Australian Government
Australian Transport Safety Bureau

Collision with terrain involving Air Tractor AT-802, VH-ODX

17 km north of Cummins Town aerodrome, South Australia, on 8 September 2025



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The Australian Transport Safety Bureau acknowledges the traditional owners of country throughout Australia, and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to elders both past and present.

Investigation summary

What happened

On 8 September 2025, the pilot of an Air Tractor AT-802A agricultural aircraft, registered VH-ODX and operated by Aerotech Australasia, was conducting aerial application operations in fields to the north of Cummins Town aerodrome, South Australia. At around 1323 local time, during the seventh load of the day, the pilot attempted to fly under 2 intersecting and closely spaced powerlines, at a point where there was a pole suspending the second powerline directly ahead on the aircraft's path. The aircraft passed under the first powerline and the pilot conducted a right turn away from the pole ahead. During this turn, the aircraft contacted the crop and ground. After passing under the second powerline, the aircraft climbed, rolled inverted and collided with terrain in an inverted position. The pilot was fatally injured, and the aircraft was substantially damaged.

What the ATSB found

The ATSB found that the pilot had been flying in the vicinity of intersecting powerlines, the second of which converged with the aircraft's successive spray pass tracks, reducing the distance between them. On the accident pass, there was about 240 m between the powerlines, with a pole directly in front of the aircraft. Compared to previous passes, there was less distance available for the pilot to manoeuvre the aircraft and maintain separation from the powerline and poles.

During the turn to avoid the pole, the aircraft became established in a significant right skid with a right roll attitude. The aircraft's right wheel, spray boom, aileron and wingtip contacted the crop and ground. Once clear of the second powerline, likely with a large left aileron input, the aircraft pitched up and the right wing aerodynamically stalled. The aircraft then rolled inverted at a height from which recovery was not possible.

Post-mortem toxicology identified that the pilot had likely used cocaine within the 24 hours prior to the accident. However, it was determined unlikely that the pilot was directly affected by the drug at the time of the accident.

What has been done as a result

Following this accident, Aerotech amended its operations manual to include additional guidance on managing hazards during aerial application operations. Its aircraft fleet was being configured with the latest Tabula GPS systems and advised that GPS hazard marking and alerting would be set up prior to departure.

Aerotech has further developed its risk register and implemented a human factors and non-technical skills program.

Safety message

Powerlines and their associated poles present a significant hazard for aerial application operations. The configuration of powerlines across fields is variable, therefore no single solution or approach can be used. The Aerial Agricultural Association of Australia's *Aerial Application Pilots Manual* contains guidance for operations near powerlines and pilots are encouraged to review this on a regular basis. This accident presents a reminder of the importance of thorough planning, preparation and inspections prior to conducting

spraying and to carefully consider the risks of flying in proximity to multiple, closely situated powerlines.

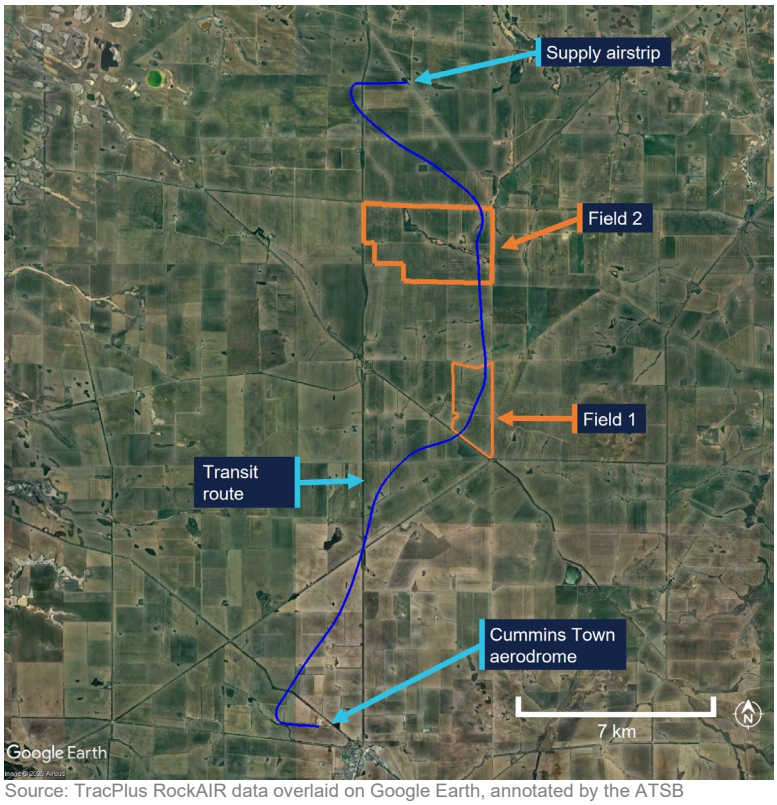
While no direct contribution was drawn with this accident, illicit substances are incompatible with safety sensitive aviation activities. The actual effect of illicit substances on the safety of flight cannot be predicted by users and periods of impairment beyond the anticipated effects can occur.

The occurrence

On 8 September 2025, at about 0937 local time, the pilot (and sole occupant) of an Air Tractor AT-802A agricultural aircraft, registered VH-ODX and operated by Aerotech Australasia,[1] departed from the Cummins Town aerodrome, South Australia. The pilot ferried the aircraft to a private airstrip approximately 22 km to the north, which was to be used as a supply point for the day's aerial spraying activities.

During the ferry flight, the recorded flight data showed that the pilot diverted right of the direct track to overfly the fields to be sprayed that day, before arriving at the supply airstrip at 0946 where they were met by the loader.[2] The tasking for the day was the aerial application of 13 loads of fungicide and insecticide across 2 wheat fields ('Field 1' and 'Field 2' in Figure 1).

Figure 1: Fields to be sprayed and transit route



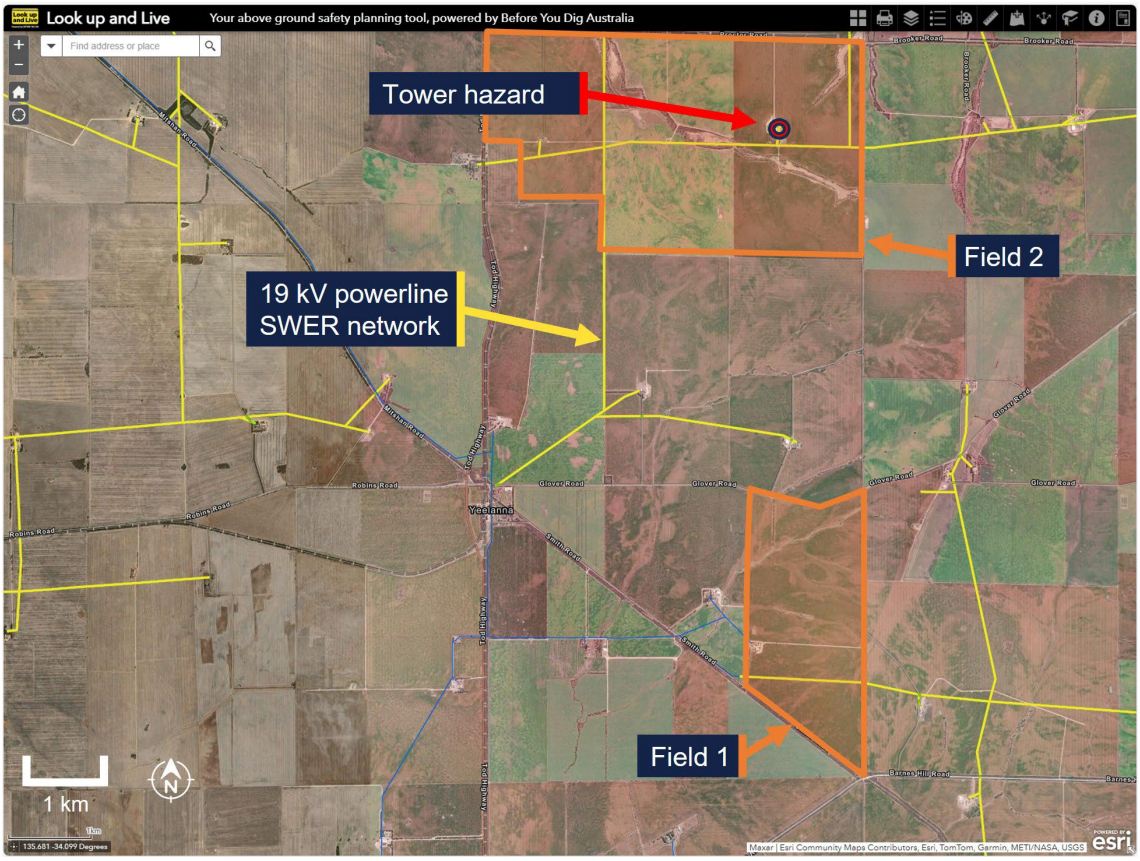
Source: TracPlus RockAIR data overlaid on Google Earth, annotated by the ATSB

