

T04 - TURBINE, DISTILLATE FIRED, ALL SIZES WITH WATER INJECTION

CALCULATION METHODS

Ea = Ua x EF (lbs/1000 gallons)

Eh = Uh (gal/hr) x (1/1000) x EF (lbs/1000 gallons)

NOTES:

- Emission factors are based on a diesel BTU content of 139,000 BTU/gallon and density of 7.1 lbs/gal per AP-42.
- Control efficiencies must be included in emission factors since the calculation procedures will not refer to this data.
- Trace metal emission factors are based on mass balance procedures instead of AP-42, Table 3.1-5.
- A USEPA memo (8/21/01) titled "Hazardous Air Pollutant (HAP) Emission Control Technology for New Stationary Combustion Turbines"

lists emission factors for Acetaldehyde, Benzene, Cadmium, Chromium, Formaldehyde, Lead, Manganese, Mercury, and Lead that are not significantly different from AP-42.

Pollutant	District Emission Factor (lbs/1000 gal fuel input)	EPA Reference Document	EPA Factor	Units	Comments
NOx	33.36	AP-42, Sect 3.1, 4/00, Table 3.1-1	2.40E-01	lbs/MMBTU	
CO	10.56	AP-42, Sect 3.1, 4/00, Table 3.1-1	7.60E-02	lbs/MMBTU	
SOx	7.10	AP-42, Sect 3.1, 4/00, Table 3.1-2a	0.000505	lbs/MMBTU	Assume a sulfur content of 0.05% and a fuel density of 7.1 lbs/gal
TOG	0.56	AP-42, Sect 3.1, 4/00, Table 3.1-2a	4.00E-03	lbs/MMBTU	
ROG	0.06	AP-42, Sect 3.1, 4/00, Table 3.1-2a	4.10E-04	lbs/MMBTU	
TSP	1.67	AP-42, Sect 3.1, 4/00, Table 3.1-2a	1.20E-02	lbs/MMBTU	
PM10	1.60	AP-42, Sect 3.1, 4/00, Table 3.1-2a	0.0115	lbs/MMBTU	
Arsenic	0.0078			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Benzene	0.0076	AP-42, Sect 3.1, 4/00, Table 3.1-4	5.50E-05	lbs/MMBTU	
1,3-Butadiene	0.0022	AP-42, Sect 3.1, 4/00, Table 3.1-4	1.60E-05	lbs/MMBTU	
Cadmium	0.0012			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Chromium Hexavalent	0.0002			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Chromium Non-Hexavalent	0.0032			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Copper	0.0036			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Diesel Particulate					
Formaldehyde	0.0389	AP-42, Sect 3.1, 4/00, Table 3.1-4	2.80E-04	lbs/MMBTU	
Lead	0.0048			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Manganese	0.0014			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Mercury	0.0023			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Naphthalene	0.0049	AP-42, Sect 3.1, 4/00, Table 3.1-4	3.50E-05	lbs/MMBTU	
Nickel	0.0023			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
PAH's Unspecified	0.0056	AP-42, Sect 3.1, 4/00, Table 3.1-4	4.00E-05	lbs/MMBTU	
Selenium	0.0098			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)
Zinc	0.0143			lbs/MMBTU	Based on average of fuel analyses submitted to SD County (AB2588 90-91)