

# 2015

## MAN Light Tare Evaluation – Progress Report



Dewald Brand  
Barloworld Trans  
8/18/2015

## Executive Summary

- First (of two) demonstration trucks has completed 20,000 km at the PPC Dwaalboom operation
- Significantly lower fuel consumption than standard (34 – 35 l/100km)
- Lack of effective auxiliary brake has been noted by drivers
- Truck performed to same standard as Freightliner Columbia
- Testing is to be continued at PPC Kraaifontein

## Introduction

In 2014, a request to find an alternative to the current Freightliner Columbia in the 40 ton PPC operation was made by the business unit. The demonstration model described in this report is the result of that request. A second unit was also subsequently introduced into the mining operation, however this report focusses exclusively on the first unit.

The truck was specified with a day cab and for relatively flat terrain. This also makes it suitable for all short lead deliveries. The ZF Intarder was thus excluded in favour of the new EVBec (MAN electronically controlled exhaust brake). This auxiliary brake has proven to be ineffective for the majority of the routes. The Intarder will be included in any future specifications.

An unexpected outcome of this test has been the low fuel consumption of the configuration (8% lower than standard 26-440). This can be contributed to, less frontal area (lower cab – 280mm) and lower moment of inertia (smaller and lighter wheels – 295 vs 315)

The specification of this truck is not standard for South Africa and resulted in an extensive lead time of 5 months. However if this truck is to be manufactured locally, normal lead times would start to apply.

Testing of this vehicle started at the PPC Dwaalboom operation. After 20,000km testing has been concluded and is being transferred to the PPC Kraaifontein operation.

## Contents

Executive Summary .....	1
Introduction .....	1
Truck Specification .....	2
Comment on weight reduction .....	2
Routes and Consumption .....	3
PPC – Pockets – Flat Deck 40t .....	3
Comparison Consumption .....	5
PPC – Bulk – Pneumatic Tanker .....	6
Comparison Consumption .....	7
Truck Dimensions and Configuration .....	7

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

Driver Comfort and Comments.....	8
Revisions .....	11

## Truck Specification

<b>Make</b>	MAN
<b>Model</b>	TGS 26-440 6x4 BLS-WW
<b>Description</b>	Truck Tractor
<b>Cab</b>	M Cab (Day cab)
<b>VIN</b>	AAM78W4828PX32737
<b>Wheels -</b>	Alcoa Aluminium
- <b>Steer</b>	Goodyear RHSII 295/80R22.5
- <b>Drive</b>	Goodyear RHDII 295/80R22.5
<b>Gearbox</b>	ZF 12 AS 2330 OD MAN TipMatic
<b>Auxiliary Brake</b>	EVBeC – Electronically controlled exhaust brake (271 kW)
<b>Fuel Tank</b>	400 litre (single)
<b>Test Distance to date</b>	20,620 km
<b>Wet Tare Mass</b>	8,260 kg
<ul style="list-style-type: none"> <li>No spare wheel</li> <li>Driver</li> <li>Full Diesel</li> </ul>	Tare is +/- 1 ton less than standard truck

## Comment on weight reduction

The weight reduction was attained by using alternative configurations or removing parts completely. The program has gone well into the “law of diminishing returns” and thus some exclusions seems minuscule

<b>Standard 26-440</b>	<b>LTW 26-440</b>	<b>Weight Difference (kg)</b>
315/80R22.5	295/80R22.5	-80
Alcoa 9” rims	Alcoa 8.25” rims	-140
EVBeC and ZF Intarder	EVBeC	-80
580 + 450 litre Fuel Tanks	400 litre Fuel Tank	-617
Front Axle – VOK-09 (9 ton)	Front Axle – VOK-07 (7,5 ton)	-26

<b>Report by</b>	<b>Subject</b>	<b>Report Date</b>
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

8t, 2 leaf parabolic front suspension	7.5t, 1 leaf parabolic front suspension	-30
Plastic Bumper	Steel Bumper	+44
LX Cab (double sleeper)	M Cab (day cab)	-175
Sun visor	Without Sun visor	-6
Oddments Box	Without Oddments Box	-5
<b>Reduction</b>		<b>1,035 kg</b>

