



## **Az SPU Noise Management and Hearing Conservation Programme**

**AZSPU-HSSE-DOC-00111-2**

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## 1.0 Purpose/Scope

This document sets forth BP policy, procedures, and processes to prevent noise-induced hearing loss for workers in BP AzSPU worksites. To that end it covers:

- key responsibilities,
- noise criteria,
- noise surveys,
- worker noise exposure assessments,
- means of noise control,
- audiometric evaluations,
- training, and
- recordkeeping.

Noise is a physical agent health hazard described as an unwanted sound. High noise exposure can lead to hearing loss or other health conditions, and can be a factor to workplace accidents.

This controlled document applies to Azerbaijan Strategic Performance Unit engaged in the exploration, drilling, production and transportation of oil, and the related site support, maintenance and overhaul activities.

Provision of surveillance programmes such as Hearing Conservation programme is the responsibility of every employer (**Resolution 13, Azerbaijan Ministry of Health**). Hearing conservation programme requirements must be communicated to all contractors and be part of the BP contractual HSE requirements.

This document does not address nuisance or disturbance noise that is not expected to cause noise-induced hearing loss or other safety issues. However, the Az SPU Industrial Hygienist can provide assistance and advice in dealing with nuisance noise situations outside of the provisions of this program.

## 2.0 Definitions

### **Audiometry**

A method of assessing the degree of hearing loss of a person.

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<b>Core Site Employee</b>	An employee, either BP or contractor, permanently assigned to a BP-operated site.
<b>Daily Personal Noise Exposure <math>L_{EP,d}</math></b>	A measure of the average noise energy in decibels that a person is exposed to during a working day. The $L_{EP,d}$ is directly related to the risk of hearing damage.
<b>Decibels (dB and dB(A))</b>	Unit of sound level and noise exposure measurement expressed using a logarithmic scale. When considering the effect on human hearing, the dB(A) unit is used. This takes account of the response of the ear to different frequencies.
<b>EEMUA</b>	Engineering Equipment and Materials Users Association
<b>Health Team</b>	BP Azerbaijan SPU HSE and Engineering Department, Health Team.
<b>Noise dose</b>	The percentage of occupational exposure limit, to which the worker is exposed during the monitoring period, usually the entire work shift.
<b>Similarly Exposed Group</b>	A group of workers doing similar tasks in similar locations and whose measured exposures on any day are considered to be representative of others in the group.
<b>NAWR</b>	Noise at Work Regulations, 2005, UK Health and Safety Executive

### 3.0 General Requirements

General requirements for identifying, assessing, and controlling health hazards, are included in the following documents:

- OGP Managing health for field operations in oil & gas activities.
- Noise at Work Regulations, 2005, UK, HSE

### 4.0 Line Managers/Supervisors shall

- Ensure that this Noise Management and Hearing Conservation Programme have been implemented within the area of their responsibility.
- Ensure that all people working under their control are made aware of any noise risks associated with their activities, the effects of

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exposure to high noise levels, and necessary precautions that should be taken.

- Ensure that new equipment and machinery purchased within the area of their responsibility meet relevant noise specifications such as EEMUA and BP Group industrial hygiene guidance (available from IH share point) , so that risks from noise are reduced to the lowest practicable level.
- Ensure that noise assessments are performed in their area of responsibility.
- Ensure that a selection of approved types and sizes of hearing protection is available at noise-hazardous work sites sufficient to provide workers a choice of comfortable and effective protection.
- Ensure that hearing protection is used within their areas of supervision in accordance with this document.
- Ensure that employees within their area of responsibility exposed to noise levels at or over 85dB(A) are enrolled and participate in the Hearing Conservation programme, providing routine audiometric testing and training.
- Ensure that where noise controls are required, engineering controls are used wherever practicable.

### **Supply Chain Manager shall**

- Ensure that suppliers and vendors:
  - Provide equipment and machinery designed and constructed to meet BP noise specifications so that risks from noise emissions are reduced to as low as reasonably achievable level;
  - Provide information on noise emissions (in accordance with the EEMUA Publication No.140)

### **Health Manager shall**

- Assure generally that the Hearing Conservation programme is implemented as provided in this document
- Ensure that funds and staffing are sufficient for implementation
- Maintain and evaluate audiometric test data for enrollees of the Hearing Conservation Program.
- Record and report any work related, noise induced hearing loss in accordance with BP HSE reporting standards.

