

# Business Procedure

## Work at Height Document Number – OHS-PROC-100

This document applies to the following sites:

Brisbane Office	<input checked="" type="checkbox"/>	Mackay Gas Turbine	<input checked="" type="checkbox"/>	Meandu Mine	<input type="checkbox"/>
Mica Creek PS	<input checked="" type="checkbox"/>	Stanwell PS	<input checked="" type="checkbox"/>	Tarong Site	<input checked="" type="checkbox"/>
Wivenhoe Pipeline	<input type="checkbox"/>				

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## 1.0 Purpose

This Business Procedure describes Stanwell's minimum mandatory requirements for managing work at height risks. It describes the management systems and control measures that are required to manage risks associated with people falling from one level to another and objects falling from height.

This Business Procedure requires the application of the hierarchy of control to manage risks and highlights that elimination of the source of the risk must be sought in the first instance. Requirements for the types of the controls selected are also outlined.

## 2.0 Scope

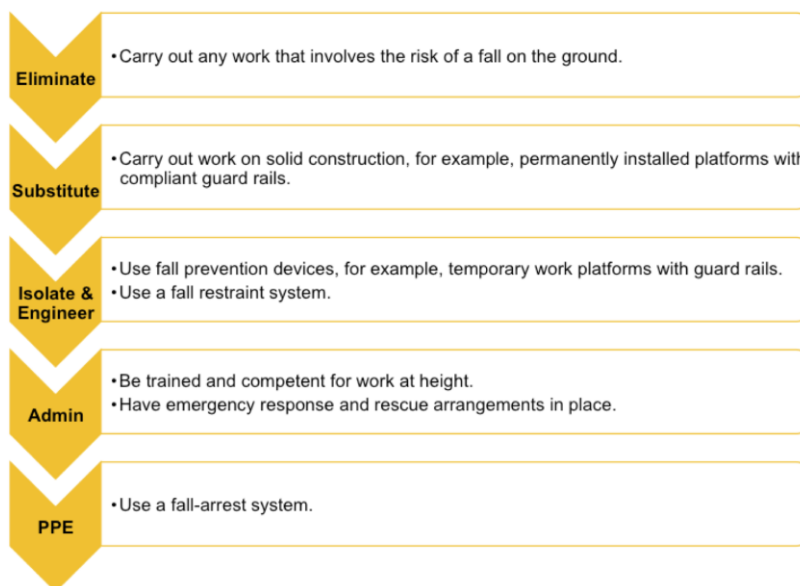
This Business Procedure applies throughout Stanwell, all its sites and all activities under Stanwell's control. It applies to all Stanwell employees and contractors, including visitors to Stanwell workplaces.

## 3.0 Actions

Sites must make sure:

- the requirement for personnel to work at height is eliminated where reasonably practicable
- work at height is planned
- equipment used for work at height is certified fit for use
- personnel performing work at height are trained and competent
- work at height is assessed to identify potential hazards and make sure suitable risk control measures implemented.

Fall from height risks must be controlled through the application of the hierarchy of controls to achieve the highest level of protection that is reasonably practicable in the circumstances.



## 3.1 Design

Sites must optimise the layout, constructability, operability, maintainability and accessibility of facilities to eliminate or minimise the need for work at height during construction and operation. As a minimum, sites must:

- identify foreseeable work at height during the design of facilities and consider future maintenance requirements
- identify opportunities for installing fixed gantries and walkways.

## 3.2 Safe System of Work Requirements

Sites must control work at height under the Safe System of work if there is a fall from height risk and:

- there is a risk of falling more than 2 metres; and
- there is no compliant fixed edge or fall protection; or
- a harness is proposed to be used as the primary means of control.

For work at less than 2 metres perform a risk assessment to determine the risk of falling from one level to another and risks from falling objects.

Refer to Business Procedure: Safe System of Work.

### 3.2.1 Emergency Response

Sites must make sure emergency plans are in place to deal with work at height incidents.

If personnel are using fall-arrest systems, the emergency plan must detail how rescue from height will be achieved. Sites must make sure that there is at least one other competent person on site who can rescue a person in the event they fall using a fall-arrest system.

For emergency plans associated with the use of fall-arrest systems, the prevention of suspension intolerance must be considered and planned for. Suspension intolerance can occur with a fall-arrest system when a person has an arrested fall and is suspended in an upright, vertical position with the harness straps causing pressure on the leg veins. Suspension intolerance can be fatal. Therefore, the quick rescue of a person suspended in a full body harness is vital.

Specific requirements for emergency procedures and plans are detailed in *Business Procedure: Emergency Response Framework*.

### 3.2.2 Work Method Statement

Sites must make sure that a work method statement (WMS) has been developed for work if there is a fall from height risk and:

- there is a risk of falling more than 2 metres
- there is no compliant fixed edge or fall protection
- a harness is proposed to be used as the primary means of control.

For specific details regarding WMSs, refer to *Business Procedure: HS Hazard Management*.

## 3.3 Work Environment Requirements

### 3.3.1 Barricading and Signage

Sites must make sure where work is being undertaken overhead and there is a risk of being struck by falling objects, the area is

- controlled via security measures and / or barriers

As far as practicable, all non-essential personnel and equipment must be kept clear of any work area(s) where there is a risk of falling from height or being struck by a dropped object.

Barricading and signage must be used in accordance with *Business Procedure: Barricading and Signage*.

## 3.4 Plant and Equipment Requirements

### 3.4.1 Work at Height Plant

All equipment used for work at height:

- is certified fit for use and meets all regulatory requirements
- is inspected by a competent person
- undergoes regular scheduled maintenance
- is inspected before each use.