## Routes and Consumption

### PPC – Pockets – Flat Deck 40t

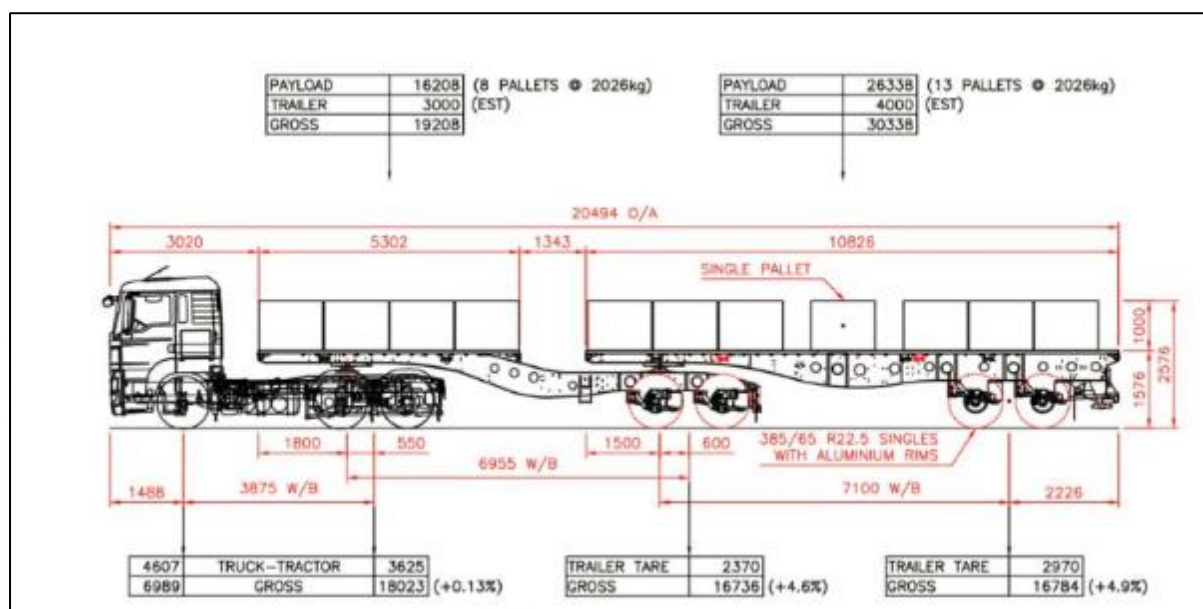
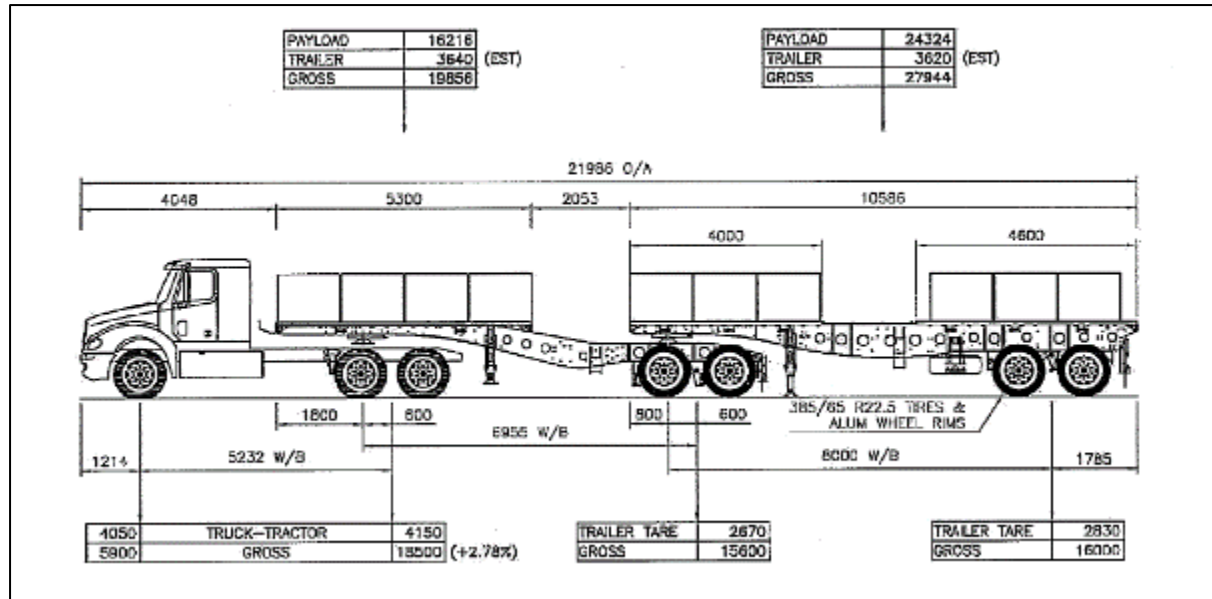


