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| **Scope**  |
| This document defines the risks associated with the selected item of plant.Refer to the Plant Risk Assessment Procedure for instructions on completing the assessment. You will need a University Health and Safety Risk Matrix. |
| **Application**  |
| **Location name:** | **Building No.:** | **Date:** |
| Assessed By:  | **Health and Safety Representative(s):** |
| **Users of the plant:** | **Plant (Manufacturer’s name and model no):** |
| **Purpose of plant:** |
| **Description of how plant is used:** |
| **Does the operator require a licence or competency?** | External licence | Specify: |
| Internal competency | Specify: |
| No specific competency |  |

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| **Workplace conditions (Describe layout and physical conditions – including access and egress). Use extra page for diagram space if needed.**Eg. Located in under cover area, no equipment nearby, chemical cabinet 3 metres away, no fire extinguisher in area |

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| **Consider operation outside of normal conditions** | Which could apply? |
| * Cleaning
* Non-standard use
* Breakdown and repair
 | * Maintenance
* Commissioning
* Emergency situations
 |
| **List systems of work for using the plant:*** Training Procedure
* Safe Work Procedures
* Manufacturer’s information and instructions
* Pre-start inspections
 | What is in place already? |
| **Is there past experience or background material regarding the plant operation that may assist in the assessment?*** Existing controls
* Safe Work Procedures
* Standards (Internal, Australian Standard, National)
* Codes of Practice (State, National)
* Previous incidents including near miss/hit
* Legislation & subsidiary guidance material
 | What is relevant? |

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| **Identify hazards and associated risk and controls** |
| For each of the following prompts:* **Check the box** for each hazard that may potentially exist for the plant;
* Using the **Health and Safety risk matrix**, determine and record the likelihood, consequences and the **risk level**
* In the **comments** box, describe when and where the hazard is present;
* Specify the risk **control type** from the hierarchy of control at right, for each current or proposed risk control. e.g. Number 1-6;
* Provide a **control description** for each current or proposed risk control.
* Determine the residual risk score using the **Health and Safety risk matrix.**
 | **Risk Control Measures****1. Eliminate,** e.g.: eliminate task, remove hazard**2. Substitute** e.g.: replace with less hazardous process, material**3. Isolate** e.g.: enclosures, restricted access;**4. Engineering** e.g.: guarding, separation, redesign;**5. Administrative** e.g.: Safe Work Procedure, training;**6. Personal Protective Equipment (PPE)** e.g.: gloves, goggles |

|  | **Risk Level**  | **Comments (when and where hazard is present)** | **Control type** | **Control description (current & proposed)** | **Residual Risk Level** |
| --- | --- | --- | --- | --- | --- |
| **C** | **L** | **R** | **C** | **L** | **R** |
| **Can the following items become ENTANGLED with moving parts of the plant, or materials in motion:*** Hair
* Rags
* Jewellery
* Gloves
* Clothing
* Other materials – specify:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
| **SHEARING – Can workers’s body parts be cut off between:** * Two parts of the plant
* A part of the plant and a work piece or structure
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
| **Can workers be CUT, STABBED or PUNCTURED by coming in contact with:** * Moving plant or parts
* Sharp or flying objects
* Work pieces disintegrating
* Work pieces ejected
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
| **Can workers be CRUSHED due to:*** Falling, uncontrolled or unexpected movement of plant
* Lack of capacity to slow, stop or immobilise the plant
* Falling, uncontrolled or unexpected movement of the plant’s load
* Under or trapped between plant and materials or fixed structure
* Contact with moving parts during testing, inspection, repair, maintenance or cleaning
* Tipping or rolling over
* Parts of plant collapsing
* Being thrown off
* Other factors – specify:\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
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| **FRICTION - Can workers be injured due to:**  | **Comments (when and where hazard is present)**  | **Control type**  | **Control description (current & proposed)**  |
| * Contact with moving parts or surfaces of