For further information on plant, refer to *Business Procedure: Powered Mobile Plant*.

Where the work at height relates to persons potentially having to gain access to elevated areas on mobile plant and vehicles (for maintenance, load securing and unloading, etc) and there is a fall risk, sites must make sure that plant has adequate controls implemented.

### 3.4.2 Workboxes

Workboxes may be used where it is not reasonably practicable to use a preferred working platform such as an EWP or scaffold.

Sites must make sure that personnel are only lifted in workboxes designed according to *AS 1418.17 Cranes (including hoists and winches) – Design and construction of workboxes*.

Cranes used to lift workboxes must have an anti two block device.

Workboxes must be fitted with a suitable anchor point. Workers must be attached to the anchor point by a lanyard and harness unless the workbox is fully enclosed.

Workers must remain within the workbox while they are being lifted or suspended. Workers must not enter or leave the workbox when it is suspended (except in an emergency).

For details on the use of workboxes, refer to *Business Procedure: Lifting Operations*.

### 3.4.3 Scaffolding

Sites must make sure that all scaffolding:

- is designed, erected and dismantled to meet relevant legislative and Australian Standard requirements
- has a current tag that shows inspection date and loading capabilities
- includes handrails, mid-rails and toe boards to prevent falls of personnel, plant, materials and equipment
- has a safe means of access and egress
- is assembled on surfaces with sufficient stability and resistance to withstand the weight of the scaffolding and all other associated loads.

Any scaffold from which a person or object could fall more than four metres must be erected, altered and dismantled by or under the direct supervision of a licensed scaffolder.

All scaffolds erected at Stanwell must meet the *Scaffold Key Expectations*, outlined in Appendix C.

Where a contractor is engaged to erect a scaffold, Stanwell must provide the contractor with a scope of works, refer to *Business Standard: Contractor Management*. **Contractors must also be made aware of the *Scaffold Key Expectations*, outlined in Appendix C.**

Where a scaffold is installed for internal boiler access, it must meet the requirements outlined in Appendix D *Specification – Boiler Access Systems*. This tool must be used for internal boiler access.

Scaffolds must be designed by a competent person. The design of the scaffold must take into account:

- the strength, stability and rigidity of the support structure
- the intended use and application of the scaffold
- the safety of persons engaged in the erection, alteration and dismantling of the scaffold
- the safety of persons using the scaffold
- the safety of persons in the vicinity of the scaffold.

Information regarding the design of a scaffold must be provided by the scaffold designer to the scaffold erector and detailed in the scaffold plan.

A competent person must prepare a scaffold plan for all scaffolds with a height of four metres or greater, or for scaffolds other than basic scaffolds. The person doing the scaffold work must prepare a scaffold plan and provide this plan to Stanwell before scaffolding work commences.

Where prefabricated scaffolds are used on site they are to be erected in accordance with the manufacturer's recommendations, instructions and associated safe use documentation including the manufacturer's instructional erection diagrams.

The scaffold plan must include the following as a minimum:

- site layout plan showing:
  - exclusion zones for project personnel and public protection during erection
  - exclusion zones for project personnel and the public during use, if required
  - material storage area
- detail the elevations and sections of the scaffold
- basis of design
- foundations (including ground conditions and loadings)
- support structure

- access and egress
- tying
- bracing
- type of scaffold
- edge protection

The scaffold plan must be made available for inspection at the worksite.

The person responsible for the erection of the scaffold must provide Stanwell with a handover certificate which is to be kept on site until the scaffold has been dismantled. The handover certificate must include:

- the name and address of the person requiring the scaffold
- the name and address of the organization that erected or altered the scaffold
- the address and location of the scaffold
- a description of the type of the scaffold
- the size of the scaffold
- the duty loadings applicable to the scaffold
- the maximum number of platforms that can be loaded or worked from at any one time
- the intended purposes of the scaffold
- the date and time of handover
- confirmation that the scaffold complies with any design specifications, complies with any supplier's information, and is suitable for its intended tasks.

Where scaffolding has been altered or modified by a contractor, the contractor must provide Stanwell with a handover certificate.

As a minimum, Scaffolding with a height of four metres or greater must be certified by a licensed scaffolder.

All scaffolding must be managed using the Scafftag System.

Fall-arrest systems are not usually appropriate for erecting scaffolds. Fall-arrest systems should only be used during the following scaffold activities:

- erecting or dismantling 'drop' or 'hung' scaffold where the scaffold is constructed from top to bottom, this allows for a clear fall zone, in the event of a fall
- the fixing and removal of trolley tracks on suspension rigs
- erecting or dismantling cantilevered needles and decking between the needles. Fall-arrest systems could also be used during the erection of the first lift of scaffolding where workers are standing on the deck between the needles
- the erection and dismantling of cantilevered scaffolds prior to or when removing the initial platform
- the attachment and removal of spurs projecting from the supporting structure.

All sites must maintain a scaffold register, see *Tool: Scaffold Register*.

### 3.4.3.1 Scaffolding Inspections

Sites must make sure that all scaffolds are inspected regularly.

Inspections are to be undertaken as determined by the site conditions, nature of the work being carried out on the scaffold, the degree of risk associated with the scaffold and the recommendations given by the scaffold designer and equipment supplier.

As a minimum, sites must make sure that scaffolds are inspected by a competent person:

- before the scaffolds first use
- immediately following any disturbance or major weather impact that might reasonably be expected to affect the stability of the scaffold
- after repairs or modifications
- at least every 30 days.