Powerlines spanned the fields of the property being sprayed. These, and a tower hazard, were included on the work order provided to the pilot prior to the flight (Figure 2). Field 1 featured a 19 kV single-wire earth return powerline crossing the southern section in an east-west direction (Figure 2).

1 The flight was conducted under Part 137 of the Civil Aviation Safety Regulations (aerial application operations).

2 Loader: the term used to denote ground support personnel whose functions include assisting with mixing chemicals, loading and dispatching the aircraft.

Figure 2: Hazards in the fields to be sprayed

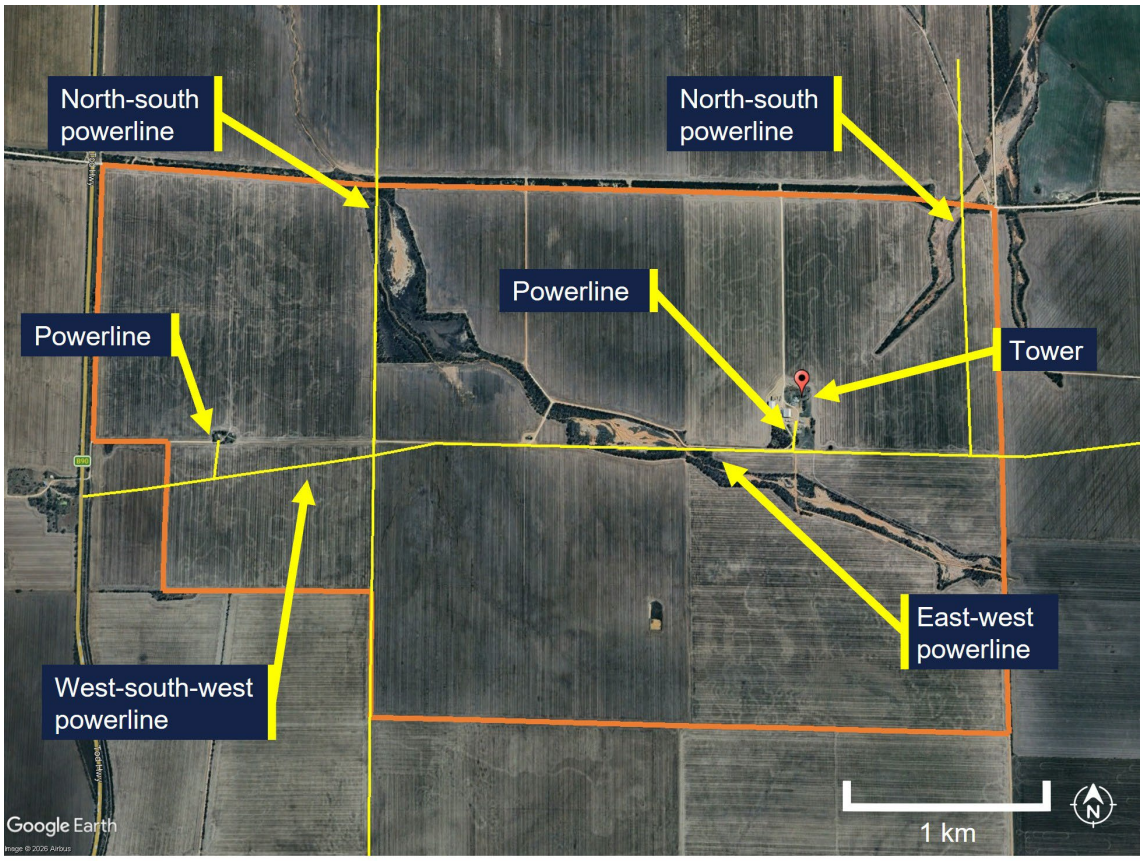


SWER – Single-wire earth return.
Source: Look up and Live website, annotated by the ATSB

Field 2 had 5 19 kV single-wire earth return powerlines at a height of about 12 m above the ground (Figure 3):

- a north-south powerline on the eastern side of the field
- a second north-south powerline on the western side of the field
- an east-west powerline with a deviation to the west-south-west in the western third of the field
- two smaller powerlines extending north from the east-west powerline.

Figure 3: Field 2 hazards



Source: ATSB

At 1005, the flight departed for application of the first load on Field 1, about 11 km to the south-south-east. Recorded data from the aircraft identified the field was sprayed in a north-south racetrack pattern[3] until the hopper was emptied, before returning to the supply airstrip. This operation was repeated a further 3 times. The pilot flew mostly under the powerline in Field 1 but occasionally flew over it where there was a power pole directly on track. They also flew over the powerline where it merged close to the edge of the field. There were several locations where the aircraft track was close to a pole. The pilot still flew under the powerline in those locations but diverged left or right as required to avoid the pole.

The pilot completed spraying Field 1 during the fourth load, including a clean-up run[4] along the south fence line. They then transited 5 km north to Field 2.

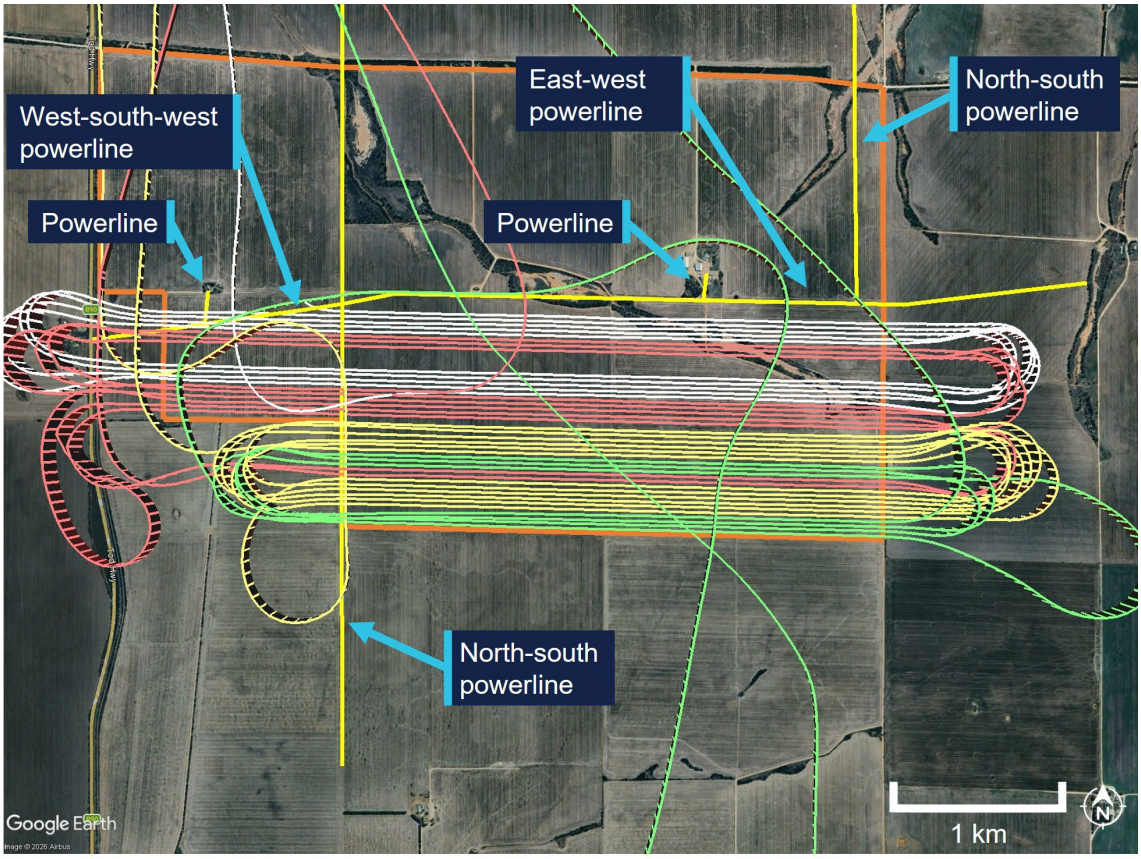
On arrival at Field 2, the pilot flew around a known tower hazard, then partially along the east and west-south-west powerline. They then completed the fourth load, spraying in an east-west racetrack pattern. Another 2 loads were completed, including another clean up run along the north-south powerline on the western side of the field at the end of load 5 (Figure 4). The recorded data showed the pilot mostly flew under the north-south