the plant * Material handled by the plant
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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| **EMERGENCY STOP BUTTONS - can injury from interaction with the plant be caused by:*** Lack of proud mushroom-type emergency stop
* Emergency stop not being fail safe
* Emergency stop not red in colour
* Stored energy being released slowly or at a subsequent time
* Lack of clarity of emergency stop markings
* Restarting plant by resetting the emergency stop button
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_
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| **Can workers be STRUCK by moving objects** **due to:**  |
| * Plant or work pieces being ejected or

 disintegrating* Mobility
* Uncontrolled or unexpected plant

 movement * Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
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| **Can workers be injured by ELECTRICAL****shock or burnt due to:**  | **Risk**  |

 |
| * Damaged/poorly maintained leads or

switches * Working near or contact with live

electrical conductors * Water near electrical equipment
* Lack of isolation procedures and/or

equipment e.g. locks, tags* Overload of electrical switches
* Lack of RCD protection – portable or

building* Other factors – specify:\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |

 |  |  |  |  |  |  |  |  |  |
| **Can workers be injured by an explosion of the following triggered by plant operation?*** Gas
* Vapours
* Dust
* Liquids
* Other factors – specify:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
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|  **Can workers be SUFFOCATED due to:**  |

* Lack of oxygen
* Atmospheric contamination
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
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| **HIGH TEMPERATURE OR FIRE – Can workers:**  |
| * Come into contact with objects at high

 temperature * Be injured by fire
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
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| **TEMPERATURE (Thermal Comfort) – Can** **workers suffer ill health due to:**  |
| * Exposure to high temperatures
* Exposure to low temperatures
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
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| **Can workers come into contact with FLUIDS****or GASES under HIGH PRESSURE due to:*** Failure of the plant
* Misuse of the plant
* Other Factors – specify:\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 | **Comments (when and where hazard is present)**  | **Control type**  | **Control description (current & proposed)**  |
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|  **RADIATION Can workers be injured/ suffer ill health due to:*** Ionising radiation e.g. x-ray, infrared light
* Lasers
* Ultraviolet light
* Microwaves
* Radio waves
* Magnetic resonance
* Other factors – specify:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
| **Ergonomic – Can workers be injured due to:*** Seating design
* Excessive effort
* Repetitive body movement
* Constrained posture
* Poor lighting
* Poor workplace or plant design
* Controls layout and design
* Lack of consideration for human error or behaviour
* Design deficiency causing psychological stress
* Other factors – specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |  |  |  |  |
| **Can workers be injured or suffer ill health from exposure to OTHER HAZARDS:*** Chemicals
* Fumes
* Dusts
* Vibration
* Noise
* Biological exposure
* Toxic gases or vapours
* Other factors – specify\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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| **What is the highest risk score from the initial risk assessment?** |  |
| **What is the highest residual risk assessment score?**(This the overall risk rating for the plant to add to the risk register) |  |

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| **further risk Controls required** |  |
| **Control**  | **Person Responsible** | **Date Due By:** |
| Eg. Guard to be purchased for pedestal drill | e.g. John Smith |  |
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**Approved for use by:**

**Manager/Supervisor Name:** **Signature(s):** **Date:** / /

**Health & Safety Risk Matrix**

**Determine the Risk Rating (Level of Risk)**

For each Consequence Category selected, determine the Risk Rating (Level of Risk) from the relevant Consequence and Likelihood Levels.

**Risk Rating (Level of Risk) = Consequence x Likelihood.**

**Select the Likelihood**. Select the appropriate Likelihood or Frequency rating of the Risk Event occurring for the selected Consequence level, given the controls are in place.

**Select the Consequence**. For the given Risk Event select the relevant Consequence categories and apply a rating. The ratings are determined with the existing controls in place. Where there are multiple ratings for a risk, the highest combination of Consequence/Likelihood is taken as the final risk rating (do not average out the ratings).

