

DJI Agras T 40 Spray Drone Chemical Application

Business Name:	ABN:
Business Address:	
Contact Person:	Phone: Email:

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

Full Name:
Signature: Title: Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	



RISK MATRIX									
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			<b>Elimination</b> Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	<b>Substitution</b> Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	<b>Engineering</b> Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

  

Risk Rating & Required Action:	
<b>4A</b>	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
<b>3H</b>	Review and approve additional controls for the task parts. Senior supervisor sign-off needed.
<b>2M</b>	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
<b>1L</b>	Proceed, following standard operating procedures. Monitor and keep records.

  

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
<b>Catastrophic</b>	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
<b>Major</b>	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
<b>Moderate</b>	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
<b>Minor</b>	First-aid only, no lost time	negligible delay	Isolated non-conformance
<b>Insignificant</b>	No injury	no schedule impact	Deviation caught and corrected on site

  

**Notes on Hierarchy of Controls:**  
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. **Substitute**
3. **Isolate**
4. **Engineering**
5. **Administrative**
6. **PPE**

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

*aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.*

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. Governance, Legal Compliance and Consultation	<ul style="list-style-type: none"> <li>Lack of clear organisational WHS governance for drone-based chemical application leading to ad hoc decisions and unmanaged risk</li> <li>Non-compliance with WHS Act 2011, WHS Regulations, Safe Work Australia guidance, CASA regulations and state-based pesticide control legislation</li> <li>Inadequate consultation with workers, contractors, PCBUs and neighbouring properties about chemical use and drone operations</li> <li>Poor role clarity between PCBU, officers, workers and contractors regarding WHS duties for drone operations and chemical management</li> <li>Absence of documented WHS policy addressing remotely piloted aircraft systems (RPAS) and agricultural chemical application</li> <li>Failure to integrate drone operations into existing WHS risk management framework and safety management system</li> </ul>	High	<ul style="list-style-type: none"> <li>Develop and endorse a WHS governance framework that explicitly covers DJI Agras T40 spray drone chemical application, including allocation of responsibilities under the WHS Act 2011 for officers, workers and contractors</li> <li>Undertake a legal and regulatory compliance review to map all applicable requirements (WHS Act and Regulations, CASA Part 101, state/territory pesticide legislation, environmental protection requirements and local by-laws) and incorporate them into internal procedures</li> <li>Establish a written RPAS and Chemical Application Policy approved by senior management that sets minimum standards for training, competency, maintenance, flight planning, chemical handling and emergency response</li> <li>Integrate drone chemical operations into the organisation's existing WHS risk management procedure, including processes for hazard identification, risk assessment, risk control and review specific to RPAS</li> <li>Implement a formal consultation mechanism (HSC meetings, toolbox talks, contractor pre-start meetings) specifically including drone pilots, ground crew, farm managers, contractors and affected neighbouring PCBUs where reasonably practicable</li> <li>Ensure officers exercise due diligence by regularly reviewing reports on drone-related WHS performance, monitoring compliance with policies and verifying adequate resources for safe drone operations</li> <li>Document clear role and responsibility statements for RPAS Operations Manager, Chief Remote Pilot, chemical safety officer and maintenance coordinator in position descriptions and procedures</li> <li>Include drone operations in WHS induction for all relevant staff and contractors, covering key legal obligations, consultation pathways and incident reporting requirements</li> </ul>	Medium
2. Contractor and Supplier Management	<ul style="list-style-type: none"> <li>Use of third-party operators or contractors without adequate verification of WHS competence, CASA operations and chemical handling qualifications</li> <li>Inadequate contractual requirements leading to unclear responsibility for safety management, incident reporting and insurance</li> <li>Suppliers providing drones, batteries or chemicals without adequate safety information, SDS or technical support</li> <li>Lack of alignment between the PCBU's WHS standards and contractor work practices for drone and chemical operations</li> </ul>	High	<ul style="list-style-type: none"> <li>Develop a contractor management procedure specific to drone and chemical application work that includes prequalification, onboarding, monitoring and review processes</li> <li>Require all drone service providers to demonstrate CASA certification where required, current remote pilot licences, company operational manuals and evidence of WHS management systems before engagement</li> <li>Include WHS-specific clauses in contracts that define responsibilities for risk assessment, incident notification, training, PPE, maintenance, and emergency management for drone chemical operations</li> <li>Require contractors to provide current insurance certificates (public liability and professional indemnity where relevant) with coverage that explicitly includes RPAS and chemical application activities</li> <li>Establish a supplier approval process for drones, batteries and agricultural chemicals that verifies conformity with Australian standards, regulatory approvals and the provision of current Safety Data Sheets (SDS)</li> <li>Implement periodic contractor performance reviews including audits of drone logs, maintenance records, training evidence, incident reports and compliance with agreed WHS KPIs</li> <li>Ensure joint pre-mobilisation planning sessions between PCBU and contractors to align on flight corridors, exclusion zones, chemical selection, drift management strategies and communication protocols</li> </ul>	Medium

