Air Flow - Concentrated Mineral Mode	Q, wacfm	Temp, °F
Under fire Air	495	68
Overfire Air	1,515	68
Oxidizer exhaust	11,068	1993

Ultimate Analysis (April 2018 sampling)	
C	42%
S	0.41
H	6.2
Moisture	0%
N	4.60%
Ash	16%

Constants

Parameter	Value	units
Fw, wet exhaust gas factor, dry fuel	10,610	wscf/MMBtu
Fd, dry exhaust gas factor	8710	dscf/MMBtu
heat value of sludge feed	4.0	MMBtuh
solids content of gasifier feed (CM mode)	60%	
gasifier feed rate	773	lb dry solids/hr
FW, water	18	g/mol
FW, air		
density of air at standard condtions	1.204	kg/m^3
molar volume at standard conditions	24.08	l/mol
air pressure at oxidizer exhaust	1	atm
oxygen content of ambient air	20.9%	

Calculations

Parameter	Value	units
Stoichiomtric combustion exhaust, dry fuel	707.33	wscfm
	580.67	dscfm
water content of gasifier feed	515	lb/hr
	216.44	mol/min
evaporated water in oxidizer exhaust	184.05	scfm
oxidizer exhaust air flow, standard conditions	1,910	dscfm
combustion air requirement	2028	kg/hr
	991	scfm
excess combustion air	1019	scfm
O2 in oxidizer exhaust	13%	

from Process Flow Diagram submitted to EPA

ultimate analysis reported as dry weight

	reference
	From Table 19-2, EPA Test Method 19
	From Table 19-2, EPA Test Method 19
	from permit application Technical Supplment 2
	from Technical Supplement 2 PFD parameters table
	from Technical Supplement 2 PFD parameters table

primary motive is FD fan ahead of GC contractor.

https://www.thermodyneboilers.com/calculators/combustion-air-calculations
Based on ultimate fuel analysis and dry solids feed rate

dry basis