



Procedure for Confined Space Entry

AZSPU-HSSE-DOC-00013-2

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1 PURPOSE / SCOPE

1.1 PURPOSE

The purpose of this procedure is to:

- Identify and define confined spaces
- Describe the proper procedures and preparations to protect the health and safety of all personnel who must work in confined spaces

1.2 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 the E&P OMS Essentials 3.2 Personal Safety and 4.5 Control of Work and the Control of Work (CoW) GDP 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 AzRPU sites and installations.

2 DEFINITIONS

2.1 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.

| | |
|---|---|
| Confined Space | A confined space is any enclosed area that is large enough for a person to enter or insert their head, has no natural ventilation, has limited or restricted means of access and exit and is not designed for normal or continuous occupation. It can be any enclosed or partially enclosed space where there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen). |
| Acceptable Entry Conditions | Conditions that must exist in a Confined Space to ensure that employees can safely enter and perform work. |
| Confined Space Attendant ("Standby man" hereinafter) | An individual stationed outside the confined space who monitors the authorised entrant(s) and performs attendant's duties defined in this procedure. CSEA have to be trained, assessed and authorised as per AzRPU CoW Training Policy. |

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|--|---|
| “Attendant”) | |
| Authorised Entrant | An employee who is nominated by BP or a competent contractor and briefed prior to entering a confined space. |
| Authorised Gas Tester 1 | An individual designated by the OIM/SC/SM to undertake gas testing in confined spaces. |
| Breathing Apparatus (BA set) | A device, which ensures that the wearer has a continuously available supply of uncontaminated air through a face mask, helmet or mouthpiece. SCCABA or airline mask |
| Entry | The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space |
| Engulfment | The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction or crushing. |
| Entry Permit | A document that is provided by BP or contractor to allow and control entry into an entry permit controlled confined space. |
| Hazardous Atmosphere | An atmosphere that may expose authorised entrant(s) to the risk of death, impairment of ability to self-rescue, injury or acute illness |
| Ionising Radiation | Gamma rays, X-rays or corpuscular radiation, such as alpha and beta, which are capable of producing ions either directly or indirectly. |
| Naturally Occurring Radioactive Material (NORM) | Radioactive material produced in conjunction with oil and gas as deposits within process equipment. Sometimes known as Low Specific Activity (LSA) scale. |
| Performing Authority (Entry Supervisor) | A designated supervisor appointed by area authority to accept the Confined Space Entry Permit and subsequently be in charge of the confined space entry work. This person is responsible for ensuring that all precautionary measures stipulated on the Confined Space Entry Permit and accompanying documentation are followed |

| | |
|-----------------------------|--|
| Permit To Work (PTW) | Describes the task to be undertaken, equipment to be used and the hazards and control measures to be taken while performing the task inside a Confined Space |
| Rescue Team | The personnel designated to rescue entrants from confined space. |

2.2 ABBREVIATIONS

| | |
|------------------|---|
| AA | Area Authority |
| AAA | Affected Area Authority |
| AGT | Authorised Gas Tester |
| ALARP | As Low as Reasonably Practicable |
| AzRPU | Azerbaijan Regional Production Unit |
| BA | Breathing Apparatus |
| BS | British Standards |
| COW | Control of Work |
| CPR | Cardio-Pulmonary Resuscitation |
| CSE | Confined Space Entry |
| CoW | Control of Work |
| H ₂ S | Hydrogen Sulphide |
| L2RA | Level 2 Risk Assessment |
| LEL | Lower Explosive Limit |
| LTEL | Long Term Exposure Limit |
| MIG | Metal Inert Gas |
| MSDS | Material Safety Data Sheets |
| OIM | Offshore Installation Manager |
| PA | Performing Authority |
| PPE | Personal protective Equipment |
| PSA | Production Sharing Agreement |
| PTW | Permit to Work |
| SC | Site Controller |
| SCCABA | Self Contained Compressed Air Breathing Apparatus |
| SM | Site Manager |
| SSOW | Safe System of Work |
| STEL | Short Term Exposure Limit |
| TIG | Tungsten Inert Gas |
| TRA | Task Risk Assessment |
| ISSOW | Integrated Safe Systems of Work |
| WCC | Work Control Certificate |

3 GENERAL REQUIREMENTS

3.1 COMPANY 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 be reasonably achieved, a formal level 2 Risk Assessment will be undertaken to identify any additional controls and demonstrate that risks remain as low as reasonably

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practicable.

3.2 LEGISLATION AND STANDARDS

- Operating Management System OMS Essentials 3.2(3.2.1) and 4.5(4.5.1)
- BP Group Defined Practice for Control of Work GDP 4.5-0001([Link](#))

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 defensible 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 Confined Space Entry procedure 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 CONFINED SPACE REQUIREMENTS

Entry in any confined space shall not proceed unless:

- All other options have been ruled out
- Permit is issued with authorization by a responsible person(s)
- Permit is communicated to all affected personnel and posted, as required
- Level 2 Task Specific Risk Assessment is available
- A documented Toolbox Talk with all participants has been held
- All persons involved are competent to do the work
- All sources of energy affecting the space have been isolated
- Testing of atmospheres is conducted, verified and repeated as often as defined by the risk assessment
- Stand-by person is stationed
- Unauthorized entry is prevented.
- Emergency Response Arrangements are in place

3.5 CONTRACTOR MANAGEMENT

Area and Performing Authorities shall ensure that:

- Contractors are knowledgeable of site's CoW procedure and other related SSOW procedures before being permitted on process plant.
- Contractor specialists are adequately supervised to ensure that they follow the approved Method Statement and associated Risk Assessment.
- Permit to Work requests made by Contractors are specific and detailed.
- It is emphasised to Contractors at TBT meetings that only the work described on the work permit is allowed and the scope shall not be changed without re-assessment.
- Contractor personnel involved in Confined Space Entry operations are trained and competent.
- Contractors demonstrate that all their breathing air equipment is certified and maintained according to the appropriate standards and statutory requirements.

4 RESPONSIBILITIES

Defined accountabilities, including responsibilities shall be assigned, documented and communicated to all roles identified within Confined Space Entry (as a part of COW policy and procedures) process.

The levels of authority for approval to proceed with work shall commensurate with the level of risk.

Role owners shall make sure that they understand and accept their accountabilities and responsibilities.

The authorisation requirements for COW roles are defined in AzRPU Authorisation Procedure AZSPU-HSSE-DOC-00012-2.

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/documents/AZSPU-HSSE-DOC-00012-2>

Single Point of Accountability for CoW process is defined by AzRPU COW Procedure AZRPU-HSSE-DOC-00002-2.

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/azspu/documents/AZSPU-HSSE-DOC-00002-2>.

Training and Authorisation requirements are defined in AzRPU COW Training Policy AZSPU-HSSE-DOC-00088-2.

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/documents/AZSPU-HSSE-DOC-00088-2>

Note: For all confined space work, the responsibility for safety, during the entire operation, rests with the roles given below. These personnel must ensure that adequate steps have been taken to eliminate or control the hazards present.

4.1 SITE MANAGER (SM)/SITE CONTROLLER (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
- That this procedure is strictly adhered to for all occasions when it is identified that confined space entry is to take place.
- That formal records of all risk assessments are maintained in accordance with this

procedure

- That the arrangements for training of staff and contractors in the use of the procedure and the keeping of records are in place
- That formal records of all risk assessments are maintained in accordance with this procedure and stored in ISSOW system,
- The arrangements for training of relevant staff and contractors in confined space entrant's duties and the keeping of records
- That the competence of all authorities involved in Confined Space Entry is verified.
- That the outcome of Level 2 Risk Assessments has been approved by an authorised person.

4.2 AREA AUTHORITY (AA)

The Area Authority shall be responsible for ensuring that the requirements of this procedure are adhered to for all confined space entry within his area of responsibility. AA shall be responsible for ensuring:

- That confined space entry has been risk assessed and planned
- That all persons involved in confined space entry 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 confined space entry activities to confirm that conditions are suitable and sufficient and, that all personnel are in compliance with this procedure
- That the Performing Authority arranges Risk Assessments, and conducts Toolbox Talks associated with confined space entry requirements.
- That all persons involved in confined space entry have received appropriate training (for confined space attendants), awareness briefing and /or certification (ref. CoW Training Policy [AZSPU-HSSE-DOC-00088-2](#))
- That he leads Level 2 Risk Assessments for Confined Space Entry (CSE) to ensure personnel are protected from confined space hazards
- That he authorises entry for the work to begin (provided that the requirements of this procedure have been met)
- That the CSE permit is cancelled or suspended when the job is complete or when unacceptable conditions arise.

