AZERBAIJAN BUSINESS UNIT

(AzBU)

Procedure for:
Scaffolding

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C1	05.10.04		G.Stacey	G.Hunt	J. Thompson	G. Campbell

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1 INTRODUCTION

1.1 DOCUMENT PURPOSE

This document contains the guidelines necessary for the safe:

- construction, use, dismantling and control of scaffolding
- use of ladders.

1.2 DOCUMENT SCOPE

The guidelines contained in this document apply to all BP owned or managed sites and installations in Azerbaijan and Georgia.

All guidelines contained shall be regarded as the **minimum** requirements for BP owned or managed sites in Azerbaijan and Georgia

1.3 SCAFFOLDING DEFINITION

Scaffolding is a temporary structure on which persons work and which provides support for the materials used in construction, maintenance, repair or demolition work. It can also be used to obtain access to certain areas of equipment.

Where work cannot safely be carried out from ground level or from part of a building or other permanent structure, there must be provided either scaffolding or, where appropriate, ladders or other means of support.

Note: The erection, dismantling and alteration of scaffolding must be carried out by competent workmen under competent supervision

2 RESPONSIBILITIES

2.1 SITE MANAGER

The Site Manger is responsible for:

- ensuring the requirements of this standard are implemented on their facilities
- appointing a competent person to inspect and certify scaffolds as safe to use.

3 SCAFFOLDING DESIGN REQUIREMENTS

3.1 MATERIALS

3.1.1 All Materials

Before use, a competent person must inspect all scaffolding and material used in construction in order to ensure:

- it is in good condition and is serviceable

> **Note:** Damaged or deteriorated equipment **shall not** be used

- It is in compliance with BS 5973 & other relevant British Standard documentation.

3.1.2 Wooden Boards

Wooden boards should be inspected to see that they are:

- graded for scaffold use

> **Note:** Wooden boards used for scaffolding must be specifically graded for scaffold use by a nationally recognised grading agency.

- is sound and in good condition
- straight grained, free from saw cuts, splits and holes.
- In the case of 38mm thick, are banded at either end or nail plates fitted

3.2 CONSTRUCTION

3.2.1 National Requirements

The scaffold assembly must be designed to comply with local state or United Kingdom requirements, whichever is the higher.

Scaffolds required with a loading capacity greater than 2.5kn/m2 must always be subject to qualified scaffold designer input / approval.

3.2.2 Load Calculations

Frame spacing and mud sill size can only be determined after the total loads to be imposed on the scaffold and the strength of the supporting soil or structure are calculated and considered. A qualified person prior to the scaffold structure being built must do this analysis.

> **Note:** Manufacturers load carrying information shall be used for design calculations

3.2.3 Construction, Dismantling and Alteration

Competent workmen under competent supervision must carry out the erection,

dismantling and alteration of scaffolding.

Plumb and level scaffold until connections can be made with ease. Do not force members to fit. Be sure scaffold stays level and plumb as erection progresses.

During dismantling of scaffolding, tubes and fittings shall not be dropped to the ground but always carefully lowered. Tubes shall be stacked flat and fittings collected into bags or containers.

3.2.4 Support and Bracing

Scaffolding must be securely supported or suspended, and where necessary braced to ensure stability. Unless constructed as freestanding independent scaffolding, it must be rigidly connected with the building or structure (not to pipe work).

Ties, guys, bracing and/or outriggers may be needed to assure a safe stable scaffold assembly. Determine the need for stability bracing.

If in doubt – ask.

The requirement for stability bracing is dependent upon:

- the height of the scaffold in relation to the minimum base width

> **Note:** Freestanding Scaffolds with a height in excess of 4 times internally or 3.5 times externally, the minimum base width dimension must always be secured to a rigid structure or seek alternative means of support.
>
> **Internally = no wind loading**
>
> **Externally = relatively sheltered locations / minor wind loading**

- wind loads
- the use of brackets or cantilevered platforms
- imposed scaffold loads.

Ties:

- The bottom tie must be placed no higher than four (4) times the minimum base width and every four (4) meters vertically thereafter. Ties should be placed as close to the top of the scaffold as possible and, in no case, more than three (3) times the minimum base width of the scaffold from the top.
- Vertical ties should be placed at the ends of scaffold runs and at no more than 4meters horizontal intervals in between.
- Ties should be installed as the erection progresses and not removed until the scaffold is dismantled to that height.
- Ties should be constructed to 6.25kn (slipload) unsheeted & 12.5kn sheeted

Guys:

- Each leg of a freestanding tower must be guyed at the intervals outlined above or otherwise restrained to prevent tipping or overturning.

Note: Circular scaffolds erected completely around or within a structure may be restrained from tipping by the use of "stand off" bracing members.

