

Middletown Cogeneration Facility Emission Calculations

Emission Point: P003
Operating Scenario: MWERF4-MSS-1
Description: MWERF Flare - Gas Turbine/HRSG Down

		Maximum	Expected	
Physical Characteristics and Emission Data	Height of Stack above grade =		170.00	ft
	Diameter of stack =		8.00	ft
	Stack Gas Exit Temperature =		125.00	F
	Excess BFG to Flare (Volumetric Rate) =	18.18	7.11	MMscf/hr dry (based on 126 Btu/scf HHV dry)
	Excess BFG to Flare (Heat Rate) =	1600	900	MMBtu/hr HHV dry (average expected is 603 - design rating is 1600)
	BFG Heat Content =	88	126.5	Btu/SCF HHV dry (126 is average; 88 is minimum)
	Inputs shaded in Green			
	NOx Average Emission Factor =	23	23	lb-NOx/MMscf EPA FIRE 6.25
	CO Average Emission Factor =	13.7	13.7	lb-CO/MMscf EPA FIRE 6.25
	SOX Average Emission Factor =	0.120	0.120	lb-SO2/MMBtu HHV dry (Assumes 85 ppmvd S avg and max)
	PM Filterable Average Emission Factor =	2.9	2.9	lb-PM/MMscf EPA FIRE 6.25
	PM Total Average Emission Factor =	8.6	8.6	lb-PM/MMscf EPA FIRE 6.25 (Filterable & Condensable)
	VOC in BFG =	5	5	ppmvd
	Destruction Rate Efficiency (DRE) of flare =	0%	0%	Assume no destruction efficiency since VOC is low
	Hours of use in a year =	500	500	GT down 4.1% each year (JTK)
	CO2 Emission Factor =	274.32	274.32	kg/MMBtu GHG Reporting Rule for BFG Combustion
	CH4 Emission Factor =	0.000022	0.000022	kg/MMBtu GHG Reporting Rule for BFG Combustion
	N2O Emission Factor =	0.0001	0.0001	kg/MMBtu GHG Reporting Rule for BFG Combustion
	CO2 Global Warming Potential =	1	1	GHG Reporting Rule
	CH4 Global Warming Potential =	21	21	GHG Reporting Rule
N2O Global Warming Potential =	310	310	GHG Reporting Rule	