" rapid, and were now in a 'calm' stretch of water, about 40 metres in length.

1.25 Guide One flipped ***Raft 1*** back up the right way and continued downstream.

1.26 Ten metres downstream, Guide Three's raft was stuck against an unnamed rock. ***Raft 1*** then became stuck up against Guide Three's raft. Guide Three instructed two of his clients to get in Guide One's raft so he had paddlers to chase Clients One and Two. The guides carried out a head count and communicated by sight and signals with each other.

1.27 During this time, Guide Two had beached his raft and was running on foot down the left bank of the river to ensure no one ended up in the sieves down the left side of the next rapid which was "Pinball" rapid *(See Appendix 2 – Photograph 2)*.

1.28 At this stage all the clients were unharmed and out of the water except for Clients One and Two. The guides continued to communicate with each other by radio.

1.29 The Safety Kayaker caught up to Clients One and Two and instructed them to hold on to the kayak, as they were about to go through "Pinball" rapid. The Safety Kayaker said they looked exhausted at this point. The kayak capsized whilst in the hydraulic of the rapid. The Safety Kayaker could not Eskimo roll and return to the upright position due to the weight of the two men who were pulling him down.

1.30 The Safety Kayaker pulled his spray deck clear and got out of his kayak whilst under water. Both Client One and Two were still holding on to the kayak. The Safety Kayaker tried to swim with the kayak and two men towards an eddy on the true river left.

1.31 Client One let go of the kayak and floated off in the white water position with his legs forward, facing downriver. He apparently looked "conscious but exhausted". Client Two also let go of the kayak and the Safety Kayaker was able to grab him and pull him in to shore. He pulled him up on to a rock and released his lifejacket to enable easier breathing. The Safety Kayaker stayed with Client Two on the rock. Although Client Two was able to communicate he did not look good and was vomiting water.

1.32 The Safety Kayaker saw Guide One chasing Client One. Guide One caught up with Client One approximately 70 metres downstream of "Pinball" rapid, in flat moving water.

1.33 Guide One, with the help of Client Three, pulled Client One into the raft. Client One was unable to help himself; he appeared limp but conscious. It took a lot of effort to pull him into the raft. He was pulled on board just above the confluence with Moonlight Creek. He was initially lying on his stomach and was rolled on to his back. He had a low level of consciousness and bubbles were coming from his mouth.

1.34 Guide One tried to get a response from Client One, talking to him and calling his name whilst guiding the raft to a beach on the river left, about 100 metres downstream of Moonlight Creek. This was the first suitable point to beach the raft.

1.35 At 1122 hours, a front line desk staff member at Queenstown Rafting base received a radio call from Guide One. The main details of that call were as follows:

- Helicopter and medical assistance requested
- 300 metres below "Mother" section
- One client reported to be "unconscious"
- Situation "serious"

1.36 At 1122 hours, the Operations Liaison Officer called 111, requesting helicopter evacuation and medical assistance.

1.37 Guide One and Client Three pulled Client One from the boat onto the beach. He was blue in the face. Guide One undid Client One's lifejacket, cut his spray jacket and unzipped his neoprene jacket. Guide One checked for a pulse and breathing and could find neither.

1.38 Client Three and Four informed Guide One they were medical students. They checked for a pulse and breathing and then started Cardio Pulmonary Resuscitation (CPR). Guide One also helped perform CPR.

1.39 At 1130 hours, the QRL base received a second call from Guide One stating that the "Patient has no pulse and pupils very dilated", and that CPR was in progress.

1.40 The other two rafts arrived with the clients, as well as the Safety Kayaker. They beached the rafts about 10 metres away.

1.41 A nurse and Client Five from Guide Three's raft went to assist. On her arrival Client One was "blue in the face and not breathing". She tried and failed to get a pulse. She then assisted with compressions and ventilating. Client Five recalled hearing the time was 1134 hours.

1.42 At 1135 hours, the General Manager of QRL received a phone call from the QRL base updating him on the situation.

1.43 At 1135 hours, the Operations Liaison Officer called the Operations Manager of QRL to update him.

1.44 At 1137 hours, the Operations Liaison Officer called the Managing Director of QRL to update him.

1.45 At 1137 hours, QRL made a call to the Sales and Marketing staff member at Challenge Rafting to inform him of the situation.

