



Reference number:	<b>1920-1512</b>
Sample submitted	01/11/2019
Contact Person:	Willem Swanepoel
Report date:	2019/12/12
Report status:	FINAL

**TEST REPORT / CERTIFICATE OF ANALYSIS**

Sample Identification	% Inherent moisture content	% Ash content	% Ash content	% Volatile Matter	% Volatile Matter	% Fixed carbon (by calculation)	% Total sulphur	Gross Calorific Value (MJ/kg)	% Carbon Content	% Hydrogen Content	% Nitrogen Content	% Oxygen Content (calculation)	True Relative Density	
	(air-dried)	(air-dried)	(dry basis)	(air-dried)	(dry basis)	(air-dried)	(dry basis)	(air-dried)	(air-dried)	(air-dried)	(air-dried)	(air-dried)		
CS-1 PBH-21 24.29-25.8 COALY SHALE DELTA STATE	14.2	59.1	68.9	20.7	24.1	6.0	5.9	3.51	9.58	1.7	0.20	9.28	1.41	
CS-2 PBH-21 26.5-27.4 COALY SHALE DELTA STATE	18.0	32.6	39.7	31.8	38.7	17.6	5.9	10.56	27.05	2.8	0.49	13.25		
CS-3 PBH-21 28.5-29.3 COALY SHALE DELTA STATE	15.8	48.5	57.5	23.0	27.3	12.7	1.5	8.51	21.85	2.3	0.42	9.68		
CS-4 KOGI PIT - COAL DELTA STATE	15.9	16.4	19.4	31.6	37.6	36.1	0.6	20.51	51.15	3.6	1.18	11.24		
CS-5 OT- 1 22.4-22.63 COAL DELTA STATE	19.3	9.7	12.0	34.3	42.5	36.7	0.6	20.91	53.00	3.6	1.21	12.66		
CS-6 OT-2 26.46-26.76 COAL DELTA STATE	14.5	9.9	11.6	36.2	42.3	39.4	0.6	22.05	55.30	3.9	1.28	14.57		
CS-7 OT-3 23.78-25.08 COAL DELTA STATE	17.1	7.3	8.7	36.3	43.8	39.3	0.6	22.00	55.95	3.7	1.37	14.09		
L-1 UGB-3 42.65-43.15 LIGNITE DELTA STATE	15.0	30.8	36.2	34.8	40.9	19.4	5.8	11.86	29.95	3.1	0.54	14.80		1.64
L-2 UGB-3 49.7-50.5 LIGNITE DELTA STATE	17.0	9.7	11.7	45.4	54.7	27.9	0.8	21.45	51.65	4.3	0.98	15.57		1.32
L-3 OBO-22 48.4-50.8 LIGNITE DELTA STATE	19.2	5.0	6.1	48.9	60.4	26.9	0.7	22.88	54.30	4.7	0.73	15.53		
L-4 OBO-22 51.45-52.1 LIGNITE DELTA STATE	23.1	5.8	7.5	39.9	51.9	31.2	0.8	19.27	48.60	3.6	0.82	17.36		
L-5 OBO-22 55.8-59.3 LIGNITE DELTA STATE	14.1	22.6	26.2	40.8	47.4	22.5	1.0	19.12	45.10	4.2	0.75	12.38		
L-6 OBO-22 61.82-64.27 LIGNITE DELTA STATE	25.5	13.1	17.5	36.3	48.7	25.1	1.2	16.88	43.85	3.1	0.72	12.66		
L-7 PBH-21 21.85-24.29 LIGNITE DELTA STATE	22.7	5.7	7.3	44.3	57.2	27.3	0.7	21.28	53.55	4.2	0.74	12.50		
L-8 PBH-21 25.8-26.5 LIGNITE DELTA STATE	21.9	7.4	9.4	42.1	53.9	28.6	3.3	18.97	47.45	3.9	0.78	15.32		
L-9 PBH-21 27.4-28.5 LIGNITE DELTA STATE	21.1	14.3	18.0	37.7	47.7	26.9	3.0	16.48	42.45	3.3	0.69	15.25		
L-10 PBH-21 29.3-32.9 LIGNITE DELTA STATE	14.8	6.6	7.7	51.7	60.7	26.9	0.7	23.94	57.45	5.1	0.85	14.48		
L-11 PBH-21 34.8-37.55 LIGNITE DELTA STATE	18.4	10.3	12.6	46.0	56.4	25.3	0.5	21.92	54.40	4.6	0.70	11.16		
L-12 EBU-01 - LIGNITE DELTA STATE	20.0	12.7	15.8	40.0	49.9	27.3	0.6	20.27	50.40	4.0	1.09	11.34		
L-13 EBU-DD - LIGNITE DELTA STATE	20.7	9.8	12.4	42.1	53.0	27.4	0.5	21.02	52.50	4.1	1.08	11.37		
S-1 PBH-21 32.9-34.8 SAND DELTA STATE	1.5	91.3	92.7	5.7	5.8	1.5	0.9	1.09	2.99	0.6	0.03	2.67		
SH-1 PBH-21 37.55-44.69 SHALE DELTA STATE	12.4	70.6	80.6	13.7	15.6	3.3	2.1	2.03	6.04	1.1	0.06	7.72		

**Procedure / Test M 1.86**

Sample preparation	BV-TPM-001 based on 7.459395
Moisture content (%)	BV-TPM-010 based on ISO 11722: 1999
Ash content (%)	BV-TPM-011 based on ISO 1171: 2010
Volatile matter content (%)	BV-TPM-012 based on ISO 562: 2010
Total sulphur (%)	BV-TPM-013 based on ISO 19579: 2006
Gross calorific value (MJ/kg)	BV-TPM-014 based on ISO 1928: 2009
Ultimate analysis	Based on ISO 12902 - CHN Instrumental method (Subcontracted Test)

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C.W. Swanepoel  
Technical Signatory



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