For Stanwell owned scaffolding, full fitness for use inspections in accordance with *AS 1576 Scaffolding* and *AS/NZS 4576 Guidelines for Scaffolding* are to be undertaken on all components at not less than a 12 monthly basis.

Scaffold inspections must determine whether:

- the scaffold structure is adequate
- the supporting structure is adequate
- working platforms are secured and protected
- access and egress is sufficient
- the scaffold will enable the relevant work tasks to be performed adequately and safely.

Sites must maintain inspection records on site until the scaffold has been complete dismantled. Scaffold inspection records must include:

- location
- comments
- date and time of inspection
- relevant design or specification reference
- name of the person who conducted the inspection.

Where a scaffold or supporting structure is identified to be in an unsafe condition, access to the scaffold is to be prohibited to personnel. Where scaffold components are identified as being in an unsafe condition, the items are to be removed from service and reported.

### 3.4.4 Elevating Work Platform (EWP)

EWPs may be used as a working platform and not as a means of entering or exiting a work area unless:

- a risk assessment shows that this means of access is safer than all other means of access
- the structural adequacy of the landing area has been established, and the landing area is clear
- the risk of falling from the landing area is considered and controlled
- the working envelope of the EWP is at least 1.2 times greater than that required to access the landing
- the work platform floor is capable of being located within 300mm vertically of the landing
- where the work platform is located over the landing, the landing point is not less than 2m from the edge of the structure, unless a safety harness is properly worn and attached to a suitable anchorage, where any potential fall is in excess of 2m or lower and be injured

- where the work platform is located adjacent to the landing, the maximum gap between the platform and landing does not exceed 100mm, and access and egress does not take place unless a safety harness is properly worn and attached to a suitable anchorage on the structure
- the base controls are tagged to indicate the equipment is in use and to caution against interference
- the resulting deflection that occurs when access and egress is performed at elevated positions are assessed and allowed for.

Workers must be licensed and familiarised when operating boom-type EWP's with a boom length of 11m or more.

Persons working in travel towers, boom lifts or cherry pickers must wear a properly anchored safety harness with an energy absorbing lanyard.

EWP's must be operated in accordance with the manufacturers or suppliers instructions.

Refer to *Business Procedure: Powered Mobile Plant* for the minimum requirements that apply to the use of an EWP.

### 3.4.5 Portable Ladders

Ladders are designed to be used as a means of access and egress and should not be used as a working platform. Ladders must only be used as a working platform for light work of short duration that can be carried out safely on the ladder. As an alternative, scaffolds and elevating work platforms (EWP's) are the main ways workers are expected to undertake work at heights.

Sites must make sure that:

- all ladders are of a type suitable for the work task
- all ladders have a load rating of at least 120kg and are marked as such
- all ladders are manufactured for industrial use and are marked as such
- portable ladders must be designed in accordance with the *AS 1892 Portable ladders*, depending on their use and type of construction material
- single or extension ladders used on poles have a device fitted near the top of the ladder to fit to the shape of the pole
- single ladders are no longer than 6.1 metres and extension ladders are no longer than 7.5 metres unless used for electrical work
- adequate control measures are implemented when ladders used to gain height above a protected edge
- users do not stand higher than the second tread before the top plate of a step ladder (with the exception of three rung ladders)

Ladders must be transported and stored in such a way that no injury to persons or damage to the ladder occurs.

Sites must maintain a ladder register, refer to *Tool: Portable Ladder Register*.

Ladders are to be inspected:

- when originally purchased, received and put into service
- before each use by the user
- after mishaps, drops or impacts
- periodically (at least annually)
- if it has been exposed to excessive heat, such as fire or a corrosive substance.

Any ladder that is identified as being damaged or has parts missing is to be tagged / marked and taken out of service until it is repaired or destroyed.



Inspection records must be maintained, refer Business Standard: Document Control and Records Management. Refer to Tool: Portable Ladder Inspection Checklist.

### 3.5 Falling Objects

Safe systems of work must be adopted when there is the potential for objects to fall from height. The hierarchy of controls must be adopted when implementing falling object control measures.

When moving a load, a safe means of raising and lowering plant, materials and equipment must be provided.

### 3.6 Edge Protection

Sites must make sure where it is not practicable to eliminate fall from height risks, edge protection is used where practicable. In particular, the following work tasks are specifically suited to the use of edge protection:

- raised platforms and roof edges where personnel access is required to carry out work activities
- removal or modification to handrails
- lifting floor panels.

Sites must make sure that edge protection is installed in accordance with *AS/NZS 4994 Temporary edge protection* and the manufacturer's instruction or the instructions of an engineer or competent person.

### 3.7 Protection for holes, openings and penetrations

Any penetration with dimensions of more than 100 mm x 100 mm or a diameter more than 100 mm is to have a fall protection cover fitted to it to prevent a potential fall from height.

Penetrations smaller than the above mentioned must be covered if a risk assessment identifies a significant risk.

Where a fall protection cover is used to protect persons from falling into a penetration, it must be:

- able to withstand the impact of any person who may stand or fall on it
- securely fixed in place to prevent it being moved or removed accidentally.

Covers must be made of a material that is sufficiently strong and designed for the size of the penetration and any static or dynamic impact and point loads that could be imposed (people, plant or equipment). Refer to the manufacturer's information about the correct use of the cover where it is available or consult an engineer for advice on the materials, thickness and dimensions that should be applied to the cover for particular applications.