Note: There are 3 types of risk ratings:

**Inherent** - no controls in place or total control failure; **Current** - with existing controls in place; **Residual** - with proposed treatment action plans (TAPs) in place. Curtin requires the **Current** risk rating (as a minimum).

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|  | **LIKELIHOOD DESCRIPTION** |
| **LIKELIHOOD** | The event may occur only in exceptional circumstances. | Not expected but the event may occur at some time. | The event could occur at some time. | The event will probably occur in most circumstances. | The event is expected to occur or has occurred and is continuing to impact. |
| **FREQUENCY** | Less than once in 10 years. | At least once between 5 and 10 years. | At least once between 1 and 5 years. | Once per year. | More than once per year. |
| **PROBABILITY** | <10% | 10% - <35% | 35% - <65% | 65% - <90% | >90% |
| **CONSEQUENCE DESCRIPTION** |  | **IMPACTS** | **Likelihood Level** |
| **Environment** | **Health and Safety** | **Consequence Level** |  | **Rare** | **Unlikely** | **Possible** | **Likely** | **Almost Certain** |
| Permanent environmental damage to an extensive area outside of campus; Sole contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards. | FatalityPermanent Total Disability | **Critical** |  |  |  | **Extreme** |  |
| Long term environmental damage extending to a large area requiring high level of intervention; Significant contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards. | Significant/extensive injury or illness.Permanent Partial Disability | **Major** |  |  | **High** |  |  |
| Short term environmental damage requiring some intervention; Partial contributor responsible for direct GHG emissions AND majority of current practice does not meet good practice standards. | Serious injury or illness. Lost time injury >10 days | **Moderate** |  | **Medium** |  |  |  |
| Short term environmental damage affecting a small area, easily remediated; Partial contributor responsible for indirect GHG emissions AND majority of current practice does not meet good practice standards. | Injury or illness requiring medical treatmentLost time injury <10 days | **Minor** | **Low** |  |  |  |  |
| Minimal environmental damage affecting a very small area, immediately remediated. | Injury or illness requiring First Aid treatmentNo lost time injury days | **Insignificant** |  |  |  |  |  |

**Risk Acceptance Criteria Table**

**Make an acceptance decision.** Based on the current risk rating, use the Risk Acceptance Criteria Table to determine an appropriate decision and response.

