Appendix B WHS Hazard and Risk Assessment Template

Research School of Physics

- This form is used when a documented risk assessment is required in accordance with Appendix A of WHSMS Handbook Chapter 3.1.
- Original risk assessments must be located in a convenient location in the local area accessible by all people affected by the risk assessment.
- Risk assessment for static hazards/tasks/activities must be forwarded to local WHS Officer/Manager for inclusion in the School/Service Division Static Risk Assessment Template.

	Static Risk Assessment No.	Assessment Date	Reviewed by Date	Version
	AppB_RSPhys WHS_RA_Bdg_56_Huxley_RmH4.30_V1.0	25/5/2020	*25/5/2022*	1.0

Name of the Task/Activity/Area/Hazards assessed	**ANFF Laboratory Work – nanofabrication for users and process development**			**Top Residual Risk (L, M, H, E)**		
				Medium (11)		
Description of the activity/task & location	ANFF covers 4 labs in RSPhys, each about 40-50m2 in size. In addition, there is another lab located in JCSMR which is about 25m2. (This exclude 2 MOCVD labs which are still under maintenance due to hailstorm damage)					
School/Service Division	Research School of Physics, College of Science					
Location and Supervisor	**Location**	**Huxley Bridge 4.30**	**Supervisor**	**Prof. Hoe Tan**	**Ph**	**50356**
Risk Assessment Team Have you completed ANU WHS Risk Management Training? ☒ Y ☐ N **IF NO, DO NOT PROCEED**	**Name**	**Craig Young**	**Email**	**Craig.young@anu.edu.au**	**Ph**	**0409656273**
	Name		**Email**		**Ph**	
	Name		**Email**		**Ph**	
	Name		**Email**		**Ph**	
	Name		**Email**		**Ph**	
Who are affected by this RA?	☒ All people in the location ☐ A group/s of people (list below) ☐ A single person (list below)					
Who are consulted on this RA? (All persons affected or their representatives needs to be consulted)	Christopher Kafer, Gayatri Vaidya, Li Li, Mykhaylo Lysevych, Olivier Lee Cheong Lem					
WHS Legal and Other Requirements	Work Health and Safety Act 2011 (Cth) Work Health and Safety Regulations 2011 (Cth) ANU Chemical Management Handbook Dangerous Substances Act (2004) Dangerous Substances (General) Regulation (2004) Labelling of Workplace Hazardous Chemicals Code of Practice SafeWork Australia WorkSafe ACT Australian Radiation Protection and Nuclear safety ACT 1998 Australian Radiation Protection and Nuclear Safety Regulations					
Type of RA	☒ **Static RA (long term and > 6 months)** - Send a copy (electronic) to WHS Officer/Manager and keep original locally near the activity/location, accessible to all people affected. ☐ **Dynamic RA (short term and < 6 months or once off)** – Keep the original locally (electronically or physically) near the activity/location, accessible to all people affected.					

Risk Assessment Instruction

1. Select hazards from **Table 1** below and transfer them into the 'Hazards' column of the RA Form.
2. Enter where and when this hazard exists. This may include specification of during which step, this hazard exists.
3. Estimate inherent risk of the hazard (without any controls in place) by using Likelihood against Consequences (defined in **Table 2**) and the ANU WHS Risk Matrix (**Table 3**). List them in 'Inherent Risk' column of the RA Form.
4. Develop control measures in accordance with the Hierarchy of Control Principle (**Table 4**) and list them in 'Control' column of the RA Form.
5. Estimate the residual risk of the hazard after implementing all controls. Remember that administrative control can only reduce the likelihood of an event occurring, not the consequences.
6. Identify any controls that are not in place as corrective actions and implement them before undertaking the activity.
7. Obtain approval from relevant people as identified.
8. Identify if this is a static risk assessment (> 6 months) or dynamic risk assessment (< 6 months).
9. Send a copy of the static risk assessments to WHS Officers/Managers/Equivalent – Keep on file for 7 years.
10. Keep originals of risk assessments in close vicinity of the activities. Dynamic risk assessments can be destroyed 1 year after the activity ceases.
11. Review the static risk assessments and associated safe work procedures in accordance with **3.1.2.6 Step 4: Review Control Measures** requirements