### 3.8 Restraint and Fall-Arrest Systems

Restraint systems (total restraint and restraint technique) are to be used as a preference to fall-arrest systems if it is not reasonably practicable to use higher level control measures.

The following fall situations in order of preference are to be implemented:

- total restraint (usually found as permanent installations on completed buildings or structures)
- restraint technique (via a travel restraint system) – fall not possible
- restrained fall – A fall or the arrest of a fall where the person suffering the fall is partially restrained by a pole strap
- limited free fall – free fall distance equal to or less than 600mm
- free fall – free fall distance greater than 600mm and up to 2m
- Travel restraint and fall-arrest systems must:

- be installed by a competent person
- comply with AS/NZS 1891 Industrial fall-arrest systems and devices
- be used in accordance with the specific instructions or requirements specified by the manufacturer or supplier.

Sites must record all travel restraint and fall-arrest system components in *Tool: Travel Restraint and Fall-arrest Device Register*.

System components must be inspected:

- by the user prior to their use to ensure they are clean and safe to use
- in accordance with the manufacture's instructions
- in accordance with AS/NZS 1891.4 Industrial fall-arrest systems and devices – Selection, use and maintenance, refer to Appendix B Summary of Inspection Requirements.

System components must be:

- tagged with the inspection outcome
- taken out of service where it has been identified by the user or an inspection to be unsafe
- not used after being taken out of service until the components have been replaced with properly functioning components and the system has been certified by a competent person as safe to use.

System components must be cleaned and stored in accordance with manufacturer's instructions.

All harnesses must be fitted with foothold straps. **All harnesses must have appropriate front, side and dorsal attachment points.**

Prior to setting up or using a travel restraint or fall-arrest system, competent users are to inspect all equipment and anchorages to ensure that a safe system can be established.

### 3.8.1 Restraint Systems (Total Restraint & Restraint Technique)

Restraint systems must only be used where the:

- user can maintain secure footing without having to tension the restraint line and without the aid of any other hand hold or lateral support. When deciding whether secure footing can be maintained, consider the:
  - slope of the surface
  - supporting material type
  - surface texture of the surface and whether it is likely to be wet, oily or otherwise slippery.

Restraint systems must be set up to physically prevent the wearer from reaching an unprotected edge.

A fall-arrest system must be used instead of restraint if any of the following apply:

- the user can reach a position where a fall is possible
- the user has a restraint line that can be adjusted in length so that a fall position can be reached
- there is a danger the user may fall through the surface, for example fragile roofing material
- the slope is over 15 degrees
- if there is any other reasonably likely use or misuse of the system that could lead to a free fall.

### 3.8.2 Fall-Arrest Systems

Fall-arrest systems must only be used where the use of a restraint system is not practicable.

Fall-arrest systems may only be used as a primary control where no other reasonably practicable option is available and where its use has been authorised by the OIC / ATW Coordinator.

Where a fall-arrest system is used, sites must make sure:

- pre-existing medical conditions, such as epilepsy or vertigo, are considered prior to a person using a fall-arrest system
- there is at least one other person on the site who can rescue the person if they fall
- a trained, competent and dedicated standby person is assigned to continuously monitor the worker using the system
- a communication system has been established that enables communication to adequately summon help in an emergency.

The standby person should preferably be in visual contact with the worker.

A 'no lone worker' practice must be applied whenever a worker is using a harness in a fall-arrest situation.

The use of fall-arrest equipment must ensure that no more than 6kN of force is exerted upon a person whose fall is being arrested.

Fall-arrest equipment must be permanently marked or labelled to indicate its purpose, correct use, limitations and other relevant information aimed at reducing misuse of the equipment.

### 3.8.3 Industrial Rope Access System

Other methods of accessing a workface must be considered before rope access systems.

Where it is necessary to use rope access systems:

- only persons who are competent as per *Training and Competency Requirements* are to use industrial rope access systems
- operators do not work alone, in case they require assistance in an emergency
- all equipment is checked regularly by a competent person
- prior to use, all fixed anchorage points are checked by a competent person before attaching the rope access lines
- industrial rope access systems must be set up and used in accordance with *AS/NZS 4488 Industrial rope access systems series*.

### 3.8.4 Anchorage Points

Anchorage points for fall-arrest harness systems are to:

- be located so that the user can connect their lanyard or device to the system prior to moving into a position where they will be at risk of a fall from height
- be designed by an engineer, or be inspected and approved for safe use by a competent person prior to work commencing
- have a capacity of at least 15kN for a one person, single point system or 21kN for a two person, single point system.

A travel restraint system erected as means of preventing falls from height is to have an anchorage point capable of withstanding reasonably expected loadings from a person who may use it and not less than 15kN (the actual anchor strength may be considerably higher for restraint static line systems where multiple workers may be reliant upon common anchorages).

Sites must make sure designated anchorage points comply and are inspected and maintained in accordance with *AS/NZS 1891.4 Industrial fall-arrest systems and devices*.

### 3.9 Catch Protection

A catch platform is a temporary platform located below a work area to catch a worker in the event of a fall. The platform should be of robust construction and designed to withstand the maximum potential impact load. Scaffolding components may be used to construct fixed and mobile catch platforms.

Catch platforms should:

- incorporate a fully planked-out deck
- be positioned so the deck extends at least two metres beyond all unprotected edges of the work area, except where extended guard railing is fitted to the catch platform
- be positioned as close as possible to the underside of the work area—the distance a person could fall before landing on the catch platform should be no more than one metre
- always be used with an adequate form of edge protection.

