Enclosure 1

RTO Emission Factor Explanation

EF Explanation

Durr RTOs

The emission factors for NOx and CO for the RTOs are determined using the standard methodology in the permit for calculating emission factors. The emission factors for NOx and CO are based on operational and testing data using the hourly maximum emission rates from the past two years of FTIR testing conducted during permit required compliance sampling and average natural gas consumption rate from the past two years, as reported to NMED in quarterly emissions reports. This approach is similar to the approach outlined in the permit to update the emission factors for the 1250 HP Boilers and will take into account any variability in the systems that may occur. The emission factor will be calculated as follows:

$$\frac{\text{Maximum 2 Year Testing Data (lb/hr)}}{\text{2 Year Average Operational Firing Rate data (MMBtu/hr)}} = \text{Emission Factor (lb/MMBtu)}$$

Below are the summary operational and testing data used to calculate the updated emission factors.

Munters RTOs

Intel is requesting that AP-42 emission factors for NOx and CO be used for the Munters RTO until the units have been tested and site specific emission factors can be developed. Intel is requesting the use of AP-42 emissions factors that are located in AP 42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, Table 1.4- (http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf). Emission factors will be as follows:

Pollutant	Emission Factor ($lb/10^6$ scf)
NOx	100
CO	84

Operational and Testing Data for Durr Thermal Oxidizers

	2006 Average Firing Rate (MMBtu/hr)	**2007 Average Firing Rate (MMBtu/hr)**	**2 Year Average Firing Rate (MMBtu/hr)**	**2 Year Maximum NOx Emissions (lb/hr)**	**2 Year Maximum CO Emissions (lb/hr)**	**NOx Emission Factor (lb/MMBtu)**	**CO Emission Factor (lb/MMBtu)**
2.5 MMBtu/hr Thermal Oxidizer (F11x Fab and F11x Bridge)	1.60	1.59	1.60	0.731	0.124	0.46	0.08

Enclosure 1: RTO Emission Factor Explanation

Thermal Oxidizer	Quarter	Date Tested	NOx (lb/hr)	CO (lb/hr)
Fab 11X-B	2006 Q1	2/16/2006	0.381	ND
Fab 11X-B	2006 Q1	2/23/2006	0.407	ND
Fab 11X-B	2006 Q1	3/1/2006	0.354	0.042
Fab 11X-B	2006 Q2	5/5/2006	0.259	ND
Fab 11X-B	2006 Q2	5/11/2006	0.262	0.01
Fab 11X-B	2006 Q2	5/17/2006	0.275	0.011
Fab 11X-B	2006 Q3	7/26/2006	0.399	0.029
Fab 11X-B	2006 Q3	8/2/2006	0.32	0.043
Fab 11X-B	2006 Q3	8/8/2006	0.203	0.025
Fab 11X-B	2006 Q4	11/29/2006	ND	ND
Fab 11X-B	2006 Q4	12/5/2006	ND	ND
Fab 11X-B	2006 Q4	12/11/2006	ND	ND
Fab 11X-F	2006 Q1	1/31/2006	0.494	0.071
Fab 11X-F	2006 Q1	2/7/2006	0.541	0.07
Fab 11X-F	2006 Q1	2/13/2006	0.277	ND
Fab 11X-F	2006 Q2	5/22/2006	0.306	0.018
Fab 11X-F	2006 Q2	5/30/2006	0.361	0.018
Fab 11X-F	2006 Q2	6/4/2006	0.284	0.019
Fab 11X-F	2006 Q3	8/14/2006	0.237	0.021
Fab 11X-F	2006 Q3	8/22/2006	0.247	0.033
Fab 11X-F	2006 Q3	8/28/2006	0.327	0.034
Fab 11X-F	2006 Q4	11/2/2006	ND	ND
Fab 11X-F	2006 Q4	11/10/2006	ND	ND
Fab 11X-F	2006 Q4	11/16/2006	ND	ND
Fab 11X-B	2007 Q1	2/27/2007	0.148	ND
Fab 11X-B	2007 Q1	3/6/2007	PM	PM
Fab 11X-B	2007 Q1	3/12/2007	0.113	ND
Fab 11X-B	2007 Q2	4/24/2007	0.196	ND
Fab 11X-B	2007 Q2	5/1/2007	0.153	ND
Fab 11X-B	2007 Q2	5/7/2007	0.165	ND
Fab 11X-B	2007 Q3	7/31/2007	0.205	0.023
Fab 11X-B	2007 Q3	8/7/2007	0.22	ND
Fab 11X-B	2007 Q3	8/13/2007	0.21	0.011
Fab 11X-B	2007 Q4	11/2/2007	0.298	0.009
Fab 11X-B	2007 Q4	11/9/2007	0.322	0.011
Fab 11X-B	2007 Q4	11/16/2007	0.341	ND
Fab 11X-F	2007 Q1	3/15/2007	0.497	0.124
Fab 11X-F	2007 Q1	3/22/2007	0.419	ND
Fab 11X-F	2007 Q1	3/28/2007	0.533	ND
Fab 11X-F	2007 Q2	5/22/2007	0.32	ND
Fab 11X-F	2007 Q2	5/29/2007	0.28	ND
Fab 11X-F	2007 Q2	6/4/2007	0.249	ND
Fab 11X-F	2007 Q3	7/10/2007	0.291	0.073
Fab 11X-F	2007 Q3	7/17/2007	0.317	0.052
Fab 11X-F	2007 Q3	7/23/2007	0.347	0.049
Fab 11X-F	2007 Q4	10/19/2007	0.619	0.068
Fab 11X-F	2007 Q4	10/26/2007	0.731	0.075
Fab 11X-F	2007 Q4	11/1/2007	0.53	ND

Firing Rate (MMBtu/hr)	Rated Capacity	Jan'06	Feb'06	Mar'06	Apr'06	May'06	Jun'06	Jul'06	Aug'06	Sep'06	Oct'06	Nov'06	Dec'06
11s.8.2 (Fab 11x Bridge)	2.5	1.51	1.49	1.46	1.48	1.57	1.60	1.60	1.58	1.56	1.49	1.50	1.48
10s.8.1a (Fab 11x Fab)	2.5	1.66	1.60	1.57	1.59	1.78	1.82	1.78	1.81	1.66	1.58	1.61	1.64

Firing Rate (MMBtu/hr)	Rated Capacity	Jan'07	Feb'07	Mar'07	Apr'07	May'07	Jun'07	Jul'07	Aug'07	Sep'07	Oct'07	Nov'07	Dec'07
11s.8.2 (Fab 11x Bridge)	2.5	1.43	1.46	1.43	1.46	1.49	1.53	1.56	1.53	1.49	1.50	1.49	1.48
10s.8.1a (Fab 11x Fab)	2.5	1.55	1.50	1.47	1.44	1.45	1.51	1.54	1.49	1.45	1.42	1.39	1.37