

Indeck Energy Significant Permit Amendment
Temporary Permit TP-B-0532
Application #08-0444
AFS #3300900029
Engineer: Doug Laughton
Date: May 21, 2009
Emergency Generator and Fire Pump Calculations

Emergency Fire Pump

Caterpillar Model 3208
 Serial # 90N69417
 176 Hp
 9.5 gal/hr diesel fuel
 1.32 MMBtu/hr
 Startup Date: Prior to 1994 (Part of the old plant shut down)

Emergency Generator

Caterpillar Model D175-2
 Serial # L5A01913
 175 KW at Standby Power Rating
 14.2 gal/hr diesel fuel
 1.95 MMBtu/hr
 Startup Date: September 2008

Emergency Fire Pump emissions factors for TSP, SO₂, CO, and VOC are from USEPA AP-42 5th Edition, (10/96) Update, Chapter 3.3, Gasoline and Diesel Industrial Engines < 600 Hp. Note that the VOC emission factor is assumed to be 91% of the total organic carbon emission factor. The NO_x emission factor is from DES test data for small diesel engines.

Emergency Generator emissions factors for NO_x, CO, and TSP are vendor guarantees that meet 40 CFR 60 Subpart IIII emission limits (Tier 3 Standards in 40 CFR 89.112). SO₂ and VOC emissions factors are from USEPA AP-42 5th Edition, (10/96) Update, Chapter 3.3, Gasoline and Diesel Industrial Engines < 600 Hp.

Emergency Fire Pump Emissions

Pollutant	Emission Factor lb/MMBtu	Max. Firing Rate MMBtu/hr	Emission Rate lb/hr	Max. Permitted	
				Emission Rate 500 hr/yr tons/yr	Potential to Emit 8,760 hr/yr tons/yr
TSP	0.31	1.32	0.41	0.10	1.79
SO ₂	0.29	1.32	0.38	0.10	1.68
NO _x	3.56	1.32	4.70	1.17	20.58
CO	0.95	1.32	1.25	0.31	5.49
VOC	0.35	1.32	0.46	0.12	2.02

Emergency Generator Emissions

Pollutant	Emission Factor lb/MMBtu	Max. Firing Rate MMBtu/hr	Emission Rate lb/hr	Max. Permitted	
				Emission Rate 500 hr/yr tons/yr	Potential to Emit 8,760 hr/yr tons/yr
TSP	NA	NA	0.06	0.02	0.26
SO ₂	0.29	1.95	0.57	0.14	2.48
NO _x	NA	NA	1.39	0.35	6.09
CO	NA	NA	0.37	0.09	1.62
VOC	0.35	1.95	0.68	0.17	2.99

Total Combined Emissions at 500 hours/year for Each Device

Pollutant	Fire Pump tons/yr	Emerg. Generator tons/yr	Total tons/yr
TSP	0.10	0.02	0.12
SO ₂	0.10	0.14	0.24
NO _x	1.17	0.35	1.52
CO	0.31	0.09	0.40
VOC	0.12	0.17	0.29

Note that there are facility wide CO and TSP emission limits of less than 250 tons/yr and a facility wide NO_x emission limit of less than 100 tons/yr already contained in the Temporary Permit. Addition of these two devices will have no significant impact on the facility meeting these facility wide emissions limits.