Industrial safety/catch nets used as a means of catch protection are to be used as a last resort only, where edge protection and personal fall protection equipment are not reasonably practical.

Industrial safety/catch nets used as a means of catching a person who may fall are to:

- be designed by an engineer or competent person
- be installed and used in accordance with the manufacturer's or supplier's safety instructions
- be made of material that is of sufficient strength to catch a person and be designed to minimise injury to a person once they have fallen into the net
- have energy absorbing qualities that reduce the shock to a person falling into the net.

Industrial safety/catch nets are to be installed so that they have sufficient tension and clearance to prevent a person who falls from contacting or striking any surface or structure below the net.

Industrial safety/catch nets are to be installed so that they are as close as possible below the platform or level at which the person could potentially fall, **but no more than two metres below the working area.**

Nets are not to be used in locations or environments where they may be damaged due to the presence of chemicals, heat or ash.

Nets are to be inspected after installation, relocation or repair on site and prior to personnel working in a position where they could fall onto the nets.

### 3.10 Monitor and Review Work

Monitor work involving risk of falls to make sure personnel are working in accordance with the requirements of the WMS, this procedure and any permits relevant to the work.

Refer to Business Procedure: the document that outlines how Stanwell monitors and reviews work.

### 3.11 Training and Competency Requirements

Sites must make sure that all personnel who are responsible for using, maintaining, installing and inspecting work at height equipment are trained and competent.

Sites must make sure that all personnel involved in or who carry out work at height have been trained and assessed as competent in accordance with *Training Rationale: Work at Height*.

Sites must obtain and maintain evidence of training and competency, refer *Business Standard: Training and Competency*.

## 4.0 References (Including Information Services)

Source	Reference
<b>Legislation</b>	<ul style="list-style-type: none"> <li>• Qld Work Health and Safety Regulation 2011, Part 4.4, Chapter 6</li> <li>• Qld Managing Risk of Falls at Workplaces Code of Practice 2011</li> <li>• Qld Plant Code of Practice 2005</li> </ul>
<b>Australian Standards</b>	<ul style="list-style-type: none"> <li>• AS 1418.17 Cranes (including hoists and winces) – Design and construction of workboxes</li> <li>• AS/NZS 1576 Scaffolding</li> <li>• AS/NZS 1891 Industrial fall-arrest systems and devices</li> <li>• AS 1892 Portable ladders</li> <li>• AS/NZS 4488 Industrial rope access systems</li> <li>• AS/NZS 4576 Guidelines for scaffolding</li> <li>• AS/NZS 4994 Temporary edge protection</li> </ul>
<b>Business Standard</b>	<ul style="list-style-type: none"> <li>• Contractor Management</li> <li>• Document Control and Records Management</li> <li>• Training and Competency</li> </ul>
<b>Business Procedures</b>	<ul style="list-style-type: none"> <li>• Barricading and Signage</li> <li>• Emergency Response Framework</li> <li>• HS Hazard Management</li> <li>• Lifting Operations</li> <li>• Powered Mobile Plant</li> <li>• Safe Systems of Work</li> </ul>
<b>Stay Safe</b>	<ul style="list-style-type: none"> <li>• Portable Ladders – OHS-PROC-100C</li> <li>• Work at Height – OHS-PROC-100A</li> <li>• Scaffolding – OHS-PROC-100D</li> <li>• Travel Restraint and Fall-Arrest Systems – OHS-PROC-100B</li> <li>• Workboxes and EWPs – OHS-PROC-100E</li> </ul>
<b>Tools</b>	<ul style="list-style-type: none"> <li>• Travel Restraint and Fall-Arrest Device Register</li> <li>• Portable Ladder Inspection Checklist – T-2709</li> <li>• Portable Ladder Register</li> <li>• Work at Height Audit</li> </ul>

## 5.0 Definitions

Term	Meaning
<b>Anchorage Point</b>	A device or thing by which a lanyard, static line or other line may be attached to a building or other structure, and includes the part of the building or structure to which the device or thing is attached.
<b>Basic Scaffolding</b>	Scaffolding work involving any of the following: <ul style="list-style-type: none"> <li>• modular or prefabricated</li> <li>• cantilevered materials hoists with a maximum working load of 500kg</li> <li>• ropes</li> <li>• gin wheels</li> <li>• safety nets and static lines</li> <li>• bracket scaffolds (tank and formwork)</li> </ul>
<b>Edge Protection</b>	A barrier to prevent a person falling erected along the edge of: <ul style="list-style-type: none"> <li>• a building or other structure</li> <li>• an opening in a surface of a building or other structure</li> <li>• a fall-arresting platform</li> <li>• the surface from which work is to be done.</li> </ul>
<b>Elevating Work Platform (EWP)</b>	Machine used for the purpose of hoisting persons within a safety cage to an elevated work site. The complete machine includes the platform, lifting mechanisms and chassis or vehicle, as applicable.
<b>Fall</b>	A fall by a person from one level to another.
<b>Fall-Arrest System</b>	System designed to support and hold a person in the event of a fall. A fall-arrest system usually consists of an approved full-body harness, a shock absorbing lanyard or short restraining lanyards or self-retracting lifeline, self-locking snap hooks (or karabiner-type rings) and a number of secure anchorage points.
<b>Fall Prevention</b>	Device or system of work that completely eliminates the risk of a fall from height, enabling a person to move safely to and from the workplace.
<b>Fall Protection Cover</b>	A structure that: <ul style="list-style-type: none"> <li>• is placed over an opening in a surface of a building or other structure to prevent a person falling through the opening</li> <li>• consists of solid sheets of sturdy material.</li> </ul>
<b>Fall Restraint System</b>	System designed to restrict a person from entering an area where there is a potential fall hazard. Movement is restricted to the extent that it prevents a person going near an open edge or falling.
<b>Full Body Harness</b>	An assembly of interconnected shoulder and leg straps, with or without a body belt, that is used where there is the likelihood of free fall or restrained fall and is compliant with current standards.
<b>Hoist</b>	An appliance intended for raising and lowering a load or people, vertically and without slewing which includes a mast climbing work platform, personnel and materials hoist, scaffolding hoist and serial hoist but does not include a lift or building maintenance equipment.
<b>Lanyard</b>	A line used to connect a fall-arrest harness to an anchor point or static line. A lanyard can include a personal energy absorber.
<b>Personal Protective Equipment (PPE)</b>	Personal protective equipment (PPE) is a device or appliance used or worn by a person to minimise risk to the person's safety and health.