Table 1. Hazard Selection Table for Hazard Profiles

Electrical		
☐ Electrical Shock (both minor and major)	☐ Electrical Burns (both minor and major)	☐ Electrocution
☐ Overheating and fire	☐ **Other, please specify:**	
Chemical		
☐ Airborne contaminants that poses a health hazard	☐ Explosive substances	☐ Self-reactive or self-heating chemicals
☒ Flammable ☒ Liquid ☐ Solid ☒ Gas ☐ Airborne contaminants	☒ Corrosive ☐ Substances ☒ Gas ☐ Airborne contaminants	☒ Hazards during storage (e.g. mixed hazards storage, dangerous when wet, temperature sensitive, heat & friction sensitive etc
☐ Organic peroxide or peroxide-forming chemicals	☐ Oxidising substances	☐ Hydrofluoric acid (HF)
☐ Asphyxiate gas (e.g. CO_2 including dry ice, liquid N_2)	☒ Toxic and health hazard substances	☐ Toxic gas (e.g. Hydrogen cyanide, cyanogen)
☐ Respiratory irritants (e.g. engineered nanomaterials, dust, asbestos)	☐ Chemical spraying (e.g. agricultural, pesticides)	☐ Chemicals requiring health monitoring (e.g. Schedule 14 Chemicals).
☐ Prohibited and restricted carcinogens	☐ Mutagens or reproductive system hazards	☒ Mix two chemicals to form a new chemical
☒ Chemical spill – Controlled or uncontrolled	☐ Exposure to Hazardous Materials (e.g. Asbestos, Lead or Mercury).	☐ **Other, please specify:**
Biological		
☐ Live animal handling (e.g. bites, allergies)	☐ Potential of uncontrolled outbreak of an infectious disease	☐ Pathogen or body fluid contamination
☐ Exposure to viruses including blood borne viruses	☐ Infective microorganism exposure	☐ Exposure to communicable or infectious disease as a research object
☐ GMO exposure and security	☐ Sharps and contaminated sharps	☐ Biological material spillage
☐ **Other, please specify:**		
Plant and Equipment		
☐ Entanglement and trapping parts	☐ Crushing, rotating and cutting parts	☐ Serious burn/cold
☐ Ejection of piece/s; shattering or fragmentation; Explosion; Implosion	☐ Stabbing, puncturing, shearing, friction, abrasion	☐ Lifts or suspends a load (e.g. falling objects)
☐ Rollover or striking against the plant	☐ Pressurised vessels (e.g. autoclave, boilers, steam generator)	☐ Mobile lifting equipment and Elevated Work Platform (e.g. heavy load fall from height)
☐ Hazardous levels of heat or vibration (generated by plant to whole or part body)	☐ Potential exposure to fluids under high pressure	☐ **Other, please specify:**
Noise		
☐ Exposure to 85dB(A) LAeq, 8h	☐ Exposure to peak noise level of 130 dB(C) any time during the work activity	☐ Exposure to vibration & ototoxic chemicals
☐ Exposure to ototoxic chemicals: ☐ At any noise level ☐ > 50% of the OEL of the chemical at any noise level ☐ At over 100 dB noise level but any level of exposure to ototoxic chemicals	☐ Nuisance level of noise causing discomfort	☐ **Other, please specify:**
Radiation		
☐ Sealed or Unsealed sources (alpha, beta or gamma)	☒ Exposure to EM Radiations (e.g. X-ray, UV, infrared)	☒ Exposure to artificial radiation (e.g. laser)
☐ Security of sealed and unsealed sources	☐ **Other, please specify:**	
Ergonomics and manual tasks		
☐ Repetitive or sustained forces	☐ Sustained awkward static postures	☐ Repetitive movements
☐ Long duration	☐ High Forces	☐ Long duration of the same posture (e.g. standing, sitting)
☐ Animal handling or handling unbalanced/unpredictable load	☐ Transfer of item(s) up or down stairs, using both hands or requiring the use of lifting equipment from one level to another	☐ Repetitive, monotonous work, at a high pace
☐ Repetitive, monotonous work, at a high pace	☐ Repetitive, monotonous work, at a high pace	☐ Repetitive, monotonous work, at a high pace
☐ **Other, please specify:**		
Public Safety		
☐ Uncontrolled spread of hazardous materials to public	☐ Uncontrolled spread of GMO, communicable or infectious disease to public	☐ Natural disaster e.g. earthquake, flood, bushfire
☐ Explosion of liquid nitrogen tanks or other tanks that would injure public	☐ Loss of radioactive sources that are potentially hazards to students and public	☐ Hazardous wastes going into drinking water/public river/public sewage
☐ Use of industrial robots or University designed robots	☐ Use of VR, AI or emerging technology on experiment participants	☐ Provide experiment participants with confronting materials that would cause traumatic events
☐ Supply/inject/apply substances (e.g. alcohol, chemical, S4-S9 drugs) to experiment participants	☐ **Other, please specify:**	☐
Duress and Security Stress		
☐ Personal life threat e.g. violence behaviour, attacking with knives, guns, clubs, or any type of weapon	☐ Personal threat e.g. aggressive behaviour, physical abuse, assault (includes home visits, public interview)	☐ Verbal abuse, threat
☐ Sexual assault/Raping	☐ Throwing objects, pushing, shoving, tripping, grabbing, kicking, hitting	☐ Contact with body fluid (e.g. biting, spitting, scratching)