[3] Racetrack pattern: the application pattern that involves making successive overlapping loops across a field.

[4] Pilots delay the commencement of spraying and prematurely shut off spraying at the end of a field to ensure the chemical does not get applied to an adjacent field. A clean-up run is a spray pass perpendicular to the predominant direction along the edge of a field to ensure crop near that fence line has appropriate coverage.

powerline running perpendicular to the spray passes, except where the powerline ran adjacent to the edge of the field, where they flew over the powerline.

Figure 4: Field 2 – loads 4 (green), 5 (yellow), 6 (salmon) and 7 (white)

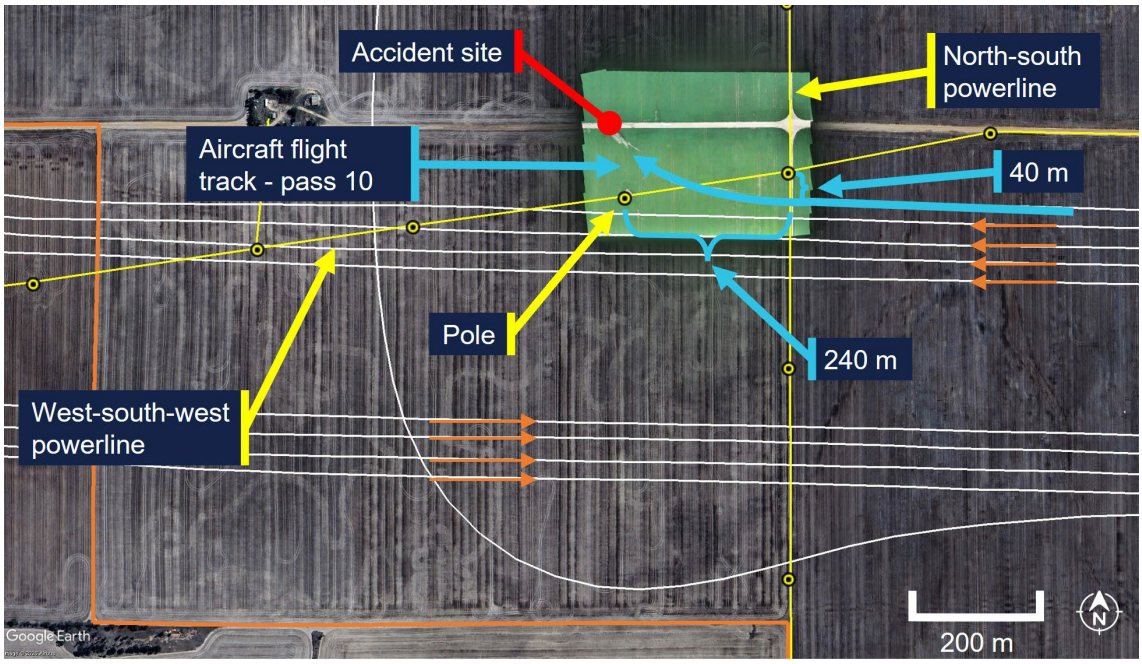


Source: TracPlus RockAIR data overlaid on Google Earth, annotated by the ATSB

At about 1307, the pilot departed the supply airstrip to commence their seventh load at Field 2. During the first 9 passes of that load, the aircraft tracks became progressively closer to the west-south-west powerline, which converged towards those tracks. The pilot encountered poles at several locations on the west-south-west powerline and climbed over them (and the powerline) when they were directly on track. On one pass, the pilot diverged right of track to avoid a pole while flying under the powerline. Approximately 16 minutes into the load, while heading west on pass 10, the pilot flew under the north-south powerline. At that point, the west-south-west powerline crossed the north-south powerline (and pole) 40 m to the north. That pass also aligned with another power pole on the west-south-west powerline, 240 m beyond the north-south powerline (Figure 5).

Recorded data showed the aircraft maintained its spray height and conducted a right turn away from the pole ahead. During this turn, the aircraft's right wheel, right spray boom and right aileron and wingtip contacted the crop. The right wheel also contacted the ground. The aircraft then passed underneath the second powerline and climbed, after which it rolled inverted and collided with terrain at 1323. The aircraft came to rest on a farm road about 150 m beyond the second powerline. The pilot was fatally injured, and the aircraft was substantially damaged.

Figure 5: Final pass within Field 2 showing the flight path (in blue) and accident site relative to the powerlines and poles (yellow circles)



Source: TracPlus RockAIR data overlaid on Google Earth, annotated by the ATSB

Context

Pilot information

Qualifications and experience

The pilot held a Commercial Pilot Licence (Aeroplane) with a single-engine aeroplane class rating. The pilot had 3,623 hours total aeronautical experience, of which 1,243 hours were conducting agricultural aerial application and 941 hours were on the AT-802 aircraft type. The pilot also held aerial application (with firefighting endorsement) and low-level ratings. In addition, the pilot held a gas turbine design feature endorsement, and numerous piston and turbine type ratings.

The pilot held a valid class 2 aviation medical certificate with their class 1 medical certificate not being renewed when it expired in November 2023. For the operation being conducted, only a class 2 medical certificate was required.[5]

Recent history

The 2 days prior to the accident were the weekend and the pilot's partner reported a relaxed weekend with social activities with friends.

Mobile phone records showed that the pilot made a phone call (that was not answered) at about 2230 on the night before the accident. On the morning of the accident, the pilot was reported to have woken at about 0500 and left home at 0513. While it was not possible to determine the pilot's sleep period, it was likely they had opportunity to have slept for about 6 hours.

The pilot was originally scheduled to ferry the aircraft from Cummins Town to Adelaide, South Australia, for maintenance, however, they could not depart due to fog and had access to rest facilities while waiting for the fog to clear. The pilot was later advised that the maintenance requirement would be deferred. The pilot's partner called and spoke to the pilot at 0700 after having woken them up. The pilot mentioned that they would go back to sleep after that phone call. The partner called the pilot again at 0900, at which time the pilot was at a cafe. They recalled that the pilot seemed their normal self. They also reported that a friend, who saw the pilot on the morning, spoke with the pilot and did not observe any unusual behaviour.

The loader who provided ground assistance to the pilot that day did not observe any indications that the pilot was fatigued and reported that the pilot was 'OK' in the morning. The loader also reported that later, the pilot seemed a bit distant which was unusual and that the pilot remained in the aircraft all day. In response to the draft report, the operator stated that they expected the pilot to remain in the aircraft as the task required loading fuel and chemical into the aircraft without shutting it down.

