



State of Oregon
Department of
Environmental
Quality

Instructions for Determining the PM_{2.5} Plant Site Emission Limit and Netting Basis

OAR 340-200-0020(75)

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1. **PM_{2.5} permitting concepts**

1.a. Background

- 1.a.i. The new PM_{2.5} rules became effective on May 1, 2011.
- 1.a.ii. These instructions are based on the new definition of “PM_{2.5} fraction” and the revised definition of “netting basis” in OAR 340 Division 200.
- 1.a.iii. PM_{2.5} has been indirectly regulated through PM₁₀ and total particulate matter for years. Because of this, the Environmental Quality Commission added PM_{2.5} to the program in a manner that avoids imposing retroactive violations on sources who have complied with existing permitting requirements for particulate matter. Therefore, a baseline emission rate for PM_{2.5} will not be established since most sources have a netting basis for PM₁₀ that is different from the baseline emission rate.
- 1.a.iv. These instructions do not apply to sources with Basic or General ACDPs. Basic ACDPs do not have PSELs. General ACDPs cannot be modified for a specific source. The PM_{2.5} Generic PSEL will be added to General ACDPs when they are renewed. In the mean time, a source may remain assigned to a General ACDP if the source continues to meet the qualifications of the General ACDP.

1.b. PM_{2.5} fraction

- 1.b.i. The “PM_{2.5} fraction” means the fraction of PM₁₀ that is PM_{2.5} for each emissions unit¹ that is included in the netting basis and PSEL.
- 1.b.ii. The PM_{2.5} fraction may be different for each emissions unit at a source and should be obtained from source test data, AP-42, or other trade association information.
- 1.b.iii. Letting “f” represent the PM_{2.5} fraction, then in general:

$$(\text{PM}_{2.5} \text{ emission rate}) = f * (\text{PM}_{10} \text{ emission rate}).$$

¹ Emissions unit for Title V sources or emissions point for ACDP sources



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- 1.b.iv. The above calculation must be done for each emissions unit at a facility that emits PM_{2.5} for the PSEL described in these instructions.
- 1.c. PM_{2.5} and PM₁₀ Significant Emission Rates (SER)
 - 1.c.i. The PM_{2.5} SER is 10 tons per year (tpy).
 - 1.c.ii. The PM₁₀ SER is 15 tpy.
- 1.d. PM_{2.5} and PM₁₀ Generic PSELs
 - 1.d.i. The PM_{2.5} Generic PSEL is 9 tpy.
 - 1.d.ii. The PM₁₀ Generic PSEL is 14 tpy.
- 1.e. PM_{2.5} and PM₁₀ de minimis is 1 tpy.
2. **General concepts applicable to the PM_{2.5} PSEL and netting basis**
 - 2.a. The PM_{2.5} PSEL is calculated from the PM₁₀ PSEL in effect on May 1, 2011.
 - 2.b. The initial PM_{2.5} netting basis is calculated from the PM₁₀ PSEL and netting basis in effect on May 1, 2011. After the initial PM_{2.5} netting basis has been established, it is subject to the same rules that affect the netting basis for other pollutants, such as unassigned emission reductions or increases approved through the major New Source Review program and will be adjusted accordingly.
 - 2.c. The rules allow for a one-time 5 ton true-up (see the Internal Management Directive IMD AQ-00-0015 “PM_{2.5} True-Up” at <http://www.deq.state.or.us/aq/permit/tv/ed600.htm>). The purpose of the true-up is to establish a PM_{2.5} netting basis for sources requiring a netting basis adjustment of up to 5 tons to avoid exceedance of the PM_{2.5} SER while their PM₁₀ PSEL is within an SER of their PM₁₀ netting basis. The possibility for this situation exists because the PM_{2.5} SER is 5 tpy less than the PM₁₀ SER. To avoid creating a retroactive violation from a compliant source, the rules allow DEQ to add up to 5 tpy to the initial PM_{2.5} netting basis. Note that this adjustment does not apply if the PM₁₀ PSEL is a SER or more over the PM₁₀ netting basis; in this case the source is not disadvantaged if the PM_{2.5} PSEL is also a SER or more over the PM_{2.5} netting basis (see 4.e).
 - 2.d. In the event that the PM₁₀ PSEL and/or netting basis and/or unassigned emissions in effect on May 1, 2011 is/are found to be incorrect, the corrections should be made first to establish the correct PM₁₀ PSEL and/or netting basis and/or unassigned emissions that should have been in effect on May 1, 2011. If the correction requires additional analysis for PM₁₀ (e.g., an air quality analysis in accordance with the PSEL rules), the PM_{2.5} PSEL should also be reviewed for any similar type analysis.
3. **PM_{2.5} PSEL**