☐ Kidnaping in a public location while conducting interviews	☐ Unauthorised persons gained access to a building	☐ **Other, please specify:**
Physical/Envrionmental		
☐ Animals (e.g. hazardous wild animals, bees, snakes)	☐ Confined space entry (e.g. pit, tank, silo, entry through a hatch)	☐ Fall from a height (e.g. ladder, elevated platform, cliff, scaffolding)
☒ Fire (potential for uncontrolled fire due to ignition sources)	☐ Flying or moving items/plant/vehicles, falling object(s)	☐ Hazardous terrain or environment including wet/slippery surfaces
☐ Lighting/visibility is compromised and hazardous	☐ Exceedingly strong lighting both natural and artificial	☐ Glare and reflections
☐ Temperature or weather extremes (e.g. hypothermia, major burns)	☐ Difficult to access work site, or a rescue effort would be difficult in the event of an emergency	☐ Poor air quality or ventilation at work
☐ Insufficient/poor amenities (e.g. toilets, lunch area, breakout area, air-conditioner)	☐ Fall on same level (e.g. slip, trip, wet or unstable surface)	☐ **Other, please specify:**
Traffic safety		
☐ Lack of separation of vehicles, delivery drivers and pedestrians	☐ Lack of physical barriers to prevent interaction between vehicles, delivery drivers and pedestrians	☐ Vehicles queue in a way that could create risks to pedestrians, for example crossing walkways or obstructing people's view of vehicles
☐ Routes are not wide enough to separate vehicles and pedestrians	☐ Vehicles and pedestrians frequently interact	☐ Activities done close to public areas (e.g. students coming out from a School building)
☐ Certain times of higher traffic volumes or interactions between vehicles, delivery drivers and pedestrians	☐ Poor lighting, visibility, shade or glare	☐ Potential contact with stationary objects e.g. overhead structures, stationary plant or stored or discarded items.
☐ Blind spots at the workplace caused by stationary equipment and vehicles and other areas of poor visibility or low lighting levels	☐ Other hazards e.g. noise, emissions or falling objects surrounding the building	☐ Pedestrian routes are not designed so pedestrians will not take short cuts
☐ Intersections and bottleneck areas around driveways and entrances	☐ 'Blind' or convex corners	☐ Lack of disabled access to and within a workplace
☐ Workers are not aware of insurance policy or emergency procedure on road	☐ Lack of maintenance of bikes and cars provided to workers	☐ Use of personal vehicle or bikes for work activities
☐ **Other, please specify:**		
Event Specific		
☐ Access to the event is restricted/controlled	☐ Amenities, including disabled amenities inadequate/insufficient	☐ Amusement structures/rides/inflatable structures
☐ Animals and wildlife	☐ BBQ using gas bottles	☐ Children under the age of 18 are part of the event or attending
☐ Hit by a vehicle (e.g. moving cars in proximity to pedestrians)	☐ Crowding	☐ Fatigue e.g. duration of the event, extreme heat
☐ Liquor license	☐ Medical emergency, difficult to administer or obtain first aid gain assistance e.g. access to medical facilities	☐ Scaffolding more than 4m in height
☐ Food services and preparation	☐ High risk work licence required in accordance with WHS Regs	☐ **Other, please specify:**
High Risk Travel		
☐ Risk of kidnapping in this city/region	☐ Current civil unrest/political tension	☐ Violent crime
☐ Threat of attack from bordering nations	☐ Heightened risk terrorist attacks can occur	☐ Health risks from insect borne disease
☐ Health risks from water borne disease	☐ Health risks from other infectious disease in the destination countries	☐ Threat of assault and sexual assault in foreign countries
☐ Travel by some roads restricted due to risks	☐ Risk of violence or discrimination based on gender or LGBTI identity	☐ Unpredictable and potentially volatile security situation
☒ **Other, please specify:**		
Working away from campus		
☐ Lack of appropriate communication tools/aid	☐ Lack of tracking to know where the person is	☐ Remote or isolated work locations
☐ Use of poorly maintained vehicles or use of personal vehicles	☐ Wildlife or animals	☐ Traffic accidents while going to or from Campus
☐ Duress situations including being threatened by the public	☐ Poorly set-up/resourced offsite workspace	☐ Social isolation and lack of day to day support
☐ Loss of usual health/self-care routines such as exercise and sleep	☐ **Other, please specify:**	
Psychosocial		
☐ **Environmental** – Workplace not compliant with WHS requirements	☐ **Environmental** – Poor air quality, high levels of noise, extreme temperatures	☐ **Environmental** – Lack of WHS consideration for unsafe plant
☐ **Environmental** – **Other, please specify:**		
☐ **Organisational** – High job demand, long working hours	☐ **Organisational** – High workloads, time pressure, fast work pace	☐ **Organisational** – High emotional effort responding to distressing situations and to aggressive colleagues or students
☐ **Organisational** – Direct exposure to traumatic events at work	☐ **Organisational** – Indirect exposure to traumatic events at work	☐ **Organisational** –Shift work, casual employment, afterhours work, fatigue management
☐ **Organisational** – Frequently working in unpleasant conditions	☐ **Organisational** – Low job demands, too little to do, monotonous tasks	☐ **Organisational** – Low job control