4.3 PERFORMING AUTHORITY (PA)

The Performing Authority shall ensure:

- The compliance with this procedure by all personnel under their supervision when involved in CSE activities
- That an appropriate 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 confined space entry is 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.
- That personnel involved in CSE know and recognise the hazards that have been identified in the Level 2 RA and that all of the control measures that are identified as being essential to eliminating or mitigating the risks are fully implemented prior to work commencing

- That personnel involved in CSE understand all the conditions on the PTW and cross-referenced Certificates and sign to confirm their responsibility for complying with all the conditions on the confined space entry permit
- That personnel entering a confined space have all necessary personal protective equipment
- That rescue services are informed about the entry and that they are readily available in an emergency
- That the necessary rescue and resuscitation equipment are readily available
- That acceptable safe entry conditions are maintained consistent with the terms of the Confined Space Entry (CSE) permit
- That work is stopped and all personnel exit the confined space if the conditions of entry, including the scope of work, change.

4.4 AUTHORISED GAS TESTERS (AGT'S)

An Authorised Gas Tester is a person who has been trained and certified. Training and certification covers 3 levels, AGT 1, 2 and 3, with Level 1 being the highest level. Only AGT Level 1 trained personnel have the required level of training to test confined spaces.

Level 1 AGT's are competent to carry out gas testing on all activities including Confined Space Entry (CSE). For confined space work the Level 1 AGT must retest the atmosphere at the start of each shift, or when the work has been suspended for an extended period within the shift.

The AGT1 shall:

- Prove the safe atmosphere (i.e. free of toxic and flammable gases) in the confined space using correctly calibrated gas testing equipment in his charge with an understanding of the limitations of the equipment
- Prove Oxygen Levels within levels required
- Enter the readings obtained while testing the atmosphere in the Confined Space onto the Confined Space Entry Permit
- If the atmosphere is within the acceptable limits for entry, sign off the appropriate section on the WCC in ISSOW system
- Where the gas concentrations are outside the acceptable limits the AGT1 should **NOT** sign the permit, but discuss with the AA and PA measures to further purge the space
- Observe and record any sludge or scale in the Confined Space and record it on the Confined Space Permit ensuring that the findings are clear and easy to read.

Level 2 AGT's are qualified to carry out gas tests in support of all activities excluding Confined Space Entry & carry out continuous monitoring during ongoing work.

Level 3 AGT's are individuals, usually the PA, who are approved by the Site Controller as having undergone practical instruction by a Level 1 or 2 AGT on the use and interpretation of the results from both portable and personal gas monitors. The AGT3 has no authority to record gas test results on PTW; their responsibility is only for continuous monitoring.

4.5 ENTRANT

The entrants shall:

- Be briefed on all aspects of the proposed entry activities in CSE (ref. CoW Training Policy [AZSPU-HSSE-DOC-00088-2](#))
- Follow established safety standards and practices
- Participate in a Toolbox Talk
- Understand the conditions required by the Confined Space Entry Permit and the associated Permit to Work
- Know and recognise the hazards that may be faced during entry including signs or symptoms, and consequences of the exposure
- Inspect, test and make proper use of equipment and protective devices
- Maintain communication with the Confined Space Attendant to enable the attendant to monitor the entrants' status
- Alert the attendant if an unsafe condition exists or when symptoms of exposure appear
- Come out from the confined space as soon as possible when:
 - Ordered by the attendant
 - The entrant recognises the warning signs or symptoms of exposure
 - An unsafe condition exists.

4.6 CONFINED SPACE ATTENDANT

The Confined Space Attendant has a vital function to perform. Under no circumstance may the Confined Space Attendant enter the confined space or leave his post whilst there are personnel inside. The Area Authority must ensure that the Confined Space Attendant understands his duties and is competent to perform them.

The attendant must be trained, assessed and authorised (ref. CoW Training Policy [AZSPU-HSSE-DOC-00088-2](#)) to carry out his/her duties and must attend the toolbox talk before the start of work. He/she must remain outside the confined space, in a safe atmosphere and safe physical position, at all times during a confined entry operation and perform the assigned duties under this procedure. He/she must also:

- Maintain an accurate count of all persons in the space by:
 - Using a personnel log-in/log-out system on which the name, entry and exit times for all personnel entering or leaving the confined space shall be recorded
 - Marking airlines and / or safety lines so that each individual inside the tank is clearly identified in the event of a problem
- Be aware of the hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of any exposure
- Monitor conditions and activities inside and outside the space to determine if it is safe for entrants
- Remain outside the confined space during entry operations until relieved by another Attendant
- Keep entrants under effective surveillance and maintain effective and continuous communication with them during entry by one or more of the following methods:
 - Line-of-sight (not always possible)
 - Voice contact (allowing for distance and ambient noise)
 - Radio with agreed periodic contact
 - Pre-arranged signals on air-klaxons, whistles etc
 - Pre-arranged lifeline signals

- Distress signal unit
- Order authorised entrants to evacuate the confined space immediately if:
 - A condition is observed that is not allowed
 - Behavioural effects of hazard exposure are detected
 - A situation occurs outside the confined space that could endanger the entrants
 - An uncontrolled hazard is detected inside the confined space
 - The attendant must leave the work station
- Ensure unauthorised persons are not allowed to approach or enter a confined space while entry is underway
- Be equipped with a device (e.g. radio, telephone) to summon assistance rapidly if entrants get into trouble.

Notes:

Rescue and resuscitation equipment shall be near to the worksite and personnel trained in its use will be readily available and aware of the entry.

Consideration must be given to having the rescue team attend the pre-job briefing to ensure familiarity with the proposed work.

Ensure that an adequate supply of respirable air is maintained whilst Entrants are inside the confined space. CSE Entry Standby Man/Attendant Duties Checklist was attached to the procedure under Appendix C

5 CONFINED SPACE ACTIVITY

5.1 EXAMPLES OF CONFINED SPACES

A Confined Space may be any place included in the following example list, in which by virtue of its enclosed nature, there arises a reasonable foreseeable specified risk. The list below is not a complete listing; therefore do not assume if not on the list that it is not a Confined Space.

Some confined spaces are easy to identify and include:

- Storage tanks
- Silos
- Process vessels and exchangers
- Road and rail tankers
- Enclosed drains and sewers
- Sumps

Other confined spaces can be less obvious but just as dangerous. Examples include:

- Ductwork
- Void spaces
- Trenches & excavations
- Vessel skirts
- Rooms with limited ventilation
- Temporary tented areas (unless ventilation is specifically designed for worst-case leakage inside the area).

5.2 EXCAVATIONS AND TRENCHES DEEPER THAN 1.2M

All excavations and trenches deeper than 1.2 metres in “hazardous areas” as defined by the site / installation are classified as confined spaces.

In “non hazardous areas” where there are no significant hazards identified prior to entry, the following criteria must be established before determining the requirement for a “Confined Space Entry permit”:

- No risk of atmospheric hazards either from surrounding area or from the task being performed.
- The excavation does not require any form of isolation prior to entry.
- No risk of engulfment from ingress of solids or liquids.
- No risk from excessive heat.
- Safe means of access and egress for work party
- Safe means of access and egress for rescue purposes
- Excavations benched or shored to reduce risk of collapse (Ref. [AZSPU-HSSE-DOC-00050-2](#) - Procedure for Excavation.)
- Continuous monitoring of O₂, LEL and other toxic gasses are carried out inside the excavation / trench

The excavation / trench may be classified as “**not a confined space**” if all the above criteria can be established and a Level 2 Risk Assessment is conducted.

Note: A Permit to Work and Level 2 Risk Assessment are mandatory for “**all work**” in excavations and trenches deeper than 1.2m.

