Draft Industrial Noise Guideline
Response to submissions

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1. Introduction

The NSW Environment Protection Authority (EPA) has reviewed the *NSW Industrial Noise Policy* (NSW EPA, 2000). The review was undertaken to make the policy easier to use and interpret, reflect contemporary science, and address implementation issues that have been identified since it was published. In response to this review, the EPA produced a *Draft Industrial Noise Guideline* (2015; 'draft guideline') for consultation. The finalised *Noise Policy for Industry* (NSW EPA, 2017) is the result of this review and consultation process.

The main proposed changes in the exhibited draft guideline included:

- Night and evening minimum project intrusiveness noise levels (formerly 'intrusive criteria') remain unchanged, that is, 35 decibels (A-weighted; dB[A]), but the daytime minimum project intrusiveness level was raised to 40 dB(A). The noise levels continue to reflect an acceptable level of impact rather than inaudibility.
- Minor changes to how the assessment noise levels (now termed 'project noise trigger levels') are derived, to reduce complexity without significantly changing the level of protection.
- Improved alignment with the planning system at both the strategic and project level.
- The concept of a precinct approach was introduced to allow for innovation and flexibility in how large clusters of industry can be managed into the future.
- Performance requirements under weather conditions that can increase the level of noise on the community were further clarified and strengthened to give all stakeholders a better understanding of responsibilities and obligations.
- The introduction of a method for assessing sleep disturbance.
- Methods to assess annoying characteristics of noise were strengthened, including how low-frequency noise is managed.

2. Consultation

Consultation occurred from 21 September to 13 November 2015. Notification included a mailout (over 2400 letters including all EPA licensees, all local councils, state government agencies, peak industry groups, industry associations, community and environment groups, and interested individuals), a media release, and notification on the NSW Government 'Have your say' website and EPA and Office of Environment and Heritage websites.

Consultation material included:

- *Draft Industrial Noise Guideline* (NSW EPA, 2015)
- *Draft Industrial Noise Guideline: Questions and answers* (NSW EPA, 2015)
- *Information sheet: Key changes in the Draft Industrial Noise Guideline*
- *A guide to the Draft Industrial Noise Guideline*
- *Draft Industrial Noise Guideline: Technical background paper* (NSW EPA, 2015)
- standard response form.

As part of consultation, and following requests, presentations and/or meetings on the draft guideline were provided to the:

- Australian Acoustical Society
- NSW Minerals Council

- Upper Hunter Air Quality Advisory Committee
- Australian Sustainable Business Group
- Newcastle Community Consultative Committee on the Environment
- Waste Contractors & Recyclers Association of NSW
- Hunter Coal Environment Group
- The Department of Planning and Environment
- The Department of Primary Industries
- NSW Department of Industry – Division of Resources and Energy.

One hundred and seven (107) submissions were received. The review of submissions found differing views on the draft guideline between stakeholders, with some expressing concern that the guideline represents a relaxation of controls, and others indicating it represents a tightening of controls.

3. Analysis of submissions

The EPA, with assistance from NSW Health and the Department of Planning and Environment, undertook a detailed review of the submissions. The following tables provide a summary of issues raised, the area raising the submission, the evaluation of the issues, and the response.

The issues have been grouped under the general areas of:

1. General issues
2. Land-use planning issues
3. Project intrusiveness noise level and background noise
4. Amenity noise levels
5. Maximum noise level event assessment (sleep disturbance)
6. Meteorology
7. Compliance and monitoring
8. Health impacts
9. Residual noise levels – determination of significance
10. Noise management precincts
11. Fact Sheet C – Modification factors – low-frequency noise modification factor (*Draft Industrial Noise Guideline*, 2015)
12. Fact Sheet C – Modification factors – Tonality (*Draft Industrial Noise Guideline*, 2015)

3.1 General issues

Issue	Raised by	Evaluation	Response
Noise requirements for child care centres should be included within the guideline.	• Council	Out of scope. This type of noise source is not considered 'industrial noise'. Additional guidance for local government for this type of noise source will be considered in future revisions of the *Noise guide for local government* (NSW EPA, 2013).	No change.
The guideline should contain specific noise levels (criteria) for mixed-use zones.	• Council	The amenity noise levels in Table 2.1 of the *Draft Industrial Noise Guideline* gave local government guidance on desirable objectives for residential noise amenity that can be used to inform decisions on mixed-use zones. Council planning decisions are made on a case-by-case basis and should seek to balance the objectives of the mixed-use zoning with potential land-use conflicts and acoustic amenity.	No change.
The guideline should include development of standards for new residential development encroaching on industrial areas so that the new use is compatible with the existing use. An existing compliant industrial use should not be caused to be non-compliant because of encroaching sensitive land uses.	• Council • Industry	Planning instruments are the most appropriate place to consider and weigh this issue as they are the tool for planning decisions related to residential development. Planning instruments are the appropriate mechanism to influence land-use compatibility between new residential uses and existing industrial uses. The *Draft Industrial Noise Guideline* encouraged land-use planning to avoid conflict. These issues have been communicated to the Department of Planning and Environment.	No change.
Additional guidance required for local government approved activities.	• Council	The purpose of the *Draft Industrial Noise Guideline* (2015) is largely related to EPA-licensed activities. The *Noise guide for local government* (2013) is specifically designed to assist councils to manage noise from council-regulated activities. Future revisions of the *Noise guide for local government* may include additional guidance for councils on industrial noise. There may also be information in the finalised *Noise Policy for Industry* that can be used by councils to assist in planning and regulatory functions,	No change.

Issue	Raised by	Evaluation	Response
		where guidance is not provided in the *Noise guide for local government*.	
Guidance for transient noise sources, e.g. shipping. Ports should not be assessed against the *Draft Industrial Noise Guideline* as the noise is typically transient while a ship is in port, and therefore should have a less stringent noise assessment level.	• Industry	The noise generated by ships is from sources that are similar or the same as other industrial activities and the noise has similar characteristics. It is considered appropriate to use the policy to assess potential impacts of ships at berth. The literature (Miedema and Voss, 2004) recognises that whereas a community's annoyance response to a seasonal activity is typically lower than for year-round noise sources, the periods of respite from noise due to seasonal activity are long and might not be reflected by the intervals between ships.	No change.
The guideline is too technical and needs to be simplified for the lay reader.	• Individual	The *Guide to the Draft Industrial Noise Guideline* released with the draft guideline was updated and released with the finalised policy, to convey the overarching detail of the policy and its approach with as little technical detail as possible.	*A Guide to the Noise Policy for Industry* (2017) released with the finalised policy.
Guideline should include advice on what constitutes a 'competent person' to prepare a noise impact assessment.	• Individual	The EPA publication *Noise guide for local government* includes the following advice: 'It is recommended that a suitably qualified and experienced acoustic practitioner (e.g. a member of the Australian Acoustical Society, the Institution of Engineers, the Association of Australian Acoustical Consultants or a person with other appropriate professional qualifications) prepare acoustic assessment reports.'	Did not result in amendments to the finalised policy. Advice on what constitutes a competent person is provided in the *Noise guide for local government*.
Concern that the change in terminology, for example, *'policy'* to *'guideline'*; *'criteria'* to *'noise level'*; *'project specific noise level'* to *'project noise trigger level'*, will result in a lessening of the legal status of the document in a merits-based environment like the Land and Environment Court.	• Individual • Community group	The changes in terminology were designed to better reflect the document's role in planning and regulatory processes. It is not a statutory document; rather it informs statutory processes. The final policy takes these concerns into account.	The finalised document was retitled to *Noise Policy for Industry*.

