1641 Sigman Road PO Box 919 Conyers, GA 30012 1-770-922-8000 ext 164 www.biomassenergylab.com



Report of Analysis

McHale & Associates Inc. Company Contact: James Hollibaugh

18378 Redmond Way <u>james.hallibaugh@mchale.org</u>

Redmond WA 98052

BEL 1D Number(s): BEL 123914 Sample Weight (kg): 7.28

Product/Commodity:Woody BiomassSample Received:11/24/2013Sample Designation:Test 3- Start 18:00Report Date:11/27/2013

Packaging:Plastic BagReport ID:BEL123914-Preliminary

Date Sampled: 11/21/2013 Purchase Order # N/A

Compositional Analysis: Proximate/Ultimate Analysis

Parameter	As-Received	Oven Dry	Analytical Method
Total Moisture (%)	37.83		CEN/EN 14774-1
Ash (%)	2.59	4.17	CEN/EN 14775
Volatiles (%)			CEN/EN 15148
Fixed Carbon (%)			By Difference
Gross Calorific Value (GJ/Tonne)	12.01	19.32	CEN/EN 14918
Net Calorific Value (cV)(GJ/Tonne)	10.39	18.12	CEN/EN 14918
Net Calorific Value (cP)(GJ/Tonne)	10.30	18.05	CEN/EN 14918
Carbon (%)	30.84	49.61	CEN/EN 15104
Hydrogen (%)	3.62	5.82	CEN/EN 15104
Nitrogen (%)	0.23	0.38	CEN/EN 15104
Sulfur (%)	0.01	0.01	CEN/EN 15289
Oxygen (%)	24.88	40.02	By Difference

Prepared By:

Results shown on this certificate represent only the quantity of sample which was submitted for analysis. BEL does not assume responsibility for selection, representation, and/or sample identifications. Analyses are carried out within the scope of Principal's instructions and with due care and skill in conformity with BEL Terms and Conditions of Business. Claims in respect of services provided will be considered only if based upon failure to take due care proven by the Principal. Liability shall in no circumstances whatsoever exceed a total aggregate sum equal to 10 (ten) times the amount of the fee paid for the service.

Chis Wiberg