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NOISE ABATEMENT ACT 1972.

NOISE ABATEMENT (HEARING CONSERVATION IN WORKPLACES) REGULATIONS 1983

NOISE ABATEMENT ACT 1972.

**NOISE ABATEMENT (HEARING CONSERVATION IN
WORKPLACES) REGULATIONS 1983.**

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NOISE ABATEMENT ACT 1972.

**NOISE ABATEMENT (HEARING CONSERVATION IN
WORKPLACES) REGULATIONS 1983.**

MADE by His Excellency the Governor in Executive Council.

PART I—PRELIMINARY.

1. These regulations may be cited as the Noise Abatement (Hearing Conservation in Workplaces) Regulations 1983. Citation.
2. These regulations shall come into operation on the expiry of a period of 12 months commencing on the day on which these regulations are published in the *Gazette*. Commencement.
3. (1) In these regulations, unless the contrary intention appears— Interpretation.
- “approved” means approved in writing by the Commissioner either generally or in a particular case;
- “approved medical practitioner” means medical practitioner approved under subregulation (2) as an approved medical practitioner;
- “area”, in relation to a workplace, means 2 or more adjacent locations in the workplace;
- “audiogram” means graph or table obtained from an audiometric measurement showing the hearing threshold level as a function of frequency;
- “audiometric officer” means person approved under subregulation (2) as an audiometric officer;
- “audiometry” means measurement of the hearing threshold level of a person by means of a bilateral pure tone air conduction threshold test carried out under Part VII;
- “Australian Standard” means standard published by the Standards Association of Australia;
- “dB(A)” means decibels of sound level read from an approved sound level meter or from any other approved sound level measuring equipment, using the A-weighting characteristics specified for Type 1 or Type 2 sound level meters, as the case requires, in Australian Standard 1259-1982;
- “dB(lin)” means decibels of unweighted sound pressure level;
- “designated worker” means worker who is a designated worker by virtue of regulation 19 (1);
- “equivalent continuous noise level Leq A” means equivalent continuous sound level in dB(A) which, when present for a period of time sufficiently long to be representative of the operations or processes causing the sound concerned, produces the same amount of energy as does that sound;
- “Form” means appropriate form set out in the Schedule to these regulations;
- “former designated worker” means worker who ceases by virtue of regulation 19 (2) to be a designated worker;
- “inspector” means State inspector or workplace inspector;
- “location”, in relation to a workplace, means point in space in the workplace and the immediate vicinity of that point;
- “medical practitioner” means medical practitioner as defined by section 3 of the Medical Act 1894;

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"monitoring audiometry" means audiometry carried out in accordance with Clause 5.6.3.5 of Australian Standard 1269-1983;

"noise exposure Leq A8", in relation to a worker, means sound energy which—

(a) would be received by his unprotected ear during his actual period of employment on a representative working day, expressed as that equivalent continuous sound level in dB(A) which, when present for 8 hours, produces the same amount of energy as that received from the sounds actually present, during that actual period of employment; and

(b) is derived from calculations and measurements made with approved equipment in accordance with the procedure set out in Appendix A to Australian Standard 1269-1983;

"noise hazard" means noise hazard within the meaning of regulation 4;

"noise level" means A-weighted reading of sound pressure level obtained by an approved sound level meter;

"noise officer" means person approved under subregulation (2) as a noise officer;

"noise survey" means noise survey carried out under regulation 5 or 6;

"occupier", in relation to a workplace, means person by whom one or more workers are employed in the workplace, whether that person has his principal place of business in the State in the workplace or elsewhere;

"paragraph" means paragraph of the definition, regulation or subregulation in which the term occurs;

"Part" means Part of these regulations;

"peak noise level" means linear (unweighted) peak hold sound pressure level reading in decibels determined by a sound level meter with a P detector-indicator characteristic in accordance with Australian Standard 1259-1982;

"practicable" means reasonably practicable having regard to, among other things—

(a) prevailing circumstances and conditions;

(b) the current state of technical knowledge;

(c) the economic consequences of the act or omission contemplated;
and

(d) safety, safe working conditions and emergencies;

"reference audiometry" means audiometry carried out in accordance with Clause 5.6.3.4 of Australian Standard 1269-1983;

"regulation" means one of these regulations;

"State inspector" means State inspector within the meaning of the Noise Abatement (Appointment of Inspectors) Regulations 1976*, as amended;

"subparagraph" means subparagraph of the paragraph in which the term occurs;

"subregulation" means subregulation of the regulation in which the term occurs;

"suitable hearing protection" means suitable hearing protection within the meaning of regulation 16;

"the Act" means the Noise Abatement Act 1972;

* Published in the *Government Gazette* on 20 February 1976 at p. 461.

“worker” means person who has entered into or works under a contract of service or apprenticeship with an occupier, whether by way of manual labour, clerical work or otherwise and whether that contract is expressed or implied or is oral or in writing;

“workplace” means, subject to subregulation (4), place in which workers are employed;

“workplace inspector” means workplace inspector within the meaning of the Noise Abatement (Appointment of Inspectors) Regulations 1976*, as amended.

The Commissioner—

(a) may approve—

(i) a medical practitioner as an approved medical practitioner for the purposes of the definition of “approved medical practitioner”;

(ii) a person as an audiometric officer for the purposes of the definition of “audiometric officer”; or

(iii) a person as a noise officer for the purposes of the definition of “noise officer”,

in subregulation (1);

(b) may at any time cancel an approval given under this subregulation; and

(c) shall serve on the person to whom that approval or cancellation relates a certificate of approval or notification of cancellation, as the case requires.

(3) Whenever notification of cancellation is served on a person under subregulation (2), the person shall forthwith surrender his certificate of approval to the Commissioner.

(4) For the purpose of these regulations, when workers are employed in the same place by 2 or more different occupiers, the portion of that place in which each of those workers is employed shall be treated as the workplace of the occupier by whom that worker is employed, whether or not that portion coincides wholly or partly with a portion of that place in which a worker is employed by another occupier.

PART II—MEASUREMENT AND EVALUATION OF NOISE AT WORKPLACES.

4. A noise hazard exists at a workplace, if—

Noise
hazards.

(a) at any location therein the peak noise level exceeds 140 dB (lin) at any time;

(b) in any area therein the equivalent continuous noise level Leq A caused by any fixed, permanently located or regularly used machinery, plant, equipment, operation or process exceeds 90 dB (A); or

(c) a portable tool or unit of mobile machinery, plant or equipment in normal operation at the workplace results in a noise level exceeding 90 dB (A)—

(i) in the case of a portable tool, at either ear of any worker who is the user of that tool;

(ii) in the case of a unit of mobile machinery, plant or equipment, at either ear of any worker who is the driver or operator of that unit; or

(iii) at those locations in and around a tool or unit, as the case requires, referred to in subparagraph (i) or (ii) where workers, other than the user, driver or operator concerned, work or pass,

and it can reasonably be foreseen that any worker may, in consequence, experience noise exposure Leq A8 exceeding 90 dB (A).

