E12 - ENGINE, NATURAL GAS FIRED, 2 CYCLE LEAN BURN, UNCONTROLLED

CALCULATION METHODS

Ea = Ua x EF (lbs/mmft3)

Eh = Uh (scfm) x (60/1000000) x EF (lbs/mmft3)

NOTES:

- The trace organic factors listed below are based on detected AB 2588 compounds listed in AP-42 Table 3.2-1 (7/00).

- The AP-42 (7/00) emission factors have been converted into lbs/mmscf by assuming a natural gas BTU content of 1020 BTU/scf.

- PM10 and TSP emission factors include filterable and condensable PM in accordance with the District's definition of particulate matter.

- The listed AP-42 emission factors for 1,1,2-trichloroethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, 1,3-dichloropropene, carbon tetrachloride, chloroform, ethylene dibromide, styrene, and vinyl chloride are NOT included since these values are based on nondetectable test results.

- The listed AP-42 emission factors for 1,1,2,2-tetrachloroethane, 1,2,4-trimethylbenzene, 2,2,4-trimethylpentane, 2-methylnaphthalene, acenaphthalene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, biphenyl, chlorobenzene, chrysene, cyclohexane, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, perylene, phenanthrene, and pyrene are NOT included since these values were based on insignificant and/or nondetectable test results.

- Trace metal emission factors were not reported in AP-42 and are NOT included since natural gas fired engines are not expected to emit metals.

- The AP-42 emission factors for 1,2,3-trimethylbenzene, 1,3,5-trimethylpentane, butane, butyr/isobutyraldehyde, cyclopentane, ethane, isobutane, methylcyclohexane, n-nonane, n-octane, n-pentane, and propane are not included since these are not listed toxic air contaminants.

- The AP-42 acrolein emission factor is NOT included since this value is based on test data and detection limits from incorrect sampling methods. A District factor based on local test results and adjusted for equipment VOC controls is considered more accurate than the AP-42 value.

Pollutant	District Emission Factor (lbs/million ft3 fuel burned)	EPA Reference Document	EPA Factor	Units	Comments
NOx	3233.40	AP-42, Sect 3.2, 7/00, Table 3.2-1	3.17E+00	lb/mmbtu	
CO	393.72	AP-42, Sect 3.2, 7/00, Table 3.2-1	3.86E-01	lb/mmbtu	
SOx	0.60	AP-42, Sect 3.2, 7/00, Table 3.2-1	5.88E-04	lb/mmbtu	Assume a sulfur content of 0.05% and a fuel density of 7 lbs/gal
TOG	1672.80	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.64E+00	lb/mmbtu	
ROG	122.40	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.20E-01	lb/mmbtu	
TSP	49.28	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.83E-02	lb/mmbtu	TSP includes filterable (3.84 E-02) and condensable (9.91 E-03) PM.
PM10	49.28	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.83E-02	lb/mmbtu	PM10 includes filterable (3.84 E-02) and condensable (9.91 E-03) PM.
1,3-Butadiene	0.84	AP-42, Sect 3.2, 7/00, Table 3.2-1	8.20E-04	lb/mmbtu	
Acetaldehyde	7.92	AP-42, Sect 3.2, 7/00, Table 3.2-1	7.76E-03	lb/mmbtu	
Acrolein	0.10	AP-42, Sect 3.2, 7/00, Table 3.2-1	7.78E-03	lb/mmbtu	Emission factor is based on San Diego APCD test results.
Benzene	1.98	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.94E-03	lb/mmbtu	
Ethylbenzene	0.11	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.08E-04	lb/mmbtu	

Formaldehyde	56.30	AP-42, Sect 3.2, 7/00, Table 3.2-1	5.52E-02	lb/mmbtu	
Hexane	0.45	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.45E-04	lb/mmbtu	
Methanol	2.53	AP-42, Sect 3.2, 7/00, Table 3.2-1	2.48E-03	lb/mmbtu	
Methylene Chloride	0.15	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.47E-04	lb/mmbtu	
Naphthalene	0.10	AP-42, Sect 3.2, 7/00, Table 3.2-1	9.63E-05	lb/mmbtu	
PAH	0.14	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.34E-04	lb/mmbtu	
Phenol	0.04	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.21E-05	lb/mmbtu	
Toluene	0.98	AP-42, Sect 3.2, 7/00, Table 3.2-1	9.63E-04	lb/mmbtu	
Xylenes	0.27	AP-42, Sect 3.2, 7/00, Table 3.2-1	2.68E-04	lb/mmbtu	

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