Figure 1 – Optimum configuration (not yet tested) – MAN 26-440 LTW

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015





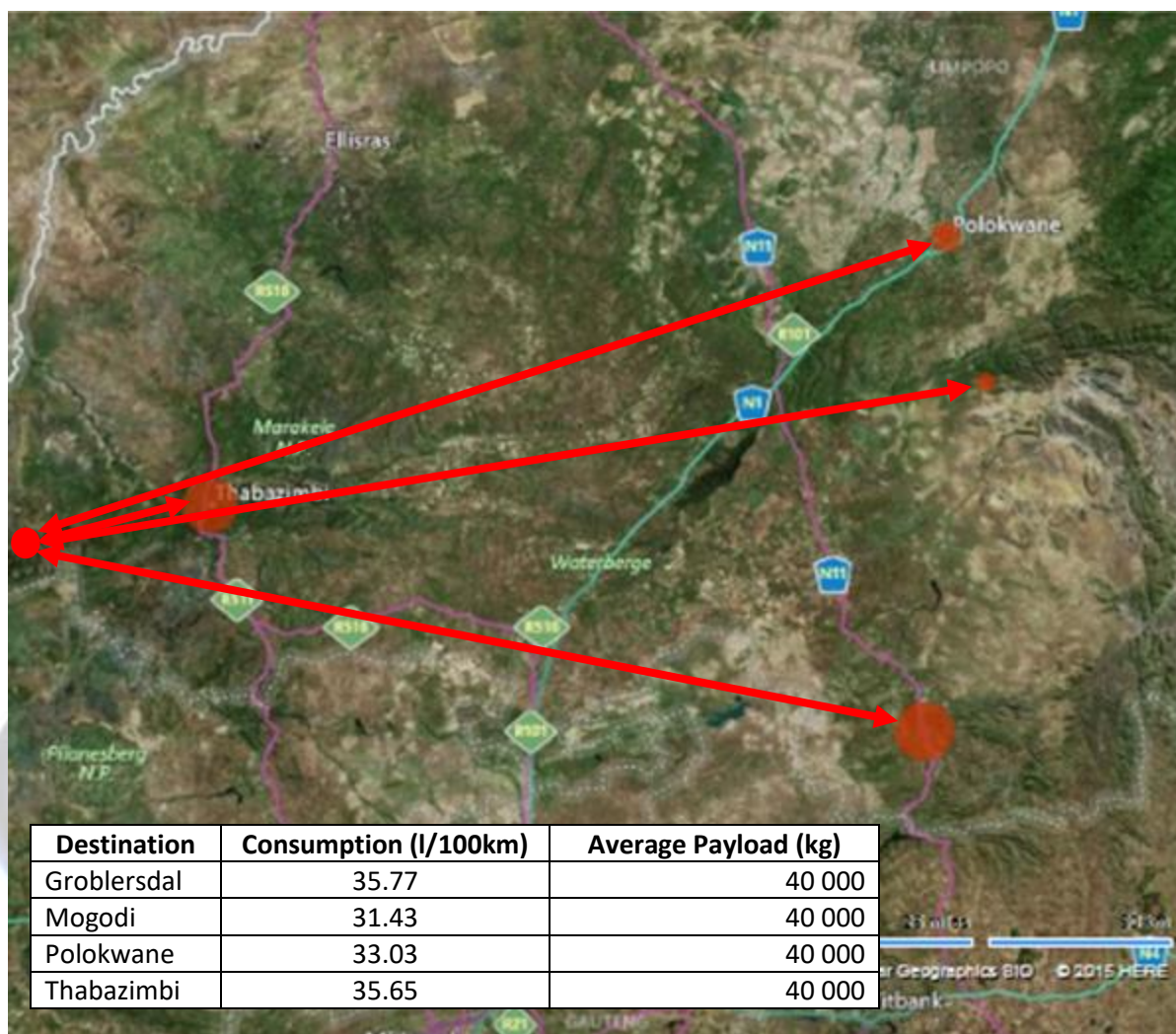


Figure 3 - Routes and Fuel consumption - Pockets

### Comparison Consumption

Fleet No	Model	June15	July15	YTD
340001	Freightliner Columbia C1112-34 Mb4000 Detroit Engine TT	38.70	39.14	39.38
340002		42.21	41.12	41.36
340003		40.46	39.77	40.87
340004		38.26	40.88	40.14
340005		38.72	40.76	39.09
340006		43.84	42.10	40.60
340007		40.16	39.36	40.99
340008		37.65	37.48	37.49
340009		38.36	37.19	35.43
340010		42.15	41.48	40.21
340011		35.44	37.06	38.27
340012		39.11	38.89	40.39
340013		38.51	39.10	40.96
340014		38.63	38.62	39.77
Report by		Subject		Report Date
Dewald Brand		Demonstration Test – MAN 26-440 LTW - PPC		18/08/2015

340015		39.76	38.41	41.24
340016		38.20	37.24	37.98
340017		38.28	39.50	38.54
<b>Average</b>		39.32	39.30	39.57

### PPC – Bulk – Pneumatic Tanker

The truck was tested in the transport of bulk PPC cement. All loads were dispatched from the Dwaalboom facility with a pneumatic bulk tanker (with pup) with payload depending on the customer order. An overall consumption of 34.68 l/100km was achieved. The current truck tractors operating these routes are the standard MAN 26-440 TGS. These vehicles achieve a consumption of 38,04 l/100km