1.46 Guide Three was also assisting with the CPR. They continued with CPR until emergency personnel arrived.

1.47 At 1155 hours, the Operations Manager arrived at the QRL shop, received an update and went to Cavells.

1.48 At 1200 hours, the helicopter arrived with emergency personnel. They had been reported as waiting for the Police, but eventually left without them.

1.49 The two emergency personnel connected up the cardiac monitor leads to establish Client One's condition.

1.50 At 1205 hours, Client One was pronounced deceased by the emergency personnel.

1.51 At 1215 hours, the second helicopter arrived with the Police.

1.52 Victim support was requested by QRL to meet with the clients and guides when they arrived at Cavells. The Public Relations Person was also at Cavells to provide support.

1.53 QRL organised helicopter transport off the river for the clients.

1.54 At 1225 hours, Client One was evacuated by helicopter and transported to Queenstown hospital accompanied by paramedics.

1.55 The clients were floated down to the next beach where the helicopter had landed. Other Queenstown Rafting guides had been flown in to assist.

1.56 At 1230 hours, the clients were heli-evacuated to Arthur's Point where they were shuttled from the beach to the base.

1.57 At the Queenstown Rafting base all of the clients were offered trauma counselling.

1.58 Client Two was offered a medical check up. He was checked out as satisfactory.

1.59 Clients were then transported from Cavells to the QRL/Challenge Rafting shops.

2. KEY CONDITIONS

2.1 Company and Guide details

2.1.1 Client One's rafting booking was made through Challenge Rafting Limited. In 1997, they ceased to operate rafts and formed a business contract with Queenstown Rafting Ltd (QRL), who agreed to supply river guides and rafts. QRL was therefore responsible for the Challenge rafting clients whilst they were on the river.

2.1.2 QRL had a comprehensive Safe Operational Plan (SOP) for their rafting operation in accordance with the requirements of New Zealand Maritime Rule Part 80 (Part 80). The Authorised Person audited it on 26 March 2004 for compliance of that plan. He is an Authorised Person in respect of Part 80 and is also the Queenstown Lakes District Council (QLDC) Harbourmaster. QRL had no outstanding corrective actions following the audit and complied in all respects with Maritime Rule Part 80 - Maritime Craft used for Adventure Tourism.

2.1.3 QRL carries approximately 30 000 rafters each year. This was the second fatality involving QRL, which rafts the Shotover and Kawarau Rivers in the South Island of New Zealand, with Resource Management Consent from QLDC. The first fatality, involving QRL occured on the Shotover River in 2001, after a raft became "wrapped" around a rock in "Toilet" rapid and trapped one of the clients, who drowned.

2.1.4 All guides held the relevant qualifications, were experienced and familiar with the Shotover river.

2.1.5 Guide One and the Trip Leader held a New Zealand Senior National Raft Guide Grade 4 and 5 Certificate. He had a valid First Aid Certificate and had attended an advanced river rescue workshop in November 1999 and a New Zealand Raft Association (NZRA) river rescue workshop in Novemeber 2002. He has been rafting since 1996 and has worked in New Zealand and North America as a raft guide. He has been employed by QRL as a raft guide on a seasonal basis since October 2000. This was the first fatality in which he had been involved since taking up rafting.

2.1.6 Guide Two held a New Zealand National Raft Guide Grade 4 and 5 Certificate obtained in June 1999, after attending a four month course at Otago Polytechnic. He had a valid First Aid Certificate and attended the 03/04 season, New Zealand Raft Association (NZRA) river rescue workshop, in 2003. He had attended swift water rescue workshops. He has been rafting since 1995 and has over 750 logged raft trips, the majority of which were done on the Shotover River.

2.1.7 Guide Three held a New Zealand National Raft Guide Grade 4 and 5 Certificate obtained in February 2001. He had a valid First Aid Certificate and had an Advanced Swift Water Rescue Certificate. He has been rafting since 1996. He has since been employed as a raft guide in his home country of North America and in New Zealand.