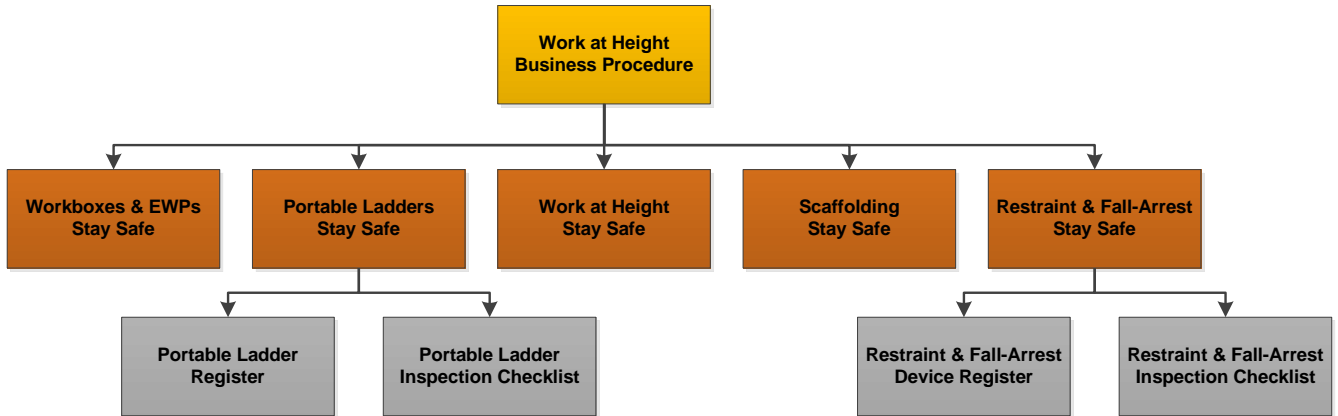
Term	Meaning
<b>Restrained Fall</b>	A fall or the arrest of a fall where the person suffering the fall is partially restrained by a pole strap.
<b>Risk of a Fall</b>	A circumstance that exposes a worker while at work, or other person while at or in the vicinity of a workplace, to a risk of a fall that is reasonably likely to cause injury to the worker or other person.
<b>Scaffolding</b>	A temporary structure, specifically erected to support access platforms or working platforms.
<b>Suspension Intolerance</b>	A potentially fatal consequence of a person who has had a fall-arrested while in a harness. The trauma arises from the impact on the body from the fall being suddenly arrested and from the gravitational forces while being suspended after a fall.
<b>Work at Height</b>	Work performed where there is potential for a person or an object to fall from one level to another.
<b>Workbox</b>	A box designed to raise or lower personnel.

## 6.0 Revision History

Rev. No.	Rev. Date	Revision Description	Author	Endorse/Check	Approved By
0		Previously Tarong Energy document number.	T. Young		M. Joy
1	14.03.2014	Procedure updated to reflect the change in sites that this process applies to and change of process due to the Stanwell Merger replaces all legacy documents.	J. Paull	M. Joy	T. Hooper
	30.07.2014	Typo noted in Appendix C in the Access & Egress section with 210mm changed to 2100mm, minor change no signatures required. Change requested by Jason Paull.	D.Wilkie.		
2	06.01.2021	Section 3.4.4 updated with the following text "with an energy absorbing lanyard." Change requested by K. Ussher.	T. Lawback	L. Lucke	K. Ussher

## 7.0 Appendices

### Appendix A Work at Heights Document Flowchart





## Appendix B Summary of Inspection Requirements

The table below has been extracted from AS/NZS1891.4 Industrial fall-arrest systems and devices – Selection, use and maintenance.

All inspections must be documented and where used in harsh conditions, more frequent inspection may be required.

Item	Inspection Frequency
<b>Personal equipment including harnesses, lanyards, connectors, fall-arrest devices including common use devices</b>	Inspection by a <b>competent person</b> before and after each use.
<b>Harnesses, lanyards, associated personal equipment</b>	6-monthly inspection by a <b>competent person</b> .
<b>Fall-arrest devices (external inspection only)</b>	
<b>Ropes and slings</b>	
<b>Anchorage – drilled-in type or attached to timber frames</b>	12 monthly inspection by a <b>competent person</b>
<b>Anchorage – other types</b>	Frequency of inspection by a <b>competent person</b> as recommended by the manufacturer to a maximum of 5-yearly. 12-monthly inspection in the absence of such recommendations.
<b>Fall-arrest devices – full service</b>	Frequency of inspection by a <b>competent person</b> as recommended by the manufacturer to a maximum of 5-yearly. 12-monthly inspection in the absence of such recommendations.
<b>Horizontal and vertical lifelines - steel rope or rail</b>	Frequency of inspection by a <b>competent person</b> as recommended by the manufacturer to a maximum of 5-yearly. 12-monthly inspection in the absence of such recommendation
<b>Horizontal or vertical lifelines</b> <ul style="list-style-type: none"> <li>• fibre rope</li> <li>• webbing</li> </ul>	6-monthly inspection by a <b>competent person</b> .
<b>All items of personal and common use equipment</b>	Inspection by a <b>competent person</b> on entry or re-entry into service.
<b>All items which have been stressed as a result of a fall</b>	<b>Removed from service and inspected by a competent person before being repaired or returned to service.</b>