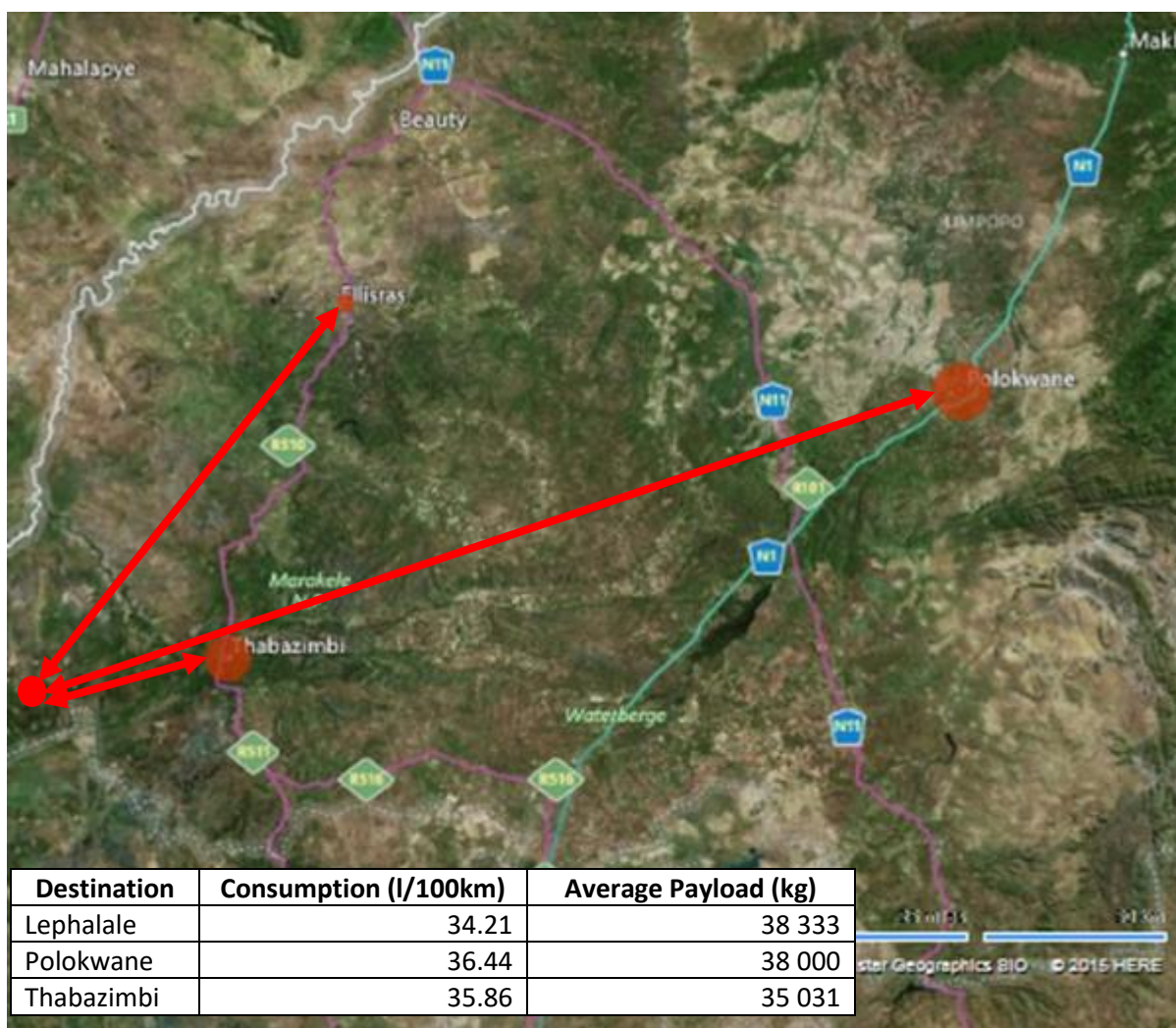


Figure 4 - Routes and Fuel consumption - Bulk

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

## Comparison Consumption

Fleet No	Model	June15	July15	YTD
D637	MAN TGS 26.440	34.29	36.54	37.10
D638		39.27	36.01	36.79
D639		38.73	37.32	40.24
Average		37.43	36.63	38.04

## Truck Dimensions and Configuration

**PMBWB1084633**  
**PMBWB1084633**  
**The New Reclamation Group (Pty) (Ltd)**  
**Pietermaritzburg**  
**Public Weigh - COPY**

The New Reclamation Group (Pty) (Ltd)	Acc Name:	Time In:
KZN	Acc No:	Time Out: 16/04/2015 10:14
Pietermaritzburg	VAT No:	Total Time: minute(s)
34 Lincoln Road		Order No:
Woodlands		YMS Del No:
Pietermaritzburg	ID No:	Col No:
Tel No: 0333873288	Address:	Sup Del No:
VAT No: 4290224924		Linked To:
Comments:	Ship To Address:	Tran Type: Public Weigh
VIN NO: AAM78W4828PX32737		Pay Method:
ENGINE NO: 51540630624072		Operator: Siphio
MAKE: MAN		Transporter: Private Transporter
DESCRIPTION: TRUCK TRACTOR		
COLOUR: WHITE		
Container No:		
Seal No 1:	Bin Out:	Driver:
Seal No 2:	Bin In:	Reg. No: N/A

Code	Prod. Name		Gross (Kg)	Tare (Kg)	Ded. (Kg)	Nett (Kg)	Price	Sub Total	VAT	Total
90-02	Public Weigh	A	8260.00			8260.00	-	-	-	-
<b>Grand Total:</b>			<b>8,260.00</b>			<b>8,260.00</b>				-

Total Number of Products: 1      Total Nett Weight: 8,260.00 Kg

Deduction Reason:

Figure 5 - Weighbridge slip - Wet Tare

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015








Driver comforts has been minimally impacted. Concerns raised to date were:

Driver comforts has been minimally impacted. Concerns raised to date were:

- 
- Technical drawings of the cab of a truck, showing side and top views with dimensions.
- Side View Dimensions:**
- Overall height: 1645
  - Interior height: 1370
  - Height from base to top of cab: 280
  - Height from base to top of front fender: 310
  - Height from base to top of front fender (lower section): 310
  - Height from base to top of front fender (lower section): 306
- Top View Dimensions:**
- Overall width: 1880
  - Overall depth: 2240
  - Interior width (left side): 1770
  - Interior width (right side): 2056

Figure 7 - Cab Layout

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440   TW - PPC	18/08/2015

	Radio
	Air conditioning
	Emergency Bunk

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

	
	<p>Electric Windows</p>
	<p>Air Suspended Driver Seat</p>

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

## Revisions

If this truck is to be purchased, the following revisions to the specification is recommended:

1. Inclusion of the ZF Intarder – (+/- 80 kg)
2. Inclusion of the Sun visor – (+/- 6 kg)

Figure 1 – Optimum configuration (not yet tested) – MAN 26-440 LTW .....	3
Figure 2 - Current Configuration - Freightliner Columbia .....	4
Figure 3 - Routes and Fuel consumption - Pockets.....	5
Figure 4 - Routes and Fuel consumption - Bulk .....	6
Figure 5 - Weighbridge slip - Wet Tare .....	7
Figure 6 - MAN 26-440 LTW .....	8
Figure 7 - Cab Layout .....	8