☐ **Organisational** – Poor support, including emotional support, from employer, colleagues and managers	☐ **Organisational** – Workplace bullying, aggression, harassment and sexual harassment, discrimination etc	☐ **Organisational** – Poor relationship between supervisors/line managers and staff or HDR students or other workers
☐ **Organisational** – workplace conflicts	☐ **Organisational** – Perceived or actual lack of fairness, equity and diversity; discrimination against community groups or members (e.g. LGBTQI)	☐ **Organisational** – Low role clarity; uncertainty about changes or frequent changes to tasks and work standards; conflicting job roles
☐ **Organisational** – Poor organisational change management; poor consultation in change management	☐ **Organisational** – Low recognition and reward; low recognition in high WHS performance	☐ **Organisational** – No standardised WHS management practices across the University
☐ **Organisational** – Frequent remote and/or isolated work	☐ **Organisational** – Violent events such as robbery, assault, being threatened by managers, colleagues or managers	☐ **Organisational**- **Other, please specify:**
☐ **Individual** – innate susceptibility to stress; disabled worker; pre-existing mental and/or physical conditions; age and experience of worker, external stressors eg carer responsibilities, financial situation, relationship status.	☐ **Teaching** – SELT Aggression or abuse towards teaching staff from students	
Other Hazards not listed above		
☐ **Please identify in the Hazard Profile here and hazards in the form below**		

Risk Assessment							

Chemical
 	
Flammable – Liquid, Gas,
 	
Corrosive – Gas
 	
Hazards during storage (e.g. mixed hazards storage, dangerous when wet, temperature sensitive, heat & friction sensitive etc
 	