Issue	Raised by	Evaluation	Response
Provide greater clarity about activities that can be assessed under the *Draft Industrial Noise Guideline*, especially whether primary industry is included. Primary industry/agriculture should have its own policy. Guideline is inconsistent with Right to Farm Policy. Guideline could benefit from additional case studies including intensive agriculture, existing premises, shoulder period, and compliance monitoring exercises.	• Individual • Industry group • Government	The character and impact of noise generated by intensive primary industry is similar or the same as other industrial activities. These similarities mean that the same assessment framework and technical approach is used for primary industry and it is appropriate to use the guideline for intensive primary industry. The finalised policy has been amended to clearly indicate that it can be used to assess impacts arising from intensive primary industry, taking into account those practical features of primary industry that will need to be considered when determining reasonable and feasible noise mitigation actions. The policy also includes a specific case study to demonstrate its intended application to primary industry, which is consistent with the NSW Government's Right to Farm Policy.	The finalised *Noise Policy for Industry* clearly indicates that it is intended to be applied to intensive agriculture/primary industry. An additional case study has been prepared and inserted into the finalised policy to demonstrate application to existing intensive agriculture/primary industry.
The guideline should simply require industry to be inaudible at certain times.	• Individual • Community group	In a modern society, audible noise from many sources, both natural and man-made, will always be present. It is not reasonable or practical to set a noise management policy based on inaudibility. Noise policies and guidelines seek to ensure that the noise is not unreasonable.	No change.
On-site vehicle movements necessary for industrial/agricultural activity should not be assessed as premises noise, but rather road traffic noise.	• Government • Individual • Industry group	Vehicle movements on private premises contribute to the noise coming from the premises and relate to the manner in which communities exposed to the noise are affected. The policy/guideline is based on seeking to achieve the project noise trigger levels, where feasible and reasonable. The practical measures that can be taken to mitigate the impact from vehicles on premises are taken into account.	The final *Noise Policy for Industry*, Section 1.4 was amended to include the following: 'Note: Where a private haul road is proposed to convey materials from one premises to another and is proposed for the express purpose of removing traffic from a public road, the private haul road should be assessed against the project amenity noise levels only.'
A perception that the *NSW Industrial Noise Policy* (2000) is	• Individual • Community group	Part 2 of the *Protection of the Environment Operations Act 1997* refers to 'protection of the environment policies'.	No change.

Issue	Raised by	Evaluation	Response
currently a mandatory consideration in regulatory and planning decisions because of the provisions of Part 2 of the *Protection of the Environment Operations Act 1997* relating to 'policies'.		The *NSW Industrial Noise Policy* (2000) and *Noise Policy for Industry* (2017) are not protection of the environment policies, and Part 2 of the Act does not apply.	
Project noise trigger levels should be mandatory levels never to be exceeded, and developments should be refused if they do not satisfy the project noise trigger levels. The concepts of 'feasible and reasonable' and consideration of 'residual noise' give a general impression that proposals will be approved regardless of impacts.	• Individual • Community group	The project noise triggers levels represent the point at which mitigation should be considered. They are not intended to be applied as a mandatory limit as a range of other factors are required to be taken into account for decisions under both environment protection and environmental planning. Decisions made by the EPA for matters such as licences under environmental protection legislation must take into account a range of prescribed matters, including the effect of pollution and practical options to mitigate an impact. Similarly, planning decisions must take into account a range of relevant factors including social and economic matters as well as environmental impacts.	No change.
Guideline should include examples of noise models that are acceptable for noise impact assessments in NSW.	• Individual • Community group • Acoustic industry	Section 3.3.2 of the guideline and final policy outline the performance and verification requirement of noise models used for noise impact assessments in NSW.	No change.
The guideline should include provisions to assess the cumulative impact of industrial noise, road traffic noise, rail noise and blasting arising from a development.	• Individual • Community group	Research on the impacts of noise from different sources finds that the community's response is specific to the type of source and is not solely related to noise level. For example, studies have shown that a community will tolerate a higher level of transportation noise than industrial noise. A limited number of studies have sought to assess community response to combined noise sources, however, the science is not at a point where these findings could be applied at a practical policy level (Miedema and Voss, 2004).	No change.

Issue	Raised by	Evaluation	Response
		The current approach in NSW, and other Australian jurisdictions, is to assess the impact of noise on the basis of the type of noise source.	
The guideline should include, and have requirements for, noise management plans as a means of mitigating/controlling noise.	• Industry group	The role of the guideline and finalised policy is to provide a framework to make decisions on noise-level requirements. This is consistent with the broad EPA approach of focussing on environmental outcomes, rather than developing or specifying the strategies that a proponent might adopt to achieve these objectives. The finalised policy has noted the role of pollution reduction plans and noise management plans as tools that can be used to achieve environmental objectives.	Finalised policy amended at Section 3.4.1 to note the role of noise management plans in noise control.
The guideline should include 'probabilistic' assessment of noise based on meteorological conditions (i.e. commonly referred to as the 10th percentile approach).	• Acoustic industry • Industry group	The draft guideline/policy acknowledged that probabilistic modelling can be a useful tool, as Section 3.3.2 states: 'Prediction approaches that present a statistical distribution of noise level based on a range of prevailing meteorological conditions are useful in explaining to the community the range of noise levels that could result from a development.' However, the policy will remain focussed on ensuring that noise assessment is carried out for a reasonable worst-case scenario, to provide clear noise limits that apply under specific conditions and that can be audited for compliance.	No change.
The guideline should include how it would be applied to existing operations in terms of activities that have existing development consents and environment protection licences.	• Individual • Community group • Industry	The exhibited draft guideline included extensive information at Section 6 with respect to how the policy/guideline will be applied to existing industrial premises. Further information is provided in the EPA's *Implementation and transitional arrangements for the Noise Policy for Industry*.	The transitional arrangements were developed to further address this issue.
Assessment location for night-time period and for multi-story residences should be one metre from façade for all noise metrics.	• Industry group • Industry • Acoustic industry	Agreed. The finalised policy refers to 'free field' for assessment locations. For residences this will be: At the reasonably most affected point on or within the residential property boundary, or if that is more than	*Noise Policy for Industry*, Section 2.6 amended to include guidance for elevated receiver locations as follows: 'For multi-storey residential buildings (greater than two storeys) where a