### **Industrial Hygienist as Hearing Conservation Coordinator shall**

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- Periodically review and update this document.
- Provide technical support, guidance and advice as requested on all aspects of noise and hearing conservation.
- Complete noise surveys and assessments at AzSPU worksites.
- Track action items, arising from noise surveys and exposure assessment.
- Maintain the list of similar noise–exposed groups for enrolment in the hearing conservation programme.
- Support AzSPU Engineering function in ensuring compliance with noise specifications for all new and/or modifications to plant and equipment.
- Encourage the use of engineering and administrative controls to reduce noise exposures where feasible.
- Assure that Management provides hearing protective devices necessary to protect workers enrolled in the program and visitors to noise-hazardous facilities.
- Provide consultation and advice to the Training Team in support of hearing conservation training.
- Ensure Ear Protection Zones are demarcated and that adequate supplies of technically suitable hearing protection devices are available.
- Ensure that proper records of all noise assessments and related data including audiometric evaluations are maintained and that they are accessible to all who need to know.
- Ensure provisions are in place for Hearing Conservation Programme review and audit.
- Work with medical staff to review hearing loss cases for recordability and to determine whether the additional workplace exposure monitoring is required.

#### **Site H&S Personnel and/or PU Health advisors shall**

- Support hearing conservation implementation, give advice as necessary and monitor compliance.
- Conduct noise assessments and personal dosimetry under the direction of Industrial Hygienist.

#### **Company Nominated Medical Providers and Site Medics shall**

- Provide audiometry services on site and/or in the central clinics.

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- Be familiar with BP Hearing Conservation Programme arrangements and procedures and be aware of any changes and updates done to this document.
- Provide competent personnel for audiometric testing and results reading.
- Ensure that audiometric equipment is checked and calibrated and that internal procedures are maintained.
- Update records and database with regular reporting to BP Health Team in a medically confidential manner.
- Provide educational programme for all those exposed to high noise levels in conjunction with audiometric testing.  
Maintain the list of all those enrolled in hearing conservation programme in accordance with BP audiometric procedure.

### **Employees exposed to noise shall**

- Wear hearing protection devices (ear plugs or ear muffs, or both) for all exposures exceeding 80 dB(A) regardless of duration.
- Wear double protection (ear plugs and ear muffs) for all exposures at and exceeding 105dB(A) regardless of duration.
- Complete annual audiometric testing and training as required for enrollees of the hearing conservation programme.
- Participate in audiometric testing and hearing conservation training.
- Promptly report any malfunction or problem with hearing protection to the Line Manager/Supervisor.

## **5.0 Procedure**

### **5.1 Noise Criteria**

#### **Occupational noise exposure limit.**

The BP Az SPU adopts the current UK HSE Noise at Work Regulation 2005 limits as the occupational exposure limit for application to workplaces covered by this program.

Noise exposure determination should be made for all employees who work in area or who operate equipment generating sound levels at or above 80 dBA.

Persons who work in areas where dose is  $\geq 80$  dB(A)  $L_{Aeq,8}$  must be provided with Hearing protection and its use mandated in the areas marked as hearing protection zones.

Persons who work in areas where the dose is  $\geq 85$  dB(A)  $L_{Aeq,8}$  must be enrolled into a Hearing Conservation Program (HCP).

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A full work shift personal exposure equivalent to the upper exposure action value, measured outside any hearing protection in use, shall be considered 100% of the allowable daily noise dose. For the purposes of evaluating exposures for comparison to this exposure limit, full shift (e.g. 12hours shift) measurements of noise dose shall be carried out using personal dosimeters set to the following criteria:

A-weighted equivalent-continuous sound level,  $L_{Aeq,T}$ , during the time period T, using a 3-dB exchange rate and no threshold level.

