

Coal-fired Power Boiler Emission Guidelines 2005 - Tables

Table 1. Comparison of Current Guidelines for New Coal-fired Power Plants (Calculated on Heat Output Basis)

| Jurisdiction | Emission Limits (ng/J) | | | Opacity % | Mercury % Capture unless otherwise indicated |
|------------------------------|-------------------------|--------------------------|-------------------|-----------|---|
| | Nitrogen Oxides | Sulphur Dioxide | Total Particulate | | |
| BC 2003 | 368 | 530 to 854 ¹ | 29 | 20 | - |
| BC 2005 | 192 | 222.2 | 26.5 | 20 | 75% to 85% ² |
| Canada | 192 | 147 to 1178 ³ | 26.5 | 20 | 75% to 85% ² |
| Alberta ⁴ 2005 | 192 | 222.2 | 26.5 | - | 75% to 85% ² |
| Saskatchewan ⁵ | 192 | 147 to 1178 ³ | 26.5 | 20 | 85% |
| Ontario ⁶ | - | - | - | - | 75% to 85% ² |
| US EPA | 618 to 766 ⁷ | 253 to 1531 ³ | 38.3 | | W = 0.00018 B = 0.0026 SB: wFGD = .0053 dFGD = 0.0098 L = 0.0183 (ng/J) ⁸ |
| Washington ⁹ est. | 380 | 215 | 17.7 | 20 | n/a |

| | | | | | |
|---------------------------|-----|------|------|---|-------------|
| Montana ⁹ est. | 112 | 138 | 30.3 | - | 0.0074 ng/J |
| Oregon ⁹ est. | 613 | 1474 | 51.1 | - | |

1. Varies with amount of waste coal used. The 854 ng/J limit applies if waste coal is > 75%.
2. Canada, the provinces and territories have adopted the June 2005 Canada-wide Standard for mercury which specifies 75% capture of mercury in sub-bituminous and lignite coals and 85% capture in bituminous and blended coals.
3. Limit depends on sulphur content in coal. For most B.C. coals the limit would be 147 to 736 ng/J.
4. Emission guidelines for new plants or major upgrades announced March 2004 and effective 2006. Note: no guideline for opacity.
5. By policy, Saskatchewan has decided to follow the federal (Canada) guidelines for new plants.
6. Ontario controls coal-fired power plant emissions through permits and an emission trading system with caps on nitrogen oxides and sulphur dioxide. Permit limits are based on ambient air limits and therefore are not comparable to the jurisdictions in this table. Ontario originally indicated that all coal-fired power plants will be phased out by 2007; this has been amended to 2009.
7. Limit depends on type of coal: 618 ng/J for bituminous, 766 ng/J for all other coals. Note: NOx limit does not apply if waste coal is greater than 25% of the fuel.
8. Limit depends on type of coal being burned; W = waste coal, B = bituminous, SB = sub-bituminous, wFGD = wet flue gas desulphurization, dFGD = dry flue gas desulphurization, L = lignite.
9. US EPA New Source Pollution Standards (NSPS) limits apply as a minimum, however before any major facility can be constructed the operator must obtain a site-specific New Sources Review (NSR) permit which will often impose more restrictive standards. In this table: Washington limits from the Centralia facility built in 1971 (no new coal-fired plants proposed). Montana limits from the 116 MW Rocky Mountain Power facility started in 2004. Oregon limits from the Boardman facility built in 1979 (no new coal-fired power plants proposed).

Table 2. Comparison of Current Guidelines for New Coal-fired Power Plants (Calculated on Heat Input Basis).

| Jurisdiction | Emission Limits (ng/J) | | | Opacity % | Mercury % Capture unless otherwise indicated |
|--------------|------------------------|-----------------|-------------------|-----------|--|
| | Nitrogen Oxides | Sulphur Dioxide | Total Particulate | | |
| | | | | | |

| | | | | | |
|------------------------------|-------------------------|-------------------------|------|-----|---|
| BC 2003 | 125 | 180 to 290 ¹ | 10 | 20 | - |
| BC 2005 | 65 | 75 | 9 | 20 | 75% to 85% ² |
| Canada | 65 | 50 to 400 ³ | 9 | 20 | 75% to 85% ² |
| Alberta ⁴ 2005 | 65 | 75 | 9 | - | 75% to 85% ² |
| Saskatchewan ⁵ | 65 | 50 to 400 ³ | 9 | 20 | 85% |
| Ontario ⁶ | - | - | - | - | 75% to 85% ² |
| US EPA | 210 to 260 ⁷ | 86 to 520 ³ | 13 | | W = 0.00006 B = 0.0008 SB: wFGD = .00018 dFGD = 0.0033 L = 0.006 (ng/J) ⁸ |
| Washington ⁹ est. | 129 | 73 | 6 | 20 | n/a |
| Montana ⁹ est. | 38 | 47 | 10.3 | - | 0.0025 ng/J |
| Oregon ⁹ est. | 208 | 500 | 17.4 | n/a | n/a |

1. Varies with amount of waste coal used. The 290 ng/J limit applies if waste coal is >75%.
2. Canada, the provinces and territories have adopted the June 2005 Canada-wide Standard for mercury which specifies 75% capture of mercury in sub-bituminous and lignite coals and 85% capture in bituminous and blended coals.
3. Limit depends on sulphur content in coal. For most B.C. coals the limit would be 50 to 250 ng/J.
4. Emission guidelines for new plants or major upgrades announced March 2004 and effective 2006. Note: no guideline for opacity.

5. By policy, Saskatchewan has decided to follow the federal (Canada) guidelines for new plants.
6. Ontario controls coal-fired power plant emissions through permits and an emission trading system with caps on nitrogen oxides and sulphur dioxide. Permit limits are based on ambient air limits and therefore are not comparable to the jurisdictions in this table. Ontario originally indicated that all coal-fired power plants will be phased out by 2007; this has been amended to 2009.
7. Limit depends on type of coal: 210 ng/J for bituminous, 260 ng/J for all other coals. Note: NO_x limit does not apply if waste coal is greater than 25% of the fuel.
8. Limit depends on type of coal being burned; W = waste coal, B = bituminous, SB = sub-bituminous, wFGD = wet flue gas desulphurization, dFGD = dry flue gas desulphurization, L = lignite.
9. US EPA New Source Pollution Standards (NSPS) limits apply as a minimum, however before any major facility can be constructed the operator must obtain a site-specific New Sources Review (NSR) permit which will often impose more restrictive standards. In this table: Washington limits from the Centralia facility built in 1971 (no new coal-fired plants proposed). Montana limits from the 116 MW Rocky Mountain Power facility started in 2004. Oregon limits from the Boardman facility built in 1979 (no new coal-fired power plants proposed).