Risk Based Approach for the Supervision and Control of High Hazard Areas and Laboratories

Preamble

Activities at Griffith University can only be undertaken where the risk assessment has determined the risk to be As Low As Is Reasonably Practicable (ALARP). This is a minimum legal requirement. Following the University's risk assessment process, a health and safety risk may be determined to be high, but also ALARP and therefore with critical controls in place it can commence/ continue to occur.

Griffith traditionally has a large number of laboratories, workshops, studios or maker/creative spaces, widely scattered across a variety of buildings on five campuses. These range from dry laboratories, studios and maker spaces to higher hazard chemistry, physics, materials, physical containment (PC1, PC2, PC3) facilities, OGTR certified facilities and biosecurity approved arrangement (BC1, BC2, BC3) facilities. The classification of biological laboratories is associated with the type of containment level required based on the risk grouping of organisms and material being used (Australian Standard 2243 Safety in Laboratories).

Those that undertake GMO, high-risk biological or biosecurity work are regulated under the law to meet OGTR (Office of the Gene Technology Regulator) and DAFF (Department of Agriculture, Fisheries and Forestry) requirements respectively. The University has strong protocols and procedures for acquiring approval and monitoring high-risk and regulatory material where there is a direct statutory requirement. In addition, risk management includes controlled access, training and inductions, SOPs, reviews, audits and inspections, maintenance and ongoing hazard identification and reporting systems.

The management of risks arising from chemistry or material procedures has been left much more to the approval of individual risk assessments. The existing G-Safe activity register has historically been used to register and record approval processes for Biological Dealing Types. The capability has existed for Chemical and Radiation Activities but this has been used informally to date due to the lack of a Regulatory Requirement driving the use. Chemical dealings are listed currently related to the category or type of regulation and include Scheduled Substance Dealings (SSD), Nanoparticle Dealings (NAN), Prohibited or Restricted Carcinogen Dealings (PRC), and most recently Pressure and Reaction Vessel Dealings (PVD). The latter was initiated as part of process improvements driven by the corrective actions undertaken in response to a Notifiable Incident related to equipment in the PVD category. Approval of PVDs in the G-Safe activity register and individual risk assessment are now subject to both technical, expert specialist and Element Manager approval, i.e. a strong component of peer review and line manager approval is in place as well as a physical understanding of where the high-hazard work will be performed within the area. Dealing categories can evolve as needed and the Register is a powerful tool to centralise Risk Assessments, Person and Certification requirements for the Activity, location data and any related experimental information that enables an informed overview of the activity to facilitate a proper peer review in one place. Actions are logged for all user actions in relation to the Dealings and form an Auditable Record. Element Managers/ Head of School sit on Tier 2 HSW Committees and must be able to report on the high-hazard work ongoing in their area.

While the above goes someway to addressing risk and provides a firm operating framework, it does not in itself monitor that appropriate training and risk mitigation associated with the activity is occurring. While responsibility for ensuring that this is in place rests with supervisors and individual research group leads, laboratory technical managers play a key part by organising induction, training and controlling laboratory access. They are also often the eyes and ears on the ground to establish that best practice is being followed.

It is proposed that we move to a more regulated or 'controlled arrangement' for the types of practical work that would be broadly classified by type and an associated inherent risk level, taking into account the experience level of the persons involved. This could be listed as a certification attribute of an associated person. Existing applications such as Radiation Dealings (RAD) require persons to hold GU safety training completion as well as a relevant Use license issued by the relevant licensing authority. This same requirement can be applied to other Dealing types but requires firm guidelines and policy to ensure that Dealings are registered and that no additional persons undertake the activities without being assessed and added to the Dealing. This is not currently controlled or applied consistently across the institution

Proposed Level Structure

Work Environment

- **Control Level 1**
- **Control Level 2**
- **Control Level 3**

Control Level 1 Work Environment

These environments are areas where work or activities involve the use of non-regulated materials, plant or equipment. Other activities suitable for Level 1 environments are those that carry low inherent risks and following the application of suitable controls using the ALARP principle, remain at a low level of inherent risk. Typical examples include:

- Teaching/research/clinical facilities
- Non-certified PC2/PC1 containment facilities
- Teaching & Research Laboratories for low-risk activities
- Storage Facilities for non-hazardous items
- Workshops and studios with standard plant, machinery and equipment of moderate/low risk.