The 6 hours available for the pilot to sleep on the previous evening was sub-optimal, with most people requiring between 7 to 8 hours sleep (Watson and colleagues, 2015). However, had this period been fully utilised (had the pilot obtained 6 hours sleep), the

[5] Civil Aviation Safety Authority exemption EX28/23, in effect at the time of the accident, exempted the pilot from needing to hold a class 1 aviation medical certificate for aerial application flights such as the accident flight. The exemption was subject to the pilot holding a class 2 medical certificate.

sleep restriction would not be consistent with an acute fatigue risk (Dawson and McCulloch, 2005). It was not possible, however, to determine the quantity or quality of the sleep that the pilot was able to achieve that night, or while waiting for the fog to clear. Therefore, the ATSB was unable to establish whether the pilot was affected by fatigue at the time of the accident.

Aircraft information

VH-ODX was an Air Tractor Incorporated AT-802A single-seat low-wing tailwheel, fixed landing gear aircraft manufactured in the United States in 2006. It was powered by a Pratt & Whitney Canada PT6A-67AG turboprop engine. It was first registered in Australia in August 2006. The aircraft was configured for aerial spraying, with a spray boom fitted under each wing, aft of the trailing edge, and extending about three-quarters of the wingspan (exemplar shown in Figure 6).

Figure 6: Exemplar AT-802 showing spray boom installation



The above image has been modified to remove the registration.
Source: ATSB

The current maintenance release was issued on 30 July 2025. On the day of the accident, the maintenance release indicated the aircraft had 5,595.4 hours recorded as the total time in service. There were no defects noted on the maintenance release.

Meteorological information

The Bureau of Meteorology operated a weather station at Cummins Town aerodrome, 17 km to the south of the accident site, which recorded wind and temperature at 30-minute intervals. Around the time of the accident, the recorded winds were 11 kt from the west and the temperature was 19°C.

The loader reported the weather at the time of the accident to be clear and sunny with a light westerly breeze.

Recorded information

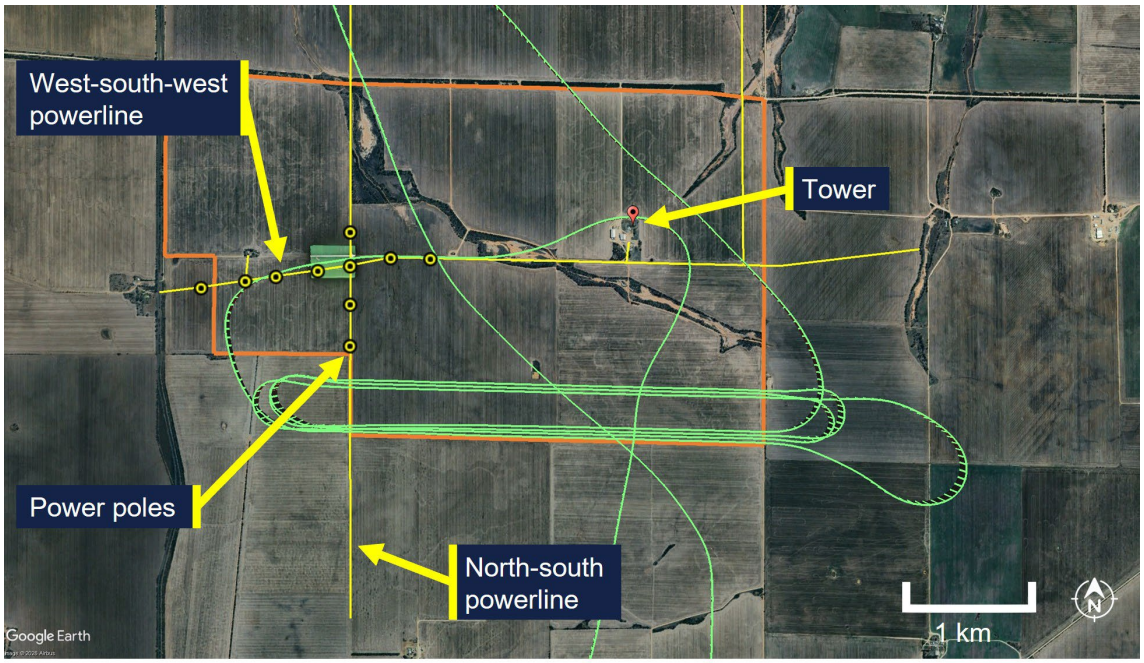
Tracking device

A TracPlus RockAIR portable tracking device had been fitted to the aircraft and was recovered from the accident site. The device was transferred to the ATSB's technical facilities in Canberra, Australian Capital Territory, where it was interrogated. The recorded data provided the aircraft's position, altitude, speed and track angle data at

1-second intervals up until the time of the accident. The data showed the take-off from Cummins Town aerodrome, the transit to and from the supply airstrip and the completed spray runs in fields 1 and 2. Location and time parameters from the flight data were correlated to identify that the accident occurred at 1323:40.

The recorded data showed that, in addition to overflying the fields to be sprayed, the pilot flew along/parallel/in close proximity to the known hazards as depicted in the work order, consistent with an inspection of these hazards being made. This included the powerlines in the vicinity of the accident site during the fourth load (Figure 7). However, there was no record of what the pilot observed or what their assessment of those hazards was.

Figure 7: Aircraft track near known hazards in Field 2 during the fourth load



Source: TracPlus RockAIR data overlaid on Google Earth, annotated by the ATSB

Prior to the accident pass, the pilot had completed 9 passes on their seventh load in Field 2. Passes 2, 4, 6, 8 and the accident pass (pass 10) were all flown in a westerly direction towards the previously described powerlines.[6] On each of those passes, the pilot flew under the north-south powerline, towards the west-south-west powerline, which converged with the aircraft's track (Figure 8). On each pass, the distance between the 2 powerlines became progressively shorter as follows:

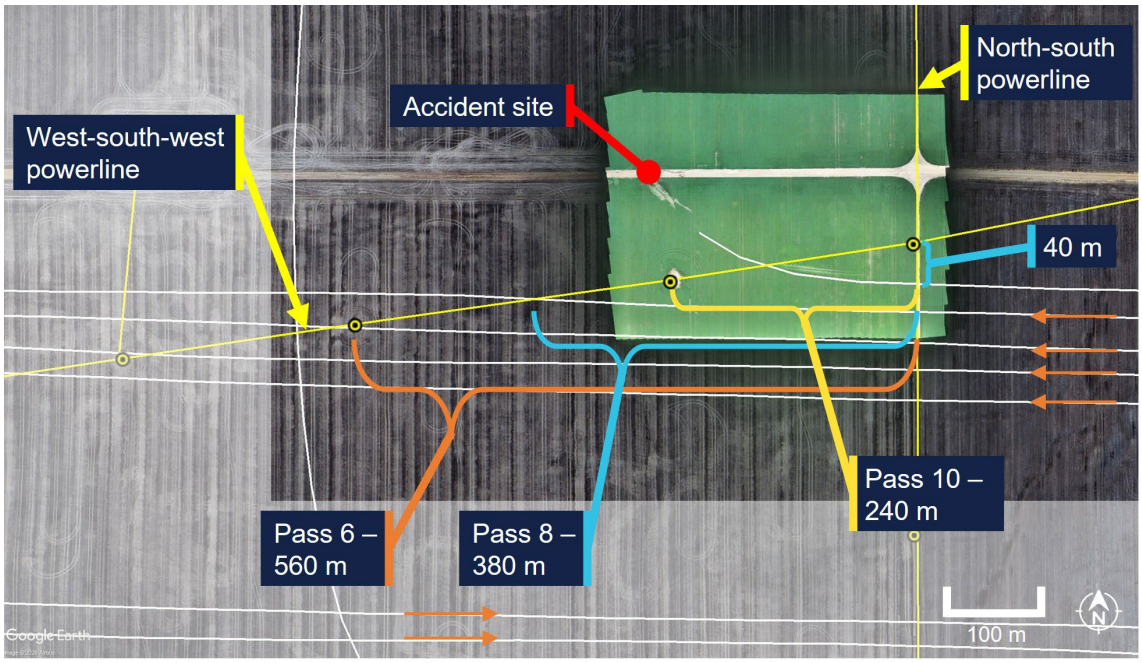
- Pass 2. There was about 880 m between the powerlines, and the pilot flew over the converging powerline.
- Pass 4. There was about 750 m between the powerlines. The pilot flew over the converging powerline where there was also a pole, which was directly on its path.
- Pass 6. There was about 560 m between the powerlines. The pilot climbed the aircraft above the converging powerline and its poles as well as flying over the smaller north powerline.

