



MINUTES OF MEETING (MOM-I) BETWEEN



M/s. WESTERN COALFIELDS LTD (WCL), OPEN CAST MINES,
UMRER AREA, NAGPUR AND M/s. ABHITECH ENERGYCON LIMITED (AEL), MUMBAI.

Date: 11/09/2021

Reference:

- 1) WCL/NGP/C2/FOC Trial/Fuel Conditioner/20-21/129 Dated, 16/01/2021 for conducting **THERMOL-D (Multifunctional Combustion Catalyst Trial)** at WCL Open Cast Mines, Umrer Area, Umrer, Nagpur.
- 2) Pre- Trial MOM-I signed and submitted on date on 19-08-21.

Subject: Performance Evaluation of **THERMOL-D** a multifunctional combustion catalyst for Diesel on the **HEMM** equipment to reduce the Specific Fuel consumption (**SFC**).

The following points were discussed & agreed upon between the officials of **M/s. Western Coalfields Ltd. – Open Cast Mines, Umrer Area, Umrer, Nagpur,** and **M/s. Abhitech Energycon Ltd., Mumbai.**

Following **HEMM** equipment were deployed for **Umrer OCM.**

Sr. No.	Equipment Description	Machine No.
1.	BE 1000 Hyd. Excavator	10153
2.	BD 155 Dozer	13402

Basis Of Evaluation:

To quantify the diesel saving with the usage of **THERMOL-D**, following method was opted.

Calculation of Specific fuel consumption & performance evaluation

$$SFC \left(\frac{Lit}{Hr} \right) = \frac{\text{Total HSD Consumed}}{\text{Total HMR}}$$

The Saving (%) will be calculated as per the given formula for SFC.

$$\% \text{ Saving} \left(\frac{Lit}{Hr} \right) = \frac{\left(\text{Pre SFC} \left(\frac{Lit}{Hr} \right) - \text{Post SFC} \left(\frac{Lit}{Hr} \right) \right)}{\text{Pre SFC} \left(\frac{Lit}{Hr} \right)} \cdot 100$$

Where-as,

Pre SFC = Lit/Hr without **THERMOL-D**

Post SFC = Lit/Hr with **THERMOL-D**

Effect of THERMOL-D on the Key Parameters:

- Reduction in Specific Fuel Consumption (SFC)

Data Collection:

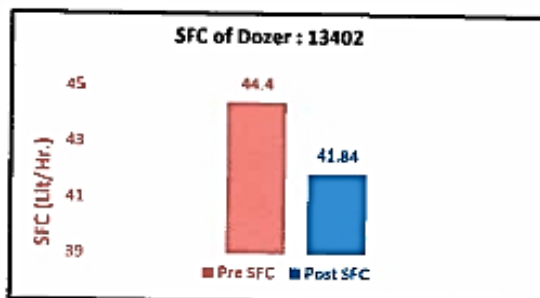
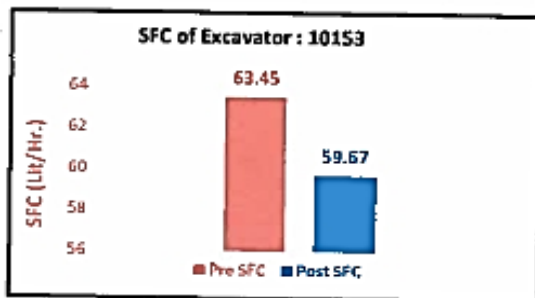
- THERMOL-D was added in the ratio 1:2000 (Vol./ vol basis).
- From selected HEMM equipment, Pre-Trial data (Without THERMOL D) for Excavator and Dozer both, was considered from 10-Aug-21 to 18-Aug-21(9 days) and the post-trial data (With THERMOL D addition) for Excavator was considered from 21-Aug-21 to 30-Aug-20 (9 days) and for the Dozer it was considered from 02-Sep-21 to 10-Sep-21 (9 days) respectively.
- All the data collected between 9:00 AM to 07:00 PM with WCL Official's & AEL Official's on daily basis.
- **Hour Meter Reading** was recorded from Hour Meter at the time of filling HSD and **HSD Consumption** was taken on "Full Tank Method", every day.
- All data were authenticated by Section Engineer/ Equipment In-charge on dally-basis.
- Daily data sheet attached with annexure #1& 2 for Excavator (BE-100 Hyd.- 10153) & Dozer (BD 155- 13402) respectively.

Gist of the Trial:

Sr. No.	Equipment Description	Trail Base	Cumulative Working Hrs.	Cumulative HSD Cons (Lit)	THERMOL D usage ML	SFC (Avg) Liter/Hr.	HSD Saved	% Savings SFC
1.	BE 1000 Hyd. Excavator	Pre	76.15	4832.00	N/A	63.45	3.78 Lit/Hr.	5.96 %
	Machine No.: 10153	Post	117.64	7020.00	3513	59.67		
2.	BD 155 Dozer	Pre	61.80	2744.00	N/A	44.40	2.56 Lit/Hr.	5.77 %
	Machine No.: 13402	Post	81.40	3405.98	1706	41.84		

Note: The Dozer was under breakdown after Pre-trial completion, thus, THERMOL D addition was started from 02-09-21.

Graphical Representation:



COST BENEFIT ANALYSIS:

PARTICULARS	UNITS	EXCAVATOR : 10153	DOZER : 13402
Avg. SFC Without THERMOL D	Lit/Hr.	63.45	44.40
Avg. SFC With THERMOL D	Lit/Hr.	59.67	41.84
Saving in Fuel Consumption	Lit/Hr.	3.78	2.56
Working Hrs operated with THERMOL D	Hours	117.64	81.40
Total Diesel Saving	Liter	444.68	208.38
Cost of Diesel (Rs. 91.00/- per Lit)	Rs.	40465.81	18962.94
Total Diesel Consumption with THERMOL D	Liter	7020.00	3405.98
Total THERMOL D Dosage (1:2000 v/v)	Liter	3.51	1.70
Cost of THERMOL D (Rs. 1800/- Per Lit)	Rs.	6318.00	3065.38
Total Saving (In Rs.)	Rs.	34147.81	15897.56
Total Saving /Operting Hrs	Rs./Hr.	290.27	195.30

For, WCL
WCL Mines, Umrer Area, Nagpur

Dy MANAGER
WCL UMRER
11.09.21
Mr. Mujeeb Rahman - Dy. Manager (Excav.)

11.9.2021
Mr. Satyendra Kumar - Ch. Manager (Excav.)
Engineer Incharge (Excav.)
Western Coalfields Ltd
Umrer Project, Umrer Area

Mr. M. K. Das - Dy. GM (Excav.)/ S.O.

Staff Officer (Excav.)
WCL Umrer Area

For, AEL
Abhitech Energycon Ltd, Mumbai

11/09/21
Mr. Bharat Jha - Sr. Executive, Technical

Mr. Lavakush Vishwakarma - Manager, Tech.

11/09/21
Mr. Ritesh Vishwakarma - Chief Manager, Tech.

11/09/21
Mr. Vinu Subramanian - AGM, Technical