2.1.8 The Safety Kayaker held a New Zealand National Raft Guide Grade 4 and 5 Certificate obtained on December 2003. He had a valid First Aid Certificate. He started kayaking in 1995. He has since worked as a kayak instructor, raft guide and Safety Kayaker in New Zealand and overseas. He has worked as a Safety Kayaker with QRL since November 2004.

2.2 Victim Details

2.2.1 Client Onewas 67 years of age. He was of Australian nationality and was in New Zealand on holiday with his wife.

2.2.2 He did not disclose any pre-existing medical conditions to the company or guides and did not display any adverse medical symptoms prior to the accident. He had not rafted before**.** Guide one stated the deceased paddled well and seemed keen about the rafting trip.

2.2.3 The client screening process was satisfactory. Guide One screened the deceased and commented that he was keen and going of his own free will. Although the deceased had a large build, he fitted into the safety gear that was provided by QRL.

2.2.4 A post mortem examination of the deceased was conducted at Southland Hospital on 8 March 2004. The salient aspects of this examination were as follows:

- "There were no external signs of any injury."
- "His face, neck and upper chest appeared very congested. The sac surrounding the heart was normal."
- "The lungs were congested and a small amount of fluid was expressed from the cut surfaces."
- "The appearances of the contents of the stomach did not suggest any ingestion of water."
- It was the opinion of the Pathologist that the deceased's death was due to "acute heart failure following sudden immersion in rafting accident. There was no evidence of drowning and the sudden collapse terminally, was not typical of hypothermia, although this may have contributed."

2.3 River Details

2.3.1 The Shotover river level was at a medium flow at 21.8 cubic metres per second (cumecs) at the time of the accident. Normal river operating levels are between 10 and 70 cumecs. The river is checked daily for flow level and is checked by air or on the river by QRL operations staff after high flows. The Shotover river is classed as a grade 3-4 River. The section of the river where the accident occurred was classified as Grade 4 (*See Appendix 3 – Description of River Grades)*.

2.3.2 The three rafts were about 15 metres apart going into the section of the Shotover river, known as "Mother". This portion of the river is classed as grade 4. Grade 5 is the maximum commercially raftable rapids. The first section of Mother is called "Goldminers Revenge", then "Squeeze", "Anvil", "Toilet", "Oh Shit" and "Pinball".

2.4 Safety

2.4.1 All clients had been appropriately safety briefed as set out below.

2.4.2 Guide One gave a pre-safety briefing. He went through the company's waiver and made clear to the clients the bullet points set out in paragraph **1.10**.

2.4.3 They clients were also shown a multi language safety card.

2.4.4 Guide Two gave all the clients a safety briefing on:

- What to do if they fall out and if the raft goes upside down (flips)
- How to pull people back into the raft
- How to sit in the raft and
- How to float feet first downriver, in the white water position, so as to protect their head.

2.4.5 The Safety kayaker briefed all the clients on:

- What to do in the water
- Where to swim to
- Where and how to hold a kayak
- Not to grab hold of his paddle or him and, if the kayak flips, to let go of it.

2.5 Equipment

2.5.1 All QRL rafting equipment, such as the rafts and the paddles, were found to be in good condition.

2.5.2 The Personal safety gear, such as the wetsuits, spray jackets, neoprene jackets, life jackets and helmets were also found to be in good condition.

2.5.3 The deceased was wearing the appropriate safety equipment.

2.5.4 The guides' safety gear was appropriate. Guide One's knife was sharp. It was used to cut the deceased's spray jacket.

2.5.5 The guide / client ratio was correct. There were three full rafts with seven clients in each and one guide in each boat.

2.5.6 All guides had Motorola radios. The radios were simplex and could radio back to base via repeaters.

2.5.7 The Safety kayaker was in an appropriate boat. It was a "Huka" type kayak made by Bliss-Stick that is designed as a big volume creek boat.

2.6 Rescue

2.6.1 The helicopter with emergency personnel was delayed waiting for Police.

2.6.2 The Safety kayaker was unable to Eskimo roll and right the kayak with two people holding on.

2.6.3 The emergency plan was executed as per the Safe Operational Plan (SOP) of QRL.

2.7 Weather

2.7.1 The weather was fine and warm.

2.7.2 The river temperature was approximately 13°C.

3. CONTRIBUTING FACTORS

N.B. These are not listed in order of importance.

