# Aviation Safety Investigation Report 199700357

## Bell Helicopter Co
## Bell 47

## 07 February 1997

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# Aviation Safety Investigation Report

# 199700357

**Occurrence Number:** 199700357 **Occurrence Type:** Accident
**Location:** 1km SE Gawler
**State:** TAS **Inv Category:** 4
**Date:** Friday 07 February 1997
**Time:** 1350 hours **Time Zone** ESuT
**Highest Injury Level:** Fatal
**Injuries:**

| | Fatal | Serious | Minor | None | Total |
|---|---|---|---|---|---|
| Crew | 1 | 0 | 0 | 0 | 1 |
| Ground | 0 | 0 | 0 | 0 | 0 |
| Passenger | 0 | 0 | 0 | 0 | 0 |
| **Total** | **1** | **0** | **0** | **0** | **1** |

**Aircraft Manufacturer:** Bell Helicopter Co
**Aircraft Model:** 47G-2
**Aircraft Registration:** VH-JKR **Serial Number:** 2409
**Type of Operation:** Commercial Aerial Agriculture - Other
**Damage to Aircraft:** Destroyed
**Departure Point:** 4 km NW Gawler Tas
**Departure Time:** 1335 ESuT
**Destination:** 4 km NW Gawler Tas

**Crew Details:**

| Role | Class of Licence | Hours on Type | Hours Total |
|---|---|---|---|
| Pilot-In-Command | Commercial | 2015.0 | 3332 |

**Approved for Release:** Wednesday, August 6, 1997

FACTUAL INFORMATION

The American pilot was engaged in an agricultural operation, spraying fungicide onto an eight acre potato crop. During a swath run he overflew one powerline, which was reasonably easy to see, but then descended into a second powerline in close proximity to the first. The main rotors impacted three high-voltage, high-tensile wires. The wires then passed under the main rotor blades, wound around the mast and broke push-rods, rendering the helicopter uncontrollable. It crashed to the ground and burnt. The pilot had sprayed the same paddock eight days earlier and had flown over the same powerlines several times immediately before the accident.

During the accident spray run, the first powerline overflown was about 19 ft high; it was relatively easy to locate because of a supporting pole almost in the middle of the potato crop. The second powerline was an estimated 20 metres beyond the first. It was about 28 ft high and had a span of 230 metres. It may have been difficult to see.

The farmer, whose paddock was being sprayed, saw the pilot fly an aerial reconnaissance before commencing spray runs. He later witnessed an estimated four spray runs parallel to the powerlines plus three runs over both powerlines before a fourth run, during which the helicopter crashed. However, he was not watching the helicopter when it impacted. The only witness to the accident was a nine year old girl, located about 230 metres from the accident site. She said the helicopter performed a low spray run followed by a pull-up before tumbling to the ground and catching fire.

The pilot held a USA commercial helicopter licence. Prior to flying the Australian registered helicopter, he passed an agricultural flight test with an approved testing officer. He also passed the Australian agricultural rating theory examination. However, due to a misunderstanding, neither the pilot nor his employer submitted an application form to CASA for the permit to fly VH-JKR on the USA licence. The lack of a permit to fly was not considered to be a factor in the accident.

The pilot had flown an estimated 2,015 hours on agricultural operations in Iowa and Wisconsin, USA, prior to flying agricultural operations in Tasmania where he flew about 15 hours before the accident. His widow advised that the powerlines, in the areas where he flew in Tasmania, were more prevalent and more likely to transit paddocks than he was used to in the USA. Also, the Tasmanian paddocks were considerably smaller than he was used to.

The pilot's employer advised that the pilot probably flew the helicopter at about 40 kts and 10 ft AGL for most of each spray run except when avoiding obstacles. In these instances, he may have slowed down to as low as 25 kts. The speed at which the pilot flew into the powerline is unknown.

It was company policy to fly over powerlines rather than under them.

The helicopter weight and balance was estimated to be within approved limits for the flight.

The weather was fine with the temperature about 26 degrees Celsius and wind calm. The cloud was described as high level, at times up to seven eighths, with the sun breaking through. Visibility was reported to be at least 10 km.

Although the helicopter's bubble/perspex was broken during the accident, large pieces of broken perspex survived. They were relatively clean and clear. As the time of the accident the sun would have been quite high. Apart from patches of bright sunlight breaking through the clouds, there was probably not too much sun glare. No evidence was found that the pilot's visibility had been restricted.

Wreckage evidence, particularly the dual tachometer, confirmed that the engine was operating and driving the rotors at normal flight RPM when ground impact occurred. No fault was found with the engine or airframe which may have contributed to the accident.

The helicopter was destroyed by ground impact and post impact fire. The source of the fire was probably fuel escaping from fuel lines broken at ground impact and spilling onto the hot engine exhausts.

The pathologist determined that the pilot died from multiple injuries. The pilot's work load and rest periods in the days prior to the accident suggest that he was unlikely to have been fatigued. No evidence was found to suggest that the pilot was suffering from the effects of exposure to the chemicals being sprayed. The water/ chemical mix used was reported to be low in toxicity.

ANALYSIS

There were probably significant differences between the pilot's past agricultural flying experience in the USA and the Tasmanian operation. The smaller Tasmanian paddocks and the frequency with which powerlines transit them probably increased his workload considerably.

SIGNIFICANT FACTORS

The following factors were considered relevant to the development of the accident:

1. The wires were probably difficult to see.

2. At the time of the accident, the pilot was still becoming familiar with the different helicopter agricultural operations in Tasmania compared with his USA experience.

3. The pilot probably forgot about the second powerline.