[6] Passes 1, 3, 5, 7 and 9 were flown in an easterly direction. They were not examined in detail as they were south of passes 2, 4, 6, 8, 10 and not in conflict with the same powerlines.

- Pass 8. There was about 380 m between the powerlines. The pilot flew under the converging powerline but diverged slightly right of the planned track to fly between 2 poles suspending the powerline, passing within 25 m abeam of the pole they were to avoid on the next pass (pass 10).
- Pass 10 (accident pass). The distance between powerlines was 240 m. As previously described, the aircraft did not climb and the pilot commenced a right turn away from the pole, then flew under the converging powerline.

On the accident pass, the aircraft was flown at a height of about 15–18 ft (5–6 m),[7] at a groundspeed of about 130 kt.[8] During the contact with the ground, the speed slowed to about 107 kt. After passing the converging powerline, the data showed that the aircraft climbed approximately 30 ft (10 m) in height, and its groundspeed slowed to about 87 kt.

Figure 8: Comparison of spray passes 6, 8 and 10 near the accident site



Source: TracPlus RockAIR data overlaid on Google Earth, annotated by the ATSB

Agricultural application system

To assist with aerial application tasks, a Tabula AirVision agricultural application system was fitted to the aircraft. The system had the capability to record parameters such as position and application information. It could provide live fleet tracking and also had a wire warning system. The unit was recovered from the aircraft and retained by the ATSB for further investigation.

The Tabula system manufacturer assisted with analysis of the device and advised that there was no indication that any of the settings on the device had been changed within 10 minutes of the accident. They explained that the wire warning system required an operator to input known wires or hazards into the system and when nearing those wires

[7] The aircraft's height was as recorded by the onboard GPS, and not a barometric height.

[8] The aircraft's indicated airspeed was not able to be determined as there was insufficient information available to accurately calculate. Based on the reported conditions at the supply airstrip, the ATSB estimated that the groundspeed was closely approximate to indicated airspeed.

or hazards the system would provide a warning message on the display and light bar. However, this functionality was not in use at the time.

Engine parameters

A Perkins Data Acquisition Alarm Monitor was recovered from the aircraft and retained by the ATSB for further investigation. This device recorded 12 engine parameters at a frequency of 10 Hz and showed that the engine was producing power prior to the collision with terrain. A Replay XD 1080 video camera mount in the cockpit was also recovered. Data extracted from the unit contained about 30 GB of good quality video, however, the last recording was from 2016.

Wreckage and impact information

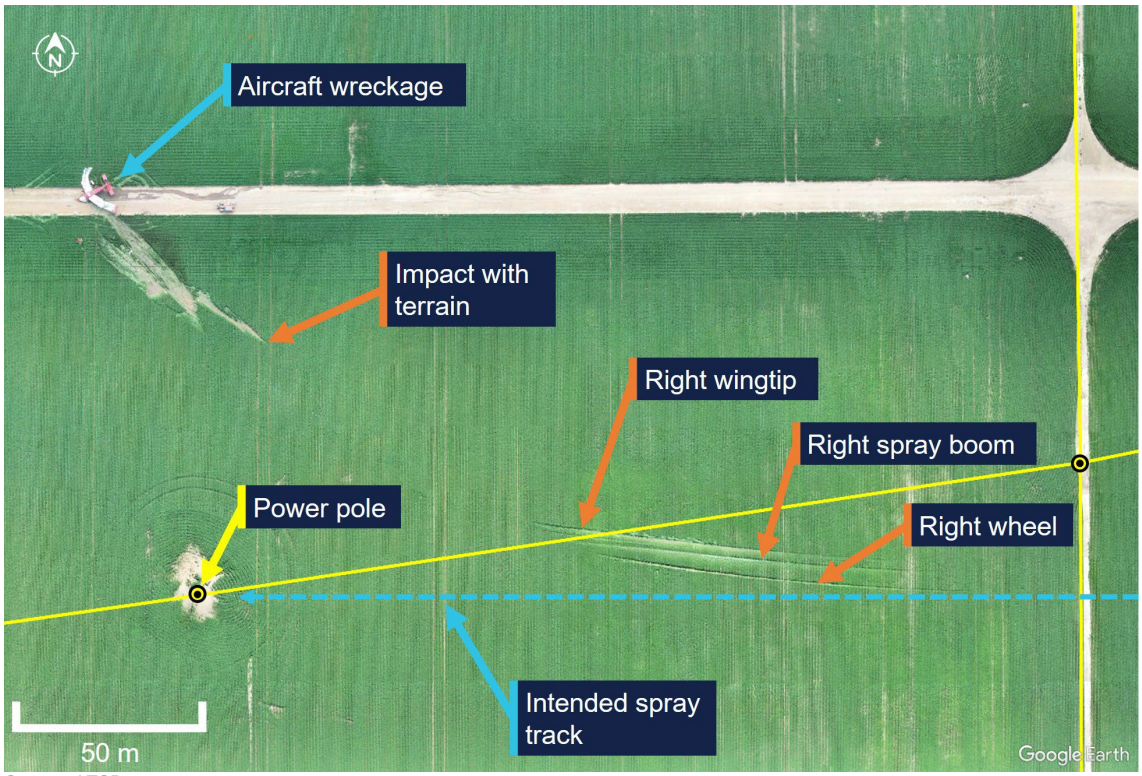
Site information

Witness marks matching the right wheel, right spray boom and right wingtip indicated that those components had passed through the 0.5–1.0 m high wheat crop 260 m prior to the impact with terrain, with the right wheel running along the ground for about 22 m (Figure 9 and Figure 10). The crop markings started on a heading of 264° (magnetic), ran for about 125 m and finished just beyond the west-south-west powerline on a heading of 273°. The markings showed that the aircraft was in a significant right skid.[9] Later in the crop markings, a scar corresponding to the right aileron indicated a significant down (left roll) deflection. The aircraft did not contact the powerline.

Another crop and ground scar from the aircraft existed 88 m beyond the initial markings that continued to the wreckage (Figure 9). Numerous indicators such as component locations in the debris field, orientation of wheat strands caught in the aircraft structure, and damage signatures to the airframe indicated the aircraft impacted terrain in an inverted orientation, left wing first at a near wings-level and nose-down attitude.