3.1 The raft flipping in the rapid after broaching side on to the hydraulic flow of the rapid.

3.2 The deceased was an older man carrying what the guides referred to as an average weight for someone his age.

3.3 The deceased suffered acute heart failure after falling into the water.

3.4 Cold water immersion. The river temperature was 13° C.

3.5 Fatigue. The deceased would probably have been fatigued due to a combination of the cold-water immersion, the long swim and shock.

4. CAUSE

Human Factor

❑ Failure to comply with regulations	❑ Drugs & Alcohol	❑ Overloading
❑ Failure to obtain ships position or course	✗ Fatigue	✗ Physiological
❑ Improper watchkeeping or lookout	❑ Lack of knowledge	❑ Ship Handling
❑ Misconduct/Negligence	❑ Error of judgement	

Environmental Factor

❑ Adverse weather	❑ Debris	❑ Ice	❑ Navigation hazard
❑ Adverse current	❑ Submerged object	❑ Lightning	❑ Other . . .

Technical Factor

❑ Structural failure	❑ Wear & tear	❑ Steering failure
❑ Mechanical failure	❑ Improper welding	❑ Inadequate firefighting/lifesaving
❑ Electrical failure	❑ Inadequate maintenance	❑ Insufficient fuel
❑ Corrosion	❑ Inadequate stability	❑ Other . . .

4.1 The deceased suffered acute heart failure after sudden immersion in water.

5. OPINIONS & RECOMMENDATIONS

Opinions

5.1 Based on the evidence and findings of this case the raft trip operated on 7 March 2004 by Queenstown Rafting was run in accordance with their Safe Operational Plan. The plan was followed from the time of booking by the deceased through to what was a tragic end to this trip.

5.2 The company was operating with an experienced crew of staff with near ideal conditions of both the river and weather.

5.3 Based on the findings that the deceased's death was heart related, even though there was no previous evidence of heart problems, the only way this tragic outcome may have been avoided was for him to have been extricated from the water sooner.

5.4 Once the possibility of having webbing on the safety kayak has been explored, this may prove to aid a Safety kayaker's ability to stay in their boat with swimmers (*See paragraph **5.11***).

5.5 It is a common occurrence for rafts to "flip" when negotiating rapids. In this instance, the raft was unable to make the correct line through the rapid and flipped after making contact with a rock. Unfortunately, this occurred in one of the strongest flowing parts of the river and it was some distance before the deceased could be successfully pulled from the water.

5.6 The two key points are the clients screening process and the role of the Safety kayaker. Queenstown Rafting's SOP's appeared to be in order and had suitable working policies in place for both client screening and safety kayaking.

RECOMMENDATIONS

5.9 That this report be made available to the rafting industry.

5.10 That rafting companies and their guides take particular notice to the following points relevant to this case.

- The screening of clients is a very important part and should not be brushed over or taken lightly. A grade 4/5 raft trip is a white water trip and there is a strong possibility that clients may end up in the water.

- The decision to let a person participate should be based on many factors from environmental conditions to the persons suitability. Rafting companies need to be able to give evidence of correct screening and the rationale behind letting someone go on the trip.

- Know the guides you are working with, their strengths and weaknesses.

- Safety briefings count. The better a guide prepares a crew the better off he/she will be if things get out of control.

- For Grade 4/5 rafting it is imperative that clients are pro active where possible in their rescue namely, positive swimming to rafts or river banks.