* Published in the *Government Gazette* on 20 February 1976 at p. 461.

Noise surveys
carried out
by noise
officers.

5. (1) An occupier shall cause a noise survey to be carried out in his workplace by a noise officer—

- (a) if he was the occupier of that workplace on the coming into operation of these regulations, within 12 months of that coming into operation unless he has reasonable grounds to believe that workers employed in that workplace are unlikely to be exposed to a noise hazard by reason of being so employed;
- (b) if he becomes the occupier of that workplace after the coming into operation of these regulations, within 12 months of so becoming unless he has reasonable grounds to believe that workers employed in that workplace are unlikely to be exposed to a noise hazard by reason of being so employed;
- (c) within such period of the making of a requirement by the Commissioner under subregulation (2) as is specified in that requirement;
- (d) within 3 months of the making of a requirement by an inspector under subregulation (2);
- (e) as soon as is practicable after there is any change at or in any location, area or noise source in that workplace, which change increases or is likely to increase the noise exposure Leq A8 experienced by workers therein or the noise levels or peak noise levels to which they are exposed; or
- (f) if a noise hazard still exists after the last noise survey, within 24 months of that noise survey.

(2) The Commissioner or an inspector may require in writing the occupier of a workplace to cause a noise survey to be carried out by a noise officer at the workplace.

(3) A noise officer carrying out a noise survey shall—

- (a) use approved sound measuring equipment;
- (b) check the equipment referred to in paragraph (a) with a reference sound source immediately before and immediately after measurements are taken;
- (c) ensure that the equipment referred to in paragraph (a) has been calibrated by an approved method within the 24 months preceding each day of use at an approved calibration laboratory and that he attaches a copy of the certificate prepared on that calibration to every report prepared under subregulation (5); and
- (d) subject to subregulation (4), in the noise survey delineate every location and area in the workplace concerned where a noise hazard exists.

(4) A noise officer carrying out a noise survey—

- (a) under subregulation (1) (e); or
- (b) as a result of a requirement made under subregulation (2) in respect of part only of the workplace concerned,

shall delineate only the location or area in the workplace concerned to which the relevant change or requirement, as the case requires, relates.

(5) The occupier of a workplace shall, within 3 months of the completion of a noise survey in the workplace, cause to be prepared in writing or in such form, if any, as is specified under subregulation (6) a report on that noise survey signed by the noise officer concerned and furnish a copy of that report to—

- (a) the Commissioner; and
- (b) the workplace inspector appointed in respect of the workplace.

(6) The Commissioner may by notice published in the *Gazette* specify the form in which any report, or class of report, furnished under subregulation (5) shall be prepared, and may by notice published in the *Gazette* vary or cancel the first-mentioned notice.

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(7) A person who is not a noise officer shall not—

- (a) carry out or purport to carry out any of the duties imposed by these regulations on a noise officer; or
- (b) hold himself out or allow himself to be held out as being a noise officer.

(8) If, prior to the coming into operation of these regulations, a person who, in the opinion of the Commissioner, would have been suitable for approval under regulation 3 (2) had these regulations then been in operation has delineated, in accordance with Australian Standard 1269-1983, every location and area in a workplace where a noise hazard existed and prepared a report on that delineation of a standard satisfactory to the Commissioner, that delineation and that report shall be deemed for the purposes of these regulations to be a noise survey carried out under subregulation (1) (a) and a report prepared thereon under subregulation (5), respectively.

6. (1) Notwithstanding that a noise survey has been carried out in a workplace, an inspector or a person authorized in writing by him for the purpose—

Noise surveys carried out by inspectors or authorized persons.

- (a) may at any time carry out a noise survey at the workplace; and
- (b) shall, within 28 days of carrying out a noise survey under this subregulation—
 - (i) if he is an inspector other than a workplace inspector appointed in respect of the workplace, furnish copies of a report in writing prepared and signed by him on the noise survey to the occupier of the workplace, to the workplace inspector so appointed and to the Commissioner;
 - (ii) if he is the workplace inspector appointed in respect of the workplace, furnish copies of a report in writing prepared and signed by him on the noise survey to the occupier of the workplace and to the Commissioner; or
 - (iii) if he is a person so authorized, furnish to the Inspector who so authorized him a report in writing prepared and signed by him on the noise survey and that inspector shall thereupon furnish copies of that report to the occupier of the workplace and to the Commissioner and, if that inspector is not the workplace inspector appointed in respect of the workplace, to that workplace inspector.

(2) The findings set out in a report furnished under subregulation (1) shall supersede the findings set out in any previous report furnished under regulation 5 or this regulation until themselves superseded by the findings set out in the report on the next noise survey furnished under regulation 5 or this regulation.

7. In a workplace where any explosive or flammable atmosphere exists or is likely to exist, a person carrying out a noise survey shall use—

Apparatus or equipment to be used in explosive or flammable atmosphere.

- (a) apparatus or equipment which has been tested in accordance with Australian Standard 1829-1981 by an approved laboratory and certified by it as intrinsically safe in the atmosphere of that workplace; or
- (b) approved apparatus, approved equipment or an approved procedure, or any 2 or all 3 of those means, testing and certification within the meaning of paragraph (a) being impracticable in that workplace.

8. (1) In any proceedings under these regulations in which it is alleged that any action required by these regulations was not taken when a noise hazard within the meaning of paragraph (b) or (c) of regulation 4 had been found to exist in a workplace, it is a defence to show that—

Defence in proceedings relating to excessive noise.

- (a) the representative noise exposure $Leq A8$ in relation to the activities of each worker who enters an area in the workplace, in which area such a noise hazard has been found to exist, has been properly measured and evaluated in accordance with Australian Standard

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1269-1983 in respect of the impulsive components of the noise concerned and of the dynamic range and integrating characteristics of the measuring equipment used relative to that noise by—

- (i) an approved noise dosimeter;
- (ii) an approved equivalent continuous sound level meter; or
- (iii) an approved integrating sound level meter,

used in accordance with Australian Standard 1269-1983; and

- (b) the representative noise exposure Leq A8 referred to in paragraph (a) does not exceed 90 dB (A).

(2) In any proceedings under these regulations in which it is alleged that there has been a contravention of paragraph (a) or (b) of regulation 5 (1), it is a defence to show that the occupier of the workplace concerned has reasonable grounds to believe that the noise exposure Leq A8 of any worker employed in that workplace is unlikely to exceed 90 dB (A) by reason of that employment.

PART III—REDUCTION OF NOISE LEVELS.

Occupiers to eliminate or reduce noise hazards.

