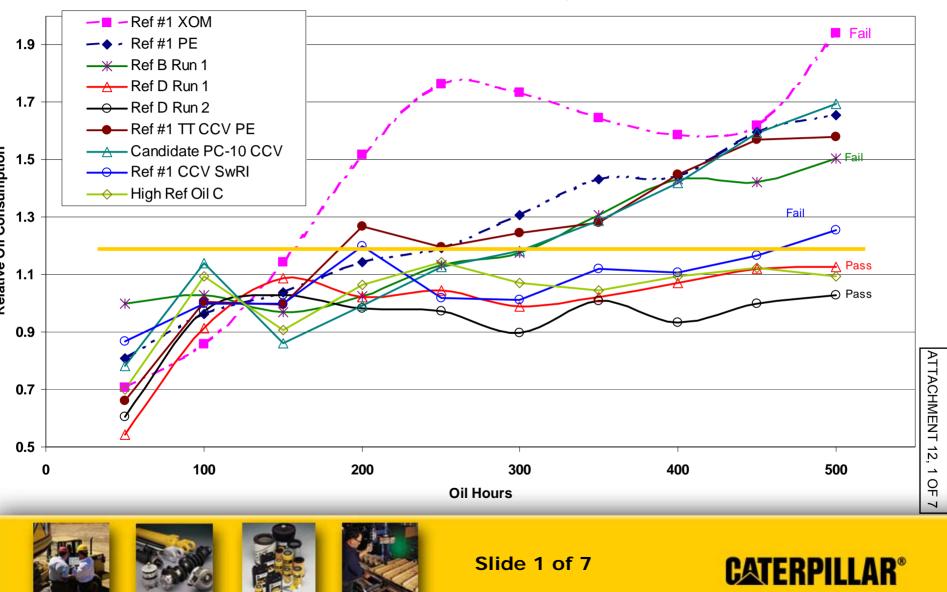
### CONFIDENTIAL

# Caterpillar C13 Test Update

#### November 10, 2004

#### **C13 Normalized Oil Consumption**



### CONFIDENTIAL

### Caterpillar C13 Test Update C13 Normalized Oil Consumption

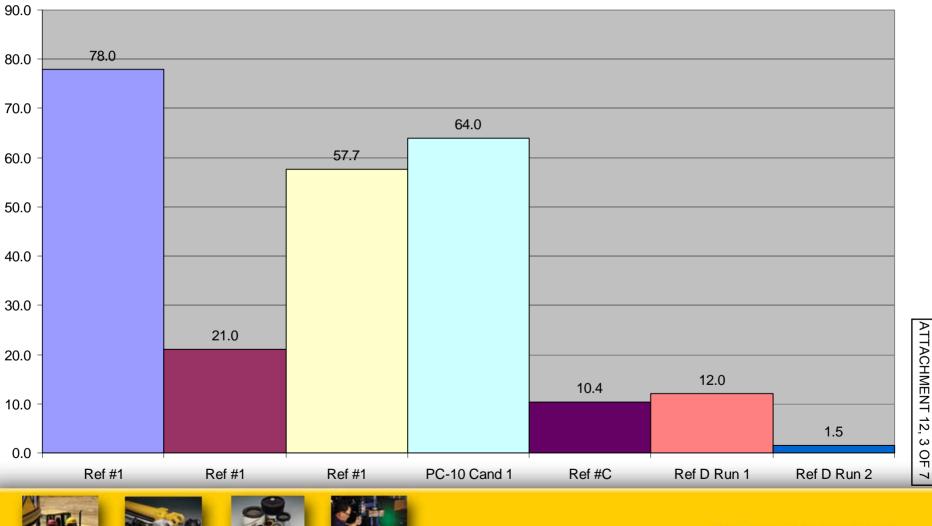
#### – Ref #1 XOM Fail 1.9 A Ref D Run 1 1.7 Ref #1 TT CCV PE **Relative Oil Consumption** 1.5 - Candidate PC-10 CCV Ref #1 CCV SwRI Fail 1.3 1.1 Pas 0.9 ATTACHMENT 12, 0.7 0.5 , 2 OF 7 100 200 300 400 500 0 **Oil Hours** Slide 2 of 7 **CATERPILLAR®**

November 10, 2004



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C13 - Oil Consumption Increase (Percent)



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<u>Oil</u>	<u>Oil</u> Consumption	<u>Piston</u> Deposits	<u>Loss of 2<sup>nd</sup> Ring Side</u> <u>Clearance</u>
Ref #1 SwRI	Fail	Fail	All
Ref #1 PE	Fail	Fail	2 Sluggish
PC-10 Cand 1	Fail	Fail	3, 1 Stuck
High Ref C	Pass	Fail	All
Ref Oil D	Pass	Pass	None None



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<u>Oil</u>	Oil Oxidation at 500 hrs	<u>TBN</u>	<u>TAN</u>
Ref #1 SwRI	494	2.3	4.2
Ref #1 PE	535	3.0	4.8
PC-10 Cand 1	779	2.5	6.4
High Ref C	1087	0.1	3.8
Ref Oil D	1154	2.2	5.5



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ATTACHMENT 12, 5 OF 7

Turbo fouling discrimination of oils is possible on the C13.

Question is do the members need a Turbo test?

Pistons Deposit complication without discrimination with Closed CCV

TF decided to remove CCV but retain ULSDF



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- 1P liner change of supplier by 2<sup>nd</sup> qtr 04.
- Funding to sort out surface profile to improve test reliability
- Surv Panel, Labs agree to help in this work.
- Early data and studies prevent 1M-PC situation repeat
- New Piston temperature test at CAT show C13 temps much lower than previous, Top land 230 °C, 2G 130 °C.



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