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3. System Design, Procurement and Configuration	<ul style="list-style-type: none"> <li>• Selection of drone model or accessories that are unsuitable for the specific agricultural environment, terrain, climate or chemical types</li> <li>• Procurement of DJI Agras T40 without considering whole-of-life safety requirements such as spare parts, maintenance support and software update pathways</li> <li>• Inadequate configuration of drone firmware, geofencing, fail-safe and return-to-home parameters, increasing risk of uncontrolled flight or crash</li> <li>• Lack of documented design assumptions, operating limits and environmental parameters (e.g. maximum wind, temperature, payload, spray rates) for safe use</li> <li>• Use of incompatible or unapproved chemical formulations, tank materials or spray systems with the DJI Agras T40</li> <li>• Over-reliance on manufacturer default settings without local risk assessment, testing or validation in site-specific conditions</li> </ul>	High	<ul style="list-style-type: none"> <li>• Develop procurement specifications for spray drone that include safety, compliance and supportability criteria (payload ratings, ingress protection, redundancy, flight control features, manufacturer safety documentation and local service availability)</li> <li>• Require pre-purchase risk assessment and technical evaluation of the DJI Agras T40 for each intended application, including terrain, proximity to public roads, powerlines, dwellings, and environmentally sensitive areas</li> <li>• Mandate that system configuration (firmware versions, geofencing, altitude limits, speed limits, obstacle avoidance, fail-safe parameters) is documented, reviewed and approved by a competent RPAS system supervisor before operational deployment</li> <li>• Establish a formal change management process for configuration changes and firmware updates, including testing in a controlled environment, update logs and rollback procedures</li> <li>• Verify compatibility of chemicals with drone tanks, hoses, seals and spray nozzles using SDS information and manufacturer guidance, and record approved combinations in a Chemical-Drone Compatibility Register</li> <li>• Set documented operating envelopes for temperature, humidity, wind speed, daylight, payload weight and flight duration and embed these limits into operating procedures and flight planning tools</li> <li>• Ensure procurement contracts include access to manufacturer technical bulletins, safety notices and ongoing support for the DJI Agras T40 platform</li> <li>• Implement a commissioning and acceptance testing protocol for each new or significantly modified DJI Agras T40 unit before routine use</li> </ul>	Medium
4. Pilot and Ground Crew Competency Management	<ul style="list-style-type: none"> <li>• Inadequate competency of remote pilots and ground crew in drone operation, aerial application principle and chemical safety</li> <li>• Reliance on informal on-the-job training without documented assessment of skills and knowledge</li> <li>• Insufficient understanding of CASA RPAS requirements, restricted airspace, NOTAMs and local aeronautical information</li> <li>• Lack of competency in interpreting SDS, label directions, spray drift management and environmental protection requirements</li> <li>• Poor human factors awareness including fatigue management, workload, distraction and situational awareness in drone operations</li> </ul>	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<ul style="list-style-type: none"> <li>Failure to maintain currency of skills with software updates, new features or procedural changes for the DJI Agras T40</li> </ul>		[REDACTED]	
5. Flight and Chemical Application Planning Systems	<ul style="list-style-type: none"> <li>Inadequate pre-flight planning resulting in flights over people, public roads, utilities or sensitive crops contrary to regulations and internal policies</li> <li>Failure to consider wind, temperature inversions, terrain and obstacles, leading to increased risk of spray drift or collision</li> <li>Use of inconsistent or informal methods for planning flight paths, buffer zones and exclusion areas</li> <li>Insufficient coordination with other farm operations (ground vehicles, workers on foot, other aircraft) leading to conflicting activities</li> <li>Lack of systematic assessment of neighbouring properties, watercourses and environmentally sensitive areas prior to chemical application</li> <li>Inadequate planning for remoteness, communications coverage and emergency access routes</li> </ul>	High	[REDACTED]	Medium
6. Drone, Battery and Equipment Maintenance Systems	<ul style="list-style-type: none"> <li>Inadequate maintenance regime for DJI Agras T40 aircraft, spray systems and accessories leading to mechanical failure or loss of control</li> <li>Poor battery management including use of damaged, degraded or improperly</li> </ul>	High	[REDACTED]	Medium