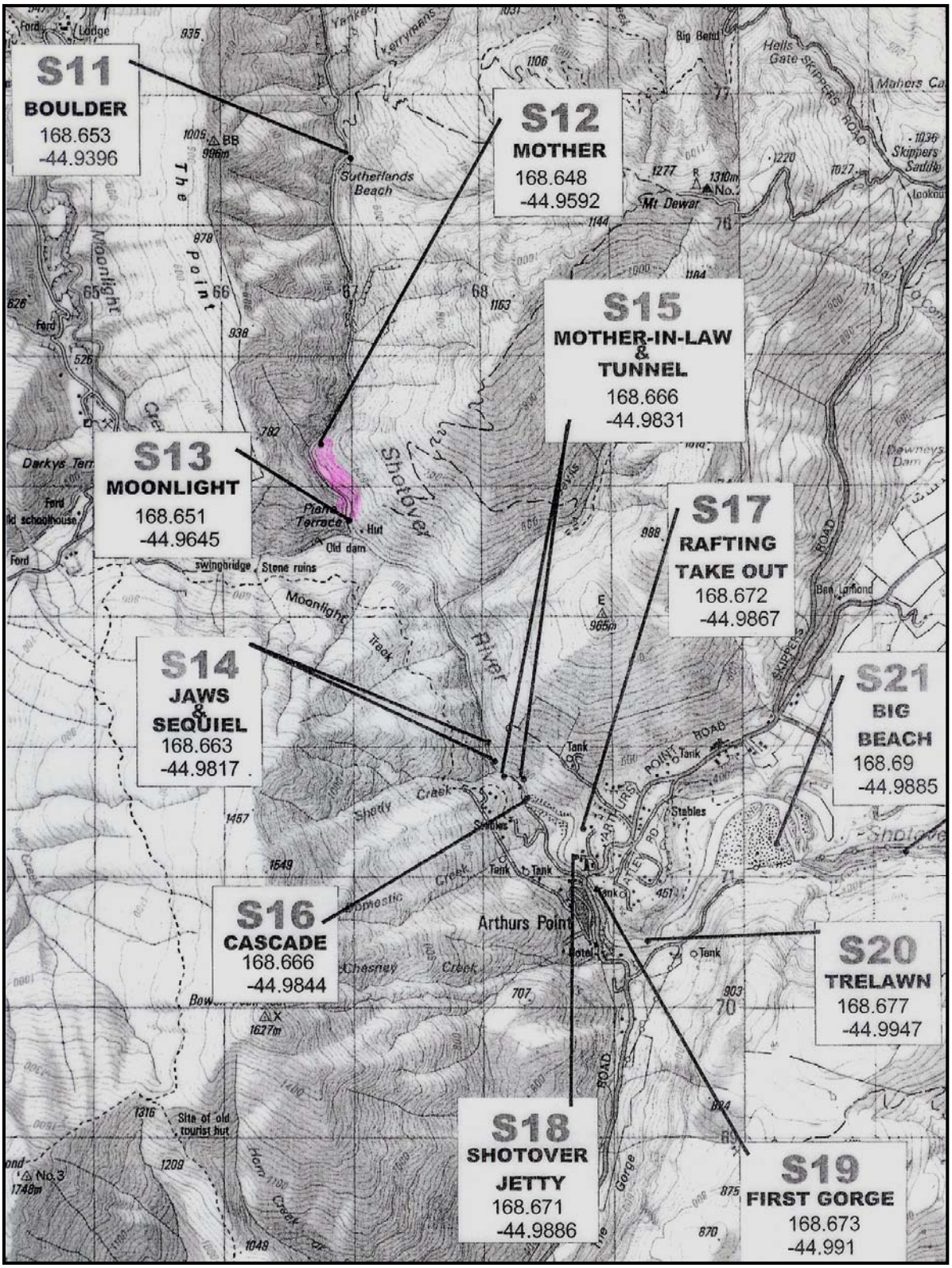
- Safety Kayakers should attend rescue training, NZRA River Rescue, Swiftwater Rescue 3, company in-house training or any river rescue training that will build on their base skills.

- The roll of a Safety Kayaker is to provide positive reassurance, directions and advice for swimmers in different situations.