Toxic and health hazard substances
 	
Mix two chemicals to form a new chemical
 	
Chemical spill – Controlled or uncontrolled
	Possible	Major	High (18)	**Elimination**
				Substitution
				• Only work that can be performed suitable to the lab/office conditions can be performed
				Isolation
				• Access limited to appropriate trained staff/students through Cardex/Salto
				Engineering
				• Interlock access to gases and chemicals
				• Regular Plant/Equipment maintenance
				• Chemicals Stored in ventilated cabinet
				• Fume Cupboards, regular maintenance and inspection
				• Regular inspection of PPE
				• Safety Showers / Eye Wash stations are regularly checked
				• Regular Plant/Equipment maintenance schedule
				• First Aid Equipment on site/location/area
				Administration
				• Risk Assessment specific to ANFF labs is in place. Lab Manager make sure all users implements the protocols approved by HOD
				• Online Booking System to limit number of users at one time
				• Safe Work Procedure for ANFF labs, entry conditions and work/activity are in place.
				• All users need to go through ANFF Induction Process before gaining access to the labs
				• University WHS Induction through the online ANU PULSE Module (Tier 1 Induction))
				• RSPhys Local Area and School Inductions. This will cover:
				  ○ Tier 2 – School/Service Divisional WHS Induction
				  ○ Tier 3 – High Risk Areas
				• Appropriate signs affixed to lab/office doors indicating type of hazards contained within and identified through the Lab/Office Risk Assessment
				• Ensure workers and HDR students who are identified to complete the Tier 2 Compliance Training are enrolled into the training (either in Pulse or face to face)
				• Provide training to anyone working in high risk areas who are identified to do Tier 3 Training in Tier 3 High Risk Areas.
				• Regular review of WHS training appropriate to work/activity
				• Chemical Register up to date (Chemwatch)
				• Validity of Safety data Sheets, SDS. (within 5 years)
				• RSPhys Pre-Purchase checklist for new equipment
				• Chemical storage containers/vessels to be appropriately identified and labelled
				• Ensure workers and HDR students complete their enrolled training as soon as possible and their training completion sent to ohs.physics@anu.edu.au for documentation.
				• All staff to return RSPhys Protocol Confirmation email to ohs.physics@anu.edu.au (COVID-19)
				PPE
				• PPE provided and appropriate to the task/activity
				• Safety Goggles
				• Safety Boots
				• Dust coats and suits where applicable
				• Safety Gloves when appropriate to operation
				• Breathing apparatus when required
				• Face Shields when required for appropriate operation (COVID-19 requirement in some cases)
				• Electrical Safety Mats at machine where required
					Rare	Major	Medium (11)

Radiation
 	
Exposure to EM Radiations (e.g. X-ray, UV, infrared)
 	