5.3 HAZARDS ASSOCIATED WITH CONFINED SPACES

Dangerous concentrations of gases and vapours can arise from sources inside or outside a confined space. These include:

- Toxic substances in hazardous concentrations, e.g., hydrogen sulphide (H₂S), benzene and hydrocarbon gases that remains from the process or enters from adjoining plant because it has not been effectively isolated
- Flammable gases, vapours and liquids with potential for fire or explosion
- Gas or vapour emitted from scale or sludge, particularly resulting from mechanical disturbance during access or cleaning or due to the heat from welding operations
- Gas, vapour or fumes produced by operations being carried out in the confined space such as welding and cutting, brush and spray painting and the use of adhesives and solvents
- Exhaust gases drawn into the confined space from prime movers or heating equipment

Dangerous situations can arise from sources inside or outside a confined space. These include:

- Failure to positively isolate the confined space
- Mechanical equipment in the space
- The ingress of steam, hot water or other liquids which may cause scalding or drowning
- Communication difficulties
- Poor access and egress restricting movement for normal work and escape
- Poor access and egress for rescue
- Slippery surfaces
- Sources of ionising radiation (e.g. level gauges, sludge and LSA scale or NORM)

- Any confined space that might normally contain naturally occurring radioactive material shall be checked by a certified Radiological Protection Supervisor and shall be subject to the requirements of procedure [AZSPU-HSSE-DOC-00058-2](#) - *Management of Radioactive Materials and Radiation Generators*
- Where vessels are fitted with Nucleonic Gauges for measuring levels or product density, the source must be disarmed or retracted, the source must be made safe in accordance with procedure [AZSPU-HSSE-DOC-00058-2](#) - *Management of Radioactive Materials and Radiation Generators*
- Vessel boots and sumps full of liquid which could be fallen into
- Pyrophoric scale formed in systems
- Systems which may contain H₂S
- Excessive noise
- Inadequate visibility
- Excessive temperature in the confined space (causing heat stress to personnel)
- Possible ingress of fumes from drain systems etc
- Possible collapse of excavations due to inadequate shoring.

Dangerous situations can arise from oxygen enriched or deficient atmospheres

The special dangers of working in oxygen-enriched atmospheres cannot be over emphasised. Oxygen enrichment may occur by leakage of oxygen supplies or by build-up of oxygen during oxygen-rich flame cutting processes.

Enrichment of only a few percent will make materials that will normally only burn slowly or with difficulty, burn fiercely with catastrophic results for the occupants of the confined space.

Every precaution shall be taken to avoid oxygen enrichment. In particular:

- Oxygen cylinders shall be kept outside the confined space where practicable.
- Oxygen supplies shall be isolated outside the space during work breaks
- Hoses supplying oxygen shall be removed from the space during work breaks.
- Oxygen shall never be used to 'sweeten' the atmosphere of a confined space.
- The space shall be adequately ventilated at all times

There is also a danger of oxygen deficiency due to combustion processes, purging with inert gas, inert gas welding (MIG/TIG) or oxidation processes (e.g. rusting) occurring in steel vessels left completely closed for some time.

Other potential hazards include:

- Electric shock or ignition of flammable gases from portable lights, tools, or associated electrical equipment.
- Possibility of static electricity build-up due to a lack of proper bonding and grounding procedures.
- Injury from mechanical equipment such as mixers, conveyors, etc., inadvertently activated.
- Direct contact with corrosives or irritants.
- Contaminants entering from other areas through ducts, piping, etc
- Ignition from static electricity.
- General safety hazards, including communication problems and physical hazards. For example:
 - Falling objects, inadequate visibility, excessive temperature / noise / vibration, etc
 - Possible collapse of excavation
 - Trips and falls on uneven surfaces

5.4 CONFINED SPACE PERSONAL PROTECTIVE EQUIPMENT (PPE)

5.4.1 Personal protection

Appropriate personal protection as identified by Level 2 Risk Assessment, e.g., head, foot, hand, eye, ear, face, body and respiratory protection, must be worn when entering an Entry Permit Controlled Confined Space.

Where required by the Risk Assessment a life-line attached to a full body harness should be used by all entrants during entry into a confined space.

5.4.2 Respiratory Protection

Dependent upon the type and concentration of contaminants, respiratory protection may range from a simple cartridge respirator to air-supplied breathing apparatus. When the level of airborne contaminants is beyond the filtration capability of a respirator, as defined by the vendor, or where there is an oxygen deficiency, then breathing apparatus must be used.

In order to ensure that grit, particles and other contaminants could not enter a supplied air respirator/breathing air system when air supply hoses are disconnected and/or reconnected, the responsible people shall carry out this work away from the contaminated environment.

5.4.3 Breathing Air Standards

The need to ensure a continued provision of good quality breathing air relies on regular changing of air filters and maintenance of dryers, supported by periodical analysis of the breathing air supply.

Under no circumstances shall Instrument or Plant Air be used for breathing duty.

Note: Breathing air shall conform to BS EN 529: 2005 – Respiratory protective devices. Recommendations for Selection, Use, Care and Maintenance Guidance Document. BS EN 12021:1999 - Respiratory protective devices. Compressed air for breathing apparatus.

5.4.4 Air Line Masks

Air line breathing apparatus shall be approved and conform to BS EN 14593-1:2005, BS EN 14593-2:2005 and BS EN 14594:2005. The full face mask enables the wearer to work for long periods in harmful atmospheres, whilst breathing air is supplied by either portable air compressors fitted with reservoir air tanks, or a battery of compressed air bottles.

Connections to the air line mask hose are made via instantaneous bayonet spring couplings. These couplings and air hoses must be approved by manufacturer, kept in good condition and must not be used for any purpose other than supplying air to breathing apparatus.

Couplings integrity shall be checked prior to entering a confined space wearing air line masks or breathing apparatus.

5.4.5 Using Portable Air Compressors

Where no compressed air bottle supply is available, portable air compressors having a reservoir air tank may be used. In such cases:

- The compressor air intake(s) must be upwind of any known source of contamination to ensure clear air being fed to the user (a wind sock indicating wind direction should be flown in the vicinity of the intake to the compressor)

- The system of air supply employed should incorporate a receiver of sufficient capacity to enable persons to escape from an irrespirable atmosphere in the event of a failure of the prime mover supplying the air
- The air must be passed through suitable filters to remove excess moisture and oil mist.

Note: To ensure that an adequate supply of air is available and being received by the wearers, a suitably competent person must be appointed who is responsible for checking the pressure in the air receiver, and for ensuring the filters are functioning properly.

5.4.6 Self Contained Compressed Air Breathing Apparatus (SCCABA)

SCCABA shall conform to *BS EN 137:2006 "Self Contained Compressed Breathing Apparatus"*. These sets are provided where a portable supply of air is required for a short period of time.

The air for this apparatus is supplied under pressure either from compressed air cylinders carried by the wearer or from trolley sets.

All persons required to use breathing apparatus must receive initial training and refresher training at intervals not exceeding one year. The training shall be recorded.

5.4.7 Escape Breathing Apparatus

Any person entering a Confined Space using an airline Breathing Apparatus shall be provided with an Escape Breathing Apparatus set with a bottle capable of supplying an emergency air supply for approximately 10 minutes. This set shall also conform to *BS EN 137:2006 "Self Contained Compressed Breathing Apparatus"*.

5.5 MONITORING AND AUDITING

CSE activities shall be managed and monitored at defined intervals by the responsible people, such as Area and Performing Authorities. Area Authorities and Performing Authorities shall maintain regular communication with those performing CSE activities.

Monitoring of CSE work shall ensure that:

- The activities are carried out safely and the conditions of the permit are not compromised or changed
- A responsible person is assigned and attends the CSE worksite at defined intervals, the frequency of which is determined by the Risk Assessment, to check if permit conditions are still complied with.

Hand-over between work parties involved in CSE activities at shift change before starting the work shall include the status of continuing work, a re-appraisal of site conditions and the appropriate control measures.

The responsible person charged with monitoring the ongoing work shall:

- Identify when the site conditions have changed
- Assess when the original permit no longer accurately covers the task, stop the job if necessary and request a re-assessment
- Have the required competence to recognise when site conditions no longer comply with the permit requirements
- Investigate any indication from the workforce that the work may be unsafe.

An assigned person shall ensure that the status of permits (including a register of associated inhibits/

overrides/isolations) is accurate, up to date and available at a designated location (e.g. the control room, the site office, or electronically). Copies of all permits and associated certificates currently in force shall be held at a designated location.