Issue	Raised by	Evaluation	Response
		30 metres from the residence, at the reasonably most affected point within 30 metres of the residence, but not closer than 3 metres from a reflecting surface other than the ground.	ground floor assessment location is deemed to be unrepresentative of the exposure of upper stories, the assessment may be undertaken at a representative elevation and closer than 3 metres to a reflective surface as agreed with the regulator. However, the assessed/measured noise level is to be suitably adjusted to reflect a "free field" (that is, nominally no reflective signals) assessment/measurement location.'
Will the guideline affect kerbside garbage/recycling collection activities?	• Industry group	No	No change.

3.2 Land-use planning issues

Issue	Raised by	Evaluation	Response
Project noise trigger levels will be inappropriately applied as mandatory limits.	• Industry	The *Draft Industrial Noise Guideline* (2015) and finalised *Noise Policy for Industry* (2017) clearly state that the project noise trigger levels should not be applied as mandatory targets. The project noise trigger level only becomes a requirement where it aligns with the noise level achievable through the application of feasible and reasonable noise mitigation measures. Additional case studies have been included to demonstrate the use of the project noise trigger level. Current EPA training on noise management, and training to be rolled out with the new policy, will be updated to emphasise this issue.	An additional case study was prepared and inserted into the finalised policy to demonstrate that the project noise trigger levels are not designed to be applied mandatorily as limits.

Issue	Raised by	Evaluation	Response
Mandatory requirements should be put in place for land-use planning authorities to control residential encroachment on existing industrial premises leading to land-use conflicts.	• Industry	Mandatory requirements are outside the scope of this document as these could only be implemented through planning legislation. The policy contains advisory information for land-use planning authorities when considering residential rezoning or determining applications for sensitive development near existing or proposed industrial uses.	The finalised policy has strengthened advisory provisions relating to land-use planning to avoid land use conflicts.
The guideline should have a stronger focus on balancing social, economic and environmental factors and include a requirement to consider a 'value assessment' of the activity being considered.	• Industry	The policy is designed to be used when making decisions under current environment protection and planning legislation. The matters to be taken into account during decision-making are set out in legislation.	The policy was edited to ensure clarity in this area.
The guideline should not consider or mention social and economic factors.	• Individual • Community group	The role of the policy in planning and regulatory decisions has been clarified to ensure that the policy clearly aligns, and integrates with, the various decision-making processes in which it may be used. The matters that must be taken into account in various decision-making processes are set out in the relevant legislation.	The policy was edited to ensure clarity in this area.
The guideline should include order of occupancy provisions (i.e. who was there first) to manage encroaching residential developments on existing industrial land uses.	• Industry	Order of occupancy considerations relate to planning decisions and the development of associated conditions, such as building requirements to mitigate noise impacts, rather than as a part of the noise impact assessment process.	No change.
Guideline should repeal section 12AB of Mining State Environmental Planning Policy and Voluntary Land Acquisition and Mitigation Policy.	• Community group	Beyond the scope of the policy.	No change.

Issue	Raised by	Evaluation	Response
New residential development proposed near existing industrial sites should have notifications on s149 certificate to make proposed purchasers aware of potential noise issues that may affect their amenity.	• Industry	This is beyond the scope of the policy, however, this was included in the *Noise Policy for Industry* in the case study 'Existing intensive primary industry' as an action that could be considered by a land-use planning authority to reduce potential land use conflicts.	See *Noise Policy for Industry* case study E4: Existing intensive primary industry.

3.3 Project intrusiveness noise level and background noise

Issue	Raised by	Evaluation	Response
Include greater guidance on when the low-risk/high-risk background noise approach should be applied in Table A1 ('Methods for determining background noise') and what to do if access is not provided to the most appropriate/relevant location for background monitoring.	• Acoustic industry	Additional guidance was provided in Table A1. The long-term method was clarified in the finalised policy as follows: 'During planning and approval stage where there is significant potential for noise impact, e.g. extractive industries and industrial developments. 'Note: Would normally be required where a background level exceeding the minimum rating background noise levels (in any time period) has been adopted in the assessment.' A note has been inserted to Table A1 to provide guidance on alternative locations for monitoring where the 'reasonably most or potentially most affected noise-sensitive location(s)' are not available.	Table A1 was amended in the finalised *Noise Policy for Industry.*
Given current advancements in logger technology, a more sophisticated method to derive a shoulder period noise level could be proposed.	• Acoustic industry	Alternative approaches for the derivation of a shoulder period rating background noise level based on data from the actual shoulder period were included in the finalised policy: 'the lowest 10th percentile of $L_{AF90,15min}$ dB measurements for the equivalent of one week's worth of valid data taken over the shoulder period (that is, all days included in a single data set of shoulder period); or 'the $L_{AF90(shoulder\ period)}$ dB value (that is, the lowest 10th percentile value of aggregate data for the equivalent of one week's worth of valid data taken over the shoulder period).'	A revised shoulder period approach was included in Fact Sheet A, Section A3 of the finalised policy, including the need to justify shoulder period operation.
Justify the data exclusion percentages in Fact Sheet B1.4.	• Acoustic industry	The data exclusion provisions in the draft guideline were designed to ensure that weather-affected data do not unduly affect background noise levels. The finalised policy has significantly simplified these rules.	Amendments to Fact Sheet B, Section B1.3 were made in the finalised policy make the data exclusion provisions clearer and simpler.

Issue	Raised by	Evaluation	Response
		The percentages applied in Fact Sheet B, Section B1.4 are derived from the existing *NSW Industrial Noise Policy* (2000) data exclusion rules in Figure B1, rule 2. These rules can either be applied, or a more detailed analysis of the potential consequences of the weather-affected data be undertaken (see 'Exception' provisions in Fact Sheet B, Section B1.3 of the *Noise Policy for Industry*, 2017).	
Actual background noise levels should be used rather than minimum assumed background levels.	• Individual • Community group • Government	The concept of minimum background levels was a component of the *NSW Industrial Noise Policy* (2000). The basis for retaining minimum assumed background noise levels is outlined in detail in the *Draft Industrial Noise Guideline – Technical background paper* (2015). The minimum assumed background noise levels reflect the less sensitive nature of the daytime and the current science relating to the effect of noise on the community. The minimum level adopted is lower than the level recommended by the World Health Organization (WHO 2009) for the protection of sleep, and below contemporary measures of unacceptable community annoyance.	No change.
The proposed increase in daytime minimum assumed background level will increase the level of impact on the community.	• Individual • Community group • Government	The proposal will result in minimum project intrusiveness noise levels of $L_{Aeq,15min}$ 40, 35, and 35 dB(A) respectively for the day, evening and night period. The basis for recommending an increase in the minimum assumed daytime background noise level was outlined in the *Draft Industrial Noise Guideline – Technical background paper*. The increase in minimum assumed background noise levels for the daytime period is supported by contemporary science and will not result in policy objectives for annoyance being exceeded. Marginally-higher noise criteria for the daytime period is consistent with the approach in other EPA noise policies, and both national and international practice.	No change.

