# HIRAC Report

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| **1. Hazard Management Details – General** | |
|---|---|
| This form relates to OHS Procedure – *Hazard Identification, Risk Assessment and Control (HIRAC)* | |
| School / Work Location: | **Ballarat Tech School (Fed College)** |
| Name of Person(s): | Liam Mudge |
| Date Conducted: | 12/02/2025 |
| Last Reviewed: | 16/01/2024 |
| Next Review Due: | February 2026 |

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| **Description of Use:**<br>The Ballarat Tech School (BTS) delivers a range of STEM curriculum projects, some of these activities may be hazardous to user's health if safety procedures and lab etiquette are not followed.<br>This document assesses the risk involved with the operation of Micro and Very Small Remotely Operated Aircraft (RPA) using the following equipment and environments:<br>• DJI Mini 2 Drones<br>• DJI Neo<br>• Tello Edu Drones<br>• Indoor Activities<br>• Outdoor Activities<br><br>This document covers the instruction of students in the safe use and operation of RPA for educational purposes where Ballarat Tech School Staff are supervising in Drone flight.<br>Operation and instruction of all aircraft above "Very Small Remotely Operated Aircraft" to be conducted by adequately trained and licenced instructors. BTS will engage appropriate Third Parties where appropriate. | **Summary of Key Risks:**<br>**(Refer to appropriate subsections)** |

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## *Risk Assessment Matrix*

**Assessing OHS Risks**

Risk assessments in matters of Occupational Health and Safety* are based on 2 key factors:

- The severity of any injury/illness resulting from the hazard(s), and
- The likelihood that the injury/illness will actually occur.

**Assessment of risk level based on likely severity and probability of harm*

| | | LIKELIHOOD | | | |
|---|---|---|---|---|---|
| | | **Very Unlikely** Could happen, but probably never will | **Unlikely** Could happen, but very rarely | **Likely** Could happen sometime | **Very likely** Could happen any time |
| SEVERITY | Death or permanent disability | MEDIUM | HIGH | EXTREME | EXTREME |
| | Long-term illness or serious injury | LOW | MEDIUM | HIGH | EXTREME |
| | Medical attention and short-term incapacity | VERY LOW | LOW | MEDIUM | HIGH |
| | First aid needed | VERY LOW | VERY LOW | LOW | MEDIUM |

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| **2. Documentation** | | |
|---|---|---|
| **Relevant Legislation/Standards** | **Y / N** | **Comments** |
| **Key reference material:** | | • AS/NZS 3760:2022 In service safety inspection and testing of electrical equipment<br>• VUAS Documentation and discussion<br>• Civil Aviation Safety Authroity's Plain English guide: Micro<br>• NSW Department of Primary Industries Operation of Unmanned Aerial Vehicles Task-Specific Risk Assessment for NSW Department of Primary Industries Emergency Management Unit Biosecurity and Food Safety<br>• Colorado School of Mines UAS_Checklist_PrePostFlight_Draft<br>• Victorian DEET Drones Policy<br>• https://www.legislation.gov.au/Details/F2021C01233 |

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| 3. Hazards | | | | |
|---|---|---|---|---|
| **Hazards Inspected** | **Initial Risk** | **Description of Risk** | **Control Measures** | **Residual Risk** |
| **Outdoor Airborne Activities.**<br>• Improper maintenance leads to, failure of critical system(s) including the control system. | Medium | • Operation of Remotely Piloted Aircraft may result in exposure of hazardous environment to people, property, or wildlife. | • Compliance with cited CASA regulations as laid out in relevant legislations pertinent to class of operation.<br>• Drones inspected prior to take off and only operated if they pass said inspection. | Low |

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| • Lack of operator competency leads to unsafe practice and/or illegal operations. | Medium | • Failure of RPA components may result in collision between RPA and/or people, property or other active aircraft resulting in hazardous environment/harm. | • Operators undertake adequate training/instruction from suitably qualified instructors prior to take off.<br>• Inexperienced operators supervised during flight activities<br>• An RPA operator accreditation allows a person of at least 18 years of age to supervise a person under 16 to fly an RPA. | Low |
| • Intrusion into area of operation either by uninvited person/wildlife or as part of drone recovery. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • Operator to have an ability to quickly contact emergency services.<br>• In the event of intrusion of the area of operation RPA operators to navigate clear of intrusion and find safe landing position if required to avoid airspace compromises. Operator to have and practice a recovery plan including the crash of RPA. | Low |