These spaces may not be managed by dedicated facility managers/responsible persons but require regular visits. Access is controlled, documented, and required competencies are stipulated governing access approval for all persons. Inventories for substances and equipment are maintained as required. Scheduled monitoring programs are in place and results of inspections and audits are recorded centrally and made available as required or upon request. Where approval for activities undertaken in a Level 1 Work Environment are governed by committees such as the UBC, or Officers for regulated practices, Activities must be registered as a Dealing. Other activities outside of this scope should be recorded as relevant to the identified Risks associated with the activity.

Griffith University has a large number of lower-level facilities, ranging from physical containment (PC1) level 01 purpose-built laboratories for biological work to chemical laboratories, workshops, studios and maker spaces where simple hand tools may be in use for artistic, model building or creative design purposes.

While laboratories and studios in this category may undertake biological or chemical teaching/research or maker space activities, the nature of the activities undertaken would be at a much lower level of inherent risk. These Level 1 facilities would conform to all normal audit requirements but would not have dedicated laboratory manager/responsible persons oversight. Normal supervisory arrangements would apply, including regular visits to the space. High-risk or inherently high-risk activities could not be undertaken in such spaces, only medium-risk activities that can be adequately mitigated to low risk by simple controls.

Control Level 2 Work Environment

These environments are areas where work or activities involve the use of regulated materials, plant or equipment. Other non-regulated activities suitable for Level 2 environments are those that carry moderate inherent risks and following the application of suitable controls using the ALARP principle, remain at a moderate level of inherent risk. Typical examples include:

- PC2/PC1 Certified Biological Laboratories
- BC2/1 Biosecurity Approved Arrangement Facilities
- Certified Radiation Premises
- Teaching & Research Laboratories for medium-risk activities.
- Storage Facilities for hazardous materials and high-risk machinery.
- Dedicated Stores for Controlled and Regulated Substances as determined by risk assessment.
- Laser Studios and Laboratories
- Workshops studios with high-risk plant and specialist machinery/equipment

These spaces are managed by dedicated facility managers/responsible persons and may have oversight and monitoring by relevant committees, officers and regulators. Access is strictly controlled, documented, and required competencies are stipulated governing access approval for all persons. Inventories for substances and equipment are maintained as required. Scheduled monitoring programs are in place and results of inspections and audits are recorded centrally and made available as required or upon request. Where approval for activities undertaken in a Level 2 Work Environment are governed by committees such as the UBC, or Officers for regulated practices, Activities must be registered as a Dealing. Other activities outside of this scope should be recorded relevant to the identified Risks associated with the activity.

Moderate/high-hazard activity is permitted but only if activities with medium inherent risk can be adequately mitigated to low by reasonable control measures. Residual damage factors in the event of control failure should remain low, by virtue of the scale, design of the process and/or local containment. These areas would have a dedicated facility responsible person to cover compulsory inductions and higher specialised training requirements. Work practices within Level 2 areas must also follow, observe and incorporate all the requirements of Level 1 facilities.

Control Level 3 Work Environment

These environments are areas where work or activities involve the use of highly regulated materials, plant or equipment. Other non-regulated activities suitable for Level 3 environments are those that carry high or extreme inherent risks and following the application of suitable controls using the ALARP principle, remain at a high level of inherent risk. Typical examples include:

- PC3 Certified Biological Laboratories
- BC3 Certified Biosecurity Approved Arrangement Facilities
- Certified Radiation Premises
- Manifest Quantity Stores
- Dedicated Stores for Controlled and Regulated Substances as determined by risk assessment.

These spaces are managed by dedicated facility managers and always have direct oversight and monitoring by relevant committees, officers and regulators. Access is strictly controlled, documented, and required competencies are stipulated governing access approval for all persons. Inventories for all substances and equipment are always maintained as a record and routinely updated as required. Scheduled monitoring programs are in place and results of inspections and audits are reported to relevant committees and external stakeholders as required by regulations or because of any risk controls in place. Activities undertaken in a Level 3 Work Environment are documented in the Activity Register and subject to the peer review and approval processes relevant to the Dealing Type.

For activities that have a high/extreme hazard and high inherent risk, sufficient critical controls must be implemented to ensure that if any single control fails – fails to safe. Where it is not possible to establish sufficient substitute and engineering controls and the activity is deemed to be necessary, then administrative controls may be used, however, these would involve high levels of competence and a high frequency of assurance monitoring to ensure control effectiveness. The risk would also be required to be demonstrated to be ALARP. Work practices within Level 3 areas must also follow, observe and incorporate all the requirements of Level 2 facilities.