Issue	Raised by	Evaluation	Response
The proposed increase for daytime minimum assumed background noise should be greater and the evening level should also be increased.	• Industry group • Industry • Government	The increase in minimum daytime levels represents a conservative adjustment. Further increases to daytime, and/or evening levels are not considered warranted at this time.	No change.
Rural NSW communities are more sensitive to noise than international experience may suggest and specific rules for rural NSW should apply.	• Individual • Community group	The draft guideline **does** apply specific provisions for rural areas. The *Draft Industrial Noise Guideline – Technical background paper* (2015) sets out the basis for the rural noise levels applied in the draft guideline and as retained in the finalised *Noise Policy for Industry* (2017). The noise levels that would be applied to a new industrial development in a quiet rural environment are significantly below the guidelines outlined in the *Night noise guidelines for Europe* (WHO, 2009). They are also consistent with annoyance dose-response relationships (Miedema and Voss, 2004) and have also been adjusted to account for the low background noise in some rural NSW settings and a new noise source being introduced.	No change.
The inclusion of an existing industry's noise in the background noise assessment for an expansion proposal is unfair as it allows ongoing incremental increases in noise levels.	• Community group	The project intrusiveness noise level is specifically designed to moderate against significant changes in noise level when benchmarked against background noise. Therefore, when assessing the change in the acoustic environment resulting from a modification to an existing industry, it is relevant to evaluate the prevailing background environment. The project amenity noise level remains in place as a cap. Where this provision is applied, the level derived will be relevant for a further 10-year period, to avoid continuous incremental increases in the project intrusiveness noise level.	Final policy amended at Fact Sheet A1.
Potential seasonal variations in background noise determination	• Individual	Seasonal variations in background noise are addressed in Fact Sheet A, Section A4 and as retained in the finalised policy.	No change.

Issue	Raised by	Evaluation	Response
should be considered in the guideline.			
Intrusiveness noise level should be determined on the basis of the background noise plus 3 dB for residential locations, and assessed across a whole day, evening, and night period because the longer descriptor is more closely linked to community response to noise.	• Council	It is agreed that dose-response relationships between noise exposure and community annoyance response are typically derived using longer-term noise descriptors. However, for practical regulatory and compliance purposes, a shorter-term descriptor that is linked to longer-term response is required, as is adopted in the draft guideline and finalised policy.	No change.

3.4 Amenity noise levels

Issue	Raised by	Evaluation	Response
The project amenity noise level approach based on 'amenity noise level – 5 dB' could result in overly conservative noise levels for areas with high levels of existing industrial noise. The project amenity noise levels should be derived on the basis of the existing approach in the *NSW Industrial Noise Policy* (2000).	• Industry • Acoustic industry	The revised approach is designed to simplify the process and more-equitably distribute amenity noise allocation between industrial developments without affecting outcomes. However, an additional exception was included in Section 2.4 to ensure that the project amenity noise level is not lower than necessary to control amenity noise outcomes, for example, in areas with high existing levels of industrial noise. Section 2.4 paragraph 5 was amended.	Finalised policy amended. Section 2.4 paragraph 5 was amended as follows: 'The following exceptions to the above method to derive the project amenity noise level apply: 1. In areas with high traffic noise levels (see Section 2.4.1). 2. In proposed developments in major industrial clusters (see Section 2.4.2). 3. Where the resultant project amenity noise level is 10 dB or more lower than the existing industrial noise level. In this case the project amenity noise levels can be set at 10 dB below existing industrial noise levels if it can be demonstrated that existing industrial noise levels are unlikely to reduce over time. 4. Where cumulative industrial noise is not a necessary consideration because no other industries are present in the area, or likely to be introduced into the area in the future. In such cases the relevant amenity noise level is assigned as the project amenity noise level for the development.'

Issue	Raised by	Evaluation	Response
The method used to validate the 'recommended amenity noise levels' (Table 2.1) in the *Draft Industrial Noise Guideline – Technical background paper* is unsound as: • it is based on industrial noise dose-response relationships for shunting yards in the Netherlands • it assigns a night-time noise level of 50 dB(A) as the rural acceptable noise level, which is clearly unacceptable for rural areas • it is used to derive a night-time project amenity noise level of 45 dB(A), which is unacceptable for rural areas.	• Community group	The dose-response relationships used are not related to shunting yards. Miedema and Voss (2004) provided community response to noise from a range of activities including shunting yards, seasonal industry and a large data set of 'other industry'. The EPA has used 'other industry' type and not shunting yards. Miedema and Voss (2004) do not assign or provide a night-time noise level of 50 dB(A). The dose-response relationships reported by Miedema and Voss (2004) are based on a noise descriptor termed 'Day, Evening, Night Noise Level (DENL)'. This descriptor is explained in the *Draft Industrial Noise Guideline – Technical background paper* at Section 4.3.1 as 'a composite energy whole-day rating level with a 5 dB and 10 dB penalty respectively for the evening and night-time periods'. The project amenity noise level for a rural residential receiver location is $L_{Aeq,15min}$ 37 dB(A) and not 50 dB(A).	No change.
Passive recreation amenity levels should consider day, evening and night levels rather than a single level.	• Individual	Noise levels for different times are only used for residential locations, to reflect the differing impacts that occur at different times.	No change.
The recommended maximum L_{Aeq} noise levels in the *NSW Industrial Noise Policy* (2000), Table 2.1 should be reinstated along with the explanatory notes. The Chapter 8 negotiation process should also be reinstated.	• Industry • Community group	The only purpose of the recommended maximum L_{Aeq} noise levels in Table 2.1 (and notes) was to guide the negotiation provisions in Section 8 of the *NSW Industrial Noise Policy*, which is not retained in the revised policy. These provisions were replaced with: Section 4, 'Determining the significance of residual noise impacts'. Therefore the maximum levels were removed.	No change.
Was consideration given to the use of a single 24-hour noise descriptor for all assessment periods, for	• Acoustic industry	It is agreed that many studies into community response to noise are based on longer-term noise descriptors. However, these descriptors are a calculation based on day, evening,	No change.