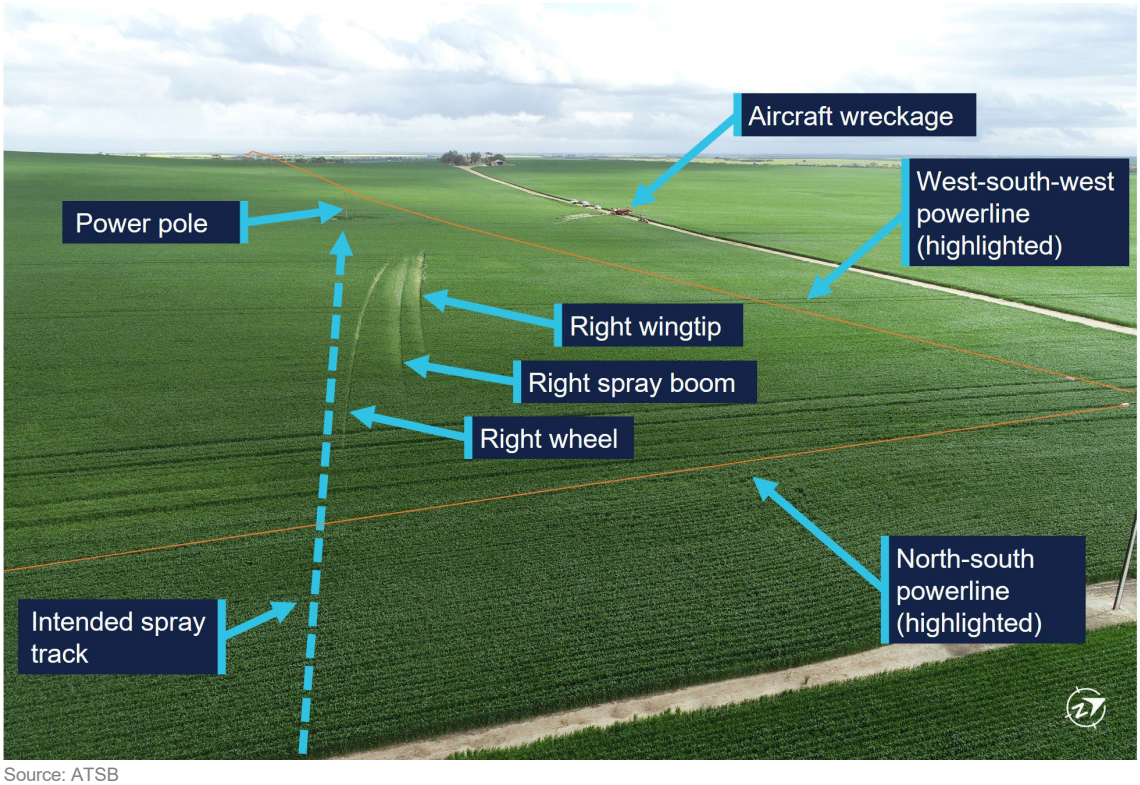
[9] The United States Federal Aviation Administration defines a skid as a condition where the tail of the airplane follows a path outside the path of the nose during a turn. It is an example of uncoordinated flight where the aircraft nose is yawing to the inside of a turn.

Figure 9: Crop witness marks at the accident site



Source: ATSB

Figure 10: Alternate view of crop witness marks



Source: ATSB

Wreckage examination

All major aircraft components were accounted for at the accident site (Figure 11). There was no evidence of pre-impact defects with the flight controls or aircraft structure. The

propeller assembly separated from the engine during the impact sequence and was located on the farm road, about 18 m behind the front of the fuselage. Two propeller blades had ejected from the propeller hub and one blade had fractured mid-length. The damage sustained to the propeller assembly was consistent with the engine operating at the time of the ground impact. The wing integral fuel tanks had ruptured during the accident sequence, however, there was no post-impact fire. Residual aroma from spilled fuel was detected at the accident site.

Figure 11: VH-ODX wreckage



Source: ATSB

Crop markings analysis

The ATSB took measurements of the crop markings, which were identified as being made by the right wheel, right spray boom, right aileron and right wingtip of VH-ODX. The measurements were analysed to determine the skid and roll angles of the aircraft.

The skid angle was determined using measurements of the right wheel markings with comparisons against the respective measurements between the right wheel to spray

boom and wing tip markings. It was concluded that, by time the right wheel had ceased contact with the crop, the skid angle was likely around 30°.

The roll angle was calculated using direct measurements of the crop scything, corrected for the wing dihedral.[10] The angle progressively increased from the wing's first contact with the crop to greater than 30° (to the right) when the right wheel had last contact with the crop. At that point the left wingtip was calculated to be 8 m higher than the right wheel, which was about 0.5 to 0.75 m off the ground, leaving around 2 to 3 m clearance from the powerline above. There was no physical evidence found to conclude the left wingtip made contact with the powerline.

The right wheel leaving the crop was indicative of the aircraft having pitched up and the crop markings showed the application of a left aileron roll input.

The data points and calculations indicated that, as the aircraft passed under the second powerline, the aircraft yaw and roll angles were increasing. However, there was evidence that the pilot was applying left aileron (opposite to the roll) and back (up) elevator inputs, likely in an effort to increase clearance from the terrain.

Operational information

Field inspections and powerlines

The Aerotech *Standard Operations Manual for Application Operations*, included the following information regarding field inspections and operating in proximity to powerlines:

> D1.8 Inspection of treatment area
>
> Pilots should carry a facsimile of a map of the treatment area if possible. The originals of these maps should be kept in either hard copy or electronic file. Despite the existence of a map, in daylight operations, the pilot should carry out an inspection of the treatment area to locate any obstacles. A personal paddock inspection checklist should be used for the inspection process – a copy of a standard paddock inspection checklist can be found at A6.15.
>
> Prior to any clean-up runs at the conclusion of a job, an extra hazard check must be made.
>
> …
>
> D1.9 Powerlines
>
> The decision to work over or under powerlines is up to the pilot. From the Applications Pilots Manual are the following comments;
>
> a) Flying under wires is not only safer than pulling up over them – since the only judgement involved is that normally needed for maintaining spray height – but simplifies the whole job.
>
> b) Flying under wires should only be attempted when you are sure that there is room, time and the absence of other distractions.
>
> c) There must be sufficient time to settle down at the correct spraying height before reaching the wires.

[10] The angle the wing makes with the local horizontal.

> Any decision based on flying under a wire must be on the assumption of maintaining the aircraft at the normal spraying height. If it will be necessary to fly lower than usual to pass under the wire, then a manoeuvre over the wire is to be taken.

In addition to the powerline guidance in the Aerotech operations manual, the *Aerial Application Pilots Manual* (Aerial Agricultural Association of Australia, 2011) also stated:

> Only when you are completely sure that there is adequate and safe clearance should the decision to fly under be taken. A practical method of ascertaining clearance is to fly the aircraft at spraying height parallel to the wires and look at the clearance. Whilst doing so watch out for other obstructions, particularly branch and guy wires!
>
> No attempt should be made to fly under a low wire if at the same time your attention is likely to be diverted from maintaining the correct height by some other object such as a fence. If the temptation to fly a little lower beneath the wire proves too strong there may be some chance of getting away with a gentle contact with open ground: contact with a fence is likely to be disastrous.
>
> When flying parallel to a wire run always check two poles ahead for indications of other wires, such as extra cross trees, insulators etc.
>
> The cardinal rule: having decided that you can safely fly under a wire all you have to do is concentrate on maintaining your normal spray run – nothing else. Don't look up at the wire – you will almost inevitably pull up towards it!

Pilot comments on the powerlines

When discussing the powerlines in Field 2, the chief pilot expressed to the ATSB that they would have flown over the powerlines in that particular corner of the field. Another senior pilot believed there was insufficient distance to climb over the pole and powerline after passing the north-south powerline and that they would not attempt a similar turn to avoid the pole in that situation. They did note, however, that the pilot did avoid the pole.

Aerodynamic stall

A wing generates lift when the airflow around the upper and lower surfaces results in a pressure difference between those surfaces. At a typical angle of attack (the relative angle between the chord line of the wing and the approaching airflow) of around 12–16°, which is a characteristic of the wing design, the flow over the upper surface of the wing separates from the surface. This condition is known as an aerodynamic stall (or simply a stall) and results in a rapid reduction in the lift generated and an increase in drag. Due to the sudden reduction in lift from the wing and rearward movement of the centre of lift, an uncommanded nose-down pitch ensues.

A wing drop occurs when one wing stalls before the other and can lead to an incipient spin. This characteristic can be exacerbated by uncoordinated (or 'unbalanced') flight such as when the critical angle of attack is exceeded in a crossed control situation, where aileron is applied in one direction and rudder in the opposite direction.