9. (1) If a report furnished under regulation 5 or 6 shows that a noise hazard exists at or in a location or area in a workplace, the occupier of the workplace shall take all practicable steps—

- (a) to eliminate the noise hazard by reduction of the noise level or peak noise level concerned; or
- (b) if it is not practicable to eliminate the noise hazard, to reduce the noise level or peak noise level concerned as much as is practicable,

as soon as is practicable after he receives that report or, if an inspector, on considering that report, requires those steps to be taken by that occupier within a period specified in writing by the inspector and notifies that requirement to that occupier, within that period.

(2) Notwithstanding anything in subregulation (1)—

- (a) the noise emitted from any tool, machinery, plant, equipment, operation or process brought into use or installed after the coming into operation of these regulations shall not exceed any noise emission limit specified in respect of that tool, machinery, plant, equipment, operation or process—
 - (i) by or under the Act; or
 - (ii) if no noise emission limit is so specified by or under the Act, by or under any other Act which is in force at the time of that bringing into use or installation;

and

- (b) the occupier concerned shall not be deemed to have taken all practicable steps within the meaning of that subregulation unless it is shown that—
 - (i) the relevant recommendations in Section 4 of Australian Standard 1269-1983 have been considered and implemented by that occupier as far as is practicable; or
 - (ii) steps no less effective than those which would have resulted from the implementation of the recommendations referred to in subparagraph (i) have been taken by that occupier.

Instructions to workers.

10. (1) Whenever it is necessary to take steps to reduce noise levels or peak noise levels at or in a location or area in a workplace under regulation 9, the occupier of the workplace shall—

- (a) cause each worker at or in that location or area to be instructed in accordance with Clause 5.2 of Australian Standard 1269-1983; and

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(b) give to each worker referred to in paragraph (a) such reasonable directions as will ensure that those steps which are taken are and remain effective.

(2) Subject to subregulation (3), a worker to whom directions are given under subregulation (1) shall comply with those directions.

(3) A worker shall not be guilty of an offence against subregulation (2) unless the occupier of the workplace concerned has complied with subregulation (1) (a) in relation to him.

PART IV—REDUCTION OF NOISE EXPOSURE LEQ A8.

11. (1) If a report furnished under regulation 5 or 6 shows that a noise hazard exists at or in a location or area in a workplace and it is not practicable to reduce the noise level or peak noise level concerned in accordance with Part III, the occupier of the workplace shall take all practicable steps to reduce the noise exposure Leq A8 experienced by all workers at or in that location or area so that it does not exceed 90 dB(A).

Steps to be taken to reduce noise exposure Leq A8.

(2) In taking the steps referred to in subregulation (1), the occupier concerned shall, if the nature of the work performed in his workplace makes it practicable to do so, ensure that the total periods for which each worker works at or in or passes through all locations and areas where a noise hazard exists, together with all other periods spent by that worker in any places where the noise level is 90 dB(A) or below, are such that calculations or determinations made in accordance with Australian Standard 1269-1983 demonstrate that that worker does not experience a noise exposure Leq A8 exceeding 90 dB(A).

(3) The steps referred to in subregulation (1) may include the provision at a location or in an area of any booth, control room or other enclosure wherein the noise level otherwise present at the location or in the area is reduced.

12. (1) Whenever it is necessary to take steps under regulation 11, the occupier concerned shall ensure as far as is practicable that every worker at or in the location or area concerned—

Instructions to workers.

(a) is instructed in accordance with Clause 5.2 of Australian Standard 1269-1983; and

(b) is given clear and reasonable directions concerning the application to the work of that worker of those steps.

(2) Subject to subregulation (3), a worker to whom directions are given under subregulation (1) shall comply with those directions.

(3) A worker shall not be guilty of an offence against subregulation (2) unless the occupier of the workplace concerned has complied with subregulation (1) (a) in relation to him.

PART V—SITE IDENTIFICATION OF NOISE HAZARDS.

13. (1) As soon as is practicable after receiving a report furnished under regulation 5 or 6, in which report a noise hazard of the kind referred to in paragraph (a) or (b) of regulation 4 is shown to exist, the occupier of the workplace concerned shall provide—

Approved notices, signs or signalling devices in the case of static noise hazards.

(a) at every location referred to in regulation 4 (a), an approved notice, approved sign or approved signalling device indicating that persons shall, whilst they are at that location, wear suitable hearing protection correctly; and

(b) at every point where a person can reasonably be foreseen to enter an area referred to in regulation 4 (b), an approved notice, approved sign or approved signalling device indicating that a person shall not be present in that area unless the person is—

(i) wearing suitable hearing protection correctly; or

(ii) so present in accordance with directions given under regulation 12 (1).

(2) The occupier of a workplace shall ensure that every notice, sign or signalling device provided by him under subregulation (1) is—

- (a) properly maintained; and
- (b) clearly displayed—
 - (i) on every working day when the persons to whom it is directed are exposed to the noise hazard concerned; or
 - (ii) in the case of a noise hazard which is not regularly present at or in the location or area concerned, whenever that noise hazard is present or likely to be present, and shall ensure that all the persons to whom it is directed are warned of the message given by that notice, sign or signalling device before that noise hazard commences or recommences.

Approved notices, marks, signs, signalling devices and other means of conveying information in the case of mobile noise hazards.

14. As soon as is practicable after receiving a report furnished under regulation 5 or 6, in which report a noise hazard of the kind referred to in regulation 4 (c) is shown to exist, the occupier of the workplace concerned shall—

- (a) provide—
 - (i) in the case of a portable tool, an approved notice, approved mark or other approved means of conveying information which—
 - (A) forms part of or is permanently attached to that tool; and
 - (B) clearly indicates that suitable hearing protection shall be worn correctly by the user of that tool at all times when it is in operation;
 - (ii) in the case of a unit of mobile machinery, plant or equipment, at the normal station of any driver or operator of that unit, at which station a noise hazard exists, an approved notice, approved mark or other approved means of conveying information which—
 - (A) forms part of or is permanently attached to that station; and
 - (B) clearly indicates that suitable hearing protection shall be worn correctly by that driver or operator at all times when that unit is in operation;
- and
- (iii) if a noise hazard exists at any location in or near a tool or unit referred to in subparagraph (i) or (ii) where persons other than the user, driver or operator of that tool or unit work or pass, an approved notice, approved sign or approved signalling device at that location or on or adjacent to that tool or unit, or shall take such other measures as are approved in respect of that location, which notice, sign, signalling device or measures shall indicate that suitable hearing protection shall be worn correctly by those persons whenever they are at that location while that tool or unit is in operation;

and

- (b) properly maintain and use or display the notices, marks, signs, signalling devices and other means of conveying information referred to in paragraph (a).

PART VI—SUITABLE HEARING PROTECTION.