Each Operating Area shall undertake regular recorded internal audits of the operation of Confined Space Entry to check the compliance with the requirements of COW GDP and this procedure. The auditing process including frequency, checklist, register, actions, tracking and close out may be a part of the audit program of the CoW System at each site.

These audits should include the following requirements:

- Audit results shall be recorded, analysed and used to improve the management and quality of the Confined Space Entry Process as a part of CoW.
- The scope of any CSE (CoW) audit shall include individual permits and any associated risk assessments. In addition, it shall cover the CSE (CoW) documentation processes and procedures as well as their correct use and application.

Internal and external lessons learned that impact the CSE activities shall be captured, incorporated and shared.

5.6 COMPETENCY AND TRAINING REQUIREMENTS

Persons involved in the Confined Space Entry process as a part of COW shall be trained (attendants) or briefed (other participants) and shall meet the competency requirements for their assigned CoW roles.

All Competency and Training requirements are to be in compliance with the terms and conditions of CoW Training Policy [AZSPU-HSSE-DOC-00088-2](#).

The competency levels of persons involved in CSE operations shall be checked at a defined frequency. Refer to AzRPU Authorisation Procedure AZSPU-HSSE-DOC-00012-2 and AzRPU COW Training Policy AZSPU-HSSE-DOC-00088-2 for details:

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/documents/AZSPU-HSSE-DOC-00012-2>

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/documents/AZSPU-HSSE-DOC-00088-2>

A register will be held on site of all personnel deemed competent for all the roles associated with Confined Space Entry, and will be managed by the Site Manager / Site Controller / Offshore Installation Manager.

5.7 PLANNING AND PROCEDURES

All alternatives to entry must be considered before starting to plan for Confined Space Entry.

Prior to entry into a confined space, all affected plant and equipment shall be positively isolated, emptied, cleaned and gas freed as necessary.

A Confined Space Entry Permit form (See Doc. No: [AZSPU-HSSE-DOC-00060-2](#)) shall be issued to allow the Gas Tester (Level 1) to test the atmosphere in the Confined Space. He will sign the permit after the test to indicate the atmosphere is safe for the work to be done. The Confined Space Entry Permit is then attached to the Permit to Work.

Positive isolation (See Doc. No: [AZSPU-HSSE-DOC-00049-2](#)), Energy Isolation - Process must be effected on all live process, utility and service lines and electrical/control equipment for any task

requiring entry to a vessel or confined space. Spool removal is preferred, although spade isolation may be used where it is not reasonably practicable to remove pipe work sections. It should be noted that in some cases it may not be reasonably practicable to comply with this requirement when making entry to mud tanks, pump pits, ballast tanks, or other utility systems. Here, a Level 2 Isolation Risk Assessment (IRA in ICC which is in ISSOW)) must be undertaken and approval obtained from the Site Manager, Site Controller or Offshore Installation Manager before entry can be permitted under work control.

Vessel nozzles should normally be left open to assist with free ventilation. Air movers or ducted fans may also be used to create a flow of clean air through the vessel. If there is any likelihood of fumes, water or other contaminant entering the vessel from sources other than the isolated pipe work while persons are inside, the need to blank off any affected nozzles must be considered. Blanks used for this purpose do not need to be pressure-rated. However non-pressure rated blanks must be clearly identified by a tag, painted circumference or other marking. In the case of tanks with 'swan necks', mechanical plugs may be an option, to prevent ingress of fumes, etc.

The 'man-way' doors on a vessel being prepared for entry, must be removed last, and reinstalled first to reduce the risk of unauthorised entry.

Open manholes shall be protected from unauthorised entry (physical barrier/warning sign).

All equipment, particularly electrical isolation points, requires clear unambiguous labelling. Labels and signage are protective barriers and therefore, should be checked periodically.

5.7.1 Planning process

Planning and scheduling of CSE activities shall identify individual tasks and their interaction.

A documented work planning process of CSE shall be in place and take into account all necessary resources and time required to safely fulfil all stages of control of work process. It includes hazard identification, risk assessment, scheduling and equipment preparation. Resources involve the competent personnel, including subject matter experts, and correct equipment necessary to carry out CSE work.

Risk of simultaneous operations shall be identified and measures taken to ensure the compatibility of different activities.

The planning process shall identify dependent and linked activities, including those associated with planned maintenance. Such activities, if necessary, shall be coordinated and prioritised to allow safe, efficient and timely implementation of SCE activities.

Planning for confined space entry shall include the following:

- Level 2 Risk Assessment (mandatory) for initial gas test and actual work to be performed
- Positive Isolation to ensure no process or utility fluids or gases may enter during the entry
- Entry Permit preparation to enable Gas Tester to enter the vessel
- Prior to any entry into a confined space, the atmosphere shall be tested to determine the precautions necessary, and an Entry Permit issued.
- Throughout the period of entry into confined spaces, the atmosphere in the space must be strictly controlled to prevent persons being exposed to risks associated with toxic and/or flammable fumes and vapours in the atmosphere, and with atmospheres that may be deficient (or enriched) in oxygen and extraction / forced ventilation to be provided where required

- Procedures for control of work including procedures for any non-compliance with normal standards based on the Level 2 Risk Assessment
- Notification of AAA where appropriate
- The resources available to deal with any potential emergency that may arise should limit the number of personnel entering a confined space.
- Emergency response arrangements:
 - Access and egress arrangements should take into consideration the possibility that a casualty may need to be evacuated in an emergency. It would require a winch to vertically hoist an average person from a space below. Wearing a harness and lifeline shall only be considered practicable if the nature of the confined space is such that the attendant could hoist or drag out the person from the space if the latter were immobilised, and if the rope would not impede an unassisted exit. Wearing only the harness should also be considered - a rescuer could attach the lifeline to effect evacuation of the person
 - Procedures for entering confined spaces with and without Breathing Apparatus (BA) are described in Paragraphs 5.15 and 5.16.

5.7.2 Confined Space Planning Flow-Sheet

A schematic diagram to show the sequence of planning for Confined Space Entry is shown in Appendix A.

5.8 HAZARD IDENTIFICATION AND LEVEL 2 RISK ASSESSMENT (L2RA)

CSE tasks shall not be conducted without being risk assessed.

Level 2 Risk Assessments shall be prepared to establish whether the proposed confined space entry and the work to be done can be performed safely.

The main hazards associated with entering and working in confined spaces, are listed in Section 5.3 as a checklist for the Risk Assessment.

At least one representative of each workforce team shall participate in Level 2 Risk Assessment prior to start of Confined Space Entry activities. The outcomes of the Risk Assessment shall be recorded, communicated to the workforce involved in CSE activities and signed by them.

Worksite shall be inspected by responsible person(s) prior to commencement of Risk Assessment.

Equipment to be used during CSE activities shall be fit for the purpose through inspection and/or review of certification.

In order to reduce the risk of accident during CSE activities the following hierarchy of control should be used - Elimination > Substitution > Control > Mitigation.

Based on the outcomes of the Risk Assessment, Emergency Rescue plans (see paragraph 5.21 and example plan in Appendix B of this procedure) shall be developed and be in place prior to commencement of CSE activities. Such plans shall be communicated to the workforce to make them fully aware of the hazards, risks and control measures of working in the confined space environment.

PPE identified as necessary for a safe implementation of CSE tasks (including contractor equipment) shall be checked by an authorised person at defined intervals to ensure that it is fit for purpose and within date for testing and re-certification.

5.9 GAS TESTING

Only authorised persons who have been fully trained and certified in gas testing for confined space entry purposes, i.e. Authorised Gas Tester Level 1 (AGT1), shall carry out gas testing for entry,

The AGT1 shall request an Entry Permit from the Area Authority to confirm that the confined space is isolated and, if required, to authorise entry for the AGT1. Any special operational conditions inside or outside the space will be conveyed to the AGT1 on the permit.

Where practicable, the gas test shall be carried out from outside the confined space (e.g. using extension probes). In some circumstances it may not be possible to sample a representative portion of the space from the entrance, taking into account ventilation arrangements and the possibility of heavier than air gas remaining in low areas. In this event, the AGT1 may have to enter the space in order to complete his tests.

