



Aviation Task Profile - Aerial Spraying

This plan outlines the identified hazards associated with Aerial Spraying operations by helicopter and fixed wing aircraft. Failure to utilise the practical controls to those hazards identified in this plan will unnecessarily raise the risk profile of the task.

This plan 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, are implied and are to be considered and complied with, in addition to the controls identified in this assessment.

Task Profile Name	Aerial Spraying Operations – Helicopter/Fixed Wing
Objectives of Task	To correctly, effectively and efficiently apply spray in support of emergency management operations for NSW DPI.
Description of task	The task involves planned and short notice callout to spray registered chemicals as part of emergency management. Heights flown need to be commensurate with the type of target, spray and conditions. Landings will be required. Any personnel carried in spray aircraft shall only be those required to achieve the task objectives.
CASA permit/approval	Air Operating Certificate (AOC) endorsed for agriculture operations and use of pilots with appropriate experience, agriculture flying qualifications, chemical use endorsements and low level flying permissions. Operations conducted within the parameters permitted by the Civil Aviation Regulations, associated orders and relevant advisory publications.
Aircraft Type	Both fixed wing and helicopters may be utilised. Fixed wing aircraft and helicopters that are suitable and equipped for spraying operations may have either piston or turbine engine(s).
Number of engines	single or multi-engine

<p>Task profile (sequence)</p>	<ul style="list-style-type: none"> • Callout • Planning include map reconnaissance for hazards and determine if other aircraft working in vicinity • Briefing including update of hazards as shown on appropriate map, flight following procedures, weather, task objectives, target/surveillance area, communications, aircraft separation arrangements, and aerial risk assessment. Contact landowner/manager for briefing about the area and associated known hazards. • Fuelling when required • Conduct Crew Brief (this includes any other personnel who may have information or be involved in the task) • Start/Taxi/Takeoff • Transit to area of operations not below 500 feet (ft) Above Obstacles (AO). • Conduct route and area of operations identification, aerial hazard survey and pre-descent assessment prior to descent below 500ft AO. • Descend to low-level operations commensurate with task objectives, authorisations, and conduct further hazard/target identification if required. • Communicate with LCC or Operator or Spotter Aircraft (as approved) or ground staff for flight following and task update. • The aim should be to land at HLS (Helicopter Landing Site) or ALA (Aircraft Landing Area) approximately every two hours to minimise fatigue. Provided the pilot can get out of the aircraft during refuelling and/or insecticide loading, this time maybe counted towards fatigue minimisation (although the pilot shall ensure he/she does not operate the aircraft while fatigued). • If required, transit to additional operational area at a safe transit height (> 500ft). • Conduct further hazard reconnaissance and route identification prior to descent to conduct low level operations as above. • Transit to operating base/fuelling area. • Land / Shut Down. • Debrief and report.
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<p>Task conditions or technical aspects</p>	<p>Operations are to be conducted in day visual meteorological conditions only, in wind conditions of less than 20 knots (kts) and nil to low turbulence. Spray requirements may require lesser wind conditions.</p> <p>Helicopters shall operate with a minimum 5% power margin based on Out of Ground Effect power requirements (nil wind). Consideration shall also be made of extreme environmental heat and cold on the safety of aircraft operations.</p> <p>The task is normally conducted when an agricultural incident occurs and it is determined that aerial spraying of targets is required.</p> <p>Maps may be provided to assist spray pilots but these should not be relied on for the identification of hazards and therefore the reconnaissance of operating areas before descent is essential. Reconnaissance should include a ground inspection and discussion with landowner/manager prior to operations beginning.</p> <p>Although 500ft has been nominated as the safe level for transit it should be noted that wires may be strung between hills at higher levels and therefore constant vigilance by pilots and crew is required.</p> <p>Descent below 500ft may be conducted as authorised, required for the task and following completion of the pre-descent reconnaissance. The entire area that the aircraft operates below 500ft shall be fully inspected in the pre-descent reconnaissance. The area should be continually assessed during the descent below 500ft.</p> <p>Pilots should be aware of the chances of blockages in aircraft intakes due to flying through insect swarms.</p> <p>Pilots are required to have pre-arranged vertical separation between aircraft on the same task including 'swap' procedures in place (swap height blocks with other aircraft if required).</p> <p>Good visibility (in excess of 5nm) to be in place before tasking of multiple aircraft onto the same task/area.</p> <p>Landings by fixed wing aircraft should be made at pre-inspected ALAs. Such landings require prior arrangement with, and area description from the landowner/manager. In all cases, a complete pre-landing survey is required to ensure that no obstacles may impinge on the safe operation of the fixed wing aircraft or helicopter.</p> <p>Aircraft including helicopters are not to be operated with any part of the aircraft extending into vegetation (e.g. long grass which may be hiding fences, ant hills or posts).</p>
<p>Time of Year</p>	<p>Operations are year-round</p>
<p>Terrain description</p>	<p>The areas of operations will encompass all types of terrain including paddocks, hills, and valleys.</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 or smog, which can limit visibility.</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>Water courses (dry or flowing) will need to be considered and assessed.</p>