Provision of, and instruction concerning, suitable hearing protection.

15. If a report furnished under regulation 5 or 6 shows that a noise hazard exists at a workplace and it is practicable to reduce neither—

- (a) the noise level or peak noise level concerned in accordance with Part III; nor
- (b) the noise exposure Leq A8 concerned under Part IV,

the occupier of the workplace shall ensure that every person at the workplace who is exposed to the noise hazard—

- (c) is provided with suitable hearing protection; and
- (d) is instructed so far as is practicable in accordance with Clause 5.2 of Australian Standard 1269-1983 concerning the effects of noise on hearing and the reasons why suitable hearing protection should be used.

16. Hearing protection is suitable hearing protection only if—

Suitable hearing protection.

- (a) in the case of a person in the workplace concerned, other than a person referred to in paragraph (b)—
 - (i) the attenuation of noise effected by that protection, when properly worn by that person, is shown by an approved procedure to be adequate to reduce the noise level in the protected ear to less than 90 dB (A) and the peak noise level in the protected ear to less than 140 dB (lin);
 - (ii) that hearing protection, when correctly worn by the person, is reasonably comfortable for the period for which it is required to be worn;
 - (iii) the person to whom that hearing protection is provided is instructed in its fitting and use as frequently as is necessary to ensure that he is able to wear that hearing protection correctly;
 - (iv) in the case of hearing protection in the form of ear muffs and other devices intended for repeated use, that protection is—
 - (A) provided in a clean and efficient condition to the worker by whom it is to be used;
 - (B) when not being worn, stored in proper accommodation provided at that workplace both within and outside working hours; and
 - (C) properly maintained, kept in a clean and efficient condition and replaced when necessary;
 - (v) in the case of hearing protection in the form of devices not intended for repeated use or of material intended to be discarded after use, an adequate supply of that hearing protection is readily available to persons at all locations and in all areas in that workplace whenever that hearing protection is needed in order to comply with these regulations; and
 - (vi) the occupier of that workplace exercises all due diligence to ensure that that hearing protection is being worn correctly by persons in that workplace at all times when its use is required by these regulations;

or

- (b) in the case of a worker in the workplace concerned to whom a certificate is given under regulation 18 (1), the occupier of that workplace provides hearing protection, or gives directions, or both, as the case requires, to that worker in accordance with the requirements, if any, of the certificate.

17. Subject to the requirements set out in any certificate given under regulation 18 (1), a person to whom suitable hearing protection is provided shall comply with all reasonable directions given to him by the occupier of the workplace concerned in relation to the use and safeguarding of the suitable hearing protection.

Compliance with directions given by occupiers.

Medical
certificates.

18. (1) If the use of a particular kind of hearing protection referred to in regulation 16 would, in the opinion of—

- (a) a medical practitioner, be prejudicial to the health of a worker, the medical practitioner; or
- (b) an inspector, be prejudicial to the safety of a worker or other person in the workplace concerned, the inspector,

may give to the worker and to the occupier of the workplace concerned a certificate setting out the special circumstances or manner in which hearing protection of the kind specified in that certificate should be worn by the worker.

(2) If a certificate is given to him under subregulation (1), the occupier of the workplace concerned shall in accordance with the requirements of the certificate provide hearing protection, give directions, or both, to the worker to whom the certificate is also given under that subregulation.

(3) If the use of all hearing protection referred to in regulation 16 would, in the opinion of—

- (a) a medical practitioner, be prejudicial to the health of a worker, the medical practitioner; or
- (b) an inspector, be prejudicial to the safety of a worker or other person in the workplace in which the worker is employed, the inspector,

may give to the worker and to the occupier of the workplace in which the worker is employed a certificate to that effect.

(4) If a certificate is given to him under subregulation (3), the occupier of the workplace concerned shall take all practicable steps to ensure that the worker to whom the certificate is also given is not exposed to a noise hazard.

(5) Before giving a certificate under subregulation (1) or (3), a medical practitioner—

- (a) may consult the Commissioner with respect to hearing protection generally; and
- (b) shall obtain from the occupier of the workplace concerned information on the noise exposure Leq A8 of the worker concerned.

PART VII—HEARING TESTS AND MEDICAL EXAMINATIONS.

When workers
are, and
cease to be,
designated
workers.

19. (1) A worker is a designated worker for the purposes of these regulations if—

- (a) at the time when the first report is furnished under regulation 5 in respect of the workplace in which he is employed, he has been exposed to a noise hazard;
- (b) after the coming into operation of these regulations, he commences work in a workplace, which work is likely to cause him within 6 months of that commencement to be exposed to a noise hazard;
- (c) he is provided with suitable hearing protection under regulation 32 (2) (b) and works, or is likely to work, for more than 12 months at a workplace; or
- (d) he is the subject of a notice served under regulation 20.

(2) A worker ceases to be a designated worker for the purposes of these regulations if—

- (a) a report furnished under regulation 5 shows that he has ceased to be, and to be likely to be, exposed to a noise hazard;
- (b) he ceases to work at or in locations or areas in the workplace concerned at or in which a noise hazard exists or is likely to exist;
- (c) he ceases to be employed by the occupier of the workplace concerned; or

(d) a notice of which he is the subject served under regulation 20 is revoked under that regulation.

20. (1) If a worker who is not a designated worker so works in a workplace that, in the opinion of an inspector, it is probable that that worker is exposed to a noise hazard, the inspector shall serve on the occupier of the workplace notice that that person is a designated worker.

Inspectors may designate certain workers.

(2) An inspector may revoke notice served on an occupier under subregulation (1) by serving notice of that revocation on the occupier.

21. The occupier of a workplace shall, at the time when a worker in the workplace—

Registration of designated workers.

- (a) becomes a designated worker, cause to be entered in a register in the form of Form 1 in respect of that worker the particulars required by that Form;
- (b) ceases to be a designated worker, cause to be entered in the register referred to in paragraph (a) in respect of that worker the date on which that worker ceased to be a designated worker; and
- (c) becomes or ceases to be a designated worker, inform in writing the audiometric officer, or one of the audiometric officers, if any, appointed in respect of the workplace of the content of each entry made under this regulation.

22. (1) An occupier shall, as soon as one or more of the workers employed in his workplace becomes a designated worker or become designated workers, as the case requires, appoint one or more audiometric officers in respect of that workplace for the purpose of testing under this Part the hearing of the designated worker or designated workers.

Audiometry.

(2) The hearing of each designated worker in a workplace shall be tested by the audiometric officer, or by one of the audiometric officers, as the case requires, appointed in respect of the workplace—

- (a) within 3 months of the date on which that worker became a designated worker; and
- (b) within 12 months of the date on which the hearing of the designated worker was tested under paragraph (a) and thereafter at intervals not exceeding 12 months.