Exposure to artificial radiation (e.g. laser)
	Likely	Major	Extreme (20)	**Elimination**
				• Eliminate the source of the hazard if possible
				Substitution
				• Only work that can be performed suitable to the lab/office conditions can be performed
				Isolation
				• Access limited to appropriate trained staff through Cardex/Salto
				• No staff permitted unless with lab/supervisor
				• Shielding of laser/radiation source
				• Shutters Installation
				• Use enclosures
				Engineering
				• Interlock access where appropriate
				• Regular Plant/Equipment maintenance/inspection
				• Emergency Stops
				• Regular inspection of PPE
				• Regular Plant/Equipment maintenance schedule
				• Testing and Tagging of plant/equipment
				• First Aid Equipment on site/area/location
				Administration
				• Risk Assessment specific to Lab/Office entry conditions and work/activity. Supervisor/Lab Manager to implement and HOD sign off.
				• Limit numbers of people in a lab at one time (depend on size of lab and whether conditions can be met due to work/activity)
				• Safe Work Procedure appropriate to Lab/Office entry conditions and work/activity.
				• Local Area Workshop Safety Inductions
				• University WHS Induction through the online ANU PULSE Module (Tier 1 Induction))
				• RSPhys Local Area and School Inductions. This will cover:
				  ○ Tier 2 – School/Service Divisional WHS Induction
				  ○ Tier 3 – High Risk Areas
				• Appropriate signs affixed to lab/office doors indicating type of hazards contained within and identified through the Lab/Office Risk Assessment
				• Ensure workers and HDR students under your control who are identified to complete the Tier 2 Compliance Training are enrolled into the training (either in Pulse or face to face)
				• Provide training to anyone working in high risk areas under your control who are identified to do Tier 3 Training in Tier 3 High Risk Areas.
				• Regular review of WHS training appropriate to work/activity
				• RSPhys Pre-Purchase checklist for new equipment
				• Pipes/vessels/containers to be identified and correctly labelled
				• All equipment labelled as per ARPANSA requirements
				• Ensure workers and HDR students complete their enrolled training as soon as possible and their training completion sent to ohs.physics@anu.edu.au for documentation.
				• All staff to return RSPhys Protocol Confirmation email to ohs.physics@anu.edu.au (COVID-19)
				PPE
				• PPE provided and appropriate to the task/activity
				• Laser Safety Goggles (laser specific identification)
				• Safety Boots
				• Dust coats and suits where applicable
				• Hearing Protection
				• Safety Gloves when appropriate to operation
				• Breathing apparatus when required
				• Face Shields when required for appropriate operation (COVID-19 requirement in some cases)
				• Electrical Safety Mats at machine where required
					Rare	Major	Medium (11)

Physical/Environmental Fire (potential for uncontrolled fire due to ignition sources)	Possible	Major	High (18)	**Elimination** • Eliminate the source of the hazard if possible **Substitution** • Only work that can be performed suitable to the lab/office conditions can be performed **Isolation** • Access limited to appropriate trained staff through Cardex/Salto • No staff permitted unless with lab/supervisor **Engineering** • Implementation of safety protocols though ANU Facilities Division/ANU WHS Division/ANU Security • Building Maintenance/schedules through RSPhys Building Custodian and Facilities Division • ANU safety protocol through ANU web site. Email and text message alerts for security issues. **Administration** • Regular inspection building facilities through ANU WHS/Facilities • Ensure workers and HDR students complete their enrolled training as soon as possible and their training completion sent to ohs.physics@anu.edu.au for documentation. • All staff to return RSPhys Protocol Confirmation email to ohs.physics@anu.edu.au (COVID-19) **PPE** • PPE provided and appropriate to the task/activity	Rare	Moderate	Low (5)

Actions			
The activity must not be commenced until all controls are in place. List below which controls are currently not in place, who will implement them and by when. Add additional rows as needed.			
List of Controls not in place	**Who is to implement them?**	**Timeframe**	**Date Completed**

Actions			
The activity must not be commenced until all controls are in place. List below which controls are currently not in place, who will implement them and by when. Add additional rows as needed.			
List of Controls not in place	**Who is to implement them?**	**Timeframe**	**Date Completed**

If the level of residual risk is assessed as high or extreme,

1. Stop the activity immediately; AND
2. Tag out the plant/equipment; and/or
3. Secure any chemical; and
4. Implement, or seek advice from WHS Officer or Subject Matter Experts to implement, additional controls to reduce the residual risk further to medium [Supervisor signature required];
5. If the above is absolutely not possible, seek approval from relevant authority (High – School/Division Director/College Dean; Extreme – COO). **NOTE: Approval will only be granted in exceptional circumstances after consultation with Associate Director, WEG and/or a Subject Matter Expert.** See Chapter 3.1 for details.

Approval required

Worker conducted RA			**Student conducted RA**		
Residual Risk Level	**Authority required**	**Signature and date**	**Residual Risk Level**	**Authority required**	**Signature and date**
Low	**Author of RA**		**Low**	**Supervisor**	
Medium	**Supervisor**	**Prof. Hoe Tan**	**Medium**	**Supervisor**	
High	**School/Service Division Director** **College Dean**		**High**	**School/Service Division Director** **College Dean**	
Extreme	**COO**		**Extreme**	**COO**	