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- 3.a. Calculate the PM_{2.5} emissions for each emissions unit at the source from the PM₁₀ emissions² for each emissions unit as:

$$(\text{PM}_{2.5} \text{ emission rate}) = f * (\text{PM}_{10} \text{ emission rate})$$

- 3.b. Calculate the facility-wide PM_{2.5} emissions by summing the PM_{2.5} emissions for all emissions units.
- 3.c. If the PM₁₀ PSEL includes 1 ton for aggregate insignificant activities³, add 1 ton to the PM_{2.5} PSEL for the aggregate insignificant activities.
- 3.d. If the PM_{2.5} PSEL <10, the source may have a Generic PSEL of 9 tpy.

Example 1, Single emissions unit

Emissions unit	PM ₁₀ tpy	f	PM _{2.5} tpy
EU1	13	0.6	8

Example 2, Multiple emissions units

Emissions unit	PM ₁₀ tpy	f	PM _{2.5} tpy
EU1	13	0.9	11.7
EU2	24	0.4	9.6
EU3	55	0.7	38.5
AI	1		1
Total	93		61

4. **PM_{2.5}Netting Basis**

- 4.a. Calculate the PM_{2.5} netting basis using the ratio (R) of the PM_{2.5} PSEL to the PM₁₀ PSEL. If the PSELs are the Generic PSEL, use the portion of the PSEL attributable to actual emission units at the source.

$$R = \text{PM}_{2.5} \text{ PSEL} / \text{PM}_{10} \text{ PSEL}$$

Example 3, R for Generic PSEL

Emissions unit	PM ₁₀ tpy	f	PM _{2.5} tpy
EU1	4	0.9	3.6
EU2	3	0.4	1.2
EU3	2	0.7	1.4
Total	9		6.2
Generic PSEL	14		
R	6.2/9 = 0.69		

² PM₁₀ emissions for each emissions unit mean the portion of the PM₁₀ PSEL for each emissions unit.

³ Aggregate insignificant activities are identified in many, but not all, permits.



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4.b. The PM_{2.5} netting basis equals R times the PM₁₀ netting basis:

$$\text{PM}_{2.5} \text{ netting basis} = R * \text{PM}_{10} \text{ netting basis}$$

4.c. If the PM₁₀ netting basis is zero, the PM_{2.5} netting basis will be zero.

Example 4, PM_{2.5} netting basis:

PM ₁₀ PSEL	=	93	
PM _{2.5} PSEL	=	61	
R	=	61/93	
	=	0.656	
PM ₁₀ netting basis	=	80	
PM _{2.5} netting basis	=	R * 80	
	=	0.656 * 80	
	=	52.48 (rounded to 52) Evaluate PM_{2.5} netting basis ("true-up"):	

4.d. If PM_{2.5} PSEL ≤ (PM_{2.5} netting basis + 9):

no adjustment to PM_{2.5} netting basis

Example 5, no true-up needed because PM_{2.5} PSEL ≤ PM_{2.5} netting basis + 9:

PM ₁₀ PSEL	=	93	
PM _{2.5} PSEL	=	93	
R	=	93/93	
	=	1.0	
PM ₁₀ netting basis	=	88	
PM _{2.5} netting basis	=	R * 88	
	=	1.0 * 88	
	=	88	
PM _{2.5} PSEL = 93 ≤ PM _{2.5} netting basis + 9 = 88 + 9 = 97			

4.e. If PM_{2.5} PSEL ≥ PM_{2.5} netting basis + 10; and PM₁₀ PSEL ≥ (PM₁₀ netting basis + 15):

no adjustment to PM_{2.5} netting basis

Example 6, no true-up needed because PM_{2.5} and PM₁₀ PSELs are both greater than respective SERs over the netting bases:

