PROJECT :			**DATE :**	
PROJ. NO.:			**BY :**	S.Rahimi
CLIENT :			**REV :**	0
UNIT :			**DOC NO.:**	

Stack Height Caclulation based on Heat Rediation Intensity

Gas Specification		
Maximum Flow Rate	kg/hr	260000.0
Tip Inlet Gas Pessure	bara	1.2
Tip Gas Inlet Temperature	C	41.0
Molecular Weight	----	18.9
Specific Heat Ratio	----	1.3
Gas Comperssibility factor (z)	----	1.0
Heat of Combustion	kJ/kg	45388

Environment Condition		
Wind Velocity	m/sec	15.0
Air Relative Humidity	%	30.0
Ambient Transmitivity	----	0.78
Transmitivity to be applied?	----	Yes
Air Temperature	C	55.0
Atmospheric Pressure	bara	1.0

Sizing Criteria		
Radiation Heat Release Fraction (F)	%	13.4
Maximum Allowable Heat Intensity at Grade	kW/m2	2.15
Distance from Stack Base to Flare Boundary	m	120.0
Maximimum Allowable Mach No. at Stack	----	1.00

Calculation Results		
Flare Tip Diameter (Calculated)	**m**	**0.495**
Flare Tip Diameter (Selected)	**m**	**0.495**
Heat Liberated	Watt	3.28E+09
Flame Length	m	105.5
Volumetric Flow Rate	m3/hr	293740.12
Flare Tip Exit Velocity	m/sec	424.66
Wind Velocity / Exit Velocity	----	0.035
$\Sigma\Delta y/L$		0.62
$\Sigma\Delta x/L$		0.38
$\Sigma\Delta y$	m	65.75
$\Sigma\Delta x$	m	40.31
Distance from Flame Center to the Boundary	m	112.96
R'	m	99.85
Elevation from Flame Center to Grade (H')	m	52.83
Flare Stack Height	**m**	**19.96**
Maximum tip exit velocity for Steam assisted	**m/sec**	**121.9**

General Notes

PROJECT :			DATE :	
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Stack Height Caclulation based on Heat Rediation Intensity

Selected Height	32.00	m
Flame Lift off	0.00	m
H'	64.87	m

R	R'	D (m)	K (Kw/m2)	K (Btu/hr/ft2)
0	-20	67.9	5.95	1886
10	-10	65.7	6.37	2018
20	0	64.9	6.52	2068
30	10	65.6	6.38	2021
40	20	67.8	5.96	1891
50	30	71.4	5.38	1707
60	40	76.1	4.74	1501
70	50	81.8	4.10	1300
80	60	88.3	3.52	1117
90	70	95.3	3.02	958
100	80	102.9	2.59	822
120	100	119.1	1.94	614
140	120	136.3	1.48	469
160	140	154.2	1.15	366