



Working At Height Standard Health & Safety

Woodside Energy Ltd.

Doc No: W1000AF2656804

Rev 0

March 2007

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1 Introduction

1.1 Purpose

This Standard defines the minimum Woodside requirements to prevent or provide protection against falls while working from height and protect persons from falling objects.

1.2 Scope

This Standard shall apply to all activities managed directly by Woodside and all work activities carried out by Woodside employees.

Where a contractor operates a facility dedicated to Woodside then the standard shall apply to:

- All Woodside owned or controlled sites; and
- Non-Woodside owned sites when referenced in the contract

'Working at Height' shall mean working at any place from which a person could be injured by falling from one level to another and includes working from various forms of portable or moveable elevated work platforms, cages, ladders, scaffolding and where objects could fall and cause injury.

This Standard does not apply to rope rescue situations that are regarded as specialist activities or the use of cranes for man-riding purposes (refer *Woodside Standard – Lifting & Hoisting Practices*).

1.3 Behavioural Requirements

For the mandatory requirements listed in this Standard to be effective there are critical behaviours that personnel must adhere to. These behaviours are divided into 3 areas of responsibility:

- **Everyone** must learn and use the standards, procedures and rules which apply to them.
- **Supervisors** must visit the worksite regularly to check conformance with the standards and ensure that their team has the skills, experience and training (competence) to complete their tasks.
- **Managers** must demonstrate through their actions their commitment to a safe work place. They must regularly explain safety expectations and ensure that their personnel understand and conform with the standards.

2 Working At Height Standard

The Working at Height Standard incorporates the Golden Safety Rule and is based on the following five (5) elements:

Element 1: Planning

Consideration has been given to the methods to eliminate or minimise the need to work at height

Element 2: Training and Competency

All persons are trained and competent to perform the work including the use of all fall prevention and protection equipment.

Element 3: Equipment

All work at height equipment is fit for purpose, inspected prior to use and maintained by competent persons.

Equipment which is found to be damaged or defective is removed from service.

Element 4: Work Methods

All items including tools and equipment are secured.

Fall arrest systems are used only after all other methods for safe work at height have been considered and discounted.

Element 5: Rescue

A rescue plan is in place to minimise suspension trauma.

3 Requirements to Manage Working At Height

Element 1: Planning

Consideration has been given to the methods to eliminate or minimise the need to work at height.

Mandatory Requirements

- 1.1 Systems and procedures for working at height are to be established, implemented and maintained. They shall address the requirements set out in this Standard and be effective in controlling the activities to which they apply.
- 1.2 Prior to commencing work at height a formal risk assessment (e.g. JHA) shall be conducted.
- 1.3 If the scope of work changes or the risk of a fall increases the risk assessment shall be reviewed.
- 1.4 Each facility / site shall identify the working at height activities which are carried out under the control of a Permit to Work.

Guidance

- 1 The selection of suitable control measures should be determined against the Hierarchy of Control as listed below:
 - Elimination of the Hazard i.e. eliminate the risk of falling by conducting the work at ground level;
 - Substitution of the work method by utilising Edge Protection, Advanced Guard Rail Systems, Elevating Work Platforms, etc.;
 - Engineering such as modification of tools or equipment;
 - Administration controls include Working at Height Training, Risk Assessments, Permit to Work, Signs etc.;
 - Fall protections systems such as Fall Restraint and Fall Arrest Systems.

Note: Fall Arrest is a last resort in the Hierarchy of Control and is only be used where other options have been exhausted.

- 2 When conducting the risk assessment consideration should be given to the following:
 - Whether work can be carried out from the ground or a solid structure;
 - Specialist skills required;
 - Potential of falling objects and personnel to fall;
 - The potential for weather or other external conditions to impact on the activity;
 - Provision for suitable access and egress;
 - Conditions of supporting structures such as roofs, structural steel and the loading to be placed on these items;
 - Location and integrity of suitable anchor points;
 - Fall clearances i.e. length of lanyard + tear out distance of shock absorber + height of user (+static line if used) + safety margin;
 - Potential for pendulum effect; and
 - Rescue in the event of a fall (Requirement for a Rescue Plan).