Appendix C Scaffold Key Expectations

Items of Focus		Specific Requirements
<b>PPE</b>		
<b>1</b>	<b>Task Specific PPE - to be worn</b>	<p>The minimum scaffolding specific PPE <u>in addition</u> to standard PPE includes;</p> <ul style="list-style-type: none"> <li>• Suitable Gloves</li> <li>• Helmet chin strap when helmet could be dislodged</li> <li>• Goggles or foam lined glasses and P2 masks when in dusty areas or activity disturbs dust. Note, no dark shaded glasses allowed inside buildings / plant</li> </ul>
<b>Housekeeping</b>		
<b>2</b>	<b>Access &amp; Egress</b>	<ul style="list-style-type: none"> <li>• Barricading shall be installed around any scaffold that is being built or dismantled at a ratio of 1m from perimeter for every 4m of height (1:4 ratio). Where this distance is considered inappropriate, mesh screens and other protection measures shall be installed to ensure other workers are protected.</li> <li>• As the primary control, existing handrails obstructing scaffold access shall be removed after the scaffold is complete, as far as practicable considering fall risks and traffic intensity. Hard barricading must be installed to control fall risks if handrail removal is not practicable.</li> <li>• Any scaffold which impacts upon trafficable areas shall have a minimum 2100mm clearance. If the scaffold can't be designed to achieve this, signage and other controls must be implemented to mitigate personnel striking the scaffold components.</li> </ul>
<b>3</b>	<b>Lighting and Ventilation</b>	<ul style="list-style-type: none"> <li>• Ensure appropriate lighting is installed (access ways, travel routes, work area, etc.).</li> <li>• Where natural ventilation is inadequate, set up appropriate ventilation or exhaust to prevent overheating, fogging of glasses, removal of dust and gases etc.</li> </ul>
<b>4</b>	<b>Waste Material/ Excess Equipment</b>	<ul style="list-style-type: none"> <li>• Any waste material and excess equipment must be removed from the scaffold and the immediate area once erection or dismantling has been completed.</li> <li>• Surrounding areas of plant must be inspected to ensure equipment or tools haven't been left in a place where it could fall. Storage of equipment not in use must be at a designated storage area.</li> </ul>
<b>5</b>	<b>Protruding objects, sharps, pinch points</b>	<p>Ensure any protruding objects, sharps and pinch points are identified and controlled i.e. physically removed or guarded, not just being made aware of it.</p>

<b>Scaffolding</b>		
6	<b>Material Quality</b>	<ul style="list-style-type: none"> <li>All scaffold equipment must be inspected for excessive surface rust and defects prior to use.</li> <li>NO galvanised material components shall be used for internal furnace scaffolds.</li> </ul>
7	<b>Scaff-plan</b>	A scaffold plan must be prepared and approved prior to work commencing for any scaffold greater than 4m or which requires an intermediate or advanced scaffolder to construct. The approved scaffold plan must be communicated to the scaffold work party.
8	<b>Specific Risk Assessment</b>	A specific SWMS or generic SWMS supported by specific Task Risk Assessment must be performed and approved prior to performing scaffold work.
9	<b>Access to Scaffold</b>	The primary preference for scaffold access is via stairways, then internal ladders (ideally with separate access bay), with external ladders the least preferred. Where external access ladders to scaffolds exceed 4 metres a side rail must be installed.
10	<b>Self Closing Gates</b>	Self closing swing gates must be used where ladder access is established and where deemed practical. ALL void areas shall be identified and protected.
11	<b>Scaff-tags</b>	The Green Scaff-tag system must be used to identify the status of all scaffolds
12	<b>Scaffold Technique - 2m metre lifts with intermediate platforms</b>	<ul style="list-style-type: none"> <li>To eliminate work at height exposure of workers whilst erecting scaffolds, the scaffold must be built in lifts of not more than 2m with a 1m intermediate platform utilised to install handrails at the next lift prior to accessing that lift.</li> <li>An approved scaffold plan must detail any build that can't follow this method.</li> </ul>
13	<b>Work at Heights</b>	<ul style="list-style-type: none"> <li>Where fall arrest equipment is required to be used, an assessment must be undertaken to identify a clear fall zone and that a rated anchor point of 1500Kg (15KN) rating is being achieved.</li> <li>If a clear fall zone cannot be achieved, then the fall arrest technique cannot be used.</li> <li>When using a fall arrest technique a rescue plan must be developed each time.</li> </ul>
14	<b>Transporting Scaffold Equipment</b>	<p>Due to fall risks when on walkways &amp; stairs at elevated levels, the following rules/controls apply in order of preference:</p> <ul style="list-style-type: none"> <li>mechanical aids must be used whenever possible and equipment must be restrained or contained,</li> <li>barricading,</li> <li>teams lift,</li> <li>Only singular items can be carried on the shoulder. If multiple items are to be carried they must be bound together to provide better control of the load.</li> </ul>
15	<b>Work deck</b>	Any gaps on the scaffold work deck must be minimised as far as practicable. No gaps greater than 100mm should be left on the working deck.