(3) The hearing of each person who ceases to be a designated worker in a workplace shall be tested by the audiometric officer, or one of the audiometric officers, as the case requires, appointed in respect of the workplace—

- (a) if he so ceases by virtue of paragraph (a), (b) or (d) of regulation 19 (2), within 3 months of that cessation; or
- (b) if he so ceases by virtue of regulation 19 (2) (c)—
 - (i) forthwith on that cessation, if practicable; or
 - (ii) within 3 months of that cessation,

unless the hearing of that person has been tested under this Part within 3 months before that cessation.

23. (1) An audiometric officer shall for the purpose of testing the hearing of designated workers or former designated workers use an audiometer which complies with the requirements of Australian Standard 2586-1983 for audiometers of Type 1, 2, 3 or 4, as the case requires.

Manner in which audiometry is to be carried out.

(2) An audiometric officer using an audiometer under subregulation (1) shall—

- (a) check the audiometer on each day of use—
 - (i) both before and after the series of measurements carried out; and
 - (ii) after any relocation of the audiometer, to ensure that the audiometer is in satisfactory working order; and
- (b) ensure that the audiometer has been calibrated within the 12 months preceding each day of use at an approved calibration laboratory and that he receives a copy of the report prepared on that calibration.

(3) An audiometric officer shall test the hearing of designated workers by means of a pure tone air conduction hearing threshold test carried out separately for the right and left ears and at test frequencies—

- (a) in the case of monitoring audiometry, including 3 000, 4 000 and 6 000 Hz; or
- (b) in the case of reference audiometry, including 500, 1 000, 2 000, 3 000, 4 000 and 6 000 Hz.

(4) Subject to subregulation (5), an audiometric officer testing the hearing of a designated worker or former designated worker shall ensure as far as is practicable that—

- (a) in the case of monitoring audiometry, that audiometry is immediately preceded by a period of not less than 7 hours of quiet; or
- (b) in the case of reference audiometry, that audiometry is immediately preceded by a period of not less than 16 hours of quiet.

(5) For the purposes of—

- (a) subregulation (4) (a), a designated worker or former designated worker is deemed to have been in a state of quiet whilst at work if, in the opinion of the audiometric officer concerned, the designated worker or former designated worker correctly wore suitable hearing protection; or
- (b) subregulation (4) (b), a designated worker or former designated worker is deemed to have been in a state of quiet if, in the opinion of the audiometric officer concerned, the designated worker or former designated worker experienced no significant exposure to noise levels in excess of 80 dB(A).

(6) An audiometric officer shall—

- (a) ensure that the maximum background noise levels during the testing of the hearing of a designated worker or former designated worker are within the limits set out in Table 5.1 in section 5 of Australian Standard 1269-1983; and
- (b) record the results of the testing referred to in paragraph (a) as the hearing threshold level for pure tones—
 - (i) as defined by section 5.8 of Australian Standard 2586-1983;
 - (ii) expressed for each ear of the designated worker or former designated worker concerned in decibels for every test frequency referred to in subregulation (3); and
 - (iii) as an audiogram in an approved form.

(7) An audiometric officer shall—

- (a) when testing the hearing of a designated worker under regulation 22 (2) (a) or of a former designated worker under regulation 22 (3), use reference audiometry; and
- (b) when testing the hearing of a designated worker otherwise than under regulation 22 (2) (a), and subject to subregulation (8), use either reference audiometry or monitoring audiometry.

(8) If the results of monitoring audiometry used under subregulation (7) show a threshold shift which equals or exceeds 15 decibels at 3 000, 4 000 or 6 000 Hz when those results are compared with those set out in the most recent reference audiogram obtained in respect of the designated worker concerned, the audiometric officer appointed in respect of the workplace concerned shall obtain a fresh reference audiogram in respect of that designated worker within 30 days of obtaining the results of that monitoring audiometry.

(9) If, when an audiometric officer has carried out reference audiometry in respect of a designated worker or former designated worker—

- (a) 2 successive reference audiograms show differences equal to or exceeding 15 decibels at 3 000, 4 000 or 6 000 Hz; or

(b) any reference audiogram shows the designated worker or former designated worker to have a hearing threshold level at 4 000 Hz equal to or exceeding—

- (i) in the case of a person aged less than 31 years, 25 decibels;
- (ii) in the case of a person aged 31 years or more, but less than 46 years, 35 decibels; or
- (iii) in the case of a person aged 46 years or more, 50 decibels,

the audiometric officer shall, subject to subregulation (10) and (12)—

- (c) as soon as is practicable thereafter notify in writing the designated worker or former designated worker and the occupier who appointed the audiometric officer of that fact; and
- (d) on being requested to do so under regulation 24 by an approved medical practitioner, disclose to the approved medical practitioner those audiograms or that audiogram, as the case requires.

(10) An audiometric officer shall not disclose any audiograms or audiogram referred to in subregulation (9) to anybody other than an approved medical practitioner or any other audiometric officer appointed in respect of the workplace concerned unless the designated worker or former designated worker to whom those audiograms or that audiogram relate or relates agrees in writing to, or requests in writing, that disclosure.

(11) A person shall not—

- (a) coerce a designated worker or former designated worker to agree to, or request, the disclosure of details of an audiogram relating to the designated worker or former designated worker; or
- (b) make a disclosure of the kind referred to in paragraph (a) a condition of his employment or continued employment of a designated worker or former designated worker.

(12) If a second or subsequent reference audiogram referred to in subregulation (9) (b) does not show any increase in the relevant hearing threshold level of the person to whom that reference audiogram relates when compared with the previous such reference audiogram relating to him, the audiometric officer concerned is not obliged to perform the duty imposed on him by subregulation (9) (c) in relation to that person.

(13) A person who is not—

- (a) an audiometric officer or approved medical practitioner shall not carry out or purport to carry out any of the duties imposed by regulation 22 or this regulation on an audiometric officer; or
- (b) an audiometric officer shall not hold himself out or allow himself to be held out as being an audiometric officer.

(14) If, prior to the coming into operation of these regulations, a medical practitioner or person who, in the opinion of the Commissioner, would have been suitable for approval as an approved medical practitioner or audiometric officer under regulation 3 (2) had these regulations then been in operation, has carried out reference audiometry in respect of a worker, any reference audiogram resulting from that reference audiometry shall be deemed for the purposes of these regulations to be a reference audiogram obtained under this Part.

24. (1) An occupier who is notified under regulation 23 (9) (c) shall as soon as is practicable thereafter cause the case of the designated worker or former designated worker to whom that notification relates to be referred to an approved medical practitioner.

Role of
approved
medical
practitioners.