The conditions for the entry of the AGT1 shall include:

- The AGT1 shall not enter if the conditions at the entrance are outside the criteria for entry with BA (refer to Table 1).
- If an entry is required, then AGT1 can enter the CS only when CSEA is in place.
- A Confined Space Attendant (refer to Paragraph 4.6) shall be stationed at the entrance so that he is able to see the AGT1 and equipped to raise the alarm if the AGT1 should get into trouble and also to warn the AGT1 of an external emergency.
- The AGT1 shall wear BA. He/she shall only enter the confined space without BA after he has established from outside of the confined space that oxygen, flammable and toxic gas levels for the whole space are within the criteria for non-BA entry (see Table 1) and there is a need to carry out further safety checks in the space (e.g. establishing radiation readings from NORM or nucleonic gauges) or if he is updating a valid Entry Certificate which has already certified the space fit for entry without BA.
- If practicable, the AGT 1 shall wear a harness and a lifeline. This shall only be considered practicable if the nature of the confined space is such that the attendant could hoist or drag out the AGT 1 from the space if the latter were immobilised, and if the rope would not impede the AGT 1 in making an unassisted emergency exit.

Note: It would require a winch to vertically hoist an average person from a space below. Resuscitation equipment ready for immediate use shall be kept close at hand.

5.10 GAS TEST REQUIREMENTS

Testing must be carried out in accordance with the following requirements:

- Ventilation equipment must be shut off before the tests commence
- The atmosphere must be tested at the bottom, top, and the middle of all confined spaces
- The atmosphere inside must be continuously monitored while work is being conducted in the confined space
- If the confined space is left for any reason, the atmosphere shall be re-tested before re-entry may be permitted

5.11 TEST EQUIPMENT

Testing instruments must be within their calibration dates and operationally checked before and after use in accordance with manufacturer specifications. Test records must be held on site.

5.12 CRITERIA FOR CONFINED SPACE ENTRY

The space shall only be classed as fit for entry without BA if:

- The oxygen and flammable gas levels are the same as measured outside in fresh air, and
- Toxic contaminants do not exceed current occupational exposure limits
- Also, the AGT1 shall confirm that there are no materials left inside which in his judgement may give off sufficient quantities of vapour and fumes if disturbed, such that the atmosphere would cease to be classed as fit for entry without BA.

Table 1 Permitted Limits for Confined Space Entry and Work

| Criteria | ENTRY WITHOUT BA (Refer to paragraph 9.8) | Entry with BA (Refer to paragraph 9.9) |
|---|--|---|
| Oxygen Content (%) | 20.8 to 22.5% (Same as in fresh air) | 19 to 20.8% |
| Toxicity (Occupational Exposure Limits (Note 1)) | <LTEL (8 hours) (Long-term Exposure Limit) (Note 2) | <STEL (15 minutes) (Short-term Exposure Limit) |
| Hydrocarbon Vapour (% Lower Explosive Limit – measured on a combustible gas indicator) (Note 3) | <1% LEL Inspection, Hot and Cold Work Permitted (Note 4) 1 to 4% LEL Only Inspection and Cold Work Permitted (Note 4) | >4 to <25% LEL Only Inspection and Cold Work Permitted (Note 4) > 25% LEL entry NOT permitted under any circumstances |
| Notes: (1) Occupational Exposure Limits for various toxic substances are defined in the UK HSE Guidance Document EH40 (2) For longer work shifts (e.g. 12 hours) LTEL must be extrapolated to give 12-hour Time Weighted Average (TWA). (3) Lower Explosive Limit (LEL) synonymous with Lower Flammable Limit (LFL). (4) Continuous gas monitoring must be performed throughout confined space occupancy. | | |

5.13 WORK PERMIT AND CONFINED SPACE ENTRY PERMIT ISSUE AND VALIDITY

When the gas test has been completed, the Area Authority shall consider the results. He shall then issue the appropriate Work Permit, cross-referenced to the Confined Space Entry Permit on which is specified the period in which he considers it safe to enter the space, taking into account the nature of the space, possible contaminants, type of isolations and the type of work proposed.

An Entry Permit on its own does not authorise entry for any purposes other than testing and visual inspection by AGT1 only.

A separate Level 2 Risk Assessment shall be generated to support Work Permit for the work to be carried out in the confined space including visual inspection by other disciplines.

The Entry permit shall be displayed at the job site. Entry points shall be barriered off when the confined space is not manned.

Entry to the confined space shall commence and continue at any time during the period for which the permit is valid. If the space is vacated during the period of validity, a gas test shall be undertaken before re-entry. Alternatively, if continuous gas monitoring equipment has been in use throughout the

vacated period, entry may proceed without the gas test. The period of validity shall not normally exceed one shift.

A suitable means of monitoring personnel movement (e.g. Personnel Log-in/Log-out sheet in ISSOW) shall be used to supplement the Entry permit to enhance the control of entry into confined spaces.

Permit to Work process is described in details in the following procedures:

AzRPU Control of Work Procedure AZSPU-HSSE-DOC-00002-2

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/azspu/documents/AZSPU-HSSE-DOC-00002-2>

AzRPU PTW Procedure AZSPU-HSSE-DOC-00060-2

<http://docs.bpweb.bp.com/dkAzSPU:/published/hse/documents/AZSPU-HSSE-DOC-00060-2>.

Prior to issue of the CSE permit, the responsible competent person (AA) shall attend the work site in order to verify the work scope, assess the hazards and check if control measures are in place, including mitigation.

The scope, hazards, controls and mitigation measures shall be communicated in writing and signed off by all involved in the task (a documented TBT). Both parties issuing the permit and accepting it shall confirm that the workforce understands its contents, uses the correct equipment and ready to stop unsafe work if required by situation. A copy of the CSE permit shall be retained on site for the duration of the work for the benefit of the work force.

The contents of the CSE permit shall be also communicating to affected Operations and other personnel in order to reduce the impact on their activities prior to commencement of the work. The CSE Permit shall be countersigned by all AAA if applicable.

Personnel operating in remote locations may have limited access to facilities and other competent personnel. It is particularly important that they have the skills, competencies and CoW knowledge required to operate safely in the conditions they work in.

On completion or interruption of any permit including CSE, the worksite should be thoroughly inspected and confirmed its safe state, i.e. the area should be cleared from debris, materials and equipment, cleaned of spills etc. This shall be verified by the authorised person's (PA) signature.

The CSE activities as a part of CoW process shall include de-isolation, reinstatement and testing of the system's integrity.

5.14 PROCEDURE FOR ENTRY INTO CONFINED SPACES WITHOUT BA

5.14.1 Confined Space Attendant

A suitably trained Confined Space Attendant shall be stationed at the designated entrance to the confined space and shall perform the duties outlined in Section 4.0 paragraph 4.6.

5.14.2 Entrants

Entrants shall perform the duties listed in Section 4.0 paragraph 4.5. Entrants to the confined space shall:

- Wear suitable PPE, as required
- Wear a harness and lifeline, if specified on the Level 2 Risk Assessment
- According to the type of work and the risk, take adequate rest periods out in the open air

- Continuously monitor for oxygen, hydrocarbons and H₂S. This may be achieved by one of the Entrants monitoring Crowcon Triple meter (or similar) to ensure that the conditions are not worsening. If this should occur, the space should be vacated, ventilated and re-tested until conditions have improved to within the limits set out on the Entry Permit.

5.14.3 Work Activity Affecting Entry without BA

Even though a gas test may indicate that a confined space is fit for entry without BA, if work is to take place within that is likely to generate toxic or flammable vapours to such an extent that the atmosphere cannot be kept free of contaminants by forced or natural ventilation (e.g. application of paint coatings), the space shall be treated as not fit for entry without BA.

5.15 ADDITIONAL PROCEDURE FOR ENTRY INTO CONFINED SPACES WITH BA

5.15.1 Confined Space Attendant

The Confined Space Attendant shall perform the duties listed in Section 4.0 paragraph 4.6. Additionally, where the space contains residual fluids (e.g. water) into which a person might fall so that his face and BA are submerged, he shall be assisted by a rescue person who shall be stationed at the opening in addition to the Confined Space Attendant, equipped to make an entry wearing BA so as to give immediate help, if he considers it safe to do so.