Issue	Raised by	Evaluation	Response
example, the L_{den} descriptor used in the European Union, which is better aligned to community response to noise?		night, which are weighted to reflect how communities respond to noise at different times of the day. Regulators use shorter-term descriptors for noise impact assessment and noise requirements as: • They better reflect noise impacts on a community that can occur over short periods. • Assessment of compliance needs to be able to be determined over practical time frames. If an L_{den} approach was adopted, no action could be taken until a full 24-hour monitoring period had been completed and analysed. • Noise requirements for different times of the day can be transparently specified without the need for mathematical calculations to be made to understand the limit at a particular time.	
The deemed equivalence for project amenity noise levels of $L_{Aeq,15min} = L_{Aeq,period} + 2$ dB is not appropriate, and corrections greater than 2 dB are required.	• Industry group	Following further analysis, the deemed equivalence has been increased to 3 dB. The provision to allow for the development of project-specific adjustments has been retained in the finalised policy. The proposed approach is designed to deliver a single and uniform noise descriptor of $L_{Aeq,15min}$ for regulatory purposes (i.e. limits in consent and licences).	Finalised policy amended. Section 2.2 was revised to reflect a 3-dB equivalence / adjustment, i.e. $L_{Aeq,15min} = L_{Aeq,period} + 3$ dB. An option of deriving a site-specific relationship was also retained.
Further guidance on defining the industrial noise interface zone should be provided.	• Industry group	Additional guidance was provided to better define the industrial interface zone and to allow for consultation with the planning authority.	Finalised policy amended at Section 2.7.
The terms ‘greenfield cluster of industry’ and ‘redevelopment of an existing cluster of industries’ should be defined in the glossary so there is clear direction on the intended	• Industry group	Agreed. Glossary amended to include definition of ‘cluster of industry’ as follows: ‘Cluster of industry: An industrial/port estate, area, zone, or proposed area or zone where more than three separate industrial uses are co-located in a contiguous fashion and are operating or proposed to operate.’	Glossary amended in finalised policy. Section 2.4.2 amended in finalised policy.

Issue	Raised by	Evaluation	Response
application of the draft provisions in Section 2.4.2.		Agreed. Section 2.4.2 amended to indicate this is not a provision that would be applied to mining, but rather port precincts, industrial estates and industrial parks, in approved land-use zonings. Proposal: Policy amended as indicated.	

3.5 Maximum noise level event assessment (sleep disturbance)

Issue	Raised by	Evaluation	Response
Maximum event screening noise levels are not appropriate and might not be needed for urban areas, as the assessment may be triggered for developments that do not exceed the prevailing noise environment in noisier urban areas.	• Industry • Acoustic industry	It is appropriate for the maximum event screening noise levels to have regard for the prevailing acoustic environment. The screening levels were adjusted to reflect 'base levels' that may be exceeded based on prevailing levels of background noise.	Finalised policy amended. Section 2.5, second paragraph was amended as follows: 'Where the subject development/premises night-time noise levels at a residential location exceed: • $L_{Aeq,15min}$ 40 dB(A) or the prevailing rating background noise level by more than 5 dB(A), whichever is the greater; and/or • L_{AFmax} 52 dB(A) or the prevailing rating background noise level by more than 15 dB(A), whichever is the greater, a detailed maximum noise level event assessment should be undertaken.'
Maximum event screening noise levels are too high for rural areas and will worsen the situation in rural areas.	• Individual • Community group	The screening noise levels are based on World Health Organization recommendations relating to the lowest observed adverse effect level for sleep disturbance (WHO, 2009). More details are provided in the *Draft Industrial Noise Guideline – Technical background paper.*	No change.
The LAF_{max} (maximum sound pressure level) needs to be better defined, as it is not clear if it is a single maximum event, or the average or x% of a number of events.	• Acoustic industry	The *Draft Industrial Noise Guideline* states in Section 2.5 that: 'Maximum noise level event assessment should be based on the L_{Amax} descriptor on an event basis under 'fast' time response.' The descriptor is used as a screening tool when predicting maximum noise level events. Detailed analysis can take into account the likely frequency of the events, the number	No change.

Issue	Raised by	Evaluation	Response
		of events and will establish the best achievable noise level that should be used for decision-making and regulation.	
Can the LA1 (one-minute) noise level be used in lieu of LA_{max} noise level, as this has been accepted by the EPA in the past?	• Acoustic industry	For developments assessed against the finalised policy, maximum noise level event assessment will be standardised using the L_{AFmax} noise descriptor on an event basis so that a uniform and standardised approach is adopted. Noise descriptors in existing statutory instruments will remain in force unless modified or varied through statutory processes.	No change.
The assessment location for maximum noise events, i.e. one metre from the façade of a residence containing windows, is not appropriate as measurements undertaken at one metre from a reflective surface can have significant variation depending on factors including the incidence of the noise (grazing or normal), and the frequency content of the noise affecting constructive and destructive interference. Additionally, compliance assessments are made more complicated and costly because of the need to measure at two points for one receiver location. It is suggested that the measurement location at the free field location for the L_{Aeq} noise limit would sufficiently measure incident L_{AFmax} to greater certainty than a facade measurement in most instances.	• Acoustic industry • Industry • Industry group	The finalised policy was amended in Section 2.5 to remove the requirement for maximum noise level event assessments to be undertaken at one metre from the façade. All noise levels and limits are to be assessed at the free field position outlined in Section 2.6.	Sections 2.5 and 2.6 have been amended to better define the noise assessment location.

3.6 Meteorology

Issue	Raised by	Evaluation	Response
Inversion conditions occur during the day and evening, and should be considered in the daytime period.	• Individual • Community group	Recognised approaches to determine the presence of an inversion, for example the Pasquill–Gifford Scheme and Turner Scheme (NSW EPA, 2000) assume that strong and moderate temperature inversions do not occur during the day. Inversion conditions will sometimes continue into the daytime period (after 7 am), however, they would typically not last for more than a few hours due to radiant warming of the Earth's surface. The finalised policy includes criteria to ensure that there are noise limits applying at all times.	No change.
Proposed 5 dB(A) increase in noise limits under very noise-enhancing meteorological conditions such as class G stability. There were four broad positions on this proposal: 1. that limits established in accordance with the guideline should be met under all meteorological conditions 2. that the 5-dB increase in noise limits is insufficient to account for the potential noise enhancement for very noise-enhancing meteorological conditions 3. that the current situation should remain, that is, no limits apply under very noise-enhancing conditions, however, all feasible	• Industry • Industry group • Individual • Community group	1. The method used to derive the background noise level reflects best practice and is designed to give a background level that is reflective of quieter times when impacts are more noticeable, which occur under relatively calm meteorological conditions. The derived intrusiveness noise level is protective of these quieter, calm times when impacts are likely to be greatest. Noise levels derived in this way would be unreasonable if they were applied across all meteorological conditions. The proposed approach ensures that a limit is in place under all conditions, using a simple and transparent approach. 2. The proposed 5 dB(A) limit cap is based on impact and not simply the increase in noise that may be expected from very noise-enhancing meteorological conditions. Analysis by the EPA has indicated that 5 dB is the practical upper limit of increases above levels predicted using noise-enhancing meteorological conditions. 3. The current situation means that at times when noise impacts can be high, no noise limits apply. The EPA does not believe that this situation should continue. 4. The policy was designed to ensure that clear noise requirements are developed that are audible,	No change.