Element 2: Training and Competency

All persons are trained and competent to perform the work including the use of all fall prevention and protection equipment.

Training and Competency

Mandatory Requirements

- 2.1 All personnel required to work at height shall undergo appropriate competency based work at height training which includes work methods and use of equipment.
- 2.2 Personnel who work at height shall be assessed for physical suitability and capability before being assigned duties involving working at height.
- 2.3 Individuals suffering from conditions which increase the risk of a fall shall not be given tasks involving working at height.
- 2.4 Personnel who operate Elevating Work Platforms or erect scaffolding shall be competent and have the required legislated certificates or licensing for the region in which they are working.
- 2.5 Persons who are required to respond to 'height' emergencies shall be trained in rescue from height techniques specific to their site's Rescue Plans.
- 2.6 Persons installing, using, inspecting, servicing and disposing of fall protection equipment shall be competent.

Guidance

Certain conditions that could preclude personnel from working at height include (but are not limited to):

- Epilepsy
- Vertigo
- Fear of heights.

For further information see the *Woodside Standard - Fitness for Work*.

Records

Mandatory Requirements

- 2.7 Records shall be kept of personnel's working at height competencies

Element 3: Equipment

All work at height equipment is fit for purpose, inspected prior to use and maintained by competent persons.

Equipment which is found to be damaged or defective is removed from service.

Design

Mandatory Requirements

- 3.1 During the planning and design of buildings, structures, plant and equipment consideration shall be given to providing adequate access/egress facilities and fall protection systems.
- 3.2 Hand rails shall be capable of withstanding 55 kilograms.
- 3.3 All work at height equipment shall comply with applicable local legislative requirements.
- 3.4 Where an industrial rope access system is to be used it shall meet the requirements of the Industrial Rope Access Trade Association (IRATA) *International Guidelines on the Use of Rope Access Methods for Industrial Purposes*.
- 3.5 Work Boxes shall be designed, inspected and approved in accordance with *Woodside Lifting Equipment Standard - W9000AG400*.
- 3.6 Each Work Box shall be fitted with anchor points to allow all occupants to wear Fall Arrest equipment attached to the anchor points at all times whilst the Box is in use.

Guidance

Where local legislative requirements do not exist then the following standards should be used for design:

- Fixed Work Platforms - AS 1657 *'Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation'*.
- Elevating Work Platforms - AS 1418.10.
- Scaffolding - AS/NZS 4576 and the AS/NZS 1576 series.
- Work Boxes - AS 2550.1 *Cranes, hoists and winches – Safe use of workboxes and AS 1418.1. Cranes (including hoists and winches) Part 17: Design and Construction of Workboxes*.
- Fall arrest/restraint - AS/NZS 1891.1-4 *Industrial Fall Arrest Systems and Devices*.

The design of facilities, plant and equipment where persons may be required to work at height should consider:

- Assembly of structures and or equipment at or close as practical to ground level;
- Designing of safe access and egress to the work area including Roofs;
- Providing permanent platforms and guard rails;
- Use of temporary work platforms and access e.g. scaffolds, elevating work platforms, mast climbers etc.; and
- Provision of temporary and permanent anchorage points for Fall Protection (Restraint and Arrest) systems.

Mandatory Requirements

Equipment Inspection and Maintenance

- 3.7 A system shall be in place to ensure that all equipment used in working at height is inspected and maintained by a competent person.
- 3.8 Equipment identified as being defective or 'out of date' shall be immediately removed from service and repaired or destroyed.
- 3.9 Records shall be kept of inspection and maintenance of working at height equipment.