5.15.2 Entrants

Entrants shall perform the duties listed in Section 4.0 paragraph 4.5. In addition, they shall wear approved positive pressure BA and be trained in its use.

Note:

- Canister respirators shall not be used in any circumstances. Air-supplied apparatus shall be used.
- All personnel expected to wear BA and carry out work at the same time are recommended to be clean-shaven in order to provide a good seal between mask and face.
- If it is not possible to class the space as 'fit for entry without BA', entry WITH BA may be permitted, subject to the criteria in Table 1 and in accordance with the additional precautions below:
 - Approved positive pressure BA is worn.
 - Authorisation for ENTRY WITH BA has been given.
 - Where practicable, retrieval gear is worn.
 - The Entry Attendant must be stationed outside the space entrance at all times.
 - Rescue and reviving equipment and qualified personnel shall be readily available.

5.16 CLEANING

5.16.1 Removal of Sludge, Scale and hard Deposits

After a tank or vessel has been opened up, as much oil, sludge and scale as possible shall be removed by means of bailers, squeegees etc, aided, if convenient, by adequately earthed water hoses. As much removal as possible should be carried out from the open manhole door, but invariably it will be necessary to enter the tank/vessel to remove all sludge and scale.

Earth sumps or suitable containers shall be provided for the reception of oil or oily sludge. This material shall be contained and disposed of in a safe and environmentally acceptable manner.

All pyrophoric scale shall be disposed of in an approved manner. During the time that it is exposed to the air after removal, it shall be kept wet. Pyrophoric scale is removed from offshore installations in

sealed drums, the scale being 'slurried' with water.

Where there are hard deposits, necessitating the use of chipping tools, the PTW shall specify that the surface being chipped must be kept thoroughly wetted during the operation.

Where high-pressure water jets are used in the removal of sludge and scale, only specifically trained operators shall be used. Where standard water hose and nozzles are used to wash out, the nozzles shall be earthed.

5.16.2 Use of Chemical Cleaners

If chemical cleaners are to be used then the MSDS for the chemical shall be consulted and a risk assessment (COSHH) conducted prior to use. In particular, additional ventilation or respiratory protection may be required.

When introducing a chemical into a confined space, the compatibility of that chemical with the contents of the confined space must be checked. If any doubts exist regarding the compatibility of a chemical, the HSE Department shall be consulted.

Sludge and spent cleaning fluids must be contained and disposed of in a safe and environmentally acceptable manner.

When chemical cleaning takes place there is a possibility for the production of toxic gases, including H₂S. Therefore a closed drain system, outside the confined space, shall be used for the disposal of effluent from these operations. Personnel engaged in these operations shall wear suitable chemical protective clothing/equipment and suitable toxic gas monitoring/warning devices shall be provided.

5.16.3 Removal of Trapped Oil or Vapour

When repairs are to be carried out within a tank or vessel, care shall be taken to ensure that oil is not trapped inside internal structural members. Any hollow supports or bracing steelwork exposed to hydrocarbon should be carefully drilled at the lowest and highest point to detect the presence of oil. If it is found, the hollow member must be purged by one of the methods discussed above before work on the tank or vessel is allowed to proceed.

Any linings or wear plates attached to the shell of a tank or vessel may trap liquid hydrocarbons behind them. This liquid can percolate into the vessel or tank by way of minute cracks. Therefore, the vessel or tank shall frequently be tested to ensure that it remains gas free.

5.17 VENTILATION

5.17.1 'Cleaning-out' Doors

Where confined spaces are provided with clean out doors, these doors shall be opened after purging, and the confined space thoroughly ventilated.

5.17.2 Use of ventilation Equipment

Ventilation shall preferably be accomplished using a positive method of mechanical ventilation that is arranged to:

- Introduce sufficient fresh air and remove contaminants from all pockets or corners of the confined space
- Avoid re-circulating contaminated air

Even after the confined space is cleaned and ventilated, the mechanical ventilation equipment must

be kept operating to provide secondary protection:

- In case of accidental introduction of harmful substances
- To remove contamination or heat that may be produced by the work (e.g., welding and cutting, painting, coating)

The atmosphere must continue to be monitored for toxic gases, fumes and airborne contaminants while personnel are inside the confined space.

5.17.3 Ventilation Air Source

The ventilation air used will be from either:

- An electrical blower approved for a Zone 1 hazardous area, or
- An air driven blower

The air intakes for these devices shall be located where no contaminants may enter the stream.

5.17.4 Disposal of Confined Space Atmosphere

Outlets for power driven blowers, pneumatic air inductors, or air/steam inductors used to draw vapours out of a confined space must be directed to a safe place far from possible sources of ignition.

5.17.5 General Ventilation

When welding (especially MIG/TIG) or other work is to be carried out in a confined space, precautions shall be taken to ensure that an adequate flow of fresh air is available and that welding fumes are removed. Great care shall be taken to ensure that the airflow is always away from the breathing zone of the welder and that contaminated air does not 'short circuit' back to the welder.

Where exhaust ventilation is used in a confined space, the extracted air shall be diverted well away from the confined space so that replacement air shall be fresh. When adequate ventilation cannot be provided, approved breathing apparatus or a suitable facemask supplied with fresh air shall be worn.

Compressed oxygen or instrument air shall never be used to ventilate a confined space.

5.18 LIGHTING AND PORTABLE TOOLS

5.18.1 Temporary Lighting

The following precautions shall be observed when using temporary lighting:

- Where the confined space has not been declared gas free, air driven flameproof lights or certified battery powered torches shall be used. Lights must be certified for a Zone 1 (Division 1) area.
- Confined spaces, which have been certified gas free but where flammable residues could remain, may be illuminated as above; or by extra low voltage (25V ac) portable lighting equipment, approved for use in a Zone 1 (Division 1) area.
- Where the confined space has been cleaned of all flammable residues and certified gas free, or is a confined space by virtue of restricted access alone and there has never been the possibility of it containing a flammable atmosphere, standard low voltage industrial lighting may be used.
- The supply cables to the (approved for use in a Zone 1 (Division 1) Area) transformers, for extra low voltage portable lights, must always be supported above ground and the transformers never taken inside the Confined Space.
- Particular attention must be paid to the protection of cables passing through doors and entry

points.

5.18.2 Tools

If the atmosphere inside the confined space requires BA to be worn (see Table 1) because of the presence of hydrocarbon, no electrical tools must be used by the entrants. Air-driven tools only may be used. Tools with the potential to produce sparks, e.g., grinders or needle guns, shall not be used.

5.19 WELDING

Before any welding, cutting and grinding may be carried out in a confined space; the space shall be proved completely gas free, and free of all flammable residuals.

5.20 JOB COMPLETION

If the vessel is unmanned for any period of time the entry points shall be barriered off. The Entry Permit must be cancelled upon completion of the entry and after all entrants have exited. At the end of a job, a thorough check must be made by Area and Performing Authority to ensure that no personnel, tools or equipment have been left behind.

5.21 RESCUE

Emergency Response arrangements shall be considered in the Risk Assessment and shall cover, rescue, resuscitation, and treatment of casualties.

5.21.1 The Rescue Team

The Rescue Team should respond immediately to rescue calls from the Attendant or any other person recognising a need for rescue from the confined space.

The Rescue Team must be trained to perform the assigned rescue functions. In particular, members must be trained in the proper use of personal protective and rescue equipment, including breathing apparatus. Also, at least two Rescue Team members shall be certified in first aid and in Cardio-Pulmonary Resuscitation (CPR).

5.21.2 The Rescue Plan

The rescue plan should be written to include as a minimum:

- A means of raising the alarm by the Confined Space Attendant or other person observing an emergency situation
- An assessment of the hazards associated with the confined space
- The required gas testing/monitoring equipment
- The personnel required to perform the rescue
- All precautions to be taken while in the confined space
- The required personnel protective equipment (PPE)
- The required rescue equipment
- The required tools and any other special equipment
- First aid and resuscitation equipment
- Plan has to be approved

Accountable personnel for Rescue Plans approvals are following:

- Offshore operating facility - Offshore Installation Manager (OIM)
- Onshore operating facility - Site Controller (SC)
- Sangachal Terminal - Group Fire Chief (GFC)

A means of communication shall be provided and a system of signals (agreed in writing) and understood by all personnel involved. These communication arrangements shall be maintained throughout the duration of the entry.