PM ₁₀ PSEL	=	100
PM _{2.5} PSEL	=	90
R	=	90/100



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$$\begin{aligned}
 &= 0.9 \\
 \text{PM}_{10} \text{ netting basis} &= 80 \\
 \text{PM}_{2.5} \text{ netting basis} &= R * 80 \\
 &= 0.9 * 80 \\
 &= 72
 \end{aligned}$$

PM_{2.5} PSEL – PM_{2.5} netting basis = 90 - 72 = 18 (>SER); and PM₁₀ PSEL – PM₁₀ netting basis = 100 - 80 = 20 (> SER)

4.f. If PM_{2.5} PSEL ≥ PM_{2.5} netting basis + 10; and PM₁₀ PSEL > (PM₁₀ netting basis + 9) and ≤ (PM₁₀ netting basis + 14):

4.f.i. Adjust the PM_{2.5} netting basis using the “true-up” provisions in IMD AQ-00-0015:

$$\begin{aligned}
 \text{PM}_{2.5} \text{ netting basis} &= \text{PM}_{2.5} \text{ PSEL} - (\text{PM}_{2.5} \text{ SER} - 1) \\
 &= \text{PM}_{2.5} \text{ PSEL} - 9
 \end{aligned}$$

Example 7, true-up needed for source specific PSEL:

$$\begin{aligned}
 \text{PM}_{10} \text{ PSEL} &= 100 \\
 \text{PM}_{2.5} \text{ PSEL} &= 100 \\
 R &= 100/100 \\
 &= 1.0 \\
 \text{PM}_{10} \text{ netting basis} &= 89 \\
 \text{PM}_{2.5} \text{ netting basis} &= R * 89 \\
 &= 1.0 * 89 \\
 &= 89
 \end{aligned}$$

PM₁₀ PSEL – PM₁₀ netting basis = 100 – 89 = 11 (<SER)

PM_{2.5} PSEL – PM_{2.5} netting basis = 100 - 89 = 11 (>SER);

PM_{2.5} netting basis with true-up = PM_{2.5} PSEL – (PM_{2.5} SER – 1) = 100 - 9 = 91

Example 8, true-up needed for generic PSEL:

$$\begin{aligned}
 \text{PM}_{10} \text{ PSEL} &= 14 \\
 \text{PM}_{2.5} \text{ PSEL} &= 14 \\
 R &= 14/14 \\
 &= 1.0 \\
 \text{PM}_{10} \text{ netting basis} &= 0 \\
 \text{PM}_{2.5} \text{ netting basis} &= R * 0 \\
 &= 1.0 * 0 \\
 &= 0
 \end{aligned}$$

PM_{2.5} PSEL – PM_{2.5} netting basis = 14 - 0 = 14 (>SER)

PM_{2.5} netting basis with true-up = PM_{2.5} PSEL – (PM_{2.5} SER – 1) = 14 - 9 = 5

(Sources on Simple ACDP will have to get a Standard ACDP)



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Or,

4.f.ii. Set PM_{2.5} PSEL at PM_{2.5} netting basis + 9

**(Source can maintain Simple ACDP, but PSEL may restrict operations.
 No PM_{2.5} netting basis on a Simple ACDP.)**

5. Unassigned Emissions

- 5.a. If the PM₁₀ netting basis includes “unassigned emissions,” the PM_{2.5} netting basis will also include unassigned emissions.
- 5.b. PM_{2.5} unassigned emissions equal the PM₁₀ unassigned emissions * R.

Example 9, unassigned emissions:

PM ₁₀ PSEL	=	125
PM _{2.5} PSEL	=	120
R	=	120/125
	=	0.96
PM ₁₀ netting basis	=	175
PM _{2.5} netting basis	=	R * 175
	=	0.96 * 175
	=	168
PM ₁₀ unassigned emissions	=	50
PM _{2.5} unassigned emissions	=	R * PM ₁₀ unassigned
	=	0.96 * 50 = 48