3.2.5 Planks

- Work platforms must be fully boarded either with scaffold graded solid sawn or laminated boards, in good sound condition, or with fabricated platforms in good condition.
- Each board must overlap the support by a minimum of 1.5 x thickness or be cleated / securely tied for example, 3 metre board on 2.8 meter spans
- must be cleated/securely tied.
- Board must not extend beyond the support by more than 4.5 x thickness Such overhangs should be separated from the work platform by guard-railing so that they cannot be walked on.
- Spans of full thickness, 50mm by 250mm scaffold grade boards, should never exceed 2.6m. Loads on boards should be evenly distributed and not exceed the allowable loads for the type of board being used.
- Spans of normal thickness (38mm) boards should never exceed 1.5m.
- Boards and/or platforms should always be secured to scaffolding to prevent uplift or displacement due to high winds or other job conditions.

3.2.6 Guardrails and Toe Boards

- The scaffolds shall be supplied with the toe boards and guardrails when the height of board location is 1,3 m and over.
- The height of the top guardrails shall be between 910mm & 1150mm and distance between the posts of guardrails should not exceed 2.7 metres.
- Guardrails must be used on all open sides and ends of scaffold platforms. Both top and mid-rails are required. Local codes specify the minimum heights where guardrails are required, however, use at lower heights if falls can cause injury.

3.2.7 Transoms

A transom is a length of scaffold tubular used as a cross-member to support boards on working lifts & provide lateral structural support on non-working lifts. Particular care and attention shall be paid to the use of transoms. In particular:

- transoms should overhang the support points by at least 150mm
- transoms hangers shall be used with bolts fastened to support transoms on frames
- transoms spans greater than 2.7m (very light duty), 2.4m (light duty) or 2.1m (general purpose) require knee bracing and lateral support
- transoms used as side or end brackets need special bracing.

Note: Transoms **must not** be used for the storage of materials.

3.2.8 Scaffold Access

Access must be provided to all work platforms. If it is not available from the structure, access ladders, frames with built-in ladders, or stairways must be provided. When frames with built-in ladders are used, cleated boards or fabricated boards must be used at platform levels to minimize or eliminate platform overhang. Access ladders must extend at least 1 metre above platforms.

3.2.9 Bridging Scaffold

Bridging between towers should not be done with boards or stages unless the

overturning moments have been compensated for & suitable guardrails, ties etc are fitted.

3.2.10 Mud Sills and Screw Jacks

Mud sills must be of adequate size to distribute the loads on the scaffolding to the soil or supporting structure. Sills should be level and in full contact with the supporting surface.

Base plates or screw jacks with base plates must be in firm contact with both the sills and the legs of the scaffolding. Compensate for uneven ground with screw jacks with base plates. DO NOT USE unstable objects such as blocks, loose bricks, etc.

3.2.11 Dismantling Scaffold

3.3 ROLLING SCAFFOLDS

The tower height must not exceed 3.5 times internally or 3 times externally the minimum base dimension. Outrigger frames or outrigger units on both sides of the tower may be used to increase base width dimension when necessary.

All casters must be secured to frame legs or screw jacks with a nut and bolt or other secure means. Total weight of tower + men, materials & tools etc should not exceed the capacity of the casters.

Screw jacks must not be extended more than 300mm above caster base. Tower must be kept level and plumb at all times.

Horizontal/diagonal (plan) bracing must be used at the bottom and top of tower and at least every alternate lift. Fabricated boards with hooks may replace the top diagonal brace.

- All frames must be fully cross-braced.
- Only prefabricated boards or cleated / tied boards should be used.
- Casters must be locked at all times the scaffold is not being moved.

4 INSPECTIONS AND SCAFFTAGS

4.1 SITE INSPECTION (PRE-CONSTRUCTION)

The job site should be inspected to determine ground conditions or strength of supporting structure, and for proximity of electric power lines, overhead obstructions, wind conditions, the need for overhead protection or weather protection coverings. Special care is needed when scaffolding is to be erected on fill or other soft ground or on frozen ground. These conditions must be evaluated and suitably provided for.

4.2 SITE INSPECTION (POST-CONSTRUCTION)

A competent person shall inspect scaffolding:

- before it is first used and then at least once every week
- following any alteration
- if it has been exposed to weather conditions likely to affect its strength or stability.

Details of inspections must be recorded & must be auditable.

4.3 SCAFFTAGS

“Scafftags” shall be used on all scaffold structures, whether complete or part complete/dismantled to indicate whether or not the scaffolding is safe to use.

Scafftags must be positioned prominently at access points to scaffold structures.

When scaffolding is incomplete (whether partly erected or dismantled) or considered to be unsafe for any reason, the green scafftag must be pulled to display the red (Do Not Use) tag.

In addition, access to the scaffold shall be barriered off as soon as practicable.

5 SCAFFOLDING USE

5.1 INSPECTION

Inspect the scaffold assembly before each use. In particular, check:

- the Scafftag – Pay particular attention to the load rating
- that the scaffold is assembled correctly:
    - that it is level and plumb
    - base plates are in firm contact with sills
    - bracing is in place and connected
    - platforms are fully boarded with guardrails in place
    - safe access is provided
    - that the scaffold is properly tied and/or guyed

- there are no overhead obstructions or electric cables within 4 meters of the scaffold assembly.