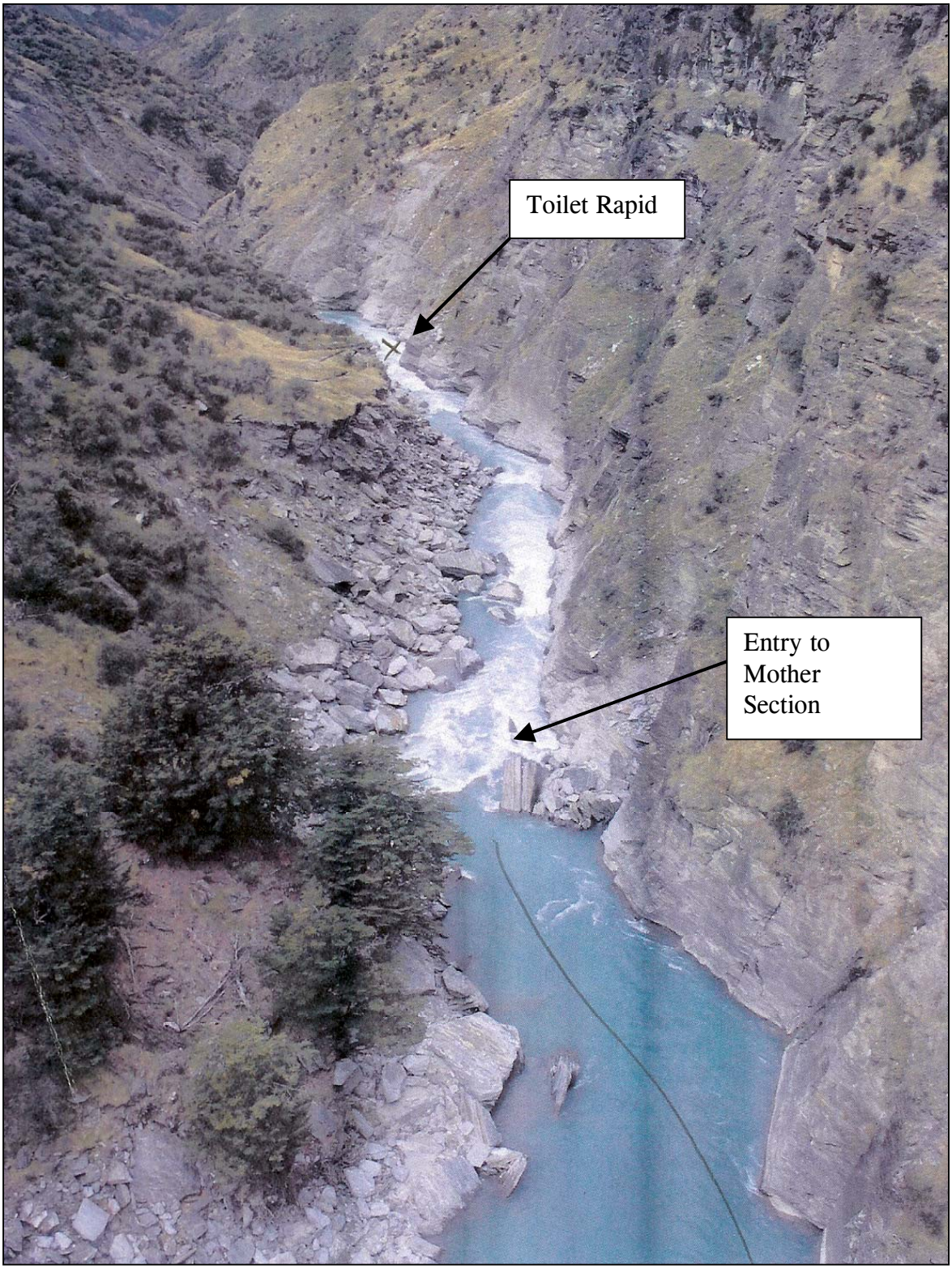
- Safety Kayaker priorities: threatening swimmer situation and downstream priority. The Safety Kayaker is the eyes of the incident and the back stop.

5.11 That at the next NZRA River Rescue the possibility of Safety Kayakers having webbing attached to their grab loops for swimmers to hold on to is explored. This may give the ability for a Safety Kayaker to Eskimo roll whilst swimmers are holding their boat.