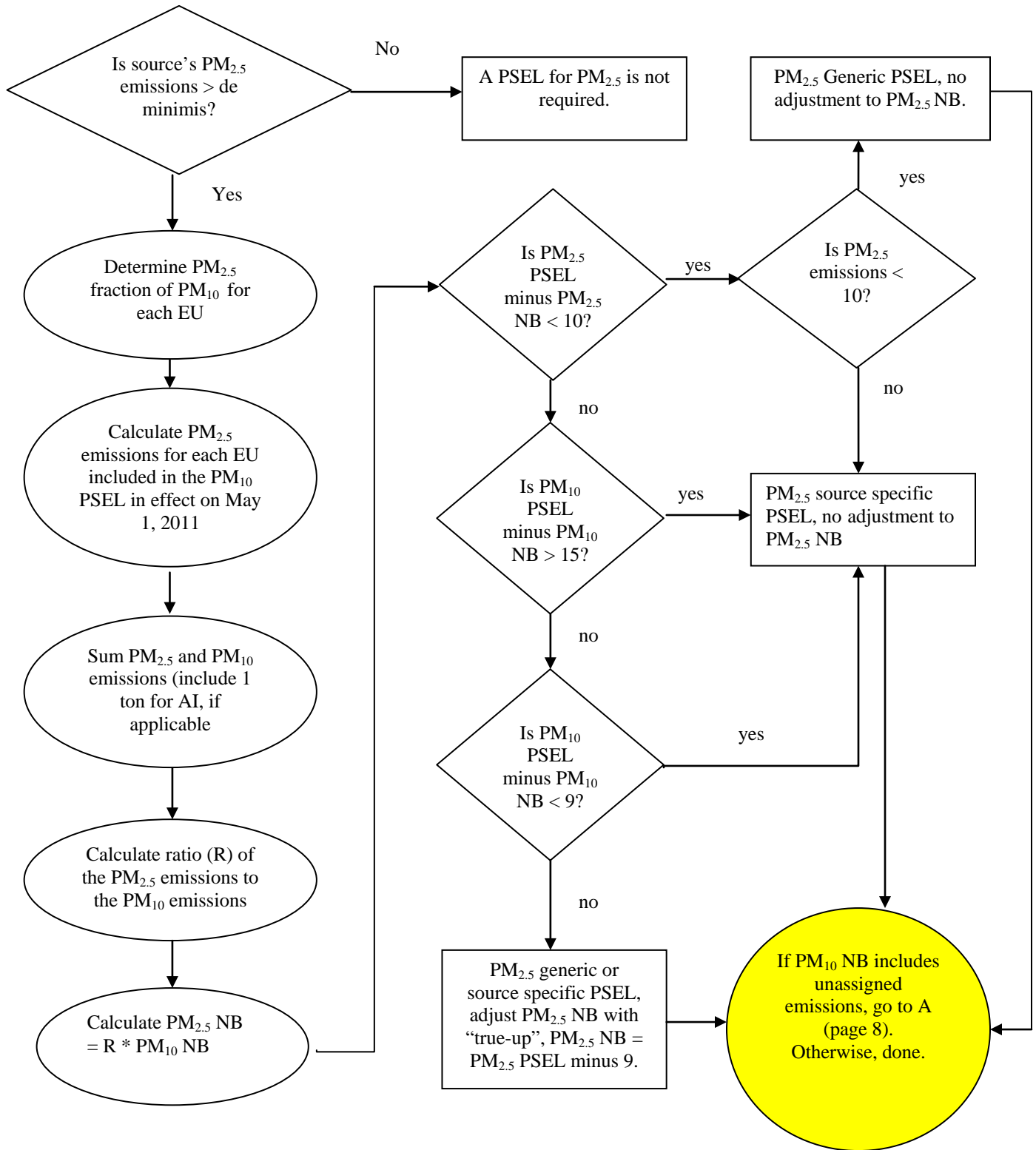
6. Documentation

- 6.a. Include references for the PM_{2.5} fractions of the PM₁₀ in the permit review report.
- 6.b. Include the calculations of the PM_{2.5} PSEL, netting basis, and unassigned emissions (if applicable) in the permit review report.
- 6.c. There is no previous netting basis or PSEL for PM_{2.5}, so there is no increase in either of these for the initial determination.

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7. PM_{2.5} PSEL and Netting Basis Flowchart



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Flowchart begins on page 7.