5.2 ACCESS

Use only the safe means of access provided. Do not climb bracing or frames not specifically designed for climbing. If access is not provided, insist that it be provided.

5.3 WORKING SAFELY

5.3.1 Personnel Movement on Scaffold

While working on scaffold, personnel shall take care to climb safely. The following work practices shall apply:

- Climb safely. In particular, when on ladders:
  - face the rungs as you climb up or down.
  - use both hands on the ladder and maintain 'three point' contact (keep one hand firmly on frame or ladder at all times)
  - do not try to carry materials while you climb
  - ensure footing and balance before releasing hand grips
  - do not work on / from the access ladder
- do not overload platforms with materials
- **Never** add sheeting to a scaffold structure without consulting a qualified person.
- do not extend working heights by using boards guardrails or by use of boxes or ladders on scaffold platforms
- Do not remove any component of a completed scaffold assembly. Alterations shall only be carried out by suitably qualified / authorised personnel under the supervision of a qualified person.

Note: Any removed component should be immediately replaced.

5.3.2 Dropped Objects

Loose articles and materials must be kept to an absolute minimum on scaffolding platforms. All necessary precautions must be taken to prevent objects from falling from scaffolds, e.g. by use of toe boards.

5.3.3 Cantilevered Platforms

Materials should never be placed on cantilevered platforms unless the assembly has been designed to support material loads. (These types of platforms cause overturning and uplift forces, which must be compensated for. All frames should be fastened together to prevent uplift an overturning moment compensated for with counterweights or adequate ties).

5.3.4 Hoisting and Lifting

Scaffold should not be used as material hoist towers or for mounting derricks unless the assembly is designed for that purpose.

5.4 ROLLING SCAFFOLDING

- Do not ride manually propelled rolling scaffold. No personnel should be on the tower while it is being moved.
- Lock all casters before getting on the tower.
- Work only within the platform area: do not try to extend overhead work area by reaching out over guard railing.
- Do not bridge between two rolling towers with boards or stages.
- Secure all materials before moving scaffolds.
- Be sure floor surface is clear of obstructions or holes before moving scaffold.
- Be sure there are no overhead obstructions or electric power lines in the path of rolling scaffold.
- Rolling towers must only be used on level surfaces.
- Move rolling towers by pushing at the base level only. Do not pull from the top.

5.5 "QUICK ERECT" ALUMINIUM SCAFFOLDING

The use of "quick erect" aluminium scaffold systems can be used subject to local controls such as restricting use to non-hazardous areas and appropriate storage.

Site specific procedure needs to be in place approved by Site Manager.

6 LADDERS

Ladders may be used as a short-term alternative to scaffolding or as means of access to scaffolding, providing the points listed in this section are considered.

Note: Ladders are potentially dangerous. The must common type of accident occurs through a ladder slipping.

6.1 TRANSPORTING AND MOVING LADDERS

Unless space restrictions dictate otherwise, always carry ladders parallel to the ground.

Do not move, shift, or extend a ladder while the ladder is occupied.

Note: **Do not** walk under a ladder

Tie ladders down securely when transporting.

6.2 MAINTENANCE

Ladders shall be inspected and maintained by a competent person. The record of inspections shall be registered not be longer than six months.

Maintain ladders free of oil, grease, and other hazards.

Do not use any ladder with structural defects; properly tag the ladder with a "Do Not Use" notice and withdraw the ladder from service.

6.3 PREPARATION

Inspect ladder prior to EVERY use.

Before using a ladder, ensure that it is the correct item of equipment for the job in hand and that it is in good condition

Warning: Aluminium ladders **must not** be used in hazardous areas due to the danger of sparks when the ladder impacts steel).

Use ladders only for the purpose for which they were designed (refer to manufacturer's labelling and recommendations).

6.4 SAFE USE OF LADDERS

- Always place a ladder on a firm base, set the angle near to 75°.
- Make sure the ladder projects well above the level at which the user stands.
- Ensure sufficient overlap between stages of extension ladders.
- Secure the ladder in place wherever reasonably practicable.
- A standby person should remain at the base of the ladder whenever the ladder is in use.
- Do not load ladder beyond maximum intended load.
- Barricade traffic areas in vicinity of ladder use, and lock, barricade, or guard doorways in which a ladder is placed.
- Keep area around the top and bottom of ladder clear.
- Use only non-conductive side rails around live electrical equipment.
- Do not use top or top step for standing/stepping.
- Do not stand on cross bracing.
- Always face the ladder when ascending or descending.
- Always maintain 3 points of contact with the ladder (2 feet/1 hand or 2 hands/1 foot should be in contact with ladder at all times).
- Carry tools in pouches around waist; use a rope to raise or lower large items such as tool boxes or materials.

- Do not overextend sideways. Use the belt buckle rule: keep your belt buckle positioned between the side rails at all times, which will maintain your centre of gravity.
- Never allow more than one person on the ladder at a time.
- Do not erect ladders on sloping surface ,leaning to one side or at to steep an angle.
- Do not erect ladders for use as a board or bridge.