Procedure for Machine Guards

AZSPU-HSSE-DOC-00057-2

This number supersedes **UNIF-HSE-PRO-151-C1**

Authority:	AzSPU Safety & Compliance Systems Manager	**Custodian:**	HSE Systems / CoW Adviser
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1 PURPOSE / SCOPE

1.1 PURPOSE

This document contains information on:

- The conditions and situations where machine guards must be in place and used
- The reasons for installing machine guards and the conditions that must exist before they may be removed
- The type of guards and protective devices available and the considerations governing their choice and design.

1.2 SCOPE

The contents of this procedure are applicable to all AzSPU owned and managed sites / installations in Azerbaijan and Georgia. Contractors/vendors working on AzSPU owned or managed sites / installations are also responsible for alignment with this procedure.

This document does not replace the procedures prepared and adopted by specialist contractors. Neither does it supersede any national regulatory requirements.

This procedure contributes to compliance with the “HSE expectations” contained in “getting HSE right”, the ‘Golden Rules of Safety’ and the Control of Work (CoW) standard that the Hazards associated with BP activities are identified and that the risks are assessed and managed.

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

The scope covers defined activities of BP AzSPU and Contractors at all BP AzSPU sites and installations.

2 DEFINITIONS

Refer to document AzSPU-HSSE-DOC-00021-2 HSE Definitions for definitions common to this Procedure. Definitions specific to the Procedure are included below.

SM	Site Manager
SC	Site Controller
OIM	Offshore Installation Manager
AA	Area Authority
PA	Performing Authority
ALARP	As Low as Reasonably Practicable
COW	Control of Work
AzSPU	Azerbaijan Strategic Performance Unit
ALARP	As Low as Reasonably Practicable
SSoW	Safe System of Work

3 GENERAL REQUIREMENTS

3.1 BP AZSPU REQUIREMENTS

It is a company requirement that all tasks are subjected to an assessment of risk to demonstrate that risks have been reduced to as low a level as reasonably practicable (ALARP). This can be achieved by complying with the BP's existing standards. Where compliance with BP standards cannot reasonably be achieved, a formal level 2 Risk Assessment will be undertaken to identify any additional controls and demonstrate that risks remain as low as reasonably practicable. Whether by compliance with BP Standards or through level 2 Risk Assessment, the BP Golden Rules of Safety must be complied with. Golden Rules are non-negotiable.

3.2 LEGISLATION & STANDARDS

This procedure complies with applicable national law. Applicable national law is national law as amended by project specific agreements, e.g. the ACG Production Sharing Agreement (PSA), and relevant International Conventions, if any, in force in Azerbaijan or Georgia, as applicable.

In the absence of national legislation, or where national legislation is inconsistent with the requirements of project specific agreements, BP Group Standards or applicable requirements from UK or US legislation will be complied with.

Where requirements conflict, legal advice has been obtained and a defendable compliance position adopted.

The standards and practices contained in this procedure are consistent with those internationally recognized within the petroleum industry.

3.3 STOPPING UNSAFE WORK

To stop the continuation of potentially unsafe work at the earliest possible stage, the Control of Work (CoW) Policy and this procedure for Machine Guards make it very clear that all personnel are obliged and have the authority to **"STOP"** the work that they consider to be unsafe.

3.4 DEVIATIONS

This procedure is written in sufficient detail that it should be able to be applied consistently at all sites / installations. There may still be the requirement for some local rules covering site / installation specific logistical/administrative arrangements and local variations in responsibilities to reflect differences in organisational arrangements. These local rules should not deviate from the core processes within this document. Any form of deviation from this procedure, including but not limited to local rules, shall be requested and authorised in accordance with SSOW, Deviations from Regulations and Procedures (Doc. No: AZSPU-HSSE-DOC-00011-2).

3.5 LANGUAGE FACILITATION

Due to the various languages spoken at sites / installations, there is a necessity to assist all with “an ease of understanding”.

4 RESPONSIBILITIES

4.1 SITE MANAGER (SM) / SITE COORDINATOR (SC) / OFFSHORE INSTALLATION MANAGER (OIM)

The Site Manager / Site Controller / Offshore Installation Manager shall be responsible and accountable for the application of this procedure in his area of responsibility, He shall ensure:

- That adequate numbers of Competent responsible persons are appointed to manage and maintain the requirements of this procedure

Note: Guards and safety devices shall be checked following any repairs or modifications.