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| • Inadequate planning information leads to task failure, loss of RPA or unintended interaction with other traffic or people on the ground. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • BTS conducts preflight briefing and provides written details and planning material to help assure remote pilot and observers fully understand task requirements.<br>• BTS coordinates with Operator and other organisations as required to assure proper location and support RPA operation.<br>• BTS provide student operators with planning material and access to information to ensure the flight can be conducted safely while achieving the task objectives.<br>• BTS provides guidance within operational documentation to student operators on the required pre-flight planning activities. | Low |

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| • Incorrect pre-flight system checks lead to compromise in safety. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • Operator has published checklists that conform to the Original Equipment Manufacturer publications.<br>• Operator conducts training and checking to assure remote pilot conduct checks as published. Operator has training and checking to assure remote pilot plans and operates to a flight plan. | Low |
| • Poor navigation leads to RPA straying into wrong airspace, near people / obstacles (including wires) or not achieving task. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • RPA has appropriate GPS-based navigation system and data transmission system installed. Published procedures that ensure correct information is briefed to remote pilot before flight.<br>• RPA equipped with obstacle avoidance sensors where possible | Low |

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| • Mid-air collision between RPA and aircraft results in hazard to people in aircraft and people on the ground. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • Operator has training, checking systems and practices that ensure remote pilot is properly trained in communicating and identifying potential conflicting traffic. Briefing informs pilot of any potential traffic in the area where this traffic may be known or planned. | Low |

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| • Pilot mishandles emergency or malfunction which leads to an accident. | Medium | • May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm. | • Operator has adequate published guidance and training to remote pilot on the handling of malfunctions and emergencies. Remote pilot has specific training and experience for engaging emergency procedures.<br>• Operator to ensure suitable and adequate records of pilot training is kept.<br>• Operations generally conducted over areas that are clear of people and livestock.<br>• Operator has proper systems and practices to ensure remote pilot can handle emergencies. | Low |

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| **Indoor Airborne Activities** | Low | • Indoor operation drones may result in exposure operators/onlookers to hazards.<br>• However, they nature of micro drone operation means the likelihood and level of risk are both greatly reduced | • Indoor operation of Drones are excluded from CASA regulations however the above, mentioned controls relating to training and inspection should still be observed.<br>• Indoor operation of Drones is restricted to operation of micro class (sub 250g) and should be fitted with propeller guards. | Very Low |

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| **ENTANGLEMENT**<br>Can anyone's hair, clothing, gloves, cleaning brushes, tools, rags or other materials become entangled with moving parts of the tools or materials? | Medium | • Long hair, loose clothing, rags, cleaning brushes and jewellery could become entangled in the moving parts of the equipment. | • Ensure hair, loose clothing, rags, hands and jewellery is kept clear of moving parts when in use.<br>• | Low |

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| Hazards Inspected | Initial Risk | Description of Risk | Control Measures | Residual Risk |
|---|---|---|---|---|
| **SLIPS / TRIPS / FALLS**<br>Can anyone using the tool, or in the vicinity of the plant, slip, trip or fall due to:<br>• Poor housekeeping, e.g. spillage in the vicinity?<br>• Obstacles being placed in the vicinity of operator? | Medium | • Poor housekeeping practices allowing the build-up of waste materials or failure to immediately clean up spills could result in a slip hazard.<br>• Environmental obstacles in operating zone | • Ensure appropriate cleaning and housekeeping practices are maintained to minimise the risk of a slip, trip or fall.<br>• Workspace inspected and cleared of any debris/ unnecessary objects before and after use.<br>• Workspace to be kept clear of all obstacles/objects as part of good housekeeping procedures.<br>• Use of spotter/to support RPA operator. | Low |

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| Hazards Inspected | Initial Risk | Description of Risk | Control Measures | Residual Risk |
|---|---|---|---|---|
| **ERGONOMICS**<br>Can anyone be injured due to: Poorly designed workstation? | Medium | • Poor arrangement of the associated equipment. May cause injury to operator. | • Ensure operator is not crowded when working.<br>• Ensure workspace is clear of obstacles. | Low |
| **Hazards Inspected** | **Initial Risk** | **Description of Risk** | **Control Measures** | **Residual Risk** |
| **FIRE & EXPLOSION**<br>Can anyone be injured by fire? | Medium | • Damage to batteries can result in ignition and fire. | • Firefighting equipment available.<br>• Batteries inspected as part of general maintenance and pre-flight inspections.<br>• Normal operations should not pose a significant risk to damage of battery cells. | Very Low |

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| **4. Risk Assessment Signoff** | | |
|---|---|---|
| Authorised By:<br>Damon Minotti | Signature:<br>  | Date: 24/03/2025 |