Guidance

The fall protection equipment inspection regime should include:

- The equipment to be inspected;
- The frequency and type of inspection;
- Competent persons to carry out the inspection;
- Action to be taken on finding defective equipment;
- Means of recording the inspections; and
- The system of monitoring the inspection regime to verify that inspections are carried out at the required frequencies.

Mandatory Requirements

Edge Protection

- 3.10 Edge protection (e.g. guard rail systems) shall be provided to the edge of a scaffold, fixed stair landing, suspended slab, platform, access ramps, formwork or false work where a person has the potential to fall from one level to another.
- 3.11 The edge protection system shall be capable of withstanding a force of 0.55 Kilonewtons.
- 3.12 Where edge protection is used on a roof with a pitch greater than 15° from the horizontal, then the guard rails shall be able to withstand the additional impact forces associated with the momentum of a person or object.

Guidance

Edge protection should consist of a top rail positioned not less than 900mm and not more than 1100mm above the working surface and a mid rail that is positioned midway between the top rail and the toe board.

Element 4: Work Methods

All items including tools and equipment are secured.

Fall arrest systems are used only after all other methods for safe work at height have been considered and discounted.

Prevention of Falling Objects

Mandatory Requirements

- 4.1 Tools, equipment and materials used for working at height shall be secured or barriers put in place to prevent them from falling.
- 4.2 Where the potential risk of falling objects cannot be eliminated due to the nature of the task e.g. erecting scaffolding, installing of bolts and nuts etc. then barricades and signage shall be installed to restrict access to the area below.
- 4.3 The determination of the extent of restricted access to areas shall consider the likelihood of falling objects deflecting from structures.

Guidance

The following methods for securing tools and equipment should be considered:

- Provision of suitable storage containers for tools and equipment.
- Placing tools on tool mats on work platforms and scaffold landings.
- Maintaining toe boards in place on scaffold landings and work platforms.
- Keeping hand tools secured in tool belts or kit bags.
- Attaching tool to a lanyard (lanyard attachment must still allow the tool to be used effectively).
- Providing Infill screens, such as mesh guards or meshing to stop equipment passing through gaps between handrails.
- Securing of Plywood to grid mesh flooring to cover penetrations.
- The use of overhead protection.

Elevating Work Platforms (EWP)

Mandatory Requirements

- 4.4 When using an EWP a spotter shall be used where there are congested areas, blind spots (obscured vision) or where there is the potential for injury and or damage to plant or equipment.
- 4.5 Every person in the basket of a 'boom' type EWP e.g. cherry picker shall be secured at all times during operation with Fall Arrest equipment.
- 4.6 Activities involving EWP use shall be undertaken according to local legislative requirements.
- 4.7 Persons shall not access or exit a mobile work platform while it is in the raised position, unless no other safe access exists and a safe system for access and egress has been established.
- 4.8 Where local legislative requirements do not exist then the following standard should be used to govern the use of EWPs - *AS 2550.10 Cranes - Safe Use – Elevating Work Platforms*.

Guidance The use of fall arrest equipment is not mandatory for persons working inside ‘scissor-lifts’ unless the manufacturer has specified its use and has fitted an anchor point, or a risk assessment has determined that the use of fall arrest equipment is required as a control.

Work Boxes

Mandatory Requirements 4.9 Work Box shall only be used where it is not practicable to use alternative methods such as scaffolding or EWPs.

4.10 The use of work boxes and associated lifting equipment shall be in accordance with *Woodside Standard - Lifting and Hoisting Practise*.

Scaffolding

Mandatory Requirements 4.11 Scaffolding shall only be erected by a competent person (refer 2.4).

4.12 The status of scaffolding shall be clearly displayed during construction, use and dismantling by the use of a system of tags or labels e.g. the ‘Scafftag’ system.

4.13 A competent person (e.g. licensed scaffolder) shall formally inspect each scaffold after construction to ensure it is safe for use.

