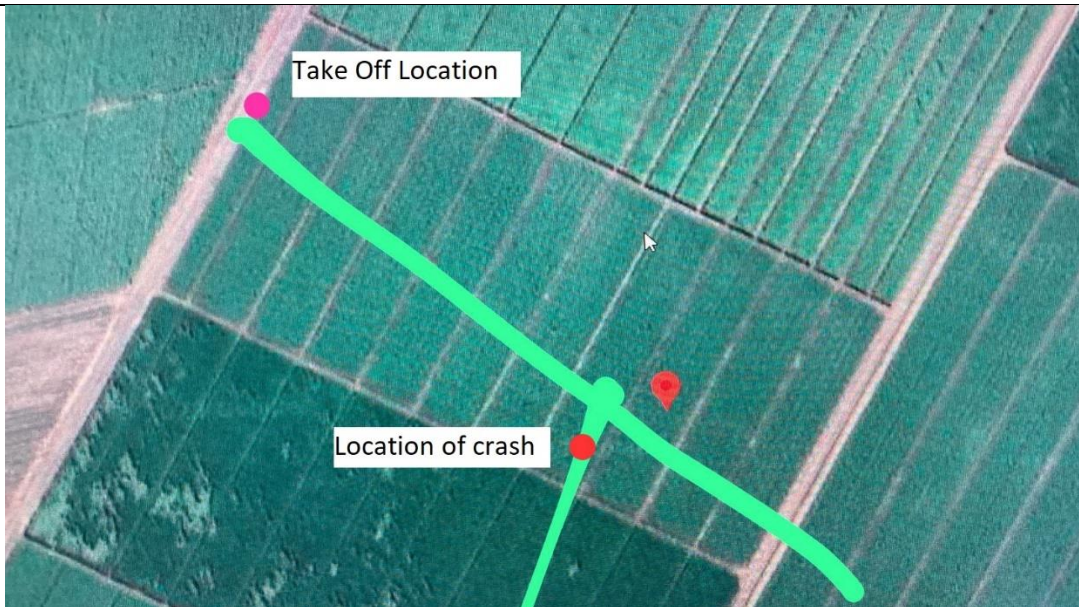


**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA/18/2/3/10300						
<b>Classification</b>	Accident	<b>Date</b>	02 February 2023	<b>Time</b>	0632Z		
<b>Type of Operation</b>	Remotely Piloted Aircraft System – Agricultural Operations (Part 101)						
<b>Location</b>							
<b>Place of Departure</b>	Pongola Farm, KwaZulu-Natal Province		<b>Place of Intended Landing</b>	Pongola Farm, KwaZulu-Natal Province			
<b>Place of Occurrence</b>	3 nautical miles (nm) east of Pongola CBD, KwaZulu-Natal Province						
<b>GPS Co-ordinates</b>	Latitude	27° 23' 20.32" S	Longitude	031° 39' 30.21" E	Elevation	771.2 ft	
<b>Aircraft Information</b>							
Registration	ZT-XSR						
Make; Model; S/N	DJI, Agras T30 (Serial Number: 527BJ8600100E8)						
Damage to Aircraft	Substantial		Total Aircraft Hours	472.17			
<b>Pilot-in-command</b>							
Licence Type	Remote Pilot Licence (RPL)		Gender	Male	Age	29	
Licence Valid	Yes	Total Hours	532.4	Total Hours on Type	431.46		
Total Hours Past 30 Days	53.49		Total Hours on Type Past 90 Days	91.56			
<b>People Controlling</b>	1	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0
<b>What Happened</b>							
<p>On 2 February 2023, a pilot launched a remotely piloted aircraft (RPA) DJI Agras T30 with registration ZS-XSR for a crop-spraying operation at Pongola Farm in KwaZulu-Natal province. The flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 101 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>On arrival at Pongola Farm, the pilot noticed an electrical power line near the entrance and assumed it was the only one at the farm. The pilot also stated that he did not perform the appropriate site assessment and hazard identification procedure. After mapping the site on his receiver, the pilot launched the RPA to 15 metres (m) above ground level (AGL) at 0630Z. He was not aware of another power line at the extreme edge of the spray field. Whilst engaged in the operation, the RPA struck the power line and remained perched on it. Attempts to retrieve the aircraft from the power line were futile. Thereafter, a post-impact fire ensued, which was caused by the electric current on the power lines; the RPA eventually fell to the ground. The pilot used a fire extinguisher, which was in the support vehicle, to extinguish the flames.</p>							



**Figure 1:** Aerial view of the path flown by the RPA. (Source: Operator)



**Figure 2:** The RPA at the accident site (inverted orientation). (Source: Operator)



Post-accident inspection revealed substantial damage to the RPA's landing gear, arms and rotors, attributed to contact with live wire, which led to the fire erupting and the subsequent fall to the ground.



**Figure 3:** A picture of a DJI Agras T30 (New condition) similar to the accident RPA. (Source: Aldrones.com)

*The Agras T30 model is a DJI agricultural spraying drone. It has a Maximum Takeoff Weight of 78 kg and carry up to 30l of payload for spraying operation, or 35 kg for spreading operation. Battery life is 2 hours and is capable of covering 40 acres per hour. Other key features include intelligent endurance/return function, flight laser function and 3D operation planning by the AI smart engine. (Source: Dji.com)*

### Findings

1. The pilot was issued a Multirotor Remote Pilot Licence (MRPL) on 1 March 2021 with an expiry date of 31 March 2023. His Class 4 medical certificate was issued on 1 October 2020 with an expiry date of 31 October 2024 with no medical restrictions.
2. The RPA was initially issued a Remotely Piloted Aircraft System Letter of Approval (RLA) on 14 January 2022. The renewal was carried out on 10 January 2023 with an expiry date of 13 January 2024.

Wind Direction	270	Wind Speed	2.7 Kts	Visibility	9999
Temperature	27°C	Cloud Cover	CAVOK	Cloud Base	CAVOK
Dew Point	-	QNH	-		

3. The operator was issued a RPAS Operating Certificate (ROC) on 29 April 2022 with an expiry date of 30 April 2023.

<p>4. The operator has an Operations Specification document (OM-OPS-01, Revision 15) outlining procedures to be followed during operations. The document states that, <i>'the pilot will walk out boundaries of the field to be sprayed and add the waypoint along the boundaries...'</i>.</p>
<p><b>Probable Cause</b></p> <p>Failure to conduct proper inspection and identify hazards as per the operator's standard operating procedures; the RPA caught fire before it fell to the ground.</p>
<p><b>Contributing Factors</b></p> <p>Lack of situational awareness.</p>
<p><b>Safety Action</b></p> <p>Operator Safety Notice: Pilots are to be reminded that using the crosshair function to map a field during an agricultural application is not an accepted procedure to be followed. The field must either be flown with a real time kinematic (RTK) equipped aircraft or to walk/drive around the field and map the boundaries manually.</p>
<p><b>Safety Message</b></p> <p>RPA pilots are to adhere to their standard operating procedures (SOP) to promote safety.</p>
<p><b>About this Report</b></p> <p><i>The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i></p> <p><i>All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.</i></p>
<p><b>Purpose</b></p> <p><i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.</i></p>
<p><b>Disclaimer</b></p> <p><i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i></p>

**This report is issued by:**  
**Accident and Incident Investigations Division**  
**South African Civil Aviation Authority**  
**Republic of South Africa**