Issue	Raised by	Evaluation	Response
and reasonable measures will be applied to reduce impacts 4. that the 5-dB increase in noise limits should mark the point at which operational controls should be implemented to seek to reduce noise impacts rather than a point at which a non-compliance may occur.		enforceable and achievable. As for any pollution limits, operational controls should be implemented to avoid non-compliances.	
The threshold of 30% of noise-enhancing meteorology is too high and should be reduced to 15% (i.e. approximately one night per week). All noise impact assessments should be required to adopt noise-enhancing conditions.	• Acoustic industry • Individual	While it is open to a proponent to undertake the significance assessment to determine the 'significance' of noise-enhancing meteorological conditions, the revised approach of applying an upper bound of 'limit plus 5 dB(A)' will address this issue in a practical manner.	No change.
Where 'standard meteorological conditions' are used in an assessment, i.e. noise-enhancing conditions have been determined to occur for less than 30% of the time, the 5-dB(A) cap would apply a limit for rarely-occurring meteorological conditions.	• Acoustic industry	Not correct. While noise-enhancing meteorological conditions might not occur during a significant percentage of time, meteorological conditions that exceed standard will occur for a large portion of time, e.g. periods with wind speeds above three metres per second.	No change.
The changes to meteorological conditions were designed to increase certainty, however, they will increase the stringency of the guideline.	• Industry • Industry group • Acoustic industry	The changes to the requirements for meteorological assessment were designed to improve clarity and improve compliance assessment requirements. Further analysis following consultation has resulted in some amendments to the finalised policy.	Fact Sheet D was amended. The requirement for consideration of E class stability conditions for 'standard meteorological conditions' and for 'noise-enhancing conditions' for the gradient wind assessment was removed.

Issue	Raised by	Evaluation	Response
			Further, the proposed requirement to consider wind speeds of up to 3 m/s with F class atmospheric stability category (mild inversion conditions) was reduced to 2 m/s, as is currently applied in the *NSW Industrial Noise Policy* (NSW EPA, 2000).

3.7 Compliance and monitoring

Issue	Raised by	Evaluation	Response
Greater emphasis on compliance monitoring. More rigorous and mandatory monitoring requirements are needed.	• Individual • Community group	Monitoring requirements for industrial facilities are determined on individual circumstances based on risk, to ensure that monitoring is appropriately targeted. The EPA's risk-based licensing approach means that licensees with a higher risk level receive an increased level of regulatory and compliance assessment.	No change.
That greater emphasis should be placed on unattended continuous monitoring techniques for compliance assessment, given advances in technology over the last 15 years. Attended monitoring should be used to supplement or confirm conclusions drawn from unattended monitoring.	• Individual • Community group • Acoustic industry	The policy acknowledges the place of continuous real-time monitoring for noise control, mitigation and management. While there have been advances in monitoring, the role of continuous unattended monitoring for compliance purposes is limited to situations where post processing of data includes analysis of audio recordings. This is not considered practical or cost-effective for all circumstances and on an on-going basis.	No change.
The technical background paper released with the *Draft Industrial Noise Guideline* suggests a non-compliance that occurs for more than 10% of an assessment period would likely require a regulatory response. Why is this not in the guideline?	• Community group	Where an activity is determined to be in non-compliance with a statutory limit, the regulatory authority's policies and guidelines relating to compliance will guide the regulatory response. For the EPA, these are the *EPA Compliance Policy* (NSW EPA, 2013) and *EPA Prosecution Guidelines* (NSW EPA, 2013). The reference to 10% of the time in the *Draft Industrial Noise Guideline – Technical background paper* (2015) was an example only and was not included in the *Draft Industrial Noise Guideline* (2015) or finalised *Noise Policy for Industry* (2017).	No change.
How would limits be enforced during rain and high winds at the noise monitoring location?	• Acoustic industry • Community groups	While limits are proposed to apply under all meteorological conditions, the technical limitations to noise monitoring equipment mean that compliance may not be able to be determined under some meteorological conditions for a number of reasons, including:	No change.

Issue	Raised by	Evaluation	Response
		1. when the meteorological conditions are generating high levels of ambient noise, for example, during heavy rain or high winds 2. when wind speed at microphone height is inducing pseudo noise across the microphone 3. when instruments need to be protected from rain. While compliance may not be able to be determined under some conditions, limits continue to apply, and the licence and legislative requirement for premises to be operated in a proper and efficient manner will also apply.	
In Section 7, 'Monitoring performance', approaches such as low-pass filtering and directional monitoring may not capture all noise from the premises being monitored, i.e. it may underestimate the level of noise from a particular industry.	• Community group • Individual	Under some conditions the noise from industrial facilities can be at or below existing ambient noise levels, making direct measurement of the noise difficult without using available technology to separate the signal. Where techniques such as frequency filtering and directional monitoring are carried out for compliance purposes, they must be able to be robustly justified in each case as the monitoring can be subject to review and can be challenged in legal proceedings.	No change.
Guideline should include greater penalties for non-compliance	• Individual • Community group	Outside the scope of the policy. The penalties for non-compliance are determined in the relevant legislation.	No change.
That the removal of the principals of 'sustained non-compliance', and that 'non-compliance' only occurs when a limit is exceeded by more than 2 dB, is inconsistent with the philosophy of protecting 90% of the community 90% of the time. The guideline should include some guidance on the significance of a non-compliance and how a regulator would respond to a non-compliance, i.e. similar to the former *NSW Industrial Noise Policy*	• Industry	The concept of protecting 90% of the people 90% of the time relates to dose-response relationships for noise (i.e. setting levels to protect 90% of a community from being highly annoyed), and the use of the 90th percentile descriptor to quantify background noise (i.e. a background noise level that won't be exceeded for 90% of the time). It is not related to the previous policy provisions of 'sustained non-compliance'. The regulatory response to a non-compliance is determined in accordance with the *EPA Prosecution Guidelines* and *EPA Compliance Policy*.	No change.