Control Level	Hazard Level	Risk Rating	Examples	Risk Management	Assurance Requirements	Approval Level
1	Moderate/Low Hazard	Moderate/Low Risk Without Controls Low Inherent Risk (with controls) that is ALARP	PC1 laboratories for biological work, chemical laboratories. Workshops, studios and maker spaces where simple hand tools may be in use for artistic, model building or creative design purposes.	**Engineering Controls** Design for safe working practices. **Administrative Controls** Training and induction requirements commensurate with risk controls in place. No inherently high-risk activity to be undertaken. All activities shall be a residual rating of Low after controls are applied. Normal supervisory coverage	Audit (Upon request) Inspection (Routine) Checks (Routine)	All activities within Level 1 areas approved by persons responsible for the area. Specialists/head of Element approval as required.
2	Moderate Hazard	High/Moderate Risk Without Controls Moderate Inherent Risk (with controls) that is ALARP	**Biological PC2/BC2 laboratories** Operating to accredited level 2 standards (AS2243.3, OGTR, DAFF), all users having compulsory training. **Chemical/ Materials labs** Fume cupboards and chemically resistant benching, gas sensors as appropriate and safety showers etc designed to Australian Standards. **Workshops and other hazardous areas** e.g. Mechanical and electrical workshops, ADAPT and jewellery workshops	**Isolation & Engineering** Air handling design and monitoring. Services supplied are linked to alarm systems and monitoring as required. Local supply and storage of hazardous material permitted with adequate controls. Facilities Certified as required and meeting standards for design such as AS 2892, AS 2243.3, Approved Arrangements for Biosecurity Containment Facilities, Standard for Ionizing Radiation Premises. Containment devices installed, certified and maintained in a compliant manner. **Administrative** Secured at all times. Access granted by dedicated approvers. Users required to demonstrate general competency prior to access. Dedicated lab manager/responsible persons coverage. **PPE** Standard laboratory/workshop protective equipment required and/or available at all times.	Audit (Routine; regulator and internal) Inspection (frequent) Checks (frequent)	***Regulated Substances & Materials:*** **Biological** • GMO – UBC, OGTR • Biosecurity – UBC, DAFF (Federal), DAF(State) **Chemical** • Medicines & Poisons – UBC & Scheduled Substance Manager • Other Prohibited & Restricted Substances – Chemical Safety Specialist **Radiation** • Regulated Source Material and/or Apparatus – Radiation Safety Specialist, RSO, ASNO Contact Person **Other approvers as required** • Element/facility/ operations manager • PVC or Institute Director
3	High Hazard	Extreme/high Risk Without Controls High Inherent Risk (with controls) that are ALARP	**Biological** – PC3/BC3 Certified Containment Facilities. **Chemical: High hazard laboratories** The latter are dedicated physically compartmentalised spaces for high-pressure chemical reactions e.g. hydrothermal and solvothermal reactions and/or reactions or processes involving larger quantities of poisons particularly those with the capacity to vaporise or disperse easily.	**Isolation & Engineering** Air handling design and monitoring. Services supplied are linked to alarm systems and monitoring. Reticulation considered first over local supply and storage. Bulk storage of hazardous material not permitted in the first instance. Facilities Certified and meeting standards for design such as AS 2892, AS 2243.3, Approved Arrangements for Biosecurity Containment Facilities, Standard for Ionizing Radiation Premises. Containment devices installed, certified and maintained in a compliant manner. Separation of high risk activities within facilities – dedicated areas or use of specialist containment devices. **Administrative** Secured at all times. Access granted by dedicated approvers. Users required to demonstrate specialist competency prior to access. Dedicated lab manager/responsible persons coverage. Users access facilities only as required for specific tasks and for minimal duration **PPE** Specialist dedicated personal protective equipment employed. Users are required to be trained in the use of specialist PPE.	Audit (Routine; regulator and internal) Inspection (frequent) Checks (frequent)	***Regulated Substances & Materials:*** **Biological** • GMO – UBC, OGTR • Biosecurity – UBC, DAFF (Federal), DAF(State) **Chemical** • Medicines & Poisons – UBC & Scheduled Substance Manager • Other Prohibited & Restricted Substances – Chemical Safety Specialist **Radiation** • Regulated Source Material and/or Apparatus – Radiation Safety Specialist, RSO, ASNO Contact Person **Other approvers as required** • Element/facility/ operations manager • PVC or Institute Director

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