Results corrected to 8 hour and compared to 85 dB(A)  $L_{Aeq,8}$  (100% Dose)

Core site employees, both BP and contractor, in similarly exposed groups expected to be exposed to noise levels specified above must to be enrolled in the company hearing conservation program, be provided with and use hearing protection for noise hazardous tasks, have periodic audiograms and hearing conservation training.

### **Hearing protection areas and tasks.**

Hearing protection shall be used in all areas and for all tasks where noise levels are expected to exceed 80 dB(A).

Areas or equipment where the instantaneous noise is 105 dB(A) or greater should be recommended as double hearing protection zones.

## **5.2 Workplace Noise Surveys**

Facility or workplace noise surveys shall be performed in any area where workers may be exposed to noise over 80 dB(A). Noise surveys determine where workers may be exposed to hazardous noise. Noise surveys are also useful for planning engineering controls to reduce noise.

Noise surveys should be carried out by a trained person under the direction of the SPU Industrial Hygienist, using calibrated equipment selected by the Industrial Hygienist as appropriate for the type of survey. Reports of noise surveys including site noise maps shall be provided to the facility or workgroup supervisor or manager and also kept on file in the SPU Central Health Team IH office.

Noise survey data should be field checked and updated as needed when process or equipment changes occur, and in any case at least every three years.

### **5.2.1 Worker Noise Exposure Assessments**

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The SPU Industrial Hygienist shall complete either qualitative or quantitative noise exposure assessments of similarly exposed groups whose work areas or tasks may expose them to noise over 80 dB(A).

- Qualitative exposure assessments may be made during baseline surveys of the workplace or workgroup. Where the **industrial hygienist judges** that no significant noise hazards are present or that noise exposures over 85 dB(A) are rare, no quantitative assessment is necessary.
- Quantitative exposure assessments, shall be made when the Industrial Hygienist judges there to be significant potential for 8 hour time-weighted average exposures over 85 dB(A) during characteristic work days. The assessment shall be based on personal noise dosimetry, conducted by a trained person under the direction of the Industrial Hygienist, involving a statistically significant sample of the similarly exposed group exposure days.

### 5.3 Noise control

Noise controls shall be applied to protect workers from noise exposures exceeding the UK HSE NAWR 2005 limits. The application of noise controls should reflect the hierarchy of industrial hygiene controls with preference for the following order:

- Elimination of the noise source or hazard.
  - Engineering control to reduce the transmission of hazardous noise to people.
  - Administrative controls, generally to exposure time in high noise areas.
  - Personal protective equipment, i.e. hearing protective devices
- Guidance for selection and application of noise controls is included in BP group documents referenced in Section 6.0 of this document.

#### 5.3.1 Elimination

Wherever possible new tools and equipment should be specified or selected that do not exceed 80 dB (A) at 1 meter.

Process equipment should be designed to minimize noise exposure to workers. Piping systems, valves, and related process equipment should be designed to eliminate high speed and turbulent flow that generates high noise. Special limits shall be set for relief valves and vents that operate occasionally. Noise from relief valves should never exceed 140 dB and should exhaust to unoccupied areas. Flares at Offshore locations

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should be sited such that the noise does not exceed 115 dB(A) at occupied locations.

Portable equipment, such as generators and compressors set up at work sites, should be located as far from occupied areas as possible.

Equipment should be maintained so as to eliminate the additional noise radiation resulting from worn, loose, or defective parts.

### **5.3.2 Engineering Control Measures**

Where high noise has not been eliminated in the original design or equipment purchase it should be controlled by engineering measures such as the following

- Re-engineering of piping systems or equipment to reduce noise generation
- Application of vibration damping materials to reduce resonance and/or noise radiation
- Application of engineered noise insulation to piping systems or equipment
- Isolation of noise sources from workers—such as by engineering enclosure of source or worker
- Routing of noise generating exhaust systems so as to exhaust through mufflers or to an unoccupied location

### **5.3.3 Administrative Control Measures**

Where high noise has not been eliminated or sufficiently reduced by engineering controls, high noise areas must be posted and workers should plan and execute their work so as to minimize the time they are present. Non-essential personnel should stay out of very high noise areas. This particularly applies to areas where noise exceeds 100 dB(A).