Issue	Raised by	Evaluation	Response
(2000) provisions of breach and sustained non-compliance.			
The guideline should seek to remove the duplication of regulation between consents and licences.	• Acoustic industry • Industry	This issue is outside the scope of the guidelines.	No change.
Noise compliance monitoring should be undertaken by independent personnel, not contracted by the proponent/licensee.	• Individual • Community group	Pollution monitoring is carried out across all environmental media. Mandating such a requirement is outside the scope of the policy.	No change.
The policy should include example consent/licence noise conditions.	• Industry group	All environment protection licences issued by the EPA are available through the EPA's public register. The policy is not an appropriate vehicle, for example, conditions such as these can change due to legal or other reasons. All consents and licences are publicly available on the EPA and Department of Planning and Environment websites.	No change.

3.8 Health impacts

Issue	Raised by	Evaluation	Response
Draft guideline will not protect against adverse health outcomes for rural NSW and will place a strain on the healthcare system in rural communities.	• Individual • Community group	Night-time project noise trigger levels for rural NSW locations will be below the *Night noise guidelines for Europe* (WHO, 2009) guideline level aligning with the lowest-observed adverse health effect level. The proposed levels for rural NSW are also slightly less than annoyance dose-response information aligning with protecting 90% of the population from being highly annoyed.	No change.
The need for rural NSW health studies, as reliance on European data outlined in the technical background paper is not appropriate.	• Individual • Community group	The most current scientific and medical information on the effect of noise published by the World Health Organization was considered in the review.	No change.
The guideline will not protect against mental health impacts.	• Individual • Community group	The current scientific evidence is not sufficient to conclude that noise causes an increase in mental illness. The relationship between transportation noise (especially aircraft noise) and mental illness has been examined in various studies. Noise has not been found to be a direct cause of mental illness. The World Health Organization (WHO, 2009) indicates that people with existing physical or mental illness tend to be more highly annoyed by noise and potentially could be vulnerable to mental health effects.	No change.
Guideline should have special noise levels for dementia sufferers.	• Council	Noise can be a stressor for people who have dementia. The evidence of adverse effects of noise on people who have dementia is limited. These effects likely only occur at levels much higher than those proposed in the *NSW Industrial Noise Policy* (2000) based on parallel evidence, such as the mental health literature.	No change.
Does NSW Health support the guideline?	• Community group	NSW Health supports the policy as being protective of public health and has collaborated closely with the EPA in reviewing the *NSW Industrial Noise Policy* (2000).	No change.

3.9 Residual noise levels – determination of significance

Issue	Raised by	Evaluation	Response
Residual noise impact significance test (*Draft Industrial Noise Guideline,* Section 4) should be based on dose-response relationships, that is, it should be based on the absolute noise level rather than the excursion above the project noise trigger levels.	• Acoustic industry	The extent to which a development exceeds the project noise triggers levels provides a clear link to the policy approach of taking into account both the amount of change and the absolute level of noise. Using absolute noise levels to determine residual noise impact alone would expose some of the community to noise levels that are excessive.	No change.

3.10 Noise management precincts

Issue	Raised by	Evaluation	Response
Noise management precincts – insufficient information for application of precinct approach. More detail is required.	• Industry • Acoustic industry	The introduction of a noise management precinct is designed to set the policy principles for the future application of this approach. It is not intended to provide a detailed 'how to' guide, as the approach is flexible and will always need to be determined on a case-by-case basis to take into account local circumstances.	No change.
Noise management precincts are a mitigation measure and should be moved to Section 3 of the *Draft Industrial Noise Guideline*.	• Acoustic industry • Industry group	Noise management precincts have potential to be used both in the planning context as well as for mitigation.	No change.

3.11 Fact Sheet C – modification factors – low-frequency noise modification factor

Issue	Raised by	Evaluation	Response
Retain existing *NSW Industrial Noise Policy* (NSW EPA, 2000) low-frequency noise approach of C-	• Individual • Community group	The C minus A approach has been retained as a trigger for further assessment. The reasons for not retaining this approach as the sole determiner of low-frequency noise are	No change.

Issue	Raised by	Evaluation	Response
weighted minus A-weighted noise levels > 15 dB as the sole approach, because it represents a conservative approach.		outlined in the *Draft Industrial Noise Guideline – Technical background paper* (2015) at Section 4.6.2. Retaining C minus A as the sole approach without the ability to take into account contemporary scientific understanding would mean that requirements or regulatory action might not withstand challenge.	
If the C minus A approach for low-frequency noise is unreliable, why has it been retained in any form?	• Industry group	The C minus A approach is appropriate to use as a cost-effective screening criteria that: • when is not triggered dispenses with the need to undertake a detailed analysis • when is triggered allows for further analysis to ensure that a correction factor is not applied when contemporary scientific information indicates that increased annoyance is not likely • provides a mechanism to ensure that 'loud' broad-band (spectrum) noise does not inappropriately trigger a low-frequency noise modification factor. The basis for the EPA's proposal for low-frequency noise is outlined in the *Draft Industrial Noise Guideline – Technical background paper* (2015) at Section 4.6.2. The background paper explains that the method needs to be able to identify: • that the spectrum of noise is unbalanced, i.e. biased towards the low-frequency noise end of the spectrum, • where the low-frequency energy lies in the spectrum (one-third octave bands), because the human response is different depending on where the low-frequency energy is, and • the level of low-frequency noise in these one-third octave bands, because again human response is dependent on the frequency and amplitude (level and audibility) of the low-frequency noise.	No change.
The guideline should adopt the approach proposed by Broner	• Industry • Industry group	The reasons for **not** adopting this approach are outlined in detail in the *Draft Industrial Noise Guideline – Technical background paper* (2015) at Section 4.6.2. The Broner	No change.

Issue	Raised by	Evaluation	Response
(2011) to assess the significance of low-frequency noise**.**		approach was developed using research from the USA that is specifically related to gas-fired turbines and their associated frequency spectrum. It is not considered appropriate for predicting community response for a range of different noise sources as it does not take into account different frequency content and energy.	
A low-frequency noise 'intrusiveness noise level' based on background C-weighted levels plus 5 dB(C) should be adopted.	• Community group	This approach could be exceeded by noise emissions well below human audible thresholds, and is not supported by any contemporary scientific literature on the subject of low-frequency noise annoyance. The basis for not proceeding with a C-weighted noise level approach is also outlined above.	No change.
Low-frequency noise impacts should be assessed inside buildings, as this is where impacts are experienced.	• Individual • Community group	The basis for the EPA using external assessment locations is outlined in the *Draft Industrial Noise Guideline – Technical background paper* (2015).	No change.
The outside-to-inside noise reductions used in the development of the external Department for Environment, Food and Rural Affairs (DEFRA) approach adopted in the draft guideline are not reflective of Australian conditions.	• Community group	Since publication of the *Draft Industrial Noise Guideline – Technical background paper* (2015), an additional study based on Australian housing stock condition has been reviewed (Ryan, 2011). This study confirms that the noise reductions used to establish the external low-frequency noise modification factor are reasonable.	No change.
Continuous real-time monitoring of infrasound and low-frequency noise should be required.	• Individual • Community group	Monitoring requirements for industrial facilities, including for low-frequency noise, are based on risk. It is a standard condition of environment protection licences that corrections for low frequency apply where the relevant criteria are triggered. This means that monitoring for low-frequency noise is a component of compliance assessment. Infrasound is a component of low-frequency noise and is required to be assessed between 10 and 20 hertz (Hz) in the finalised policy.	No change.