As a loss of altitude also occurs during recovery from a stall, a stall at low-level could leave insufficient height above the ground to recover. The *Pilot's Operating Handbook* for the AT-802A stated that the maximum altitude lost during a wings level stall recovery at maximum gross weight was 280 ft. At this weight, with power off and wings level, the aircraft stall speed was 91 kt (indicated airspeed).

The handbook also stated:

> … if the aircraft is inadvertently placed in an impending stall situation, it is only necessary to relax some back pressure on the stick to make recovery, and little altitude is lost, providing the turn is coordinated. A stall from a skidding turn will result in the nose dropping sharply with a significant loss of altitude.

Medical and pathological information

A post-mortem examination was conducted by a qualified pathologist on behalf of the South Australia Coroner. The examination did not report any signs of natural disease or illness in the pilot.

Toxicological analysis was also performed and noted:

- no alcohol was detected
- carboxyhaemoglobin (carbon monoxide)[11] was detected at a concentration of 2%, which was considered within the normal range for a non-smoker
- benzoylecgonine (a metabolite of cocaine) was detected, at a concentration of 0.36mg/l
- ecgonine methyl ester (a metabolite of cocaine, also known as methylecgonine) was detected, at a concentration of 0.048mg/L
- no unmetabolised cocaine was detected.

The ATSB engaged a forensic pharmacologist to examine and interpret the toxicological results. The pharmacologist indicated that benzoylecgonine is the primary metabolite of cocaine and the presence of this confirmed the usage of cocaine. The pharmacologist stated:

- While it was not possible to precisely determine when the pilot had used cocaine, they estimated the pilot had consumed cocaine within 24 hours prior to the accident.
- The witness report of the pilot's state did not suggest acute effects of cocaine, nor would acute intoxication be expected based on the concentration of the metabolite benzoylecgonine.
- Cocaine users can experience impairment following the initial effects of drugs. This acute withdrawal phase can last 9 hours to 4 days. During this period, symptoms can include feelings of depression and irritability, and there can be significant fatigue and lack of energy (Isenschmid, 2002).

Drug and alcohol management plan

The risk of drugs and alcohol in aviation was managed by Civil Aviation Safety Regulation Part 99. Part 99 required certain organisations to implement a drug and alcohol management plan (DAMP) to govern employees and contractors who were engaged in safety sensitive aviation activities (SSAA). SSAA roles are those that might affect the safe conduct of aircraft operations.

Aerotech had implemented a DAMP in accordance with the regulations. This plan outlined the roles and responsibilities of key personnel and the obligations of employees.

[11] Carbon monoxide is a colourless, odourless and tasteless gas found in the exhaust gases of piston-engine aircraft.

The plan required all SSAA employees to attend a drug and alcohol education program. This was achieved through the CASA online education portal and refreshers were required at intervals of no longer than 30 months. A testing program was also in place and tests were to be conducted:

- prior to commencement in a role performing SSAA
- post-accident or serious incident
- on reasonable suspicion
- on return to SSAA work (if associated with an alcohol or drug related incident).

The pilot had last completed their DAMP training in August 2025, which was valid until February 2028. Aerotech reported that the pilot had been tested in accordance with the DAMP prior to commencing employment. The record of this test was no longer available, as per their DAMP, the operator was not required to retain records older than 5 years. The pilot had not been tested since commencing employment as there were no circumstances that triggered a need to do so.

Safety analysis

Flight under powerlines

For the conduct of aerial application flights in the proximity of powerlines, the variation of locations and powerlines means there was no prescriptive rule for pilots to fly over or under powerlines. Guidance was provided by the operator's *Standard Operations Manual for Application Operations* and the *Aerial Application Pilot's Manual*, however, the decision was left to the individual pilot. Both manuals indicated that it could sometimes be safer to fly under powerlines, and that should not be undertaken without a careful consideration of the field(s) to be sprayed. This should include a visual inspection of the powerlines and surrounding area prior to commencing spraying.

The pilot had been provided the locations of powerlines via a work order. The recorded data showed that the pilot had flown in proximity to the powerlines, which was consistent with conducting a visual inspection prior to spraying.

The data also showed that the pilot had safely managed the application flights earlier that day, with no indication of any handling issues in the vicinity of powerlines and poles. However, leading up to the accident, the pilot's spray passes were near intersecting powerlines. The angle of intersection meant that with each successive pass, the distance between the 2 powerlines became shorter. Furthermore, not every pass had a pole located directly on the intended pass track. On the accident spray pass, the distance between the 2 powerlines had reduced to 240 m and the pole was directly in line with the pass.

On approaching the first powerline, there was no change in height, and the aircraft was flown under the powerline. After passing this powerline, the data showed a distinct direction change to the right with no indication of a climb. This may suggest that the pilot had intended to fly under both powerlines while attempting to avoid the pole by diverting right of the spray track. The ATSB also considered whether the pilot may have lost awareness of the pole, which may have necessitated the divergence to the right. However, there was insufficient evidence to confirm either scenario.

Given the proximity of the powerlines and the pole, flying under the powerlines resulted in reduced distance and time in which to safely manoeuvre the aircraft and maintain safe separation from the hazards.

Contributing factor

On each new spray pass, the gap between the 2 intersecting powerlines became progressively smaller, with the accident pass decreasing to 240 m. This reduced the distance and time available for the pilot to safely manoeuvre the aircraft beneath the wires and avoid the power pole directly on track.

Loss of control

At previous locations where the pilot encountered a pole, the aircraft was not heading directly to the pole. The recorded data showed that the aircraft only diverged by about 7 m, sufficient to ensure clearance from the pole. However, on the accident pass, the

pole was directly in front of the aircraft and required a larger divergence to ensure clearance. Due to the reduced distance/time between the 2 powerlines, the pilot appeared to have required much larger flight control inputs to avoid the pole, as evidenced by the data displaying significantly greater track divergence.

From the analysis of the crop/ground markings, the aircraft was in a right yaw/skid and right roll attitude as the pilot attempted to avoid the pole directly on track. As the aircraft was flying very close to the crop, the manoeuvre resulted in the right wheel, right spray boom, right aileron and right wing tip being lowered to the extent that they contacted the crop and ground, reducing the aircraft's speed. However, the aircraft was still flying towards the converging powerline and it was likely that the pilot applied left aileron to not only pick the right wing up from the crop but also lower the left wing to ensure clearance with the second powerline.

This led to a cross-control situation, where opposite aileron was required to maintain wings level while using rudder to change direction to the right.

After avoiding the pole and passing under both powerlines, the crop markings indicated that the aircraft remained in a crossed control state and was pitched up to climb away from the crop. The aircraft pitch up was likely sufficient to increase the angle of attack above the critical angle of attack, resulting in an aerodynamic stall. Due to the crossed control state, it was likely that the right wing stalled first, resulting in the aircraft rolling inverted, at a height from which recovery was not possible.

Contributing factor

After passing beneath the first powerline, the pilot manoeuvred to avoid the pole directly ahead, during which the aircraft contacted the crop and ground. After passing beneath the second powerline, the aircraft pitched up while in a right skid and left roll. The aircraft then aerodynamically stalled and rolled inverted at a height from which recovery was not possible.

Drug and alcohol management

Aerotech's drug and alcohol management plan (DAMP) required that staff conducting safety sensitive aviation activities undertake DAMP education and be subject to testing. DAMP testing was conducted prior to commencing employment, post-accident or serious incident, on reasonable suspicion or after returning from substance-related cessation of employment. Aerotech advised that the pilot had completed the required DAMP training. Since pre-employment testing, the pilot had not been subject to any DAMP testing conditions in the 5 years prior to the accident.

The pilot's post-mortem examination and toxicology detected the presence of cocaine metabolites and a forensic pharmacologist determined that it was likely that the pilot had consumed cocaine within 24 hours prior to the accident. However, the forensic pharmacologist stated it was unlikely that the pilot was acutely intoxicated during the accident flight.