4.2 AREA AUTHORITIES (AA)

Area Authorities are responsible for ensuring that:

- That the requirements of this procedure are adhered to for all work involving leak testing activities in his area of responsibility
- All fixed machinery in their area is guarded in accordance with this procedure
- All machine guards and safety devices in their area are routinely checked and maintained in working order

4.3 PERFORMING AUTHORITIES (PA)

Performing Authorities are responsible for ensuring that all portable equipment that is used by the personnel under their control conforms to this procedure.

4.4 ALL PERSONNEL

All personnel are responsible for:

- Ensuring that the machinery and equipment they use or maintain has all the necessary guards in place and that all guards are properly fitted
- Immediately reporting to their supervisor if they believe a machine is in a dangerous condition or if any guards or protective devices are faulty

5 MACHINE GUARD REQUIREMENTS

5.1 ALL MACHINERY

Guards must be fitted to those parts of a machine wherever:

- Cutting, shaping or boring of any material is performed
- There are components that transmit energy, including:
  - flywheels
  - pulleys
  - belts
  - cranks
  - gears
  - couplings, etc.
- There are moving parts which can be reciprocating or rotating, including feed mechanisms and other accessories
- Debris or products may be emitted / ejected that present a danger to the operator and /or nearby personnel, e.g., deflectors for relief valves, screens for bench grinders and lathes, etc.

In addition, where deemed necessary, guardrails or barricades may be placed around equipment to prevent personnel from getting close to it.

5.2 AUTOMATIC MACHINERY

Guards must be installed on equipment that can start automatically (and / or without warning) such as air compressors, diesel sets, etc.,

In addition, warning signs such as "**Caution - This machine can start automatically**!" shall be posted near all such equipment.

5.3 SELECTION AND USE OF GUARDS

Fixed and/or adjustable guards such as covers and plates are the most common type of guard and should be used wherever possible. The guards should be properly fastened in place with screws or nuts and bolts which need tools to remove them.

Interlocks, designed to shut down the machine if protective covers are opened or removed, should be used where fixed guards are not reasonably practicable and the equipment user / maintainer needs regular access to parts of the machine. The interlock should ensure that the machine cannot start before the guard is properly replaced / closed and must also ensure that the machine will stop if the guard is opened while the machine is moving.

Two-hand controls are designed to prevent the operator 'reaching in' while the machine is running and should therefore be located at a safe distance from the danger area.

Emergency stop controls should be located within easy reach of the operator, particularly on larger machines so that they can be operated quickly in an emergency.

In some cases, **presence sensing devices**, for example, photoelectric, and **pressure sensing devices** may be used instead of fixed guards or interlocks. However these devices must be regularly checked to ensure their continuing operation and effectiveness.

Portable power tools must be equipped with manufacturers fitted means of power trip in case of operator or equipment failure (e.g. 'dead-man' switchers).

5.4 GUARD MATERIALS, CONSTRUCTION AND FITTING

5.4.1 Materials

The materials from which the guard is manufactured should be carefully chosen for suitability. For example:

- Plastic is easy to see through but may be easily scratched, damaged or shattered
- If wire mesh or grating is used, it should not have holes that are large enough to allow access to the danger area or large enough to allow the passage of debris

5.4.2 Design, Construction and Fitting

All guards shall be designed, constructed and fitted so that they:

- Protect the operator and any other personnel from the equipment (especially its moving parts)
- May not be easily removed or tampered with, e.g., they must be firmly secured to the machine
- Can withstand the conditions of normal use
- Allow the machine to be cleaned safely
- Prevent foreign objects from falling onto moving parts, e.g., small tools, nuts, bolts, etc
- Do not present sharp or jagged edges, i.e., they should be rolled and / or bolted
- Do not create interference which would hamper personnel from performing their assigned tasks quickly and comfortably
- Do not obstruct lubrication points and feeds in such a way that the guard must be removed before these components can be properly accessed.

5.4.3 Retro-fitting of Emergency Stop Controls

MOC must be completed, approved and authorised.

Note: Before fitting emergency stop controls to machines that have not previously had such controls fitted, it is essential to check that the emergency stop controls do not in themselves present new risks. For example, some machines require the power supply to be on in order to operate the brakes. This power might be lost if the machine is stopped using the emergency stop control.