### **5.3.4 Hearing Protection Devices**

In areas and for tasks in which other controls have not reduced noise levels below 80 dB (A), hearing protection shall be worn:

- Single hearing protection: All employees and visitors present in areas, or conducting tasks, where noise is expected to exceed 80 dB(A) in the person's hearing zone, shall wear at least single

hearing protection, i.e. either earplugs or earmuffs, approved by the BP SPU Industrial Hygienist.

- Dual hearing protection : All employees and visitors present in areas, or conducting tasks, where noise is expected to exceed 105 dB(A) in the person's hearing zone, shall wear double hearing protection, i.e. both earplugs and earmuffs, approved by the BP SPU Industrial Hygienist.
- Hearing protection shall be worn as indicated regardless of exposure time or of whether the person is enrolled in a hearing conservation program.
- A sufficient selection of types and sizes of approved ear plugs shall be available at noise-hazardous work sites to provide workers with a comfortable and effective choice.
- Work areas exceeding 80 dB(A) shall be posted indicating the level of hearing protection required.
- Tools and portable equipment expected to generate exposures over 80 dB(A) shall be labeled as requiring hearing protection when in use.

### **IMPORTANT NOTE: Moulded Earplugs Hearing Protection and moulding procedure**

All the published data suggests that the attenuation (Noise protection) offered by moulded plugs is not significantly better than Foam plugs. Using foam plugs in addition to earmuff type protectors can always enhance hearing protection. The procedure for making impressions for these devices is in many ways similar to medical ear syringing and therefore has similar risks. Manufacture of impressions and moulding procedure for the production of Moulded Earplugs is **prohibited** on BP premises.

## **5.4 Audiometric Evaluations**

Audiometry is a useful means of measuring and monitoring an employee's hearing during employment. It is also a valuable means of measuring the effectiveness of hearing conservation, and identifying areas where conservation may be deficient.

Employees transferring to a noise-exposed position from a non noise-exposed job shall have a baseline test done within six months. See Pre-placement assessment in [Fitness for Task Management Programme](#) and [Audiometry Procedure](#).

If an employee declines or refuses to take an audiometric test, every reasonable step should be taken to persuade the individual to participate. Should the employee continue to refuse, the supervisor will be notified.

## 5.5 Information and Training

All employees who will be working in the areas with known high noise levels (e.g. operator technicians) shall have noise awareness training at the pre-employment stage during induction. Employees enrolled in the Hearing Conservation Program shall receive education and training annually in the following areas:

- Recognition of noise hazards both at work and at home
- Occupational noise exposure
- The effects of noise on hearing
- Risk of damage to hearing
- Hearing loss and steps to minimize that risk
- Selection, fitting, use and care of hearing protectors and how to report defects
- Roles and responsibilities under this document

Suitable local arrangements should include the use of leaflets, posters, video and computer based training material.

Refer to VTA for a list of calendared training sessions

(<https://www2.virtualtrainingassistant.com/BPGlobal/wc.dll?learner~login>)

Training can also be arranged through the Industrial Hygienist.

All records will be maintained in VTA.

## 5.6 Record keeping

Noise assessment and noise management actions will be documented and resultant recommendations placed within a suitable action tracking system. Such noise management records will require periodic review to track action items e.g.

- Workplace noise survey reports
- Work group noise exposure assessments
- Noise exposure reduction action item tracking
- Audiometry records in personal health records
- Program review

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- Training records

## 6.0 Key Documents/Tools/References

1. Noise at Work Regulations, 2005. UK HSE.
2. Noise Control Engineering, BP IH Sharepoint



C:\Documents and  
Settings\jafarovh\My

3. Sound Solutions Offshore (UK, HSE publication)
4. Noise Assessment Flowchart



C:\Documents and  
Settings\jafarovh\My

5. Procedure for Audiometric Testing

## 6. Revision Log

Revision Date	Authority	Custodian	Revision Details
20/05/2008	Almaz Agazade	Hijran Jafarova	Periodic review
01/ 07/ 2009	Almaz Agazade	Hijran Jafarova	Periodic review
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