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	<p>stored lithium batteries causing fire, thermal runaway or power loss in flight</p> <ul style="list-style-type: none"> <li>Lack of traceability for repairs, modifications and replacements, impacting airworthiness and reliability</li> <li>Failure to detect wear, corrosion or chemical damage to tanks, hoses, seals, nozzles and electrical components</li> <li>Unmanaged software and firmware updates leading to incompatibility, unexpected behaviour or loss of safety features</li> </ul>		[REDACTED]	
7. Chemical Selection, Storage and Inventory Management	<ul style="list-style-type: none"> <li>Selection of inappropriate or higher-toxicity chemicals when safer alternatives are reasonably practicable</li> <li>Poor segregation, labelling and storage of agricultural chemicals leading to unintended mixing, exposure or environmental contamination</li> <li>Out-of-date, inaccurate or inaccessible Safety Data Sheets for chemicals used with the DJI Agras T40</li> <li>Lack of centralised control over chemical purchasing, leading to uncontrolled proliferation of products and reduced ability to manage risk</li> <li>Inadequate tracking of chemical inventory and usage, affecting compliance with label conditions, reporting and environmental obligations</li> </ul>	High	[REDACTED]	Medium

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			[REDACTED]	
8. Operational Procedures and Control Systems	<ul style="list-style-type: none"> <li>• Inconsistent or undocumented operating practices for DJI Agras T40 chemical application between sites, shifts and personnel</li> <li>• Over-reliance on informal knowledge or manufacturer quick-start guides instead of structured procedures</li> <li>• Insufficient integration of drone operations into broader site safety rules (traffic management plans, access controls, PPE policies)</li> <li>• Inadequate management of simultaneous operations such as ground spraying, harvesting or vehicle movements in drone operating areas</li> <li>• Lack of standardised communication protocols between pilot, observer, ground crew and site management</li> </ul>	High	[REDACTED]	Medium
9. Health Monitoring, Exposure Control and PPE Management	<ul style="list-style-type: none"> <li>• Chronic or acute exposure of pilots and ground crew to agricultural chemicals via inhalation, skin contact or ingestion due to system-level control failures</li> <li>• Inadequate organisational arrangements for health monitoring where required by WHS Regulations or SDS recommendations</li> <li>• Inconsistent provision, selection, fit and maintenance of PPE for chemical mixing, loading and drone operations</li> <li>• Lack of processes to identify and manage workers with increased susceptibility (e.g. respiratory conditions,</li> </ul>	High	[REDACTED]	Medium

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	<p>allergies, pregnancy) to chemical exposure</p> <ul style="list-style-type: none"> <li>Poor hygiene facilities or policies leading to ingestion or dermal absorption of residues (e.g. eating or smoking with contaminated hands or clothing)</li> </ul>		[REDACTED]	
10. Emergency Preparedness and Incident Management	<ul style="list-style-type: none"> <li>Lack of coordinated emergency response arrangements for drone crashes, loss of control events or flyaways involving chemical loads</li> <li>Inadequate planning for chemical spills, splash injuries or contamination of watercourses during drone operations</li> <li>Absence of clear communication pathways for notifiable incidents under WHS legislation and reportable aviation occurrences to CASA where required</li> <li>Insufficient training and drills resulting in slow, uncoordinated or unsafe responses to emergencies</li> <li>Poor post-incident investigation and corrective action processes resulting in repeated failures</li> </ul>	High	[REDACTED]	Medium

