

# Topic 5

# Case Studies

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# Case Study No. 1

A shire council roadworks gang were working on a road widening at about 8.30 in the morning when a vibrating drum roller rolled down the eastern batter of the road.

The job involved widening a local unsealed connecting road. There had been some rain on the job site the previous evening. The supervisor instructed the grader and roller operators to go and cut some of the wet material from the road surface and consolidate the pavement by rolling it with the padfoot roller.

The two operators discussed the task and recognised that the eastern edge of the road was soft and that it would not be safe to go too near the edge.

The grader operator cut the wet material to the top of the batter on the eastern side of the road and the roller followed along behind.

The grader then left the area and went to the northern end of the job, some distance away.

The roller operator had made four passes of the area and was on the fifth pass, travelling from north to south in the forward direction, when he felt the machine lurch to the left.

After turning off the vibrating drum and halting the machine's forward momentum, the operator felt the machine starting to slide towards the downhill batter, which slopes steeply towards the eastern side.

The operator then made a decision to move forward and steer the machine towards the centre of the road. As he did so, the rear wheels turned directly downhill because of the articulation-type steering system of the roller.

The uncompacted material under the wheels then subsided, and the machine began to roll over.

As the machine rolled, the operator pushed the emergency engine shut-down switch.

The machine came to rest on its side after rolling through about 100 degrees.

*Compactor Rollover*



*Compactor Rollover*



A traffic controller was close by at the time of the roll-over. As soon as he saw the machine go over, he radioed the foreman and went directly to the machine. He called out to the driver and asked if he was OK, to which the driver replied that he was.

The foreman had by then arrived on the scene and assisted the operator from the machine. He was able to walk, but felt neck and back pain. He was taken to a medical centre, about 40 km away, for assessment and treatment.

*Compactor Rollover*



An investigation into the incident revealed the following points:

- The rain the previous evening had made the material at the top of the batter very unstable, even though it was well outside the pavement area of the roadway.
- Even though a risk had been identified, there was no further discussion between the grader and compactor operators after the grader had stripped the wet material from the road and deposited it along the top of the batter.
- The period of time from when the operator lost control until the machine came to rest was about 10 seconds.
- The roller operator was wearing his seat belt at the time of the roll-over.
- Prior to the incident, the compactor operator believed that he had been travelling at a safe distance from the edge of the batter.
- The council's work method statements for earthmoving equipment identify that roll-over hazards may exist, but do not give any procedures for controlling situations where a roll-over hazard has been identified.

The following measures were taken to prevent a recurrence:

- The roller operator and other plant operators attended a soils compaction course.
- An administrative structure was set up to ensure that all council road construction staff would, over a period of time, attend a risk-assessment course and undergo regular testing to ensure their skills remained current.
- Work method statements were amended to include procedures for control of situations where roll-over or other hazards have been identified.

## Case Study No. 2

A road construction company had a contract to widen a road through heavily forested country. The job involved high cuttings and trimming of the batters to shape, using a 20-tonne excavator. One lane of the road was closed to traffic whenever machines were working on the job.

The operator of the 20-tonne excavator was working on a cutting. He had positioned the machine on top of a bank to enable him to trim the batter. When trimming had been completed, he manoeuvred the machine down the bank towards the road.

However, he misjudged the edge of the bank and the machine tipped onto its side. Fortunately, the operator was not hurt, as the machine had a fully enclosed cab that was positioned on the high side of the job. He was wearing a seat belt. However, when the machine came to rest, the boom blocked the lane that was open to traffic.

The operator was able to radio the traffic controllers to close off traffic to the site of the tip-over. He then exited the cab.

The works supervisor was left with several questions to resolve:

- How would he provide continued traffic access?
- How would he recover the machine? (For example, would a 50-tonne crane be needed?)
- For how long would the excavator be out of service?
- Were any replacement machines available?
- Since no-one had been injured, was the incident reportable in terms of the Workplace Health and Safety Act?

In the event, the following took place:

- A temporary side track was constructed to allow diversion of traffic around the site, until the excavator could be moved.
- The downed machine was found to be operable. Another 20-tonne excavator (found working nearby) was used to right the downed machine. It was found to be operable, and was able to be driven off the bank by the regular operator.
- Repair of the excavator took three days.

*Rolled Excavator*



## Case Study No. 3

On a road job at 8 a.m., a construction worker had a finger crushed while helping to load concrete barriers onto the back of a truck.

The barriers are approx. 3m long and weigh 2 tonnes each. They were being lifted by crane, with the road workers guiding the barriers into position by hand. The worker's finger was crushed when it became caught between one of the barriers and the truck gate.

*Concrete Barriers on a Roadworks Site*



The injury was serious and the worker was suffering severe pain and shock. The foreman immediately dialled 000, and an ambulance was dispatched from the nearest large town, 45 minutes away. The doctor in a nearby small town was not on duty at that time of the day. However, a local emergency-response group, consisting of trained volunteers, arrived on the scene rapidly and gave the man first-aid treatment. The man's condition was still serious when the ambulance arrived. He was transported to hospital and required surgery. He was unable to return to work for an extended period.

## Case Study No. 4

A traffic controller was knocked over by a motorist while on duty for a road upgrading job.

The incident occurred late in the afternoon in August. At that time of year, the sun is low in the sky for an extended period during the afternoon and the motorist was travelling westward.

The works site was a short distance from a town that has an ambulance station and ambulance officers were on the scene five minutes after the call was made to 000.

*Road at Sunset*



The injured person required hospitalisation, suffering a fractured upper right arm and severe shock.

The job supervisor commented that it was fortunate that the incident had occurred in an area where mobile phone coverage was available.

The motorist said, "I simply didn't see him".

## Case Study No. 5

No person may enter a confined space for any purpose whatsoever, unless they have followed the correct procedures and have obtained the correct clearances. The two following brief case studies highlight the dangers of incorrect procedures for confined space entry.

### Case Study 5A

A contractor in a process plant in New South Wales entered a valve pit to inspect a flow-back device. He collapsed shortly after entering the pit. It is believed that a passing supervisor noticed the man was down and entered the pit in a rescue attempt. He too was very quickly overcome. Both men had entered an untested, oxygen-deficient atmosphere and both died as a result.

### Case Study 5B

A work team was measuring the depth of sewers in Darwin. In one location, the measuring stick would not reach the bottom of the sewer. One of the workers decided to enter the manhole with no precautions being observed. He was overcome and fell to the bottom of the sewer.

The second worker raced to a nearby house to seek assistance. The resident from the house also entered the manhole to try to rescue the first worker. He too was overcome and fell to the bottom of the sewer. Both the original entrant and the would-be rescuer were overcome by toxic gases that were present in the sewer. An emergency rescue crew later retrieved the two bodies using SCBA equipment.