Fuel
cells

COMPANY: SOLAR TURBINES
SITE: SAN MARCOS LANDFILL
REPORT #: 89-017

FUEL USAGE CALCULATIONS

UNIT	RUN #	DSCFM	F factor	Btu/cf	%O2	FUEL UASAGE SCF/M
TURBINE #1	#1	10162	9263.15	540.66	17.7	310.67
TURBINE #1	#2	10013	9263.15	540.66	17.5	325.25
TURBINE #1	#3	10197	9263.15	540.66	17.4	340.97
TURBINE #2	#1	10526	9263.15	540.66	17.7	321.80
TURBINE #2	#2	11104	9263.15	540.66	17.63	346.89
TURBINE #2	#3	10423	9263.15	540.66	17.61	327.61

RUN TIMES:	BEGIN	END
TURBINE #1 RUN #1	1230	1301
TURBINE #1 RUN #2	1405	1435
TURBINE #1 RUN #3	1540	1610
TURBINE #2 RUN #1	930	1010
TURBINE #2 RUN #2	1145	1235
TURBINE #2 RUN #3	1325	1415

EQUATION:

SCFM = DSCFM * 1/F factor * (20.9-%O2)/20.9 * 10^6Btu/MMBtu * 1/Btu/cf

DSCFM from "Volume Flow Results"
F factor from fuel analysis
Btu/cf from fuel analysis
%O2 from EPA method #3

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Lab. No.: 019710_001
Received: Jun 29, 1989
Reported: Jun 29, 1989

Attention: Leslie Johnson

Sample Description: Solar Turbines, 6/27/89

* CHROMATOGRAPHIC ANALYSIS (Z 1635) *

Components	Mole %	Wt %
Hydrogen	0.000	0.000
Carbon Dioxide	42.076	65.120
Oxygen	.469	.527
Nitrogen	4.338	4.274
Carbon Monoxide	0.000	0.000
Hydrogen Sulfide	0.000	0.000
Methane	53.071	29.941
Ethane	0.000	0.000
Propane	0.000	0.000
IsoButane	0.000	0.000
N-Butane	0.000	0.000
IsoPentane	0.000	0.000
N-Pentane	0.000	0.000
Hexanes+	.046	.138
Totals =	100.000	100.000

CHONS	Wt %
CARBON	40.29
HYDROGEN	7.54
OXYGEN	47.89
NITROGEN	4.27
SULFUR	0.00
Totals	100.00
Total H/C	.19

SPECIFIC GRAVITY (Air = 1)		.9843
SPECIFIC VOLUME, cu.ft./lb	*	13.31
GROSS CALORIFIC VALUE, BTU/cu.ft.	*	531.47
GROSS CALORIFIC VALUE, BTU/cu.ft.	**	540.66
GROSS CALORIFIC VALUE, BTU/lb	**	7196.77
NET CALORIFIC VALUE, BTU/cu.ft.	**	486.86
NET CALORIFIC VALUE, BTU/lb	**	6480.67
DSCF EXHAUST PER SCF FUEL (0% Oxygen)		5.0361
COMPRESSIBILITY FACTOR 'Z' (60 F,1 ATM)		.9974
EPA 'F' Factor @ 68 F:	9404.213 DSCF / MM Btu.	
KCAPCD 'F' Factor @ 60 F:	9263.150 DSCF / MM Btu.	

* Water Saturated

** Dry Gas @ 60 F, 14.73 psia

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