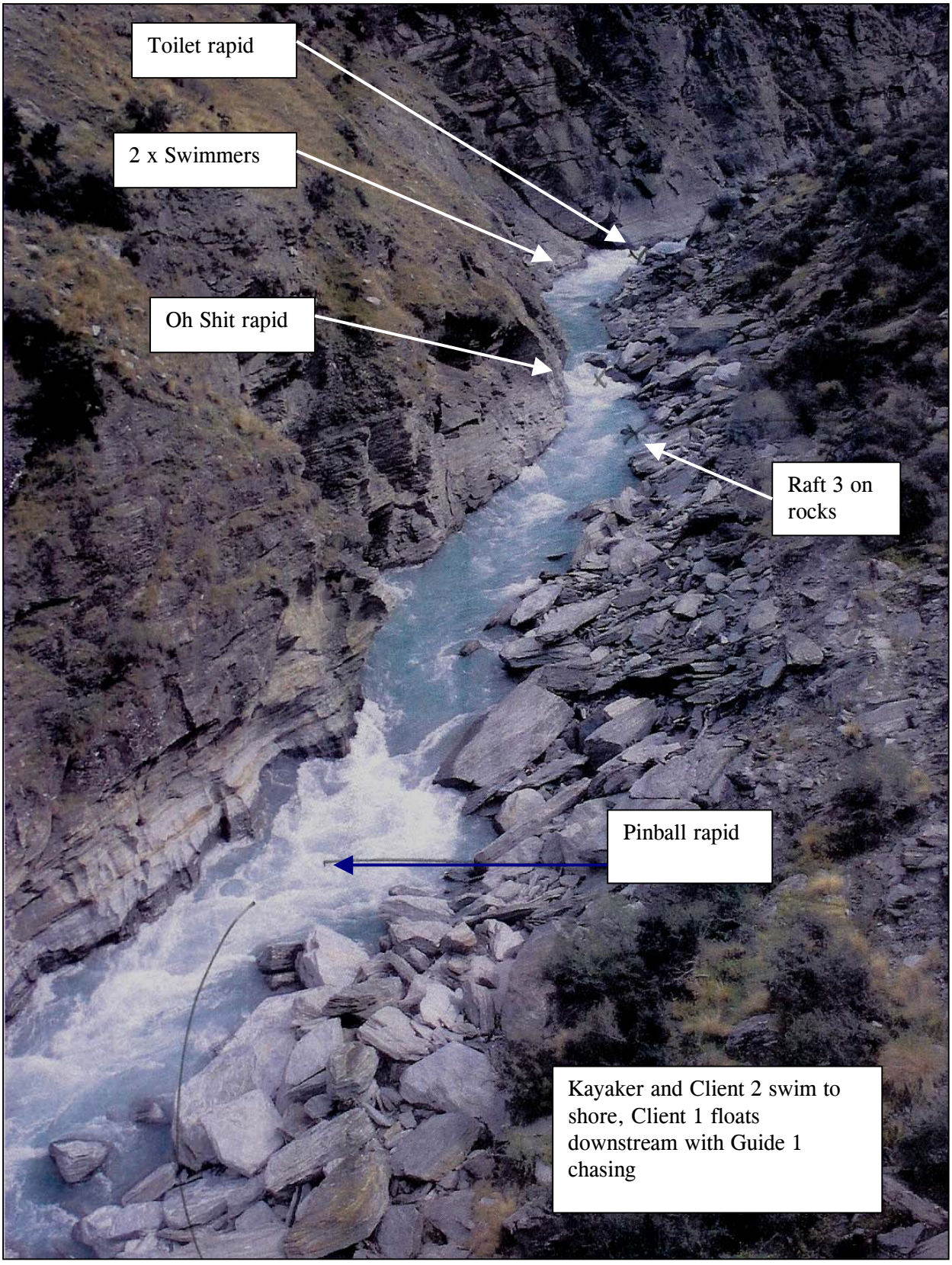
Appendix 1 Topographic map showing accident area