(2) An approved medical practitioner to whom the case of a designated worker or former designated worker has been referred under subregulation (1)—

- (a) may request the audiometric officer concerned to disclose to him the audiograms or audiogram relating to the designated worker or former designated worker;

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- (b) shall check the results obtained by the audiometric officer concerned and may for that purpose himself test the hearing of the designated worker or former designated worker;
- (c) shall if possible express a medical opinion on whether any hearing loss suffered by the designated worker or former designated worker has resulted from noise occasioned by work;
- (d) shall, as soon as is practicable after expressing a medical opinion under paragraph (c), notify in writing the medical opinion to—
 - (i) the designated worker or former designated worker;
 - (ii) the occupier who referred to him the case of the designated worker or former designated worker; and
 - (iii) the audiometric officer who made the relevant notification under regulation 23 (9) (c), together with a copy of any relevant reference audiogram obtained by the approved medical practitioner.

(3) An approved medical practitioner shall not disclose the details of any checking carried out under subregulation (2) to the occupier who referred to him the case of the designated worker or former designated worker to whom that checking relates unless that designated worker or former designated worker agrees in writing to, or requests in writing, that disclosure.

(4) A person shall not—

- (a) coerce a designated worker or former designated worker to agree to, or request, the disclosure of details of any checking carried out under subregulation (2) in relation to the designated worker or former designated worker; or
- (b) make a disclosure of the kind referred to in paragraph (a) a condition of his employment or continued employment of a designated worker or former designated worker.

(5) A person who is not an approved medical practitioner shall not—

- (a) carry out or purport to carry out any of the duties or exercise or purport to exercise any of the powers imposed or conferred, as the case requires, of an approved medical practitioner by this regulation; or
- (b) hold himself out or allow himself to be held out as being an approved medical practitioner.

Expenses to be met by occupiers.

25. An occupier shall meet all the reasonable expenses of—

- (a) an audiometric officer acting under regulation 22, 23 or 29; and
- (b) an approved medical practitioner acting under regulation 24,

in relation to a designated worker or former designated worker of the occupier.

Limitation of responsibility of occupiers in relation to certain persons.

26. An occupier shall not be guilty of an offence against regulation 22 or 24 solely by reason of any failure to comply with that regulation in respect of one of his designated workers or former designated workers who—

- (a) ceases to work at his workplace without giving or receiving notice of termination of employment;
- (b) fails to comply with regulation 28 (2); or
- (c) dies.

Submission of annual statistical summaries.

27. (1) An audiometric officer shall, before 1 March in each year, submit to the occupier of each workplace in respect of which he is appointed in the form of Form 2 a statistical summary of all reference audiometry carried out by the audiometric officer during the period of 12 months ending on the preceding 31 December in relation to that workplace.

(2) Each occupier to whom a statistical summary has been submitted under subregulation (1) shall—

- (a) if that is the only statistical summary so submitted to him in respect of the period of 12 months ending on the preceding 31 December, submit a copy of that statistical summary; or

- (b) if that is not the only statistical summary so submitted to him in respect of the period of 12 months ending on the preceding 31 December, submit in the form of Form 2 a consolidated statistical summary of all reference audiometry carried out during that period in relation to his workplace,

to the Commissioner before 1 April next following that period.

28. (1) An occupier shall notify or cause to be notified every designated worker or former designated worker at his workplace whose hearing is required to be tested under regulation 22, 23 or 24 of the time, date and place of that testing. Notification of testing of hearing.

(2) A designated worker or former designated worker who is notified under subregulation (1) shall not without reasonable excuse fail to present himself for testing at the time, on the date and at the place mentioned in that notification.

(3) An occupier shall cause each designated worker or former designated worker, as the case requires, at his workplace whose hearing is required to be tested under regulation 22, 23 or 24 to be informed of the requirements of regulation 23 (4).

(4) A designated worker or former designated worker who is informed under subregulation (3) of the requirements of regulation 23 (4) shall undergo the appropriate period of quiet before the audiometry concerned.

PART VIII—MANAGEMENT OF HEARING CONSERVATION ACTIVITIES.

29. (1) Subject to regulation 32 and this regulation, an occupier shall cause to be preserved a copy of— Certain documents to be preserved.

- (a) the report prepared on each noise survey made under regulation 5 or 6;
- (b) each certificate given under regulation 18;
- (c) each register referred to in regulation 21;
- (d) each notification made under regulation 24 (2); and
- (e) each statistical summary submitted to him under regulation 27 (1), which was prepared, given, maintained or submitted, as the case requires—
- (f) during the preceding 24 months, at his workplace; and
- (g) during the 23 years preceding the 24 months referred to in paragraph (f), at his workplace or, if his workplace is not his principal place of business within the State, at his workplace or at that principal place of business.

(2) Subject to regulation 32 and this regulation, an audiometric officer shall preserve—

- (a) each certificate served on him under regulation 3 (2), which certificate has not been surrendered by him under regulation 3 (3);
- (b) a copy of each report prepared on the calibration of an audiometer referred to in regulation 23 (2); and
- (c) a copy of each audiogram obtained by him or by his predecessor in office under regulation 23 or modified to him or to his predecessor in office by an approved medical practitioner under regulation 24,

which certificate, report or audiogram was served, prepared, obtained or notified, as the case requires—

- (d) during the preceding 24 months, at the workplace in respect of which he is appointed or, if the thing to be preserved is an audiogram and that workplace is not his principal place of business, at his principal place of business; and
- (e) during the 23 years preceding the 24 months referred to in paragraph (d), at the workplace in respect of which he is appointed or, if that workplace is not his principal place of business, at his principal place of business.

(3) A reference in this regulation to a copy of a document includes a reference to a thing or process on which or by which the information in the document is recorded or preserved or by means of which the information in

the document can be conveyed by any method in a visible or recoverable form, whether or not the assistance of some electronic, electrical, mechanical, chemical or other machine or process is required to record, preserve or convey that information.

(4) When an audiometric officer ceases—

- (a) to be appointed in respect of a workplace and, if he was the only audiometric officer appointed in respect of the workplace, another audiometric officer is not appointed in respect of the workplace; or
- (b) for any reason to be able to comply with subregulation (2),

he or his agent or the legal representative of his estate, as the case requires, shall forthwith notify the Commissioner of that fact and shall make arrangements satisfactory to the Commissioner for the preservation of the copies referred to in paragraphs (b) and (c) of subregulation (2).

(5) An occupier shall, if he has not transferred the copy of the document concerned to the Commissioner under subregulation (7), during the 24 months referred to in subregulation (1) (f) and the 23 years referred to in subregulation (1) (g) cause to be kept readily available for inspection by an inspector each copy of a document caused to be preserved by him under subregulation (1).

(6) Subject to regulation 23 (10), an inspector may inspect, and take extracts from or copies of, any document or copy of a document preserved by an occupier or audiometric officer under this regulation.