## Appendix D Specification – Boiler Access Systems

### Introduction

This document has purpose to provide specific guidelines in relation to internal boiler access methods for all generation units at Stanwell Power Station and Tarong Power Station, including Tarong North. The underlying principle to this specification is to ensure that the Boiler work area is fit for the conduct of safe work.

This document shall be utilised to initiate communications between Stanwell (Principal) and the Contractor at an appropriate pre-engagement timing, with appropriate key stakeholders from both parties.

### Requirements

The following tables capture the expectations for engagement between Stanwell (Principal) and the Contractor in the provision of service for work to be conducted within a power station boiler.

IMPORTANT: Whereby any of the following requirements can not be met during their execution, it is expected that the relevant works shall cease immediately and appropriate review and approval by Stanwell representation will be sought.

Boiler Access Expectations				
Stanwell Power Station		Tarong Power Station		Tarong North Power Station
Focus Area	Specific Requirements			Tick / Indicate
Boiler Capacity	Our boiler throat weight load limit is _____ tonne			
	The boiler has access points for swinging stage type access			Y/N
Access Scope	No obstructions shall be permitted across the main burners			
	The Principal's summary work scope includes access to:			
	• Main burner fronts ( <i>include platform duty - light, medium, heavy or special</i> )			
	• Wall transition level ( <i>include platform duty - light, medium, heavy or special</i> )			
	• Water wall refractory level ( <i>include platform duty - light, medium, heavy or special</i> )			
	• Boiler nose level ( <i>include platform duty - light, medium, heavy or special</i> )			
	• Sootblower level – high working deck rated to 500kg/m2			
Pre-engagement	Overfire and or Side Airport Level ( <i>include platform duty - light, medium, heavy or special</i> )			
	Engineering drawings shall be finalised at not later than 30 days prior to the site mobilisation date, inclusive of access system design sign off			
	Bill of materials (BOM) shall be submitted at not later than 30 days prior to the site mobilisation date			
	An inspection certificate for the materials supplied shall be presented to the principal upon arrival of materials on site			
Boiler Access Plan	Key persons (supervisor & principal's representative) shall be nominated at not later than 30 days prior to the site mobilisation date and available for 'on-boarding' requirements			
	The Boiler Access Plan shall include:			
	<ul style="list-style-type: none"> <li>Access system design including individual deck weights, point loads, base loads and overall weight</li> <li>Physical installation methodology and requirement for both assembly and dismantle</li> </ul>			

	<ul style="list-style-type: none"> <li>Nomination of the access system working load limitations</li> </ul>	
	<ul style="list-style-type: none"> <li>ITP with key hold points for installation and removal of the access system</li> </ul>	
	<ul style="list-style-type: none"> <li>Nomination of effective lighting for purposes of background lighting, task lighting and emergency lighting</li> </ul>	

Focus Area	Specific Requirements	Tick / Indicate
Quality Assurance	A Boiler Access Plan shall be finalised and submitted to the Principal at least 30 days prior to the outage start date	
	The contractor shall provide a quality plan to describe the actions and process which will ensure a quality outcome (including key persons demonstrated competency, not just licenses)	
	The contractor shall not utilise any galvanised components within the boiler access system	
	Video monitoring (GoPro) within the boiler space may be utilised by the Principal for the duration of the outage	
Post Outage	Key persons shall be made available for post outage review critique sessions	

## Scaffold Installation & Safety Expectations

Focus Area	Specific Requirements	Tick / Indicate
Scaffold Plan	A Scaffold plan shall include:	
	<ul style="list-style-type: none"> <li>• Scaffold design including individual deck weights and overall weight</li> </ul>	
	<ul style="list-style-type: none"> <li>• Physical build methodology for both assembly and dismantle</li> </ul>	
	<ul style="list-style-type: none"> <li>• Nomination of each of the different deck functions (i.e. Overhead protection decks, access decks, and high working decks)</li> </ul>	
	<ul style="list-style-type: none"> <li>• ITP with key hold points (eg; base level check shall be recorded by the contractor and issued to the principal)</li> </ul>	
Scaffold Installation	Scaffold safety plan shall address how work at heights and falling objects will be managed; shall follow the hierarchy of controls and the construction method shall aim to <b>remove</b> work at heights/falling object issues. Where this is not practical, approval from SCL representative shall be sought.	
	The bottom of the overhead protection shall be utilised as the height reference point based upon plant working platform levels for the required plant items (Boiler work scope)	
	All decks shall have fixed flat decking	
	Access decks – gaps shall be not greater than 50mm	
	Working decks – gaps shall be in-filled to the boiler wall	
	High working decks (sootblower & burner fronts) – gaps shall be not greater than 20mm	
	Overhead protection deck – gaps shall be not greater than 10mm	
	Scafftag handover processes shall be utilised for the build and all build changes throughout the duration of the outage	
	A formal construction handover shall include inspection of the scaffold build by the principal/principal's representative prior to being authorised for work access	
	In conjunction with these requirements, scaffold installation shall comply with current codes of practice and relevant Australian Standards	
The Principal shall ensure that appropriate ventilation is provided for the full duration of the outage		
Swinging Stage Use	Code of practice requirements shall be complied with for any swinging stage installations.	

Acknowledgement of Representative/s to understand expectations:	
Contractor:	Date:
Name:	Signature:
Principal:	Date:
Name:	Signature: