Procedure for Asbestos Risk Management

AZSPU-HSSE-DOC-00016-2

This number supersedes UNIF-HSE-PRO-207-C1

Authority:	AzSPU Safety & Compliance Systems Manager	**Custodian:**	Safety Systems/CoW Lead AzSPU Central Industrial Hygenist Advisor
Scope:	AzSPU	**Document Administrator:**	HSE MS Document Coordinator
Issue Date:	30 September 2005	**Issuing Dept:**	Safety & Compliance Systems Team
Revision Date:	25 January 2011	**Control Tier:**	2
Next Review Date:	16 March 2011		

TABLE OF CONTENTS

1 Purpose / Scope

Purpose

This Safe System of Work provides the necessary information for ensuring that asbestos is dealt with correctly and consistently across all sites / installations and that personnel and the environment are adequately protected from asbestos related hazards.

The content of this Safe System of Work provides information on what to do when asbestos is discovered and the subsequent safety requirements of the contractors and specialists called in to deal with it.
The contents of this document are not intended to provide detailed procedures for working with asbestos. Such procedures will be prepared and owned by the specialist contractors and consultants employed for the task.

Note: It is BP policy in Azerbaijan and Georgia that all work with asbestos, including air monitoring, asbestos identification, asbestos removal and asbestos disposal, shall only be undertaken by specialist contractors or consultants.

Scope

The contents of this procedure are applicable to all BP owned and managed sites / installations in Azerbaijan and Georgia. Contractors working on BP 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 and local regulatory requirements.

This procedure contributes to compliance with Group Control of Work (CoW) standard that the Hazards associated with BP activities are identified and that the Risks are assessed and managed.

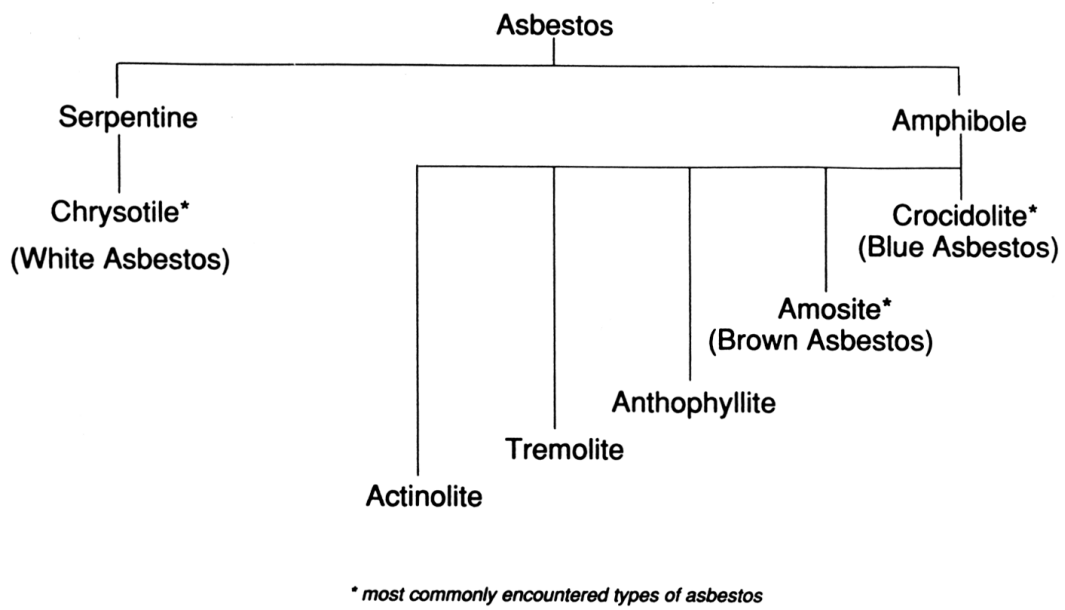
All guidelines contained shall be regarded as the minimum requirements for BP owned or managed sites / installations in Azerbaijan and Georgia.

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

2 Definitions

Asbestos is a group of naturally occurring crystalline silicate minerals with characteristic long thin fibres capable of being split longitudinally to create progressively thinner fibres. It is these fibres that, in airborne form, can cause **asbestos related diseases** when inhaled.

Asbestos has an almost unique combination of physical and chemical properties. All types of asbestos occur as long, thin and flexible fibres which are capable of splitting longitudinally to form progressively thinner fibres. Its main properties of incombustibility, mechanical strength, chemical resistance, thermal insulation, tensile strength and low cost lead to its widespread use. The different types of asbestos exhibit these properties to different extents which largely determine which type is/was used for each sort of application.



** most commonly encountered types of asbestos*

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

Amosite	Commonly referred to as brown asbestos, similar to crocidolite but with slightly curly fibres when viewed under a microscope.
Asbestos Containing Material	Any material that has asbestos as a component. For example, some cement products, floor tiles, insulation material and lagging, clutch and brake linings, etc.
Asbestos Hazardous Area	An enclosed area set up to contain the spread of asbestos dust from an area where asbestos related activity is being carried out.
Asbestos Register	A record of all occurrences of asbestos that has been left in place on-site. The register should record the asbestos type, its condition and inspection record.
Asbestos Related Diseases	Any disease attributable to the inhalation of asbestos dust. These diseases might not occur until 20 – 30 years after inhalation.
Chrysotile	Sometimes called white asbestos. Although this type of asbestos is considered to be less hazardous than crocidolite and amosite, it still connected with asbestos related diseases.

Clearance Standard	The maximum level to which asbestos contamination of the atmosphere must be reduced before an **asbestos hazardous area** may be returned to normal use.
Competent Person	A person recognised as being suitably trained and experienced to carry out specific tasks in a safe and efficient manner.
Crocidolite	Commonly referred to as blue asbestos. Under a microscope its fibres are short and straight.
Exposure Limit	Maximum allowable personal exposure to all types of asbestos, presently set at 0.2 fibres/ml 8-hour time weighted average
Specialist Contractor	A contractor, or consultant, specialising in working with asbestos. The company must be satisfied that the contractor is suitably equipped, trained, experienced and knowledgeable for the asbestos related activities (air-monitoring, asbestos removal and disposal, etc) for which they are contracted

3 General Requirements

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.

- Operating Management System OMS Essentials 3.2.1, 3.4.2, 3.4.6 and 4.5.1

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 Company's existing standards. Where compliance with Company 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 Company Standards or through level 2 Risk Assessment.

Working with material that may contain asbestos is specialist work. According to BP Group Recommended Practice for Asbestos (GRP 3.4-0002), while selecting contractors for work with these materials, contractors should be assessed to check that they have the skills, equipment and technical resources needed to do the work safely. It should not be assumed that, because a contractor has a license to work with asbestos, they are capable of working safely with materials that contain asbestos.

The Group Recommended Practice on Working with Contractors recommends how to select, manage and inspect contractors. That Practice should be applied to using contractors for asbestos work. Section 5.7 of this Group Recommended Practice on Asbestos explains that it is important to carry out a clearance assessment at the end of the work, to say that people can safely use the area again. The clearance assessment should not be done by the same contractor that did the asbestos removal work.

Stopping Unsafe Work

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

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, Procedure for Deviations (Doc. No: AZSPU-HSSE-DOC-00011-2).

4 Roles and Responsibilities

Site Manager / Site Controller / Offshore Installation Manager

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

- That adequate numbers of Competent responsible persons are appointed to manage and maintain the requirements of this procedure
- That only suitable and experienced contractors or specialists are employed for all asbestos related activities
- That this procedure is strictly adhered to for all occasions when it is identified that asbestos activities are to take place
- That formal records of all risk assessments are maintained in accordance with this procedure
- That only suitably qualified and experienced personnel are appointed to the roles of

Performing Authority, responsible engineer / person in charge of activities involving asbestos

- Where necessary, establishing and maintaining an Asbestos Register for recording the use and presence of all known asbestos-containing materials on site
- Establishing and maintaining records of:
  - asbestos monitoring and survey results
  - inspection and maintenance of respiratory protection equipment
  - training records for all personnel working with or who may be expected to work with or in the proximity of asbestos related work
- Ensuring that all personnel required to work with asbestos:
  - are made aware of the hazards involved and the methods used to mitigate those hazards
  - are equipped with the necessary personal protective equipment.

Area Authority

The Area Authority shall be responsible for ensuring that the requirements of this procedure are adhered to for all asbestos removal activities within his area of responsibility. He / she shall be responsible for ensuring:

- That the activity involving asbestos has been risk assessed and planned
- That all persons involved in asbestos activities are instructed on the requirements of risk assessment, permit to work conditions, and any risks or hazards associated with the work activity
- That regular inspection is performed on all asbestos removal activities to confirm that conditions are suitable and sufficient and, that all personnel are in compliance with this procedure
- That the Performing Authority performs Risk Assessments, and conducts Toolbox Talks associated with asbestos removal
- Maintaining an awareness of all known asbestos-containing materials, their use and location
- Ensuring that only suitably trained and briefed personnel are engaged in activities involving asbestos

Note: All personnel working with or near asbestos must be fully briefed on the health hazards involved and the precautions necessary to minimise or remove those hazards.

Performing Authority

The handling and removal of asbestos will usually be carried out by an independent contracting company with the necessary specialist knowledge and experience. Companies contracted by BP to work on asbestos related activities are responsible for carrying out their work on BP sites and installations in accordance with the requirements of local legislation.

In addition, contracting companies and their personnel shall be required to provide evidence of their relevant expertise and knowledge, and their ability to work safely with asbestos, whenever required by BP.

The Performing Authority shall ensure;

- The compliance of all personnel under their supervision with this procedure when involved in activities involving asbestos
- That a risk assessment has been performed and a toolbox talk conducted
- That all personnel are informed of, and understand, the risks associated with the task they are performing, and any associated works that may affect their work activity
- That the activity is executed in accordance with this procedure
- That activities involving asbestos are halted if an unsafe situation occurs.
- That good housekeeping practices are implemented at all work areas
- That work activities have been reviewed and pertinent information exchanged with all other affected parties.

HSE Adviser

The HSE Adviser is responsible for providing advice and assistance on asbestos related matters and where necessary liaising with the Occupational Health Department and the contractor.

Occupation Health / Industrial Hygiene

The Central Health Industrial Hygienist is responsible for:

- Providing advice and assistance on health matters related to working with asbestos
- Facilitating formal health monitoring and screening of all personnel involved with asbestos related activities
- Providing advice and assistance in the setting-up of Asbestos Hazardous Areas, and the atmospheric monitoring of those areas.

All Personnel

All personnel are responsible for:

- Reporting any suspected asbestos or asbestos-containing material to their immediate supervisor.
- The correct, conscientious and responsible use of all personal protective equipment with which they are supplied, including respiratory equipment
- Halting and reporting to their supervisor any work they consider to be unsafe.

Consultants / Specialist Contractors

The handling and removal of asbestos will usually be carried out by an independent contracting company with the necessary specialist knowledge and experience. Companies contracted by BP to work on asbestos related activities are responsible for carrying out their work on BP sites and installations in accordance with the requirements of local legislation.

5 Asbestos Hygiene Standards and Air Monitoring

Occupational Exposure Limits

The occupational exposure limits included here shall be applied to all types of asbestos in all locations where asbestos exposure is not otherwise subject to legislative control.

Exposure Limit = 0.2 fibres/ml, 8-hour time weighted average (TWA)
Action Level = 0.1 fibres/ml, 8-hour time weighted average (TWA)

Air samples taken to check compliance with OEL's should be collected by monitoring in the breathing zone *.

Such limits do not represent fine dividing lines between ***"safe"*** and ***"dangerous"*** and interpretation of monitoring results should, therefore, be made only by persons competent to do so. Furthermore, because these limits cannot be guaranteed to avoid all risks to health, exposure should be reduced at least to within them and as far below them as is reasonably practicable. Where there is any likelihood that the Action Level may be exceeded, monitoring and control measures/procedures will be required and the area should be designated an Asbestos Hazard Area (AHA)

It should be noted that the interpretation of any atmospheric monitoring results should only be undertaken by suitably qualified, trained, and experienced personnel. The use of specialist contractors for this task is strongly recommended.

Clearance Standard

Where asbestos work has been carried out in an Asbestos Hazardous Area (see *Paragraph 5 Asbestos Hazardous Areas*) the area shall not be returned to unrestricted or normal use until the ambient fibre concentration no longer exceeds the Clearance Standard:

Clearance Standard = 0.1 fibres/ml.

The Clearance Standard is based on measurements made using fixed position air sampling. This level of 0.01 fibres/ml should be considered as only a transient indication of cleanliness, following the completion of asbestos works.

Air Monitoring

When is Monitoring Required?

When asbestos is handled or disturbed to the extent that airborne dust is likely to be generated, air monitoring *will be* necessary in order to determine compliance with Hygiene Standards, to check the effectiveness of control measures or to confirm that appropriate personal protective equipment has been selected.

Airborne fibre monitoring will always be necessary:

(a) during work involving the disturbance of asbestos (e.g. during maintenance)

(b) where damaged or friable asbestos is present

Records of air monitoring results should be retained (see Section 6).

Monitoring Techniques

For determining occupational exposure to airborne asbestos fibres and compliance with OEL's, only "personal sampling" provides valid results. For personal sampling, a potentially exposed individual wears a lightweight sampling pump with the sampling head located in their breathing zone. Although "fixed position" sampling may be useful to determine the effectiveness of process control and workplace measures, it is not suitable for monitoring personal exposures.

Airborne fibre monitoring techniques involve drawing a measured volume of air through a membrane filter at a constant flow rate. Subsequently, the filter is mounted on a glass slide so that the fibres collected on it may be counted by using phase contrast optical microscopy. It is important not to produce a density of particles on the filter which is too great to allow the individual fibres to be counted. Except in the USA*, a "fibre" is defined as a particle having a length to breadth ratio of greater than 3:1, a diameter of less than 3µ and a length greater than 5µ.

There are several variations of the measurement techniques used. However, unless required otherwise by national regulations, the European Reference Method # should be used. This method is used very widely because of its low cost and suitability for rapid mass screening of samples. Alternatively, scanning or transmission electron microscopy may be used; these are more sensitive techniques which enable asbestos fibres to be distinguished from other fibre types. It should be noted, however, that due to their differing "sensitivities", the results from optical and electron microscopy are not directly comparable.

Sampling Parameters

Appropriate sampling periods and flow rates:

Occupational Exposure Limit (TWA)	Flow rate (litres per minute.)	Sampling time (hours)	Sample Volume (litres)
8-hour exposure limit of 0.2 fibres/ml	1	2 periods of 4	240 (per period)
Action Level 8-hour of 0.1 fibres/ml	1	1 period of 8	480

In areas where the atmosphere is so dust-laden that the particulate burden on the filter is too dense for counting, the sample volume should be reduced.

Personal exposure data may be subject to wide variability due to changes in environmental, job and personal factors. For each work activity, sufficient monitoring should be conducted to define typical TWA exposures. Where groups of workers are doing the same type of work under similar circumstances, sampling results from a representative proportion of the group may be applied to all members of that group.

Monitoring Before, During and After Asbestos Removal Work

Before Asbestos Removal: Fixed position monitoring should be carried out inside and outside the proposed asbestos work area before any asbestos work is carried out and continued outside the area while asbestos work is in progress.

During Asbestos Removal: Personal and fixed position monitoring should be carried out within the asbestos work area. Fixed position sampling should be carried out outside the work area.

On Completion of Asbestos Removal: After asbestos work has been completed, but before the area is returned to normal use or unrestricted access, further tests should be conducted inside the work area to determine compliance with the **Clearance Standard** using fixed position sampling. Because the concentration of airborne asbestos fibre in such areas is likely to be low, a larger sample volume of air should be taken (at least 480 litres over not less than 1 hour, where practicable); however, where other dusts are present, too large a sample volume may obscure the sample filter.

Frequency of Monitoring

In general, for continuous or repetitive processes, routine occupational exposure monitoring should be carried out at least every 3 months, although the frequency may be reduced to once a year, provided that:

(a) there has been no substantial change in workplace conditions, and
(b) two preceding surveys have shown that the Action Level was not exceeded.

Note: Sampling airborne asbestos fibres, analysis (counting) of the filter samples and interpretation of the results should be conducted only by those who have received appropriate specialist training. Local management should satisfy themselves that any **consultants** whom they employ to carry out these activities have the necessary facilities and professional expertise, and follow appropriate quality control procedures, to ensure a satisfactory service.

Respiratory Protective Equipment

When selecting RPE for a particular activity, it should be remembered that it is the last line of defence and it is vital, therefore, that it be effective. The effectiveness of RPE is dependent not only on its APF but also on how well it fits the wearer and how comfortable it is to wear. Poorly-fitting RPE is less likely to be worn correctly- if at all. Experience has shown that disposable filtering respirators are often worn incorrectly; and, like half-mask respirators, should not be worn during removal of asbestos coatings and insulating materials or during work involving crocidolite or amosite.

The findings of the exposure risk assessment will enable a decision to be made as whether a respirator or breathing apparatus may be used. Once this decision has been reached the maximum protection required from the RPE can be ascertained. For details of RPE specifications, Company Industrial Hygienist shall be involved.

Typical levels of asbestos fibre likely to be released with various activities are shown in the Appendix A.

Fit and Face-seal

To be effective, RPE must fit the wearer properly. If a good fit cannot be achieved with one type, model or size of respirator, another (of equal or greater APF) should be selected. The presence of facial hair (a beard or even a visible growth of stubble) seriously reduces the effectiveness of the face-seal. For individuals with significant growths of facial hair, only positive pressure powered respirators, fitted with a visor or blouse, are likely to provide sufficient protection.

Test of Respirator Fit

When RPE is issued, the fit of the face-piece on the wearer should be checked qualitatively and, where practicable, quantitatively. Specific requirements regarding this aspect are stipulated by regulations in the USA and are strongly recommended for use everywhere. Furthermore, each time they put RPE on, wearers should check the fit for themselves by:

(a) placing a hand over the exhalation valve whilst breathing out (i.e. positive pressure fit check)

(b) placing a hand over the filter whilst breathing in (i.e. negative pressure fit check).

If, in either case, any leakage is suspected, the wearer should check strap adjustments, etc. and, if any doubt remains, consult the supervisor immediately.

Eye Protection

Full face-piece and visor respirators provide protection against the irritant effects on the eyes of asbestos dust but should be checked regarding the standards of protection against mechanical impact.

Freedom of Movement

Some types of respirators, particularly those offering high APF's, may restrict the wearer's freedom of movement. This aspect may need to be considered when planning actual working procedures.

Heat Stress

In hot and humid environments, the cooling effect of "supplied air" respirators, together with the lower breathing resistance they offer, make this type of RPE more acceptable to users.

Training

All employees required to use RPE should have undertaken appropriate, formal training and be able to demonstrate competence in its use. Their training records should be retained. Regular refresher courses should be provided to maintain the necessary standard of proficiency. Training programmes should include:

(a) recognition of circumstances in which RPE is to used

(b) how to select RPE and the consequence of its improper use

(c) limitations of RPE

(d) the practical use of RPE and correct fitting procedures

(e) procedures for inspecting and changing filters

(f) common RPE defects and remedial action

(g) storage conditions for RPE

(h) site procedures for the issue, cleaning, maintenance and inspection of RPE

Individuals, who, for what ever reason, are unlikely to be able to assimilate such knowledge should not be assigned to work in areas where RPE is likely to be required.

Care and Maintenance

RPE will remain effective only if it is maintained properly. The wearing and mishandling of contaminated RPE can be a source of unwitting exposure to asbestos or other toxic dust. For non-disposable respirators, the recommended procedures are:

(a) issue of RPE on a formal, personal, recorded basis

(b) cleaning RPE on completion of each work period. Initial cleaning should be conducted within the decontamination facility followed by further, more-thorough cleaning in an uncontaminated area set aside for that purpose

(c) after cleaning, RPE should be inspected regarding the condition of the face-piece, including head straps, harnesses, inlet and exhaust valves: any defects should be rectified before allowing that RPE to be used again

(d) before power-assisted RPE is used (or re-used), batteries should be charged (in accordance with manufacturers' instructions) and the adequacy of the airflow verified

Disposable respirators should be disposed of as "asbestos waste" on completion of each work period or sooner if their effectiveness becomes doubtful.

Storage

When not in use, respirators should be stored, ready for use, in clean, sealed and clearly labelled, polythene bags, in a suitable, secure and clearly identified location (e.g. room or cupboard).

Air Supply

The importance of ensuring an adequate volume of high-quality air for " air-supplied" RPE cannot be over-emphasised. Insufficient attention to this aspect has, on many occasions, threatened the life or caused the death of workers wearing such RPE. Air-supplied RPE should be supplied with air from a compressor dedicated solely to that purpose. An "oil-free" air compressor should be used in preference but, if other types have to be used, it is important that they be fitted with either "high temperature" or "carbon monoxide" alarms, or both, and that the

air they supply be filtered to remove hydrocarbons, carbon monoxide, odours and particulates. Irrespective of the type of compressor used, extreme care should be taken to ensure that its air intake is not located where it might receive air contaminated by exhaust fumes or discharges from ventilation systems, tanks or pipe vents, etc.

RPE air-line connectors should be of a design such that connection to other gas lines is impossible. RPE air supply piping should be painted or otherwise made clearly identifiable. The complete systems should be inspected thoroughly and regularly.

(a) for air quality and available flowrate, as measured at the RPE connection point

(b) to ensure that there is no possibility of gas leaking into them from other lines

The results of such inspections should be recorded formally and archived.

Managing asbestos

In order to manage asbestos safely it is necessary to be aware of the:

- Location of the asbestos
- Form of the asbestos (lagging, ceiling tiles, partition board, etc)
- Condition of the asbestos
- Type of asbestos (blue, brown, or white).

Locating and Monitoring Existing Asbestos

If asbestos or asbestos-containing material is in good condition and unlikely to be damaged, the safest and most pragmatic option is often to leave it in place. For example, asbestos-containing building materials (floor tiles, felts, mastics, insulating board, etc) may be present in buildings used but not owned by BP.

Asbestos-containing material that is left in place shall be recorded in a Register and regularly monitored for any sign of deterioration.

Arrangements shall be made to alert personnel to the presence of asbestos, either by clearly labelling the material or by briefing and informing all personnel who might work on the material or in its vicinity.

Note: Even when all known asbestos has been removed or recorded, other hidden asbestos may still be present.

Asbestos Register

Where asbestos is known to exist on-site, an Asbestos register should be established and maintained in order to record the location and type of asbestos and to ensure that the asbestos is regularly monitored for condition. The register should include instances where materials that have been thought to asbestos containing materials but have since been proved otherwise in order to prevent confusion. See also *Appendix B Asbestos Register Form.*

Assessing the Condition of Asbestos

The condition of the asbestos or asbestos-containing material shall be assessed by a suitably qualified and experienced person knowledgeable in the subject. In general a risk of asbestos being released into the air shall be expected if:

- The material is being disturbed or if it is prone to accidental damage
- The surface of the material is damaged, frayed or scratched
- Surface sealants are peeling or breaking off
- The material is becoming detached from its base
- Protective coverings for the asbestos are missing or damaged
- There is asbestos dust or debris in the immediate surrounding area.

Asbestos or asbestos-containing materials, suspected or otherwise, displaying any of the above conditions will require the area to be sealed off to form an Asbestos Hazardous Area and an air-monitoring programme introduced.

Identifying Asbestos and Asbestos Types

Asbestos Types
There are three types of asbestos:

- Crocidolite (‘blue’ asbestos)
- Amosite (‘brown’ asbestos)
- Chrysotile (‘white’ asbestos)

Although blue and brown asbestos are considered to be the most hazardous of the three, all asbestos is dangerous and should be handled with care.

Sampling and Laboratory Analysis
Asbestos cannot be recognised by its visual appearance alone. Nor can the asbestos types be identified solely by colour. A full laboratory analysis is required to identify any substance as being asbestos and to distinguish its type.
Wherever asbestos or asbestos containing material is suspected, arrangements shall be made for samples to taken and sent for laboratory analysis. Sampling shall only be carried out by suitably trained, qualified and experienced contract personnel or consultants who specialise in dealing with asbestos.

Warning: Do not break or damage material that may contain asbestos, even when attempting to identify it.

Working with asbestos

Risk Assessment and Permit to Work

All work involving asbestos shall be carried out under the Permit to Work system and must be supported by a formal Risk Assessment.

A formal Risk Assessment, completed by a suitably competent person, shall be carried out before any work involving asbestos or asbestos-containing material may take place.

The Risk Assessment must identify and address:

- The type(s) and locations of asbestos
- The nature and the extent of the proposed work
- The expected exposure levels for personnel involved in the work, including:
  - whether exposure will be intermittent, exposure frequency and duration
  - potential exposure level of personnel not involved in the work
  - any existing air-monitoring results which may be relevant.
- Measures required to prevent or control the release of asbestos into the workplace or general environment
- Any other hazards, not necessarily asbestos related
- Emergency and contingency plans
- Asbestos removal procedures, including:
  - route selected for transferring asbestos waste through the site
  - temporary storage of waste on site
  - ultimate disposal of waste.

Note: In the case of small-scale maintenance, a documented Risk Assessment may not be necessary.

Asbestos Hazardous Area

Whenever it is reasonably foreseeable that an operation may give rise to airborne concentrations of asbestos in excess of the Action level, the area involved shall be designated an Asbestos Hazardous Area (AHA).

Enclosure
The asbestos work area shall be enclosed completely to contain any airborne asbestos fibre. To minimise contamination and to reduce interference with process plant, the enclosure area will be kept as small as possible. If work is to be carried out over a large area, the area should be divided into smaller enclosures that are more easily manageable.

Access to and from the area should be designed to prevent the escape of asbestos dust as personnel pass through. Ideally, an ‘airlock’ system should be used.

Negative Air Pressure
Air extraction equipment should be incorporated within the enclosure to maintain a slightly negative air pressure so that any leakage will be of clean air inwards.

Decontamination Facilities
Adequate vacuum cleaning, changing and showering facilities should be provided to enable personnel to decontaminate themselves before leaving the work area.

Control of Access
The area shall be isolated and access denied to all unnecessary and unauthorised personnel and also any personnel not wearing the required respiratory and personal protective equipment. Warning signs should be strategically placed informing personnel of the hazardous area conditions and entry restrictions.

Dust Levels
Airborne dust levels shall be maintained as low as reasonably practicable through regular and frequent cleaning using vacuum cleaners and wet-wiping only. Cleaning procedures should also

be established for cleaning the asbestos workers' decontamination, toilet facilities and eating / drinking areas.

Note: Dry sweeping or any other method that may raise dust shall be prohibited.

Waste Disposal and Transfer
All asbestos waste, including vacuum cleaner contents, should be placed in suitable and clearly labelled containers inside the asbestos hazardous area. Labelling should clearly indicate **'Asbestos Waste'** and, where material is of a dusty nature, **'Do Not Inhale Dust'**.

Where 'double-bagging' is used, the waste should be placed within a red bag and sealed. The outside of the bag should be vacuum cleaned or water sprayed before being placed within a second, clear bag, preferably inside the asbestos hazardous area airlock.
Bags should not be overfilled. Where the waste includes large, heavy or sharp objects, different types of container should be used that are puncture and tear-proof.

Decommissioning
Following completion of asbestos work, the hazardous area shall be thoroughly cleaned so that all visible traces of asbestos are removed. When cleaning is complete, air monitoring shall be conducted to confirm that the atmosphere within the area does not exceed the Clearance Standard (see *Paragraph 4.2*).

Storage and Disposal of Asbestos Waste

All waste produced inside an AHA (including the contents of any vacuum cleaners used inside the AHA) should be placed in suitable containers (labelled appropriately) inside the enclosure. Where "double bagging" is used, the waste should be placed within a red bag and sealed whilst still inside the work area. The outside of the sealed bag should be vacuum cleaned or water sprayed before being placed within the second clear bag, preferably within the airlock.

If asbestos waste is to be stored on-site, it should be placed in a clearly demarcated and secure area, to which only authorised personnel have access. The waste should be transferred off-site inside a closed, secure skip or vehicle to an approved hazardous waste disposal site, in accordance with company requirements and national/local regulations.

Note: The final disposal of asbestos shall be undertaken by a specialist contractor.

Health Surveillance

BP employees working within or near asbestos hazardous areas should be kept under routine health surveillance programme. For details refer to AzSPU Health Surveillance Programme.

Note: Health surveillance of asbestos workers should include pre-employment examinations with periodic review during employment in asbestos work.

Record Keeping

In addition to that recorded in the Asbestos Register (see *Paragraph 6.2*)**,** the following information should be recorded:

- Identities of all workers involved in the handling or use of asbestos.
- Results of personal monitoring of occupational exposure to asbestos.
- Medical records for all workers subject to health surveillance.

This information should be retained-ideally until at least 5 years after each individual concerned has died, in case it is needed in connection with claims for compensation arising from the delayed onset of occupational disease. In practice, this means that medical records should be archived for at least 30 (preferably 50) years after the employee has left the Company, or until 75 years after their date of birth.

The following information should be retained for at least 5 years:

- Summaries of the results of area/fixed position monitoring.
- Records of examination and testing of local extract ventilation systems.
- Records of inspection/maintenance of respiratory protective equipment.
- Records of assessments of risks and precautions.
- Records of training given to asbestos workers.

Records and documentation relating to asbestos waste disposals should be retained indefinitely.

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 from Regulations and Procedures
AZSPU-HSSE-DOC-00060-2	Procedure for Permit To Work
AZSPU-HSSE-DOC-00061-2	Procedure for Personal Protective Equipment
AZSPU-HSSE-DOC-00063-2	Procedure for Task Risk Assessment
AZSPU-HSSE-DOC- 00002-2	Procedure for BP Control of Work Standards
GRP 3.4-0002	BP Group Recommended Practice for Asbestos

APPENDIX A – Typical Asbestos Fibre Levels

ACTIVITY	ASBESTOS FIBRE LEVELS (Fibres/ml)
ASBESTOS REMOVAL OPERATIONS	
A) De-lagging	
i) With thorough soaking	1-5
ii) With water sprays	5-40
iii) Carried out dry (except crocidolite)	>20
iv) Dry stripping of crocidolite	100-1000
B) Removal of Insulating Board and Tiles	
i) Breaking and ripping out	5-20
ii) Unscrewing and careful removal	<2
C) Work on Asbestos Cement Sheets and Pipes	
a) Machine Drilling	<1*
b) Hand Sawing	<1*
c) Machine sawing without exhaust ventilation	
i) Jig Saw	2-10
ii) Circular Saw	10-20
iii) Abrasive disc cutting	15-25
d) Machine Sawing with exhaust ventilation	<2
e) Removal of asbestos cement sheeting	<0.5
WORK ON ASBESTOS INSULATION BOARD AND TILES	
a) Drilling vertical structures e.g. column casing	2-5
b) Drilling overhead structures	5-10
c) Sanding	6-20
d) Scribed and breaking	1-5
e) Hand-sawing	5-10
f) Machine sawing without exhaust ventilation	
i) Jig Saw	5-20
ii) Circular Saw	>20
g) Machine sawing with exhaust ventilation	2-4
h) Careful removal of whole boards	up to 5

* **Usually <0.05 fibres/ml** Poor handling practices may cause dust levels to exceed the OEL (see Section 4).

Note: The dust level is likely to be higher if amosite is present.