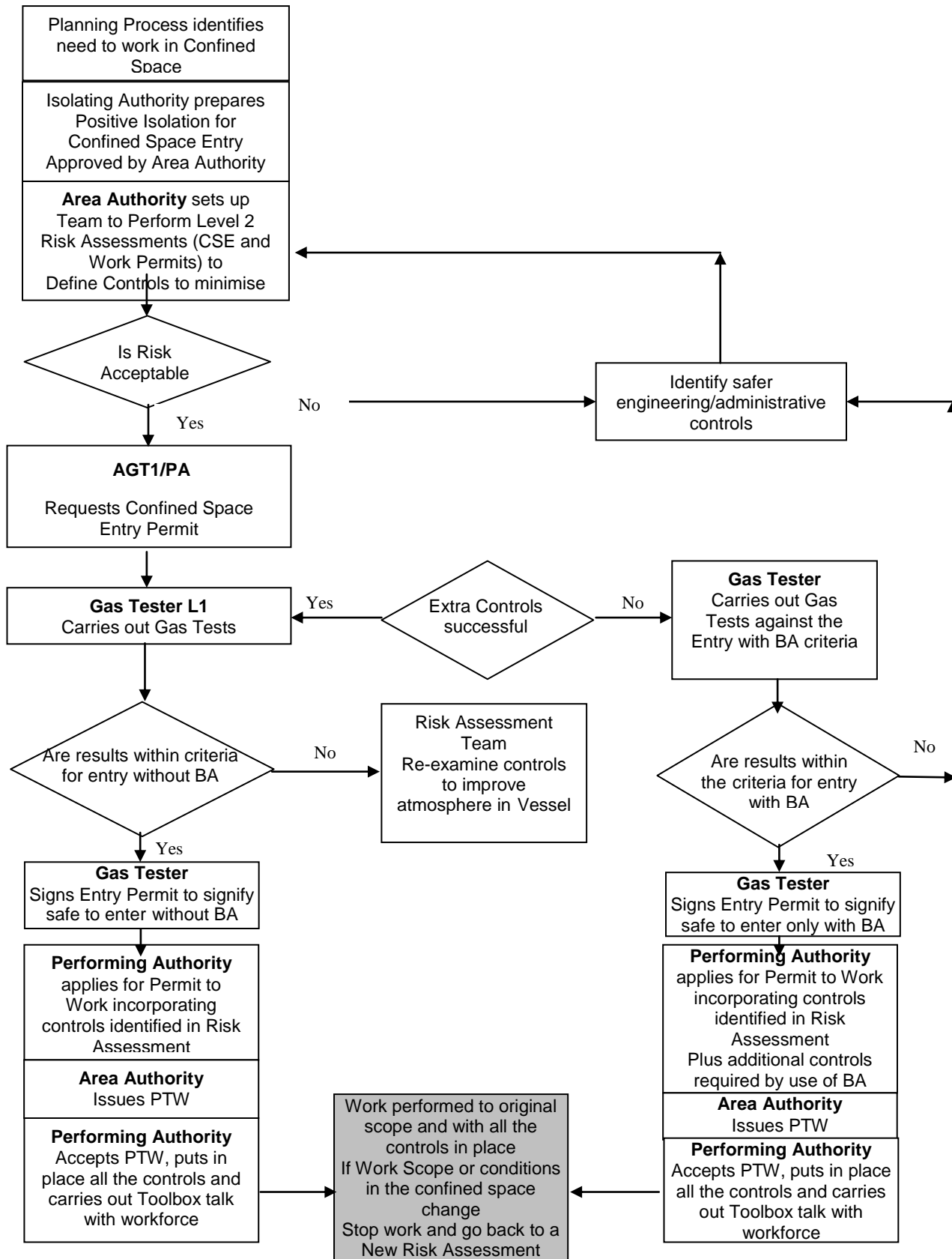
In all cases of confined space entry, a trained attendant shall be posted outside the entry/exit in order to handle emergencies. Circumstances may require an assistant to the attendant or more than one attendant posted at different access/entry points. The attendant(s) must be aware of their responsibilities and be trained as rescue team members.

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-00054-2 | Incident Investigation and Reporting |
| AZSPU-HSSE-DOC-00088-2 | CoW Training Policy |
| AZSPU-HSSE-DOC-00060-2 | Permit To Work |
| AZSPU-HSSE-DOC-00012-2 | Authorization |
| AZSPU-HSSE-DOC-00063-2 | Task Risk Assessment |
| AZSPU-HSSE-DOC-00048-2 | Energy Isolations-Electrical |
| AZSPU-HSSE-DOC-00049-2 | Energy Isolations-Process |
| AZSPU-HSSE-DOC-00055-2 | Leak Testing |
| AZSPU-HSSE-DOC-00002-2 | BP Control of Work |

APPENDIX A: CONFINED SPACE ENTRY PLANNING CHART



APPENDIX B: EXAMPLE OF A RESCUE PLAN

This is an example of a basic Rescue Plan for Confined Space Entry. Exact details must be developed on each occurrence. The HSE Administrator in a shared location shall retain a master set of Rescue Plans. Any revisions should be distributed accordingly.

Confined Space Rescue Plan

| | |
|---|---|
| WORK LOCATION/TAG No. | |
| DATE WORK STARTS | |
| PERSON(S) IN CHARGE | |
| COMPANIES INVOLVED | |
| COMMUNICATION METHOD | |
| DESCRIPTION OF WORK | |
| MAIN SAFETY PRECAUTIONS All persons involved to ensure they are familiar with and observe these requirements | <ul style="list-style-type: none"> • Entry points and local vicinity must be kept clear to ensure unrestricted access for Emergency Services. • Single Man-way only • ALL conditions of the Task Risk Assessment and Permit to Work must be applied with and in force. • Entrants made aware of hazards within vessel • Gas monitors to be sited at each entry point throughout the duration of the Entry. • Site Rescue Team and Control Room operator to be informed of work taking place and informed at point of entry / exit to / from the Confined Space. |
| EMERGENCY ACTION | <ul style="list-style-type: none"> • Stand-by attendant to raise the alarm by informing control-room personnel giving details of situation. • Control room operator to contact Rescue Team • In the case of a casualty being completely immobile, any movement of the person will be under the control of the Site Rescue Team. • The Site Medic will determine the best method and equipment to be used to remove the injured person from the vessel. • The Site Medic will review the extent of the injuries and on the removal of casualty from structure decide to either treat in the First Aid Room, or transport to appropriate hospital. |
| <u>Name</u> | <u>Signature</u> <u>Date</u> |
| Prepared By: OIM / SC / SM: Site Rescue Team: Medic (for offshore) | |

APPENDIX C: CSE ATTENDANT DUTIES AUTHORISATION PROTOCOL**DUTIES OF CONFINED SPACE ENTRY ATTENDANT PERSON**

The Area Authority must ensure that the Confined Space Attendant understands his/her duties and is competent to perform them.

**Competency requirements -
Radio user - Aware of the actions in an Emergency.**

CHECK

- ☐ The principal responsibility of the Attendant Person is to raise the Alarm and summon assistance should it become necessary if Entrants get into trouble. **Attendant person must NEVER enter the space to affect a rescue on his own.**

UNDER NO CIRCUMSTANCE MAY THE CONFINED SPACE ATTENDANT ENTER THE CONFINED SPACE OR LEAVE HIS POST WHILST THERE ARE PERSONNEL INSIDE.