Table 2.1 Likelihood Table

Ranking	Description	Probability or frequency of event happening
Almost certain	The hazard is expected to lead to an event in most circumstances at the University	A daily to monthly occurrence
Likely	The hazard could lead to an event in most circumstances at the University	Between monthly to yearly occurrence
Possible	The hazard has led to an event at some time at the University	Occurs once between 1 to 5 years
Unlikely	The hazard could lead to an event at some time	Occurs once between 5 to 20 years
Rare	The hazard may lead to an event in exceptional circumstances	Occurs once between 20+ years

Table 2.2 Consequences Table

Ranking	Injury, Illness or Disease	Plant, Equipment and materials	Environment
Catastrophic	Fatality / fatalities or permanent disability. Permanently unable to work	Destroyed or cannot be reused	Long term permanent effect to ecosystems. Significant intervention required to remediate
Major	Requiring extensive medical treatment such as hospitalisation as in patient and possibly a Notifiable Incident LTI >1 week	Damage requiring repairs/rebuild and possible recertification prior to reuse, lost use for one or more days	Notification to environmental agency, ecosystem will need time to recover, intervention required to remediate
Moderate	Minor medical treatment injury, such as treated by a health professional, hospital outpatient, no potential to be a Notifiable Incident LTI < 1 week and can return to normal duties	Damage requiring a repair/service by a trade/technician within the day	Contamination event that does not impact on ecosystem. Short impact does not need intervention
Minor	Injury needing significant first aid treatment and can return to work within shift	Equipment able to be reset or gotten back into operation by the operator	Minor contained contamination ceasing when the short event is over, can remediate (e.g. spill kit)
Insignificant	Report only, no injury OR minor first aid (e.g. bandaid); short-term discomfort	Report only, no damage	Report only, no contamination

Table 3 ANU WHS Risk Matrix

	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (10)	High (14)	Extreme (21)	Extreme (22)	Extreme (25)
Likely	Medium (7)	High (13)	High (16)	Extreme (20)	Extreme (24)
Possible	Low (4)	Medium (9)	High (15)	High (18)	Extreme (23)
Unlikely	Low (2)	Medium (6)	Medium (8)	High (17)	High (19)
Rare	Low (1)	Low (3)	Low (5)	Medium(11)	Medium (12)

Table 4. Hierarchy of Control

Level	Examples	Effectiveness
Elimination	• Remove the hazards completely • Cease the activity • Dispose of unwanted hazardous chemicals or plant etc	**Most Effective**
Substitution	• Use less hazardous chemicals • Use safer plant equipment • Use handset instead of telephone • Move smaller weight loads instead of large weight	
Isolation	• Physical separation from the hazard by distance or complete shielding • Install guard rails around edges and holes to floors • Move workers to a new room away from hazardous noise	
Engineering Control	• Use ventilation system • Use fume cupboard when working with hazardous chemicals • Install guarding around rotating and crushing parts • Use trolley or hoist to lift heavy loads • Use duress alarm system while doing home interview or offsite field work	
Administrative Control	• Use Safe Work Procedures **[See section 3.1.3.1]** or instructions • Induction and WHS information • Training **[See Handbook Chapter 3.2]** • Contingency Planning and Testing **[See section 3.1.3.2]** • Permit to Work system **[See section 3.1.3.3]** • Signage	
Personal Protective Equipment (PPE)	• Lab coat • Safety glasses/face shield • Gloves/cryogenic gloves • Respirators/Masks • Personal hearing protectors	**Least Effective**

Table 5 Risk Assessment and SWP review timeframe

Use this Table to determine risk assessment and safe work procedure review timeframe and frequency and put in the front of the risk assessment.

Residual Risk	Review Frequency		What to do during the review.
Extreme	6 monthly	And/or After an incident where deficiencies in identifying or controlling hazards have been observed When changes to the activity need to occur When significant changes (e.g. renovation) to the workplace need to occur When HSRs request a review	Stop work. Review the control measures and introduce additional control measures to reduce the residual risk to Medium as a maximum.
High	Annually		Stop work. Review the control measures and introduce additional control measures to reduce the residual risk to Medium as a maximum.
Medium	Two yearly		Review the control measures.
Low	Three yearly		Review the control measures.