APPENDIX B – ASBESTOS REGISTER FORM

Site:_____ Register Ref. No:_____ Material Location:_____ _____Date of Inspection:_____
Function of Material:_____ Approximate Quantity:_____ Condition:_____
Samples Taken: YES/NO

Sample No.	Fibre Type(s)	Approximate Quantity (% Composition)

Action Required	Designated Responsibilities and Target Date	Date Completed
1. Removal and disposal		
2. Seal (encapsulate)		
3. Store in sealed containers		
4. No action unless maintenance or demolition work is undertaken		

Inspection-*while asbestos remains, its condition should be inspected, at a frequency depending upon the likelihood of damage occurring but once/year is usually appropriate.*

Inspection Frequency:_____

Additional Information & Comments:

INSPECTION CONDUCTED

DATE	Comments/Action Required/ Designated Responsibility	Name/signature

APPENDIX C – ASBESTOS RELATED DISEASES

Asbestos only poses a risk to health if asbestos fibres are released into the air where they form a very fine dust which is often invisible to the naked eye. When inhaled, this dust is capable of being deposited in the deepest regions of the lungs where they may cause any of what are collectively known as asbestos related diseases for which there is no known cure. These diseases include:

- Asbestosis
- Pleural Thickening
- Pleural Effusions
- Lung Cancer
- Mesothelioma

Any of these diseases may be caused by either exposure to high levels of asbestos dust, or repeated exposure to low levels.

Asbestosis

Prolonged exposure to airborne asbestos may lead to asbestosis, a collagenous fibrosis of the lungs. Fibrosis leads to a progressive reduction in lung elasticity and impairment of the gas exchange mechanism. Early symptoms of asbestosis include breathlessness and coughing. The disease may progress to cause severe disability and heart failure.

Pleural Thickening

Exposure to airborne asbestos fibres may cause thickening of the *pleura*, and glass-like plaques in the membranes surrounding the chest cavity. Although these changes do not usually cause any ill effects, widespread pleural thickening may restrict lung expansion and cause breathlessness.

Lung Cancer

Exposure to airborne asbestos fibres is associated with an increased risk of lung cancer. In particular, asbestos exposure and cigarette smoking act synergistically to produce a much greater risk of lung cancer than would be expected from the sum of independent risks from smoking and asbestos exposure.

Pleural Effusions

Asbestos fibres can cause irritation of the pleura leading to rapid outpouring of fluid into the pleural cavity, squashing the lung on that side. Although rarely life-threatening, the sudden shortness of breath is frightening and urgent medical attention is required.

Mesothelioma

Exposure to airborne asbestos fibres, particularly crocidolite and amosite, may lead to the development of mesothelioma, a cancer of the pleura and more rarely, the peritoneum (the membrane lining the abdominal cavity). Mesothelioma may develop 20 years or so after exposure to asbestos. It is also associated with other fibrous materials, such as erionite (a naturally occurring mineral), and may occur in persons with no known occupational exposure to asbestos or other fibrous materials.

Mesothelioma is always fatal.

Revision/Review Log

Revision Date	Authority	Custodian	Revision Details
30 September 2005	Alan McNulty	Esmira Akhundova	Initial Issue
01 October 2008	Alan McNulty	Central Safety TL, & Occupational Health Advisor, Hijran Jafarova	**General:** Throughout the Procedure the document numbering for referred procedures has been changed from UNIF to AzSPU. **The following inclusions made to Section 1:** 1.2 Scope; 1.3 Legislation & Standards; 1.4 Company Requirements; 1.5 Stopping Unsafe Work; 1.6 Deviations; 1.7 Document Review; 1.9 Language Facilitation **Section 2. Definition –** is the new inclusion to the Procedure. **Section 3. Roles & Responsibilities:** Changes made to Paragraph 3.1, 3.2, 3.3 **Section 4. Asbestos Hygiene Standards and Air Monitoring** Changes made to Paragraph 4.1 The Paragraph 4.3, Air Monitoring, is the new inclusion. **Section 5. Respiratory Protective Equipment –** is the new inclusion **Section 8. Storage and Disposal of Asbestos Waste –** changes made to the all section. **New Appendices are added:** Appendix A – Typical Asbestos Fibre Level Appendix D – Feedback and Improvement Suggestions
05 December 2008	Yuliy Zaytsev Safety & Compliance Systems Manager	Adalet Mamedov Central Safety TL, & Hijran Jafarova Occupational Health Advisor	Authority position/name has changed to reflect org changes in HSE&TD as of December 1st 2008

16 September 2009	Yuliy Zaytsev Safety & Compliance Systems Manager	Niyaz Mamedov HSE Systems / CoW Advisor, & Hijran Jafarova Industrial Hygiene Advisor	The numbering of whole the procedure is changed in accordance with requirements of Standardized Document Control Procedure Template (AzSPU-HSSE-DOC-00026-2). Additional wording is added in Paragraph *BP AzSPU Requirements* of the Section 3, *General Requirements* in accordance with BP Group Recommended Practice for Asbestos requirements.
25 January 2011	Yuliy Zaytsev Safety & Compliance Systems Manager	Safety Systems/CoW Lead & Hijran Jafarova Industrial Hygiene Advisor	**Section 3 General Requirements** Removed reference to Getting HSE right, Golden Rules and replaced with OMS, Group requirements