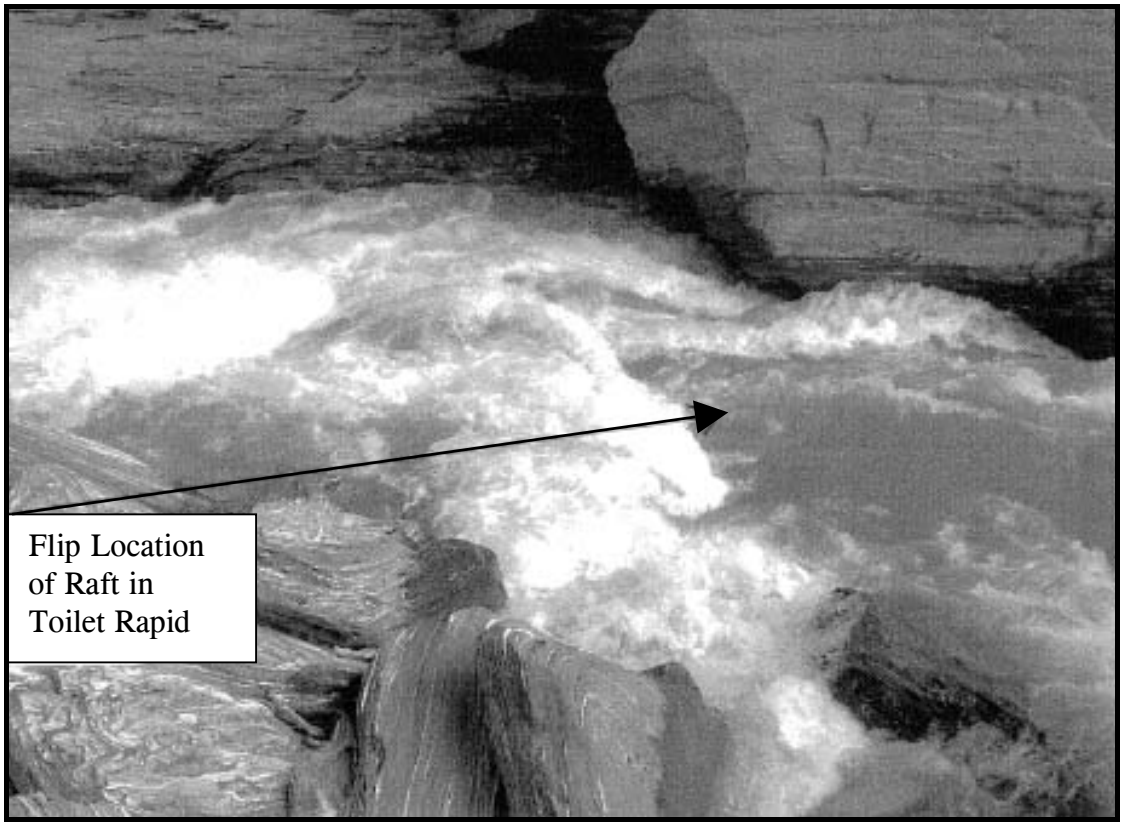
Appendix 2 Photograph 1



Appendix 2 Photograph 2



Appendix 2 Photograph 3



Appendix 3 River Grades

Maritime Rule Part 80 - Annex 1 Classification of Rapids

The following classification is based on the international rapid grading system. River rapid Grades are approximate rather than definitive measures of a rapid's seriousness or difficulty. The difficulty and seriousness of any section of river can alter dramatically within a short space of time through factors such as increased or decreased flow, new obstacles and changes in river bed topography.

Grade 1 Rapids are small regular waves. The passage is clear and easy to recognise and negotiate. Care may be needed with obstacles like fallen trees and bridge piers.

Grade 2 Rapids have regular medium sized waves (less than 1 metre), low ledges or drops, easy eddies and gradual bends. The passage is easy to recognise and is generally unobstructed although there may be rocks in the main current, overhanging branches or log jams.

Grade 3 Rapids with fairly high waves (1-2 metres), broken water, stoppers and strong eddies, exposed rocks and small falls. The passage may be difficult to recognise from the river and maneuvering to negotiate the rapid is required.

Grade 4 Difficult rapids with high, powerful, irregular waves, broken water, often boiling eddies, strong stoppers, ledges, drops and dangerous exposed rocks. The passage is often difficult to recognise and precise and sequential manoeuvring is required.

Grade 5 Very powerful rapids with very confused and broken water, large drops, violent and fast currents, abrupt turns, difficult powerful stoppers and fast boiling eddies; with numerous obstacles in the main current. Complex, precise and powerful sequential manoeuvring is required. A definite risk to personal safety exists.

Grade 6 All previous difficulties increased to the limit of practicability. Very confused and violent water so difficult that controlled navigation by raft is virtually impossible. Significantly life threatening if swimming and unrunnable by all but a few experts.
No log books.