

Particulate Assessment Criteria Within Australian Jurisdictions

A very brief summary

Western Australia

•Emissions:

- Estimates of emissions employed in modelling assessments are realistic and that uncertainty is balanced by conservatism.
- Unless otherwise agreed, the level at which emissions should be set for modelling purposes is described in EPA Vic (1985) (for plumes)
- Currently DEC does not, in general, specify which emissions factors are used for fugitive modelling

• Models:

- The DoE does not generally prescribe which models must be used in particular circumstances.

• Particulate AQ goals :

- NEPM targets applied at sensitive receptors (5 exceedences apply only to background)

• Issues:

- Port Hedland regularly exceeds NEPM PM10 goal. Currently using an interim management target of 70 $\mu\text{g}/\text{m}^3$

Victoria

- 3 Levels of assessment with the level of assessment determined by the size of the operation and proximity to residential or urban areas.
- NPI emissions factors should be used where available otherwise latest USEPA AP42. Other applicable factors may be used prior approval from EPA.
- PM10 and PM2.5 modelled as gas with no deposition.
- Assessment criteria higher than NEPM for PM10 and PM2.5 however In certain circumstances NEPM standards may be used as assessment criteria.

(From: Protocol For Environmental Management: Mining and extractive industries.)

Indicator	Criteria
PM10	60 ug/m ³
PM2.5	36 ug/m ³
Respirable Crystalline Silica	3 ug/m ³ (Annual)

• Assessment Criteria PM10: 50 $\mu\text{g}/\text{m}^3$

– The Applicant shall ensure that the air pollution generated by the development does not exceed the criteria listed in Tables 3, 4, and 5 at any privately-owned land. (N.B extract from instrument of consent)

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 $\mu\text{g}/\text{m}^3$
Particulate matter < 10 μm (PM ₁₀)	Annual	30 $\mu\text{g}/\text{m}^3$

Table 3: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 μm (PM ₁₀)	24 hour	50 $\mu\text{g}/\text{m}^3$

Table 4: Short term impact assessment criterion for particulate matter

- AP42 and NPI listed as possible alternatives for emissions factors for assessments such as fugitive dust.

(from: Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales)

NSW: Acquisitions

Land Acquisition Criteria

23. If the air pollution generated by the development exceeds the criteria in Tables 6, 7, and 8 at any privately-owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in Conditions 9-11 of Schedule 5.

NSW...

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 $\mu\text{g}/\text{m}^3$
Particulate matter < 10 μm (PM ₁₀)	Annual	30 $\mu\text{g}/\text{m}^3$

Table 6: Long term land acquisition criteria for particulate matter

Pollutant	Averaging period	Criterion	Percentile ¹	Basis
Particulate matter < 10 μm (PM ₁₀)	24 hour	150 $\mu\text{g}/\text{m}^3$	99 ²	Total ³
Particulate matter < 10 μm (PM ₁₀)	24 hour	50 $\mu\text{g}/\text{m}^3$	98.6	Increment ⁴

Table 7: Short term land acquisition criteria for particulate matter

NSW...

¹Based on the number of block 24 hour averages in an annual period.

²Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with the DEC.

³Background PM_{10} concentrations due to all other sources plus the incremental increase in PM_{10} concentrations due to the development alone.

⁴Incremental increase in PM_{10} concentrations due to the development alone.

Queensland

- State EPP: PM10 goal 150 ug/m³
- EPP being revised with intent to implement goal of 50 ug/m³ (Towns, sensitive receptors?)
- No requirements to use specific emissions factors for fugitive emissions

South Australia

- PM10 goal of 50 ug/m³ currently being used in assessments (eg 50 ug/m³ used as a performance criteria in Whyalla)
- There is no specific requirement as which emissions factors are used

Reflections

- All mainland states apart from Victoria are using or proposing to use the NEPM PM10 standard as an assessment criteria for fugitive dust.
- Only one state mandates the use of NPI particulate emission factors in AQ assessments however the emissions factors are widely used around Australia.
- Are the NPI fugitive particulate emission factors sufficiently robust for use in air quality assessments and was it the intent of the NPI emissions factors to be used in modelling for air quality assessments?