One witness recalled that the pilot appeared okay in the morning but withdrawn on the afternoon of the accident. Additionally, the pilot's partner recalled that the pilot appeared their normal self on the morning of the accident. It was not possible to determine from

toxicology evidence nor witness recollections if the pilot was experiencing any acute withdrawal phase effects of cocaine use, and these effects are known to vary between individuals.

It was not possible to determine whether the pilot's use of cocaine contributed to the accident. However, illicit substances pose a significant risk to users as they are uncontrolled and the quality, composition and dosage of the substance cannot be guaranteed. Therefore, the actual effects cannot be known to a user, nor can a user accurately assess the ongoing effects of the substance on their ability to safely conduct a flight.

Other factor that increased risk

It was likely the pilot used cocaine within 24 hours prior to the accident. While the pilot was unlikely to have been directly affected by the drug at the time of the accident, the actual effect of illicit substances on the safety of flight cannot be predicted by users, and periods of impairment beyond the anticipated effects can occur.

Findings

ATSB investigation report findings focus on safety factors (that is, events and conditions that increase risk). Safety factors include 'contributing factors' and 'other factors that increased risk' (that is, factors that did not meet the definition of a contributing factor for this occurrence but were still considered important to include in the report for the purpose of increasing awareness and enhancing safety). In addition 'other findings' may be included to provide important information about topics other than safety factors.

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

From the evidence available, the following findings are made with respect to the collision with terrain involving Air Tractor AT-802, VH-ODX, 17 km north of Cummins Town aerodrome, South Australia, on 8 September 2025.

Contributing factors

- On each new spray pass, the gap between the 2 intersecting powerlines became progressively smaller, with the accident pass decreasing to 240 m. This reduced the distance and time available for the pilot to safely manoeuvre the aircraft beneath the wires and avoid the power pole directly on track.
- After passing beneath the first powerline, the pilot manoeuvred to avoid the pole directly ahead, during which the aircraft contacted the crop and ground. After passing beneath the second powerline, the aircraft pitched up while in a right skid and left roll. The aircraft then aerodynamically stalled and rolled inverted at a height from which recovery was not possible.

Other factors that increased risk

- It was likely the pilot used cocaine within 24 hours prior to the accident. While the pilot was unlikely to have been directly affected by the drug at the time of the accident, the actual effect of illicit substances on the safety of flight cannot be predicted by users, and periods of impairment beyond the anticipated effects can occur.

Safety actions

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. All of the directly involved parties are invited to provide submissions to this draft report. As part of that process, each organisation is asked to communicate what safety actions, if any, they have carried out to reduce the risk associated with this type of occurrences in the future. The ATSB has so far been advised of the following proactive safety action in response to this occurrence.

Safety action by Aerotech Australasia Pty Ltd

Aerotech advised the ATSB that it has taken the following safety action.

After consultation with its pilot group, Aerotech amended its operations manual to include guidance on paddock inspections, hazard marking, treatment of paddocks containing wires, operating parameters around wires, undulating terrain and other ground-based obstacles. The operator also advised this would have ongoing refinement through the safety management system and pilot feedback.

The aircraft fleet was being configured with the latest Tabula GPS systems. Paddocks would be assigned to the aircraft before departure rather than identified visually from a printed map. Wires, towers, weather stations and other hazards were to be marked, with hazard alerting. Guidance on its use was included in the operations manual.

Aerotech has further developed its risk register, which is being actively managed by the safety manager. This included periodic verification of risk controls and review when an event was reported.

Aerotech has also implemented a human factors and non-technical skills program, which was a practical training and discussion program drawing on pilot experience, lessons learnt and case studies. It incorporated a ‘Safety II’ approach, identifying and reinforcing what was being done well alongside traditional hazard identification. A post-season debrief with pilots and ground crew forms part of the program.

General details

Occurrence details

Date and time:	8 September 2025 – 1323 Australian Central Standard Time	
Occurrence class:	Accident	
Occurrence categories:	Collision with terrain	
Location:	17 km north of Cummins Town aerodrome, South Australia	
	Latitude: 34.1014° S	Longitude: 135.7412° E

Aircraft details

Manufacturer and model:	Air Tractor Inc AT-802A	
Registration:	VH-ODX	
Operator:	Aerotech Australasia Pty Ltd	
Serial number:	802A-0243	
Type of operation:	Part 137 Aerial application operations	
Activity:	General aviation/recreational - Aerial work - Agricultural spreading/spraying	
Departure:	Cummins Town aerodrome, South Australia	
Destination:	Cummins Town aerodrome, South Australia	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 1 (fatal)	Passengers – 0
Aircraft damage:	Substantial	

Sources and submissions

Sources of information

The sources of information during the investigation included:

- Aerotech Australasia Pty Ltd
- the maintenance organisation for VH-ODX
- recorded data from the avionics units on the aircraft
- the manufacturer of the Tabula system on the aircraft
- next of kin of the pilot
- Civil Aviation Safety Authority
- South Australia Police
- South Australia Coroner.

References

Aerial Agricultural Association of Australia. (2011). *Aerial Application Pilots Manual 3rd Edition*. Australian Capital Territory: Aerial Agricultural Association of Australia.

Dawson, D., & McCulloch, K. (2005). Managing fatigue: it's about sleep. *Sleep medicine reviews*, *9*(5), 365-380.

Isenschmid, D. S. (2002). Cocaine - Effects on Human Performance and Behavior. *Forensic Sci Rev*, *14*(1-2), 61-100.

United States Federal Aviation Administration. (2021). *Airplane Flying Handbook* (FAA-H-8083-3C). United States: Federal Aviation Administration.

Watson, N. F., Badr, M. S., Belenky, G., Bliwise, D. L., Buxton, O. M., Buysse, D., ... & Heald, J. L. (2015). Recommended amount of sleep for a healthy adult: a joint consensus statement of the American Academy of Sleep Medicine and Sleep Research Society. *Journal of Clinical Sleep Medicine*, *11*(6), 591-592.

Submissions

Under section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. That section allows a person receiving a draft report to make submissions to the ATSB about the draft report. A draft of this report was provided to the following directly involved parties:

- Aerotech Australasia Pty Ltd
- Civil Aviation Safety Authority
- National Transportation Safety Board
- Transportation Safety Board of Canada.

A submission was received from Aerotech Australasia Pty Ltd. The submission was reviewed and, where considered appropriate, the text of the report was amended accordingly.

About the ATSB

The **Australian Transport Safety Bureau** is Australia's national transport safety investigator. Established by the *Transport Safety Investigation Act 2003* (TSI Act), the ATSB is an independent statutory agency of the Australian Government and is governed by a Commission. The ATSB is entirely separate from transport regulators, policy makers and service providers.

The ATSB's function is to improve transport safety and public confidence, in aviation, marine and rail, through:

- the independent 'no blame' investigation of transport accidents and other safety occurrences
- safety data recording, analysis, and research
- influencing safety action.

The ATSB's sole focus is the prevention of future accidents and the improvement of transport safety, and prioritises investigations that have the potential to deliver the greatest public benefit.

The ATSB performs its functions in accordance with the provisions of the TSI Act and Regulations and, where applicable, international agreements.

Purpose of safety investigations

The objective of an ATSB safety investigation is to improve transport safety through:

- identifying safety issues for action by organisations with the responsibility for managing that safety risk
- influencing safety action through engaging with stakeholders, communicating findings, and fostering awareness of safety issues and concerns.

In accordance with the TSI Act, the ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action, and cannot apportion blame, assist in determining liability, or, as a general rule, assist in court proceedings.

About ATSB reports

ATSB safety investigation reports are developed in accordance with ATSB procedures and guidelines, and with regard to applicable international standards and instruments.

Reports must include factual material of sufficient weight to support the investigation's analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

An explanation of ATSB terminology used in this report is available on the ATSB website.