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11. Environmental and Community Impact Management	<ul style="list-style-type: none"> <li>• Uncontrolled chemical drift affecting neighbouring crops, livestock, waterways or residential properties</li> <li>• Noise, privacy and amenity concerns from drone operations leading to community complaints and reputational damage</li> <li>• Environmental contamination due to inadequate management of wash-down water, residual chemical mixes or damaged containers</li> <li>• Failure to consider sensitive ecosystems, protected species habitats or buffer zones required under environmental legislation</li> <li>• Lack of systematic engagement with neighbours and local community about aerial spraying activities</li> </ul>	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium
12. Information Management, Documentation and Data Security	<ul style="list-style-type: none"> <li>• Fragmented or missing records, flights, chemical applications, maintenance, training and incidents hindering compliance verification and investigations</li> <li>• Inadequate control of operational documents leading to use of outdated procedures or checklists</li> <li>• Poor management of digital flight logs, mapping data and imagery raising privacy, confidentiality or evidentiary issues</li> <li>• Lack of backup and security controls for critical data, leading to loss of operational history and risk information</li> </ul>	Medium	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Low

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			[REDACTED]	
13. Fatigue, Workload and Scheduling Management	<ul style="list-style-type: none"> <li>Extended operating hours during peak spraying periods leading to pilot and ground crew fatigue and reduced situational awareness</li> <li>High cognitive workload from managing flight control, chemical systems, weather monitoring and communication simultaneously</li> <li>Inadequate breaks and recovery time between shifts, especially during early morning or night operations where permitted</li> <li>Scheduling pressures driven by weather windows, client expectations or crop conditions leading to rushed decision-making and risk-taking behaviours</li> </ul>	High	[REDACTED]	Medium
14. Continuous Improvement and Audit	<ul style="list-style-type: none"> <li>Stagnant safety management system that does not evolve with technology changes, regulatory updates or operational experience</li> <li>Lack of independent verification of compliance with WHS, CASA and chemical management requirements</li> <li>Missed opportunities to learn from internal incidents, near misses and industry-wide events involving spray drones</li> <li>Poor integration of drone operation metrics into organisational WHS performance reporting</li> </ul>	Medium	[REDACTED]	Low

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SAMPLE

**EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES**

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

**LEGISLATIVE REFERENCES**

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

**Queensland & Australian Capital Territory**

Work Health and Safety Act 2011  
 Work Health and Safety Regulations 2011  
 Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>  
 Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>  
 Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>  
 Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

**Victoria**

Occupational Health and Safety Act 2004  
 Occupational Health and Safety Regulations 2017  
 Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>  
 Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

**New South Wales**

Work Health and Safety Act 2011  
 Work Health and Safety Regulations 2025  
 Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>  
 Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

**Western Australia**

Work Health and Safety Act 2020  
 Work Health and Safety Regulations 2022  
 Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>  
 Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

**Northern Territory**

Work Health and Safety (National Uniform Legislation) Act 2011  
 Work Health and Safety (National Uniform Legislation) Regulation 2011  
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>  
 Codes of Practice NT: <https://worksafe.nt.gov.au/laws-and-compliance/codes-of-practice>

**Safe Work Australia Links**

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>  
 Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

**South Australia**

Work Health and Safety Act 2012 (SA)  
 Work Health and Safety Regulations 2012 (SA)  
 Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>  
 Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

**Model Codes of Practice**

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

**Tasmania**

Work Health and Safety Act 2012  
 Work Health and Safety (Transitional and Consequential Provisions) Act 2012  
 Work Health and Safety Regulations 2012  
 Work Health and Safety (Transitional) Regulations 2012  
 Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>  
 Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.