5.5 GUARD REMOVAL

Machine guards shall only be removed by competent and experienced personnel for maintenance and repair purposes.

Whenever guards are removed for maintenance or repair:

- The removal shall be carried out under a Permit to Work
- The energy source to the machine must be isolated and the switch, button, lever etc., must be locked out and tagged before the guard can be removed
- All guards must be in place before the lock and tags can be removed.

Machine Guards shall be inspected as a part of PMP (Preventive Maintenance Programme).

5.6 RISKS FROM UNGUARDED AND POORLY GUARDED EQUIPMENT

Moving parts of equipment, if not guarded, are extremely dangerous to operating personnel and to any other personnel working in the immediate vicinity.

Warning: Any machine part, function or process that may cause injury must be guarded to prevent contact with personnel.

The risk of accidents involving machinery may be caused by entanglement, shearing, crushing, trapping, and cutting, etc. These accidents may occur due to:

- A lack of guards or poor guards on machines and equipment
- A failure to keep guards and safety devices properly maintained so that machines or equipment become unsafe
- Provision of inadequate controls or the wrong type of controls so that equipment cannot be turned off quickly and safely or it may be started accidentally.

The hazards from machinery shall be identified as part of Risk Assessment. Such Risk Assessment shall evaluate the nature of an injury, its severity and likelihood of occurrence for each hazard identified. This will enable employee to decide whether the level of risk is acceptable or if risk reduction measures are needed. In most cases the objective of risk reduction measures is to prevent contact of part of the body or clothing with any dangerous part of the machine.

The measures taken to prevent access to the dangerous parts of the machinery are ranked as follow in order to be implemented, where practicable, to achieve an adequate level of

protection:

a) fixed enclosing guards

b) other guards or protection devices such as interlocking guards and pressure mats

c) protection appliances such as jigs, holders and push-sticks etc

d) the provision of information, instruction, training and supervision.

6 KEY DOCUMENTS REFERENCES

This procedure shall, where appropriate, be used in conjunction with this suite of AzSPU Procedures referenced below.

Document Number	Title of Procedure
AZSPU-HSSE-DOC-00011-2	Procedure for Deviations
AZSPU-HSSE-DOC-00060-2	Procedure for Permit To Work
AZSPU-HSSE-DOC-00063-2	Procedure for Task Risk Assessment
AZSPU-HSSE-DOC-00048-2	Procedure for Energy Isolations-Electrical
AZSPU-HSSE-DOC-00053-2	Procedure for Hot Work Naked Flame
AZSPU-HSSE-DOC-00061-2	Procedure for Personal Protective Equipment
AZSPU-HSSE-DOC- 00002-2	Procedure for Control of Work
AZSPU-HSSE-DOC-00072-2	Review/Revision Process for HSE Tier 2 Procedures – TOR

REVISION/REVIEW LOG

Revision Date	Authority	Custodian	Revision Details
05 October 2004	CHSSE Manager	Central Safety TL	Initial Issue
30 June 2008	Alan McNulty (CH&S Manager)	Abbas Islamov (Central Safety TL)	**General:** Throughout the Procedure the document numbering for referred procedures has been changed from UNIF to AzSPU. **Section 1. Introduction:** 1.1 Purpose – wording changes; 1.2 Scope – wording changes. **The following inclusions to Section 1 are:** 1.3 Legislation & Standards; 1.4 Company Requirements; 1.5 Stopping Unsafe Work; 1.6 Deviations; 1.7 Document Review; 1.8 SSOW Specific Cross References; 1.9 Language Facilitation **Section 2. Definition –** is added. **Section 3. Roles & Responsibilities:** Paragraph 3.1 SM, SC, OIM – is added; Changes made to the responsibilities of Area Authority **Section 6**. **Selection and Use of Guards** Wording changes. **Section 8. Guard Removal** Wording changes. **Appendix A Feedback & Improvement Suggestions** has been added to the Procedure
05 December 2008	Yuliy Zaytsev Safety & Compliance Systems Manager	Adalat Mamedov Central Safety TL	Authority position/name and custodian name have changed to reflect org changes in HSE&TD.
14 August 2009	Yuliy Zaytsev Safety & Compliance Systems Manager	Niyaz Mamedov HSE Systems / CoW Adviser	New wording in regard to MOC is added to Paragraph 7.3 The procedure's numbering is structurally changed in accordance with Standardized Document Control Procedure Template requirements.