Issue	Raised by	Evaluation	Response
Noise levels for low-frequency noise should extend down to zero hertz, and full-spectrum sound levels should be used to assess compliance.	• Individual	Sound below 10 Hz is inaudible in typical environments.	No change.
Why has the range of low-frequency noise been changed from 20–250 Hz in the existing *NSW Industrial Noise Policy* (NSW EPA, 2000) to 10–160 Hz in the *Draft Industrial Noise Guideline* (2015)? Is this a weakening of provisions related to low-frequency noise?	• Community group • Individual	The existing 'C minus A' provisions in the existing *NSW Industrial Noise Policy* (2000) are essentially based on the differential between the A frequency weighting curve and the C frequency weighting curve. The difference between the two frequency weighting curves can only exceed 15 dB where frequencies below 160 Hz are essentially controlling the overall C-weighted levels. The new approach improves clarity and simplifies the approach.	No change.
Concern the low-frequency noise provisions will not be applied in practice.	• Individual • Community group	The EPA applies statutory requirements derived from the policy in accordance with the *EPA Compliance Policy*.	No change.
Alternative external low-frequency noise levels should be derived where a building's windows can be closed because of the provisions of alternative means of ventilation (i.e. mechanical ventilation) as the noise-level difference across the façade will change.	• Acoustic industry	Where alternative means of ventilation have been provided by the noise generator, then this would have been taken into account in the planning consent or environment protection licence decision-making process, as an agreement between the parties or in accordance with other government policy such as the Department of Planning and Environment *Voluntary Land Acquisition and Mitigation Policy*. In regard to the acoustic performance of a building, a façade with windows slightly open to allow ventilation is largely controlled by the open window component of the façade and not by the materials of construction (Ryan, 2011). Therefore, the values used in the finalised policy are appropriate for a range of buildings. When windows are closed, a wider range of noise reduction is expected, as this is primarily due to the materials of	The finalised *Noise Policy for Industry* was amended at Fact Sheet C to allow for alternative low-frequency noise assessment levels to be determined under the following circumstances: 'Where a receiver location has had architectural acoustic treatment applied (including alternative means of mechanical ventilation satisfying the Building Code of Australia) by a proponent, as part of consent requirements or as a private negotiated agreement, alternative external low-frequency noise assessment criteria may be proposed to account for the higher

Issue	Raised by	Evaluation	Response
		construction and how well the building elements (walls, windows and doors) are sealed.	transmission loss of the building façade.'
External measurements down to 10 Hz will be unreliable due to the potential influence of wind effects on the microphone and wind-generated low-frequency noise from trees and objects near the measurement location.	• Individual	The *Draft Industrial Noise Guideline* acknowledges that windscreens for microphones will need to be selected with wind induced noise characteristics at least 10 dB below the threshold values in Table C2. These wind screens are commercially available. A report by Hessler (2008) provides test data for a number of windscreens that have the required performance.	No change.
Adopt/develop a low-frequency noise approach similar to how sound transmission class numbers are derived. However, research would be required to develop the assessment noise levels.	• Individual	There is no research currently available to support such an approach.	No change.
An industry-specific noise metric should be developed and applied to the mining sector, and a night-time curfew applied to mining activities.	• Community group	The proposed move for low-frequency noise from broad-band methods (i.e. C minus A or Broner Method) to a method that includes one-third octave band analysis improves the sensitivity of the analysis and its ability to better capture industry-specific noise characteristics. Night-time restrictions on coal mine operations can be considered in the context of existing approval processes. The policy sets the process to evaluate impacts and consideration of feasible and reasonable mitigation measures. 'Restricting operating times' is a potential mitigation measure proposed in the *Draft Industrial Noise Guideline* (2015) and finalised *Noise Policy for Industry* (2017).	No change.
That the existing C minus A difference of 15 dB should be increased to 20 dB.	• Community group	This would represent a weakening of the proposed requirements.	No change.
That the provisions in *International Standard ISO9613-2* for **ground**	• Community group	The major attenuation factors that cause the C minus A difference to increase with distance are atmospheric	No change.

Issue	Raised by	Evaluation	Response
effects refute the assertion that the C minus A differential will increase with distance.		absorption and screening, both of which are explained in the ISO standard. For example, over a distance of 4000 metres (relative humidity 20% and temperature 15˚C) atmospheric absorption for 63 Hz is 1.2 dB, and for 1000 Hz is 32.8 dB. Ground effects only play a small role in the differential attenuation of low- and high-frequency noise.	

3.12 Fact Sheet C – modification factors – tonality

Issue	Raised by	Evaluation	Response
The tonality correction should only be applied to the tonal frequency, not the whole broad-band noise from the development/premises under consideration.	• Government	Contemporary acoustic standards that include assessment and correction methods for tonality (*BS4142:2014* and *ISO1996-2:2007*) apply the modification factor to the measured/predicted L_{Aeq} level of noise from the source and not to the specific one-third octave frequency. The correction is made to reflect the increased annoyance of tonal noise, and application to the tonal frequency alone would not reflect the overall increase in annoyance.	No change.
That the use of the *ISO1996-2:2007* simplified method should be supplemented with a more detailed method, for example, the normative method where an applicant/ proponent wished to more thoroughly determine the actual increased annoyance of the tonal content of the noise.	• Acoustic industry • Industry	It is agreed that the normative method in *ISO1996-2:2007* is more detailed and potentially more conclusive, especially in circumstances where the tonal energy is at or near the upper or lower band limits of the relevant one-third octave centre band frequency. Note that it is a more complex and detailed assessment methodology.	The finalised *Noise Policy for Industry* (2017) Table C1 was modified to include the option to proceed to narrow-band analysis, using a standard acceptable to the regulator, where a more detailed assessment of tonality is appropriate. This is consistent with the *NSW Industrial Noise Policy* (2000) where narrow-band analysis may also be applied.

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