Grain Elevators and Seed Cleaners:

Emission Source	Type of Control	PM[2] (lb/ton)[1]	PM_{10} (lb/ton)[1]	$PM_{2.5}$ (lb/ton)[1]
Grain receiving: straight truck	none	0.18	0.059	0.010
hopper truck	none	0.035	0.0078	0.0013
railcar	none	0.032	0.0078	0.0013
continuous barge unloader	none	0.029	0.0073	0.0019
barge – marine leg	none	0.15	0.038	0.0050
ship	none	0.15	0.038	0.0050
Grain cleaning:	none	0.5[4]	0.125[3]	0.0083[5]
	cyclone	0.075	0.019	0.0032
Grain drying: column dryer	none	0.22	0.055	0.0094
rack dryer	none	3.0	0.75	0.13
	self-cleaning screens (<50 mesh)	0.47	0.12	0.020
Headhouse/internal handling	none	0.061	0.034	0.0058
Grain shipping: truck	none	0.086	0.029	0.0049
railcar	none	0.027	0.0022	0.00037
barge	none	0.016	0.0040	0.00055
ship	none	0.048	0.012	0.0022
Screen bunker unloading	none	0.5[6]	0.125[6]	0.0083[5]

Animal Feed Mills:

Emission Source	Type of Control	PM[2] (lb/ton)[1]	PM_{10} (lb/ton)[1]	$PM_{2.5}$ (lb/ton)[1]
Grain receiving	none	0.017	0.0025	0.00017[5]
Grain cleaning	none	0.5[4]	0.125[3]	0.0083[5]
	cyclone	0.075	0.019	0.0032
Grain shipping: Hammermill	cyclone	0.067	0.033[7]	0.012[5]
	baghouse	0.012	0.012[8]	0.0072[5]
Flaker	none	1.0[4]	0.5[7]	0.189[5]
	cyclone	0.15	0.075[7]	0.045[5]
Grain cracker	none	0.16[4]	0.08[7]	0.0053[5]
	cyclone	0.024	0.012[7]	0.0019[7]
Pelletizing - pellet cooler	none	2.8[4]	1.4[7]	0.14[5]
	cyclone	0.419[9]	0.21[7]	0.045[5]
	high efficiency cyclone[10]	0.15	0.075[7]	0.016[5]
Feed shipping (bulk feed)	none	0.0033	0.0008	0.00005[5]

(1) Factors are in units of pound per ton (lb/ton) of grain/seed handled or processed.
(2) Unless otherwise noted, emission factors for particulate from grain elevators and seed cleaning operations are from AP-42 (3/03), Table 9.9.1-1, Grain Elevators.
(3) PM_{10} test data are not available. PM_{10} emission factor was estimated by taking 25 percent of the filterable PM emission factor. AP-42 (3/03) Table 9.9.1-1, Grain Elevators.
(4) Emission factor calculated by using the given control efficiency for a cyclone (85%) and back calculating.
(5) EPA PM calculator applying percentage of $PM_{2.5}$ to PM_{10} emission factor
(6) Emission factor for grain cleaning is used for total particulate and PM_{10} emission factors for screenings bunker unloading. DEQ estimate.
(7) PM-10 test data are not available. PM-10 emission factor was estimated by taking 50 percent of the filterable PM emission factor. AP-42 (3/03) Table 9.9.1-2, Animal Feed Mills
(8) PM-10 test data are not available. PM-10 emission factor was estimated by taking 100 percent of the filterable PM emission factor. AP-AP-42 (3/03) Table 9.9.1-2, Animal Feed Mills
(9) Includes condensable PM from AP-42 (3/03) Table 9.9.1-2, Animal Feed Mills
(10) Equivalent to a triple cyclone or modern high efficiency cyclone.