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015

Detailed Trip Data									
Date	Driver	Opening kms	Litres	Ltr/100km	Customer	Town	Order (kg)	Type	Product
21/05/2015	Mpho	0	264	27.44		Dwaalboom			
22/05/2015	Clifford	962	264	35.77	Cashbuild Groblersdal	Groblersdal	40 000	BAGS	Surebuild CEM II/B-L 42.5N 50Kg Bags UPC
25/05/2015	Clifford	1 700	288	36.09	Obaro Dwaalboom	Thabazimbi	40 000	BAGS	Surebuild CEM II/B-L 42.5N 50Kg Bags UPC
26/05/2015	Clifford	2 498	258	33.03	Cashbuild Polokwane Central Hc	Polokwane	40 000	BAGS	Surebuild CEM II/B-M 42.5N 50KG UPC
28/05/2015	Clifford	3 279	289	35.20	Konstrukta H/W & Boumateriaal	Thabazimbi	40 000	BAGS	Surebuild CEM II/B-L 42.5N 50Kg Bags UPC
28/05/2015	Clifford	4 100	55	31.43	P & L Hardware Lebowakgomo	Mogodi	40 000	BAGS	Surebuild CEM II/B-L 42.5N 50Kg Bags UPC
30/05/2015	Clifford	4 275	267	33.75	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
10/06/2015	Clifford	5 066	186	36.83	Northam Platinum Limited	Thabazimbi	38 000	BULK	OPC CEM I 52.5N BULK
					Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
14/06/2015	Donald	5 571	192	34.85	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
16/06/2015	Clifford	6 122	100	38.17	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
19/06/2015	Clifford	6 384	290	34.40	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Hebei Building Materials Industry	Thabazimbi	30 000	BULK	OPC CEM I 52.5N BULK
22/06/2015	Clifford	7 227	277	33.66	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Tovani Trading 371 Cc	Lephalale	38 000	BULK	OPC CEM I 52.5N BULK
24/06/2015	Clifford	8 050	257	35.94	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
30/06/2015	Clifford	8 765	172	36.44	Newshelf 1261 (Pty) Ltd	Polokwane	38 000	BULK	OPC CEM I 52.5N BULK
					Infrastructure Specailist Group (Pt	Polokwane	38 000	BULK	OPC CEM I 52.5N BULK
01/07/2015	Clifford	9 237	260	57.02	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
02/07/2015	John B	9 693	116	34.12	Medupi Power Station Joint Venture	Lephalale	38 000	BULK	OPC CEM I 52.5N BULK
03/07/2015	John B	10 033	178	22.70	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
04/07/2015	John B	10 817	92	38.02	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
07/07/2015	Clifford	11 059	231	35.70	Tovani Trading 371 Cc	Lephalale	38 000	BULK	OPC CEM I 52.5N BULK

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015



09/07/2015	Clifford	11 706	287	36.70	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
12/07/2015	Sam S	12 488	181	54.35	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
15/07/2015	Clifford	12 821	272	29.12	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
20/07/2015	Clifford	13 755	179	35.59	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
23/07/2015	Clifford	14 258	216	34.45	Tovani Trading 371 Cc	Lephalale	38 000	BULK	OPC CEM I 52.5N BULK
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
26/07/2015	Donald	14 885	260	36.21	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
28/07/2015	Clifford	15 603	175	34.25	Rustenburg Platinum Mines Ltd	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Medupi Power Station Joint Venture	Lephalale	40 000	BULK	OPC CEM I 52.5N BULK
30/07/2015	Clifford	16 114	247	32.59	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
03/08/2015		16 872	267	33.38	Union Section Joint Venture	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
04/08/2015	Mothupic	17 672	75	30.74	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	38 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
07/08/2015	Sam	17 916	270	34.70	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
08/08/2015	Frederick	18 694	81	34.18	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
12/08/2015	Clifford	18 931	237	32.55	Tovani Trading 371 Cc	Lephalale	38 000	BULK	OPC CEM I 52.5N BULK
					Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk
14/08/2015	Clifford	19 659	305	31.74	Rustenburg Platinum Mines Limited	Thabazimbi	35 000	BULK	Surebuild CEM II/B-L 42.5 N Bulk

Report by	Subject	Report Date
Dewald Brand	Demonstration Test – MAN 26-440 LTW - PPC	18/08/2015