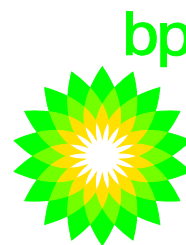


Group Practice



GP 15-01

Noise Control

REVISION FOR REVIEW

Table of Contents

	Page
Foreword.....	3
1. Scope	4
2. Normative references	4
3. Terms and definitions.....	5
4. Symbols and abbreviations.....	7
5. General noise limits.....	8
5.1. Local regulations.....	8
5.2. Hearing conservation work area noise limit	8
5.3. Speech and work interference.....	10
5.4. Accommodation (offshore).....	10
5.5. Exceptional or emergency operating conditions.....	11
5.6. Additional restrictions for tonal or impulsive noise.....	11
6. Equipment noise limits.....	11
7. Noise reduction techniques	13
8. Key responsibilities	14
Annex A (Informative) Noise calculations.....	15
Bibliography	16

List of Tables

Table 1 - Maximum allowable background sound levels in work spaces	10
Table 2 - Maximum allowable background sound levels in accommodations.....	11
Table 3 - Guidance for determining existence of a pure tone (from ANSI S12.9 Part 4, Annex C, with permission).....	11
Table A.1 - Additive effect of noise	15

Copyright © 2010 BP International Ltd. All rights reserved.
This document and any data or information generated from its use are classified, as a minimum, BP Internal. Distribution is intended for BP authorized recipients only. The information contained in this document is subject to the terms and conditions of the agreement or contract under which this document was supplied to the recipient's organization. None of the information contained in this document shall be disclosed outside the recipient's own organization, unless the terms of such agreement or contract expressly allow, or unless disclosure is required by law.

In the event of a conflict between this document and a relevant law or regulation, the relevant law or regulation shall be followed. If the document creates a higher obligation, it shall be followed as long as this also achieves full compliance with the law or regulation.



Foreword

This is a revised issue of Engineering Technical Practice (ETP) GP 15-01. This Group Practice (GP) is based on parts of heritage documents from the merged BP companies as follows:

Amoco (ACES)

A EN-NC-00-E	Environmental-Noise Control-Engineering Specification.
A EN-NC-00-G	Environmental-Noise Control-Guide.

ARCO (APCES)

Std 600	Noise Control Standard for Refinery Operating Units.
Std 601	Equipment Noise Control.

British Petroleum (RPSE)

RP 14-1	Guide to Noise Control.
---------	-------------------------



1. Scope

This GP provides Group practice for general noise control requirements for complete plant and individual equipment items. Unless otherwise stated, all requirements apply to normal operating conditions.

BP Group Safety and Operations recognises noise as one of BP Group level risks that if not properly managed can cause harm to people. Following the hierarchy of controls logic, engineering solutions should be the first option for consideration when considering noise control solutions.

Noise control at the procurement or design stage of a project is critical as industry studies show it costs 10 to 13 times more to retrofit as compared to the cost of including engineering controls on the front end of a project. Retrofit solutions often make operating and maintenance of equipment more cumbersome and introduce other unintended issues. Reliance upon hearing protection cannot be depended upon as a primary means of ensuring employees are protected against hazardous noise levels.

Consequently, eliminating or even reducing the need for required employee participation in a Hearing Conservation Program (HCP), by implementing effective engineering controls, will make for a safer and healthier workplace. It will also be a significant long term cost savings to the company.

2. Normative references

The following referenced documents may, to the extent specified in subsequent clauses and normative annexes, be required for full compliance with this GP:

- For dated references, only the edition cited applies.
- For undated references, the latest edition (including any amendments) applies.

BP

GIS 15-011	Noise Control.
GN 15-01	Guidelines on Noise Control.

American National Standards Institute (ANSI)

ANSI S12.9 Part 4	Quantities and Procedures for Description and Measurement of Environmental Sound - Part 4: Noise Assessment and Prediction of Long-Term Community Response.
ANSI S12.16	Guidelines for the Specification of Noise of New Machinery.

British Standards (BS)

BS 4142	Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas.
---------	--

International Organization for Standardization (ISO)

ISO 11690-1	Acoustics - Recommended practice for the design of low-noise workplaces containing machinery - Part 1: Noise control strategies.
ISO 15664	Acoustics - Noise control design procedures for open plant.

3. Terms and definitions

For the purpose of this GP, the following terms and definitions apply:

Acoustics

(1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The physical qualities of a room or other enclosure (such as size, shape, amount of noise) that determine the audibility and perception of speech and music within the room.

Acoustical expert

Person formally trained in acoustics, noise control engineering, and noise survey techniques and data analysis. Typically, this individual holds the status of Board Certified Noise Control Engineer by the Institute of Noise Control Engineering (INCE), or an equivalent professional association.

Administrative control

Changes to employee work routines that affect their daily noise exposure in a positive manner.

Attenuation

The reduction of sound intensity by various means (e.g., air, humidity, porous materials, sound transmission loss materials, etc.).

A-weighted sound level

A measure of sound pressure level designed to reflect the acuity of the human ear, which does not respond equally to all frequencies. Units are expressed in dBA. Specific response is defined by ANSI/ISO standards.

Background noise (ambient noise)

Total of all noise in a room or area, independent of the presence of the intended equipment or machines for potential procurement.

Calibrator (acoustical)

Device which produces a known sound pressure on the microphone of a sound level measurement system and is used to adjust the system to standard specifications.

dBA

Unit of sound level. Decibels measured using the A frequency weighting filter on the sound level metre.

Decibel

A unit of sound pressure level, abbreviated dB. Decibels are a logarithmic scale.

Equivalent continuous A-weighted sound level ($L_{Aeq,T}$, also written $L_{pAeq,T}$)

The constant sound level that, in a given time period, would convey the same sound energy as the actual time varying A-weighted sound level.

Frequency

Number of times per second the sine wave of sound repeats itself, or the sine wave of a vibrating object repeats itself. Now expressed in hertz (Hz), but was formerly expressed in cycles per second (cps).

Governing authorities

Local, regional, national, or any other authorities that specify and enforce criteria for environmental and occupational noise.