(7) If the undertaking of an occupier or the undertaking to which the occupier belongs, as the case requires, is about to cease carrying on business in the State—

- (a) the occupier shall forthwith transfer all copies of documents caused to be preserved by him under subregulation (1) to the Commissioner; and
- (b) the audiometric officer appointed in respect of the workplace of the occupier is deemed for the purposes of subregulation (4) to cease to be able to comply with subregulation (2).

(8) The Commissioner shall, on receiving copies of documents transferred to him under subregulation (7), cause those copies, or copies thereof, to be preserved for the remainder of the total period for which they are required by subregulation (1) to be preserved.

(9) If a designated worker or former designated worker so requests in writing of the audiometric officer appointed in respect of, or of the occupier of, the workplace in which he is or was employed, or of the Commissioner, that audiometric officer or occupier or the Commissioner, as the case requires, shall provide a copy of—

- (a) any audiogram obtained from testing under regulations 22 and 23 the hearing of the designated worker or former designated worker; or
- (b) any notification given by an approved medical practitioner under regulation 24 in relation to the designated worker or former designated worker,

or both to the personal medical practitioner of that designated worker or former designated worker.

General
duty of
occupiers.

30. (1) An occupier shall as far as is practicable ensure that adequate and suitable measures are taken, to the satisfaction of an inspector, to co-ordinate the activities required by these regulations so as to prevent the occurrence and progression of noise induced hearing loss in the workers in his workplace.

(2) Without derogating from the generality of subregulation (1), an occupier who receives notification under regulation 24 (2) of a hearing loss resulting from noise occasioned by work shall—

- (a) cause to be determined so far as is practicable whether or not the results referred to in that notification have been caused by any circumstances of the work in his workplace of the designated worker or former designated worker to whom that notification relates;

- (b) if it is reasonably likely that the circumstances referred to in paragraph (a) have caused the results referred to in that notification, cause all practicable steps to be taken to eliminate those circumstances in relation to the designated worker or former designated worker concerned, as the case requires, or to any other worker who has replaced that designated worker or former designated worker; and
- (c) if that notification relates to a designated worker, cause the hearing of the designated worker, notwithstanding the taking of the steps referred to in paragraph (b), to continue to be tested under Part VII until the designated worker ceases to be a designated worker and, in the opinion of an approved medical practitioner (who shall if practicable be the approved medical practitioner by whom the original results of the audiometric officer concerned were checked), 2 successive reference audiograms show differences of less than 15 decibels at 3 000, 4 000 and 6 000 Hz.

31. (1) If a noise hazard exists in a workplace, the occupier of the workplace shall appoint a person to be the hearing conservation co-ordinator in respect of the workplace in order to assist that occupier to comply with these regulations.

Hearing
conservation
co-ordinators.

(2) Nothing in these regulations shall be taken to preclude the appointment under subregulation (1) of—

- (a) an audiometric officer;
- (b) an approved medical practitioner;
- (c) a noise officer; or
- (d) the occupier making that appointment,

as the hearing conservation co-ordinator for a workplace.

(3) The appointment under subregulation (1) of a hearing conservation co-ordinator does not relieve the occupier making that appointment of liability for any failure to comply with the requirements of these regulations.

PART IX—GENERAL.

32. (1) If by reason only of the temporary nature of the activities carried on at a workplace or of the employment of the worker concerned it is not practicable to comply with any provision of these regulations in respect of—

- (a) a noise survey;
- (b) a report or copy thereof furnished under regulation 5 or 6;
- (c) registration under regulation 21;
- (d) the testing of the hearing of a designated worker or former designated worker under Part VII,

Action to be
taken if
compliance
with
regulations
impracticable
because of
temporary
factors.

a person shall not be guilty of an offence against these regulations by reason only of failure so to comply with that provision.

(2) Notwithstanding anything in subregulation (1), an occupier for whom it is impracticable to comply with a provision referred to in that subregulation shall—

- (a) comply with regulation 30 to the satisfaction of an inspector; and
- (b) in every case in which it is not practicable to determine whether or not the worker concerned is exposed to a noise hazard, provide that worker with suitable hearing protection.

33. A person shall not wilfully and without reasonable excuse damage, interfere with or remove any device, equipment, plant or other thing provided for the purpose of reducing noise levels, peak noise levels or noise exposure Leq A8 in a workplace.

Interference
with
devices, etc.
prohibited.

SCHEDULE (Regulation 3 (1).)
Forms.

Western Australia.

Form 1

Noise Abatement Act 1972.

NOISE ABATEMENT (HEARING CONSERVATION IN WORKPLACES)
REGULATIONS 1983.

(Regulation 21).

REGISTER OF DESIGNATED WORKERS.

| SURNAME | OTHER NAMES | DATE OF BIRTH | DATE DESIGNATION COMMENCED | DATE DESIGNATION CEASED | DATE AND TYPE OF MOST RECENT AUDIOGRAM (R = REFERENCE: M = MONITORING) |
|---------|-------------|---------------|----------------------------|-------------------------|--|
|---------|-------------|---------------|----------------------------|-------------------------|--|

Western Australia.

Form 2

Noise Abatement Act 1972.

NOISE ABATEMENT (HEARING CONSERVATION IN WORKPLACES)
REGULATIONS 1983.

(Regulation 27).

ANNUAL STATISTICAL SUMMARY OF REFERENCE AUDIOMETRY CARRIED
OUT IN RELATION TO WORKPLACE FOR YEAR ENDING 31 DECEMBER 19.....

WORKPLACE: NAME LOCATION TELEPHONE NO. OCCUPIER: NAME : ADDRESS : SIGNATURE

AUDIOMETRIC OFFICER(S): NAME(S) APPROVAL NO.(S) ADDRESS(ES) SIGNATURE(S) DATE(S)

1. TOTAL NUMBER OF WORKERS AS AT 31 DECEMBER _____
2. NUMBER OF DESIGNATED WORKERS AS AT 31 DECEMBER _____
3. NUMBER OF WORKERS GIVEN REFERENCE AUDIOGRAMS—
 - (a) on being newly designated (regulation 22 (2) (a)) _____
 - (b) on ceasing to be designated (regulation 22 (3)) _____
 - (c) as a check on a shift found in monitoring audiometry (regulation 23 (8)) _____
 - (d) OTHER _____
4. NUMBER OF DESIGNATED WORKERS OR FORMER DESIGNATED WORKERS FOUND TO HAVE A CONFIRMED DIFFERENCE BETWEEN TWO SUCCESSIVE REFERENCE AUDIOGRAMS EQUAL TO OR EXCEEDING 15 DECIBELS AT 3 000, 4 000 OR 6 000 Hz. (i.e. to whom the notification in regulation 24 (2) (d) applies) _____

NUMBER OF WORKERS WHOSE MOST RECENT REFERENCE
AUDIOGRAMS SHOW MAXIMUM HEARING LEVEL AT ANY
FREQUENCY BETWEEN 1 000 AND 6 000 Hz INCLUSIVE:—

- EQUAL TO OR EXCEEDING 20 DECIBELS AND LESS THAN 30 DECIBELS _____
- EQUAL TO OR EXCEEDING 30 DECIBELS AND LESS THAN 40 DECIBELS _____
- EQUAL TO OR EXCEEDING 40 DECIBELS AND LESS THAN 50 DECIBELS _____
- EQUAL TO OR EXCEEDING 50 DECIBELS AND LESS THAN 60 DECIBELS _____
- EXCEEDING 60 DECIBELS _____

EXPLANATORY NOTE:

Regulation 27: An audiometric officer shall, before 1 March in each year, submit to the occupier of each workplace in respect of which he is appointed in the form of Form 2 a statistical summary of all reference audiometry carried out by the audiometric officer during the period of 12 months ending on the preceding 31 December in relation to that workplace.