- ☐ Attendant person to take part in toolbox talk before the start of work.
- ☐ Attendant person must ensure that an Access to Confined Space is permitted by a properly validated Work Permit and Entry Certificate.
- ☐ Attendant person must remain outside the confined space, in a safe atmosphere and safe physical position, at all times during a confined entry operation and perform the assigned duties until relieved by another Attendant
- ☐ Attendant person must ensure unauthorised persons are not allowed to approach or enter a confined space while entry is underway
- ☐ Attendant person must establish and maintain radio contact with Central Control Room. Frequently check Radio Contact.
- ☐ If communications with the Central Control Room are lost then operation must stop and the confined space is to be evacuated until communications are re-established
- ☐ Attendant person must establish and maintain effective and continuous communications both visually (if possible) and orally with the personnel inside the confined space. this may be agreed communication by e.g.
 - Line-of-sight (not always possible),
 - Voice contact (allowing for distance and ambient noise),
 - Radio with agreed periodic contact,
 - Pre-arranged signals on air-klaxons, whistles etc,
 - Pre-arranged lifeline signals, banging on metal.
- ☐ Attendant person must test method of communications regularly during the work-scope and any problems the confined space is to be evacuated until communication is re-established.
- ☐ Attendant person must inform "Operating Facility CCR" of his name, and the names and numbers of personnel entering and leaving the Confined Space.
- ☐ Attendant person must count and keep record of entrants into and out of void tank accurately by
 - a. Using a record sheet on which the name, entry and exit times for all personnel entering or leaving the confined space shall be recorded
 - b. Marking airlines and / or safety lines so that each individual inside the tank is clearly identified in the event of a problem

- ☐ Attendant person must check the location of Rescue and Resuscitation Equipment - ensure this is located at the entrance to the confined space.
- ☐ Attendant person must monitor conditions and activities inside and outside the space to determine if it is safe for entrants
- ☐ Attendant person must be aware of the hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of any exposure
- ☐ Attendant person must ensure that an adequate supply of respirable air is maintained whilst Entrants are inside the confined space.
- ☐ Attendant person must withdraw personnel from the confined space in the event of a Platform Alarm, failure of the gas monitoring equipment, or if instructed by "Central Control Room".

Also Order entrants to evacuate the confined space immediately if:

- A condition is observed that is not allowed (e.g. weather change, adjacent conflicting operations, nearby incident and etc ...)
- Behavioural effects of hazard exposure are detected
- A situation occurs outside the confined space that could endanger the entrants
- An uncontrolled hazard is detected inside the confined space
- The attendant must leave the work station

- ☐ **ANY PERSON ACTING AS CONFINED SPACE ATTENDANT PERSON SHALL SIGN BELOW AND REGISTER IN PTW SECTION AS "CSE ATTENDANT PERSON".**

.....

I understand my role and duties as Confined Space Entry Attendant and by signing below agree that I will follow procedures and PTW controls and if they change I will call a Time Out.

CSE Attendant: Name & Surname: _____

Signature: _____

Date: _____

By signing below I confirm that the above Attendant person has received familiarization in his duties.

Area Authority Name & Surname: _____

Signature: _____

Date: _____

Revision/Review Log

| Revision Date | Authority | Custodian | Revision Details |
|---------------|---------------------------------|---|---|
| 09 Sept 2004 | CHSSE Manager | CHSSE Team Leader | Initial Issue as controlled document |
| 07 Sept 2007 | Alan McNulty (CHSSE Manager) | Esmira Akhundova (CHSSE Team Leader) | <p>General: Throughout the procedure the document numbering for referred procedures has been changed from UNIF to AzSPU.</p> <p>Section 1. Introduction: 1.1 <u>Purpose</u>; Wording changes. 1.2 <u>Scope</u>; Wording changes. The following are inclusion to Section 1 are 1.3 <u>Legislation & Standards</u>, 1.4 <u>Company Requirements</u>, 1.5 <u>Stopping Unsafe Work</u>, 1.6 <u>Deviations</u>, 1.7 <u>SSOW Specific Cross References</u> (new doc control numbers), 1.8 <u>Confined Space Entry BP Golden Rules of Safety</u>, 1.9 <u>Language Facilitation</u>, 1.10 <u>Procedure Summary</u></p> <p>Section 2. Roles & Responsibilities: Is now "<u>Definitions and Abbreviations</u>"</p> <p>Section 3. Auditing and Monitoring: Is now "<u>Roles and Responsibilities</u>". Changes made to the responsibilities of <u>SM, SC, OIM, Area Authority, Performing Authority, Authorised Gas Tester</u>.</p> <p>Section 4. Competency, Training and Awareness: Is now "<u>Definition of a Confined Space</u>". New Section.</p> <p>Section 5. Planning and Procedure: Is now "<u>Hazards Associated with Confined Spaces</u>". Moved from Appendix B of previous revision.</p> <p>Section 6. Welding: Is now "<u>Confined Space Personal Protective Equipment (PPE)</u>". Moved from Appendix C of previous revision.</p> <p>Section 7. Confined Space Planning Flow-Sheet: Is now "<u>Auditing and Monitoring</u>". Confined Space Planning Flow-Sheet is now Appendix A.</p> <p>Section 8. Job Completion: Is now "<u>Competency, Training and Awareness</u>"</p> <p>Section 9. Rescue: Is now "<u>Planning and Procedure</u>". Additional paragraph added to 9.0</p> <p>Section 10. Is now "<u>Welding</u>"</p> <p>Section 11. Is now "<u>Confined Space Planning Flow-Sheet</u>"</p> <p>Section 12. Is now "<u>Job Completion</u>"</p> <p>Section 13. Is now "<u>Rescue</u>"</p> <p>Appendices. Confined Space Entry Planning Chart, Figure 1 moved from main document to Appendix A. Example of a Rescue Plan moved from Appendix</p> |

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|-------------------|---|--|--|
| 07 November 2008 | Alan McNulty CHSSE Manager | Adalat Mamedov Central Safety Team Leader | E to Appendix B. 2 new appendices included to the document as follows: Appendix C: Procedure Summary Appendix D: Feedback & Improvement suggestions The next review/revision date is extended to 15.04.2009 due to rescheduling |
| 05 December 2008 | Yuliy Zaytsev Safety&Compliance Systems Manager | Adalat Mamedov Central Safety Team Leader | Authority position/name has changed to reflect org changes in HSE&TD as of December 1st 2008 |
| 23 April 2009 | Yuliy Zaytsev Safety&Compliance Systems Manager | Niyaz Mamedov HSE Systems – Control of Work Advisor | Paragraph 3.5 – new bullet is added Section 4 – new bullet is added Paragraph 6.3 – Note is changed due to changed to legislation: BS 4275 has been superseded with by BS EN 529/BS EN 12021 |
| 09 September 2009 | Yuliy Zaytsev Safety&Compliance Systems Manager | Niyaz Mamedov HSE Systems – Control of Work Advisor | The numbering of the procedure is changed in accordance with Standardized Document Control Procedure Template (AZSPU-HSSE-DOC-00026-2) The wordings in regard to training aspects are referenced to CoW Training Policy (AZSPU-HSSE-DOC-0008-2). |
| 20 January 2011 | Yuliy Zaytsev Offshore H&S Manager | Elman Shikhkerimov Safety Systems/COW TL | Throughout entire procedure AsSPU references have been substituted with AzRPU inline with new organizational changes Overall – as a part of COW Transition Plan, CSE Procedure is aligned with the requirements of COW GDP. In addition, all relevant lessons learned and previous external/internal audit findings are reviewed for applicability. References to GHSER and Golden rules removed from use Paragraph 2.1 – Definition of CSE Attendant updated. Throughout the procedure in order to use one formal terminology “Stby Man” replaced with “Attendant”. Definition for CS Entrant – clarification provided that CS Entrants are provided with briefing only as per AzSPU Control of Work Training Policy AZSPU-HSSE-DOC-00088-2. This requirement is reinforced throughout the procedure. Section 3 General Requirements Updated against relevant group practice and OMS elements Sub-Section 3.4 Deviations reference to the procedure has been taken out from use Section 4 Responsibilities and 5.6 Competency and Training Requirements. – Reference to |

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| | | | <p>AzSPU COW Training Policy AZSPU-HSSE-DOC-00088-2 is provided.</p> <p>Paragraph 5.9 Gas Testing – 4th bullet point, i.e. AGT1 entering the space with or without BA is updated.</p> <p>Paragraph 5.13 Work and Confined Space Entry Permit Issue and Validity. – The statement was made that the validity of CSE permit can not be extended beyond a single shift. Additional lines added to bring more clarity to risk assessment process in line with relevant activities.</p> <p>Sub-paragraph 5.21.2 The Rescue plans approval levels have been identified for each operating area</p> <p>Appendix C CSE Attendant Person Duties Protocol was developed in order to bring consistency approach throughout organisation and support respective Area Authorities in assessment criteria</p> |
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