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| **Risk Rating** | **Criteria for Acceptance of Risk and Risk Review** | **Criteria for Risk Ownership** | **Criteria for Risk Reporting** |
| **Extreme** | Risk is Out of Appetite. Requires a control rating of Excellent. Control rating of Inadequate is unacceptable.Immediate management attention required to reduce exposure.Treatment Action Plans (TAPs) to be developed, implemented and monitored by a designated TAP owner(s) to reduce the risk to as low as reasonably practical.To be reviewed at least every 1 month. | Owned by the DVC / Executive Manager. | To be reported immediately to the relevant Executive and SET. If a broader organisational response is required, risk is to be reported as part of strategic risk themes that are submitted to the Planning & Management Committee / Executive Committee and Council (or to the University Health & Safety Committee for risks with a Health & Safety impact). |
| **High**  | Risk may be Out of Appetite (for risks with an Objectives & Performance and/or Health & Safety impact rating of ‘3. Moderate’ and above AND likelihood rating of ‘4. Likely’ and above) or Tolerable. Requires a control rating of Excellent (or Adequate but with justification). Control rating of Inadequate is unacceptable.Management attention required (immediately for risks with an Objectives & Performance and/or Health & Safety impact rating of ‘3. Moderate’ and above AND likelihood rating of ‘4. Likely’ and above). Treatment Action Plans (TAPs), where necessary, to be developed, implemented and monitored by a designated TAP owner(s) (subject to preliminary assessment and cost-benefit justification) to reduce the risk to as low as reasonably practical.To be reviewed at least every 3 months (or 1 month for risks with a Health & Safety impact). | Owned by the PVC, Head of School or Head of Area (i.e. Director). | To be reported to the relevant Executive. If a broader organisational response is required, risk is to be reported as part of strategic risk themes that are submitted to the Planning & Management Committee / Executive Committee and Council (or to the University Health & Safety Committee for risks with a Health & Safety impact). |
| **Medium**  | Risk is Acceptable. Requires a control rating of Adequate. Control rating of Inadequate is unacceptable.Monitor risk for any change in the operating environment. Treatment Action Plans (TAPs), where necessary, to be developed, implemented and monitored by a designated TAP owner(s) (subject to preliminary assessment and cost-benefit justification).To be reviewed every 12 months (or 3 months for risks with a Health & Safety impact). | Owned by the PVC, Head of School, Head of Area (Director) or Head of Section (Manager/Supervisor). | Reported to the DVC / Senior Executive (only for risks with an Inadequate controls rating), or to the local area Health & Safety Committee for risks with a Health & Safety impact. |
| **Low**  | Risk is Acceptable. Requires a control rating of Adequate. Control rating of Inadequate is unacceptable and will require a Treatment Action Plans (TAPs) to be developed, implemented and monitored by a designated TAP owner(s)Monitor risk for any change in the operating environment.To be reviewed every 12 months (or 6 months for risks with a Health & Safety impact). | Owned by the PVC, Head of School, Head of Area (Director) or Head of Section (Manager/Supervisor). | Reported to the DVC / Senior Executive (only for risks with an Inadequate controls rating), or to the local area Health & Safety Committee for risks with a Health & Safety impact. |

***Note: The Risk Acceptance Criteria Table serves as a guide for risk acceptance and should be relevant in most situations. However, there may be situations where an exception could apply (because of factors outside the control of the organisation or due to the nature of the business). As with any decision, a justification for this exception needs to be demonstrated and documented.***

**Controls Rating Table**

**Select the Overall Controls Rating (for ALL controls as a whole)**

**Controls** - A control is any measure or action currently in existence that modifies or manages the risk. Examples of controls could include a policy, procedure, practice, process, technology, technique, method, or device. A control should be demonstrable, i.e. auditable.

**Treatment Action Plans (TAPs)** - TAPs are additional controls, where required. It could be an improvement of an existing control and/or a new initiative altogether. TAPs become controls, or modify existing controls, once they have been implemented.

The adequacy of the controls is assessed on a common sense, qualitative basis. This can be viewed as a reasonableness test, i.e. are you doing what is reasonable under the circumstances to prevent or minimise the impacts of the risk?

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| **Level** | **Descriptor** |  **Foreseeable** |  **Detail** |
| E | Excellent | More than what a reasonable person would be expected to do in the circumstances. | Controls fully in place and require only ongoing maintenance and monitoring. Protection systems are being continuously reviewed and procedures are regularly tested. |
| A | Adequate | Only what a reasonable person would be expected to do in the circumstances. | Being addressed reasonably. Protection systems are in place and procedures exist for common or typical circumstances. Periodic review. |
| I | Inadequate | Less than what a reasonable person would be expected to do in the circumstances. | Little to no action being taken. No protection systems exist or they have not been reviewed for some time. No formalised procedures. |

Once the **Overall Controls Rating** (above) has been conducted on **ALL** controls as a whole, a **Controls Assurance** should be conducted on EACH control to determine if the controls are in place and effective.

**Controls Assurance Questions:**

|  |  |
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| 1. Is the control in use?
2. Is the control documented?
3. Is the control up to date?
4. Is the control effective?
 | *If you answered ‘Yes’ to all 4 questions, the control is effective (the control text should be Green).* |
| *If you answered ‘Yes’ to 2 or 3 questions, the control may require some improvements (the control text should be Blue).* |
| *If you answered ‘Yes’ to 1 or less questions, the control may require significant improvements (the control text should be Red).* |