By His Excellency's Command,
G. PEARCE,
Clerk of the Council.

NOISE ABATEMENT (HEARING CONSERVATION IN WORKPLACES)
REGULATIONS 1983.

EXPLANATORY NOTES.

1. The aim of the regulations is to prevent workers suffering noise induced hearing loss in the course of their work. The most positive means of achieving this, and the only one which is wholly reliable in the long term, is to reduce noise at the workplace to levels which are not damaging. The regulations currently require all practicable means to be taken to reduce noise levels so that workers' noise exposures (Leq A8) do not exceed 90 dB (A). The Noise and Vibration Control Council recognizes that this criterion will not ensure 100% freedom from detectable effects on hearing. In consultation with industry it expects to reduce the criterion to below the noise exposure (Leq A8) of 90 dB (A) as soon as possible after the introduction of these regulations, when quieter industrial equipment and techniques become adequately available and no unfair differentials in operating costs are created. Objectives.

2. The criterion defining noises with a peak level in excess of 140 dB (lin) as hazardous, differs from that of 145 dB (lin) stated in the 1980 document "Proposals for Hearing Conservation in Industry". The Noise and Vibration Control Council approved this change after a review of the literature on the latest research into the effects of impulse noise on hearing was made. As this is an on-going field of research, more definitive criteria may evolve in the future and the need to further amend this limit will be kept under review. Impulse Noise.

3. These regulations require reference to the following standards published by the Standards Association of Australia: Australian Standards.

| | |
|--------------|--|
| AS 1259-1983 | Sound Level Meters. |
| AS 1269-1983 | Hearing Conservation. |
| AS 1319-1979 | Safety Signs for the Occupational Environment. |
| AS 1829-1981 | Intrinsically Safe Electrical Apparatus for Explosive Atmospheres. |
| AS 2586-1983 | Audiometers. |

These standards can be purchased or inspected at the Standards Association Office, 11-13 Lucknow Place, West Perth 6005 (Phone 321 7763).

4. Sub-Regulations 9 (2) (b) (i) refers to recommendations on reduction of noise levels given in Section 4 of Australian Standard 1269-1983. This Section is reproduced below with the written permission of the Standards Association of Australia. Noise Control.

SECTION 4. ENGINEERING NOISE CONTROL.

4.1 SCOPE OF SECTION. This Section provides recommendations for controlling noise by engineering methods.

The use of engineering methods to control noise requires detailed knowledge of the characteristics of the offending noise and its source based on detailed measured data and their analysis; determination of the most appropriate control measures; and design of the control devices and their correct installation. Generally the services of a specialist in engineering noise control will be required, and therefore in this Section only a brief summary is given of the principles of controlling noise by engineering methods.

4.2 NOISE CONTROL.

4.2.1 GENERAL. Each noise control problem involves a system with three components, viz. the source, the paths of transmission and the receiver. The most effective method of control is the elimination or partial suppression of the noise at its source.

Potential occupational noise problems should be considered in the planning of new buildings or building alterations, and at the design stage of new machinery. Effective planning is the primary step to implement an engineering noise control program. Involvement of maintenance staff and operators in such planning may prove beneficial.

4.2.2 MODIFICATION OF THE SOURCE. Reduction in the noise output of a machine is best effected through the design process, as it is generally difficult to reduce the noise output of an existing machine. However, some of the ways in which the noise of existing machines may be reduced are as follows:—

- (a) Use of a process which is inherently quieter than the alternatives, e.g. mechanical pressing rather than drop forging.
- (b) Avoidance or reduction of metal-to-metal impact.
- (c) Suppression of vibration of the external surfaces of the machine, e.g. by selection of suitable material, stiffness, and damping and by careful dynamic balancing.
- (d) Use of vibration-isolating mountings to reduce vibration transmission.

4.2.3 MODIFICATION OF TRANSMISSION PATHS. Some useful ways of modifying noise transmission paths are as follows:—

- (a) Increasing the distance between source and receiver. (This will not be effective in reverberant indoor conditions.)
- (b) Enclosing noisy machines. Complete enclosure is the most effective method of controlling airborne noise and the enclosure should therefore be as complete as the function of the machine will allow.
- (c) Separating noisy and quiet areas by partitions. The required size and location of partitions will depend on the size of the noise source and the frequency of the sound to be attenuated. Separation should be as complete as possible, partitions should be extended to walls and ceilings, and the number of openings in them kept to a minimum.
- (d) Providing a machine operator with a sound reducing enclosure.
- (e) Use of sound-absorbing material on walls and ceilings to minimize increases in sound level due to reflection.
- (f) Use of "silencers" in intake and exhaust systems associated with fluid flow processes, e.g. internal combustion engines or air-conditioning systems.

4.2.4 ROSTERING OF JOB ALLOCATIONS. The noise dose to which some personnel are subjected may be reduced by rostering work to reduce each individual exposure time.

4.2.5 INSPECTION AND MAINTENANCE OF MACHINES. The adoption of a high standard of maintenance is essential. Machines in good order are quieter than machines in poor mechanical condition and the differences in noise emission are often significant.

New installations and maintenance should be supervised and inspected by persons adequately trained in the methods of noise control.

Australian Standard 1269-1983 also includes sections on noise measurements (section 2), evaluation of noise (section 3), hearing protection and educational programs (section 5), to which reference will be necessary.

Training
Courses.

5. Persons requiring further information on courses of training available for audiometric officers or noise officers are advised to contact the Manager WAIT-Aid or other tertiary institutions in Western Australia.

Approval of
Officers.

6. Applications for approval as officers under the Hearing Conservation Regulations should state qualifications and experience and be directed to:

The Commissioner of Public Health,
60 Beaufort Street,
Perth,
Western Australia 6000.

ACKNOWLEDGEMENT.

Section 4 of the Australian Standard 1269-1983 is reproduced with the kind permission of the Standards Association of Australia.