Limitations	<p>Spraying is conducted in day visual conditions only in low to medium turbulence at a speed commensurate with safe operations in the environmental conditions being experienced and to ensure the effectiveness of the application.</p> <p>The spray aircraft may or may not have the assistance of a spotter aircraft. The spotter aircraft shall at all times maintain 500ft vertical separation from the spray aircraft. If the spotter aircraft needs to descend within that separation, then the spray aircraft shall vacate the area to provide appropriate lateral separation or climb to provide 500ft vertical separation on the spotter aircraft.</p> <p>Spraying 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 operational impact of conducting the spray application within the conditions established by this task profile.</p> <p>Descent below a safe height (clear of all known and potential obstacles - generally 500 ft AO) is not to be conducted until the pilot confirms a low level of risk factoring in the route and area of operations, aircraft performance, aerial hazard and obstacle survey, environmental conditions and has conducted a low level flying pre-descent brief. This must be conducted for each descent below a safe height.</p> <p>Passengers shall be not carried on this task.</p> <p>Landings should be conducted to low risk (CAAP 92-2) Helicopter Landing Site (HLS), Aircraft Landing Areas (ALAs) or aerodromes. Fixed wing aircraft may only land at ALAs previously determined by the pilot as being safe to use.</p> <p>The pilot should aim to land at HLS (Helicopter Landing Site) or ALA (Aircraft Landing Area) approximately every two hours to minimise fatigue. Provided the pilot can get out of the aircraft during refuelling and/or chemical loading, this time may be counted towards fatigue minimisation (although the pilot shall ensure he/she does not operate the aircraft while fatigued).</p> <p>Pilots should be aware of the chances of blockages in aircraft intakes due to flying through insect swarms.</p>
Height restrictions	<p>The aircraft shall transit to an operating area at a safe height clear of all obstacles and hazards at least 500ft AO.</p> <p>Spray operations shall be conducted in accordance with the Operator's Operations Manual and other guidance or regulatory material but in any case, the spray aircraft's low level operations shall be the minimum required to achieve the task.</p>
Minimum height above obstacles	<p>500ft is generally accepted as the minimum operating/transit height. Descent below 500ft is required when conducting spraying operations. Spray operations shall be conducted at a height where the aircraft remains clear of obstacles. The operating height may need to be adjusted commensurate with the terrain, environmental conditions and potential obstacles such as power lines.</p>
Operating times	<p>Nominally 2 hours per session with a maximum of four sessions in any one day and consistent with the Operators' fatigue management plan or CASA industry exemptions (whichever represents the greater restriction). Restricted to daylight hours and due consideration regards visibility.</p>
Crew composition	<p>1 person crew; Pilot.</p>
Qualification / Training of each crew member	<p>Pilot – CASA licenced, medically current, appropriate approvals and experience, and required chemical handling approvals (see EOI)</p>
Role of each crew member	<p>Pilot – Identify hazards and maintain hazard clearance, operate aircraft, navigation, communication, responsible for safety of the aircraft, pre-flight briefings</p>

<p>Landing zone details</p>	<p>Landings should be conducted to low risk (CAAP 92-2) Helicopter Landing Site (HLS), Aircraft Landing Areas (ALAs) (CAAP 92-1) or aerodromes. It should be noted that CAR 92(1) puts the responsibility on the pilot to ensure that the place is suitable for use as an aerodrome; and having regard to all conditions of the proposed landing or takeoff (including prevailing weather conditions), that the aircraft can land at, or takeoff from, the place safely. Where an ALA is provided by a person other than the pilot, it is still the pilot's responsibility to ensure that the facility is suitable for the intended aircraft operations.</p> <p>Chemical handling equipment and facilities should be located at the intended ALA or HLS.</p>
<p>Communication requirements</p>	<p>The communications requirements for flight following purposes shall be detailed during the pre-flight briefing. It should be noted that the communications management may reside with the Operator, but the LCC shall be responsible for ensuring that the flight following is being conducted.</p> <p>Communications should also be established and maintained between the aircraft and the ground crew element and with the spotter aircraft (if applicable) as appropriate in order to facilitate the communication of operational and hazard related information.</p> <p>Communications are to be established and maintained with other low flying aircraft in the immediate vicinity.</p>
<p>SAR requirements</p>	<p>Flight-following shall be conducted by either the LCC, Spotter Aircraft, or Operator (as agreed using 30-minute reporting schedules (which may be extended to 60 minutes once the designated operating has been reached) or through the use of satellite-based tracking systems showing real time information with at a minimum location and height reports not exceeding 5 minutes.</p> <p>If there is a spotter aircraft or ground-based crew in support of the spray aircraft, these should provide the 'operations normal' notification to avoid disturbing the focus of the spray pilot. Alternatively, the spray aircraft pilot may nominate times slightly different from the standard schedule to reduce the pilot's diversion from the primary responsibility of operating the aircraft safely.</p> <p>Planned flight departure and arrival times and any changes shall be communicated to the LCC (which may be communicated via the Operator or spotter aircraft).</p>
<p>PPE</p>	<ul style="list-style-type: none"> • Appropriate flying helmet (equipped with clear visor) in helicopter – fixed wing operators are encouraged to provide the pilots with an appropriate helmet • Flammable resistant clothing worn by pilot • Enclosed leather footwear (hardened toe and supported heel preferred) • Cotton or wool underclothing, socks • Aviation standard gloves (recommended)