4.14 Scaffolds shall not be fitted with a lifting device unless the requirements of *Woodside Standard - Lifting and Hoisting Practise* have been met.

4.15 Modular scaffolding equipment shall be standardised at the site to prevent incompatible equipment being used.

Guidance In the first instance scaffolds are fully decked out at each level and an advanced guardrail system used to prevent the scaffolder from falling during the construction, dismantling or altering phases.

Where an advanced guardrail system cannot be fitted due to the nature of scaffold e.g. Drop scaffold, then an alternative safe method is to be used. The preferred approach will be to use other fall prevention or restraint systems in the prevention of falls.

Ladders

Mandatory Requirements 4.16 Where a ladder is used it shall be fit for purpose and shall comply with any local legislative standards.

4.17 While climbing a ladder, a person shall maintain at least three points of contact.

Guidance Ladders are primarily used for access and egress to working area. Where a ladder is used to perform work, the risk assessment should review the controls required to prevent a fall.

Where ladder access is used, items such as tools and equipment are not to be carried by hand. Provisions should be made to use equipment such as cranes, material hoist, gin wheel, enclosed tool bags etc.

Where local legislative requirements do not exist then *AS/NZ 1892 – Portable Ladders* should be used.

Fall Restraint

Mandatory Requirements

4.18 Fall restraint systems shall be used in preference to fall arrest whenever practicable.

Guidance

Fall restraint systems are used to prevent the user from reaching an unprotected edge where a fall is possible. A fall restraint system shall consist of anchorage point(s), a static line or restraint line and a harness.

A fall restraint system should consider the following points:

- The slope of the surface;
- Integrity of supporting structures;
- The nature of the surface;
- Anchorage points;
- Safe access and egress.

Fall Arrest

Mandatory Requirements

4.19 A fall arrest system shall only be used as a last resort.

4.20 The fall arrest system shall include:

- i Single person anchor point capable of supporting 15 Kilonewtons;
- ii Anchor points which are mounted overhead where practicable;
- iii A full body harness shall be worn which incorporates double latch self-locking snap hooks at each connection; and
- iv A lanyard which incorporates a shock absorber.

4.21 The fall arrest equipment shall limit free-fall to tolerable levels.

4.22 Fall clearances shall be checked to ensure that there is adequate clearance between the point of fall and collision with next level or from pendulum effect.

Guidance	<p>Anchor points should be fit for purpose and capable of withstanding a 15 Kilonewton load (1500 kilograms) for one person in a free-fall arrest situation.</p> <p>Anchor points are, wherever possible, mounted over head to reduce swing and free fall distance.</p> <p>Personnel must not be exposed to falling to levels below prior to being securely connected to, or after, disconnected from, the anchor point.</p> <p>A lanyard is used for connecting between the harness and the anchor point via double latch self locking snap hooks at each end. The lanyard incorporates a shock absorber which is designed to arrest a fall not exposing a person to a force greater than 300kilograms.</p> <p>Do not wrap lanyards around beams for anchoring - use the correct anchorage equipment.</p> <p>Fall clearances shall be checked to ensure that there is adequate clearance between the point of fall and collision with next level or from pendulum effect. Fall clearance is calculated as the length of lanyard + the tear out distance of the shock absorber + height of user + height of anchor point (+sag in static line if used) + safety margin.</p> <p>The lanyard assembly should be capable of absorbing free fall force to 6 kilo newtons (600kg).</p>
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Element 5: Emergency Response

A rescue plan is in place to minimise suspension trauma.

Mandatory Requirements	<p>5.1 A task-specific Rescue Plan shall be in place prior to any work at height commencing;</p> <p>5.2 The Rescue Plan shall identify and reduce the risk associated with Suspension Trauma where a person is suspended in a harness.</p>
Guidance	<p>The Rescue Plan should address the following:</p> <ul style="list-style-type: none"> • Safe methods of retrieval (including but not be limited to the requirement for self or work group rescue capability); • The minimum personnel and competency requirements to successfully affect a rescue; • Requirements for a 'Stand-by Person', who shall be competent to provide emergency assistance in the event of an incident; and • The setting up of the rescue system prior to conducting the work.

