



Aviation Task Profile – Operation of Unmanned Aerial Vehicles (Drones)

This task profile outlines the identified hazards associated with the utilisation of Unmanned Aerial Vehicles (UAVs), also known as Unmanned Aerial Systems (UAS), by CASA as Remotely Piloted Aircraft (RPA) or simply as 'drones'. Failure to utilise the practical controls to any hazards and requirements identified in this plan will unnecessarily raise the risk profile of the task including any associated regulatory concerns. Fundamental differences in the utilisation of drones are:

- most hazards involved when using drones are to other aircraft, property and people not associated with the task
- drone pilots may not be licenced aircraft pilots.

This task profile can be used to develop standards and/or to provide a reference for auditing and assessment by identifying the controls that are in place, assessing the risk and then determining what extra (if any) controls should be utilised.

Compliance with aviation and state WHS regulations, as well as any other applicable regulations, is implied. The regulations are to be considered and complied with in addition to the controls identified in this profile.

The types more likely to be used in DPI EM Operations are included in this profile and are limited to two types as prescribed in CASR Part 101: the Very Small and the Small drone categories. Any drone 25kgs or heavier is not included in this task profile.

CASA has approached the use of drones on a risk basis. The larger the drone, the larger the risk to other aircraft, people, animals and property. Operating near people and aviation focal points (such as aerodromes, aerial work zones (such as an area being used during an emergency response) or low flying areas) also amplifies the risk of injury or damage as the result of a collision with a drone.

Task Profile Name	Operation of UAVs in support of DPI EM Operations
Objectives of Task	To safely operate UAVs in support of NSW DPI Emergency Management tasks.
Description of task	<p>The task involves planned and short notice callout to at risk areas as part of emergency management. Heights flown shall be as required to achieve the task but the heights flown can be no higher than those approved under the aviation regulations. Tasks may include:</p> <ul style="list-style-type: none"> • surveillance (such as the tracking of animals, reconnaissance of flooded areas, looking for people) • application of chemical • monitoring of land slippage • mapping of structures (including photos and videos) • delivery of supplies.
CASA permit/approval	Operators may be contracted (contractor) or provided from within DPI. Due to the general area and types of operations, the operation of the drone (regardless of whether contractor or internal DPI) will require a Remote Operating Certificate (ReOC) and the pilot to hold a Remote Pilot licence (RePL). Operations must be conducted in compliance with CASR Part 101 as an 'included' operation.
Aircraft Type	Only drones that weigh less than 25kg (gross weight).

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Task profile (sequence)	<ul style="list-style-type: none"> • Callout • Conduct planning to meeting to ensure scope of work is understood. Planning includes notification to CASA, map reconnaissance for hazards, assessments of takeoff and landing areas, proximity of people, structures and animals, manned and unmanned aircraft operations in the area, the land over which operations will be conducted, assessments of the operating area to ensure compliance with CASR Part 101, and aircraft and crew briefings (if observer(s) utilised). Flight plan reviewed to ensure no conflict and drone goes where intended. Plan recovery of drone procedures should power or link be lost. • Briefing including update of hazards as shown on appropriate map, communication procedures, weather, task objectives, landing/takeoff areas, and task risk assessment. • Contact landowner/manager if utilising their land to fly from. • Set up operating area – ensure no people who not associated with operation are exposed to hazards associated with operating the drone. • Transit to area of operation at a height as authorised (generally below 400ft above obstacles) and below any aircraft that may be operating in the areas. • Conduct task with drone remaining within visual line of sight. • Return to operating area. • Land / shut down. • Debrief and report.
Task conditions or technical aspects	<p>Flights may only be conducted in day visual conditions with the drone remaining within visual line of sight.</p> <p>Planning needs to ensure no conflict with aircraft, people, or animals.</p> <p>Although a maximum of 400ft has been nominated as the upper height of safe operations, it should be noted that aircraft could transit areas below this height particularly during emergency operations.</p>
Time of Year	Operations are year-round.
Terrain description	<p>The areas of operations will encompass all types of terrain including paddocks, hills, and urban areas.</p> <p>The high terrain areas can experience low air density which can adversely affect aircraft performance. Also, the terrain can experience severe downdraughts and turbulence as a result of the strong winds. Cloud can roll in quickly.</p> <p>The lower areas can experience extensive areas of fog, mist, smoke or smog, which can limit visibility.</p> <p>High environmental temperatures and adverse winds will also negatively impact helicopter performance.</p> <p>The areas can be extensively wooded and/or populated with domestic structures in close proximity to power lines. Fences may be hidden in long vegetation.</p> <p>Areas may be flooded and therefore pickups maybe from outcrops, small areas of high ground or from buildings.</p>

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Limitations	<p>Flights conducted in day visual conditions only to ensure continued visual line of sight capability.</p> <p>Operations shall be preceded by an appropriate risk assessment including aerial aviation hazard identification and assessment, assessment of environmental risks and an assessment of the potential of conflict with aircraft, people and animals (and structures such as wires).</p> <p>Ascent above a safe height - generally not above 400 ft AO is not to be conducted unless CASA authorised and the remote pilot confirms a low level of risk factoring in the route and area of operations, aircraft operations, aerial hazard and obstacles.</p> <p>Personnel working near the drone should be kept to a minimum to reduce the chances of unintended impact from the drone.</p> <p>Sterile Operator Station Procedures shall be implemented when the drone is operating.</p>
Height restrictions	As a general rule, flights are to be conducted at the lowest altitudes commensurate with the task objectives but usually not above 400ft AO.
Minimum height above obstacles	This operating height may need to be raised commensurate with the terrain and potential obstacles such as power lines, however the operator must be cognisant of aircraft operating in the area or at least the potential for aircraft operations (e.g. emergency services, Low Jet Routes, etc).
Operating times	Daylight hours only.
Operating Company Requirements	<p>Contractor or Operator must have:</p> <ul style="list-style-type: none"> - an ReOC as well as CASA authorisations suitable to the task - a demonstrably functioning Safety Management System - been audited and assessed as being suitable and capable of conducting NSW DPI Emergency Management drone operations safely - detailed and documented training system including training and checking for the conduct of air operations as described including the maintenance of proper training records for all operator personnel involved - proper and detailed maintenance records of the drone.
Crew composition	Remote Pilot and observers as needed
Qualification / Training of each crew member	<p>Remote Pilot – CASA licenced, appropriate approvals, system competent.</p> <p>Observer(s) (if used) – suitable eyesight.</p>
Role of each crew member	<p>Remote Pilot – Identify hazards and maintain hazard clearance, operate drone, navigation, communication, responsible for safety of the drone and any people and animals on the ground who may be impacted by the drone operation, pre-flight and during-flight briefings.</p> <p>Observer(s) (if used) – Assist the remote pilot in hazard identification and avoidance, lookout, and communication.</p>
Landing zone details	Take-offs and landings should be conducted in low risk areas where public access is restricted.
Communication requirements	<p>The communications requirements shall be detailed during the pre-flight briefing.</p> <p>Communications need to be maintained at all times between the pilot, the observer, and any ground crew in relation to hazard and targets identification, manoeuvring and general awareness.</p> <p>Communications are to be established and maintained with other low flying aircraft in the immediate vicinity of the operating area.</p>
SAR requirements	Not Applicable
PPE	Appropriate clothing and protection that prevents potential injury from the drone.