4 Quality Assurance

Quality Assurance of this Standard shall be undertaken in accordance with the requirements of the *Woodside Health and Safety Sub-Process*.

5 User Feedback

Users of the Standard are encouraged to report any mistakes or confusing entries, or to provide suggestions for improvement by contacting the Standard Custodian.

6 Reviewing This Standard

This Standard shall be reviewed by the Standard Custodian at a minimum on a three yearly basis.

7 Definitions

Definitions that are critical to the understanding of this Standard are provided in the tables below. Definitions of other terms and abbreviations are provided in the *Woodside Guideline - Glossary of Health Safety and Environment Terms*.

Term	Meaning
Competent Person	A person who has through a combination of training, education and experience, acquired knowledge and skills enabling that person to correctly perform a specified task.
Elevating Work Platform (EWP)	Any self propelled or truck mounted device that is designed to raise or lower personnel, tools and equipment such as boom lifts, knuckle booms cherry pickers and scissor lifts.
Fall Arrest	Any system or device that limits the distance a person can fall and supports a person who has fallen from height to prevent striking the ground or a lower level structure.
Fall Restraint	Devices used to restrain a person including harnesses, waist belts and lanyards, there by isolating a person from a fall. Movement is restricted to the extent that it prevents a person going near the open edge or from falling.
Work Box	A work box is an approved, engineered designed and constructed cage which is suspended from a crane for the purpose of conducting work from.

8 Supporting Documentation

Type	Title	Location (CDC No. or reference)
Process	Woodside Health and Safety Sub Process Description	W2000AG2714217
Standards	Woodside Standard – Fitness for Work	W1000AF2662664
	Woodside Standard – Permit to Work	W1000AF2662536
	Woodside Standard - Lifting and Hoisting Practise	W1000AF2572510
	Woodside Lifting Equipment Standard	W9000AG400
Other Woodside Documents	Karratha Gas Plant Working At Heights Site Standard	Standard 161
	Cossack Pioneer Offshore Safety Manual Work Co-ordination and Practices Sections 58-60	Volume 1A
	GWA NRA Offshore Safety Manual Cold Work Practices 'Work Aloft and Overhead' and 'Work Below and Overside'	Chapter 10
	Ladder Safety Within Woodside Plaza	August 2005
Other References	Prevention of Falls In The Workplace - Worksafe WA Code Of Practice	WA Code of Practice - Prevention of Falls
	NOHSC Draft Code Of Practice For The Prevention Of Falls In The Construction Industry August 2005	NOHSC Draft Code of Practice- Prevention of falls in the construction industry
	IRATA - International Guidelines on the Use of Rope Access Methods for Industrial Purposes - June 2001	Industrial Rope Access Trade Association (IRATA) -
	AS 1657 'Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation' (1992)	Australian Standards
	AS 1418.1. Cranes (including hoists and winches) Part 17: Design and Construction of Workboxes; (2002)	Australian Standards
	AS 1418.10 -Elevating Work Platforms (2002/04)	Australian Standards
	AS/NZS 1891.1-4 Industrial Fall Arrest Systems and Devices. (1995-2004)	Australian Standards
	AS/NZS 1576 Scaffolding series (1992-2000)	Australian Standards
	Scaffolding - AS/NZS 4576 – Guidelines for Scaffolding (1995)	Australian Standards
	AS 2550.1 Safe Use - Cranes, hoists and winches – General Requirements (2002)	Australian Standards
	AS 2550.10 Cranes - Safe Use – Elevating Work Platforms (2006)	Australian Standards
	AS/NZ 1892 – Portable Ladders - Series(1996-2000)	Australian Standards