Caterpillar C13 Test Criteria

500 hour – Steady State Test Cycle with CCV

Test Pass/Fail Criteria:

1. No Loss of Oil Consumption Control <50% or lower? (based on average of EOT vs SOT)
2. Last 150 hours stable Oil Consumption
3. No stuck rings/Loss of ring side clearance
4. CCV pass/fail to be assessed




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Caterpillar C13 Test Status

Status Test Development:

1) Test Cycle Completed
2) C13 Test engines installed – 13
3) C13 Test engines provided to date - 13
4) CCV Pseudo system defined and being tested




Caterpillar C13 Test Status

Status Hardware:

1) Close tolerance Production Liners, Piston and rings supplied to all labs
    - Initial Oil Consumption studies on-going
2) Low reference Ref Oil supplied to all labs
3) Three Potential High reference oils being assessed
4) Complete test by end Nov ‘04




Caterpillar C13 Test Update

3 more C13 tests running – two Low Ref and 1 Potential High Ref oils

Repeat of one, two or three tests as required.

Two tests showed loss of oil consumption. (Hi & Lo)

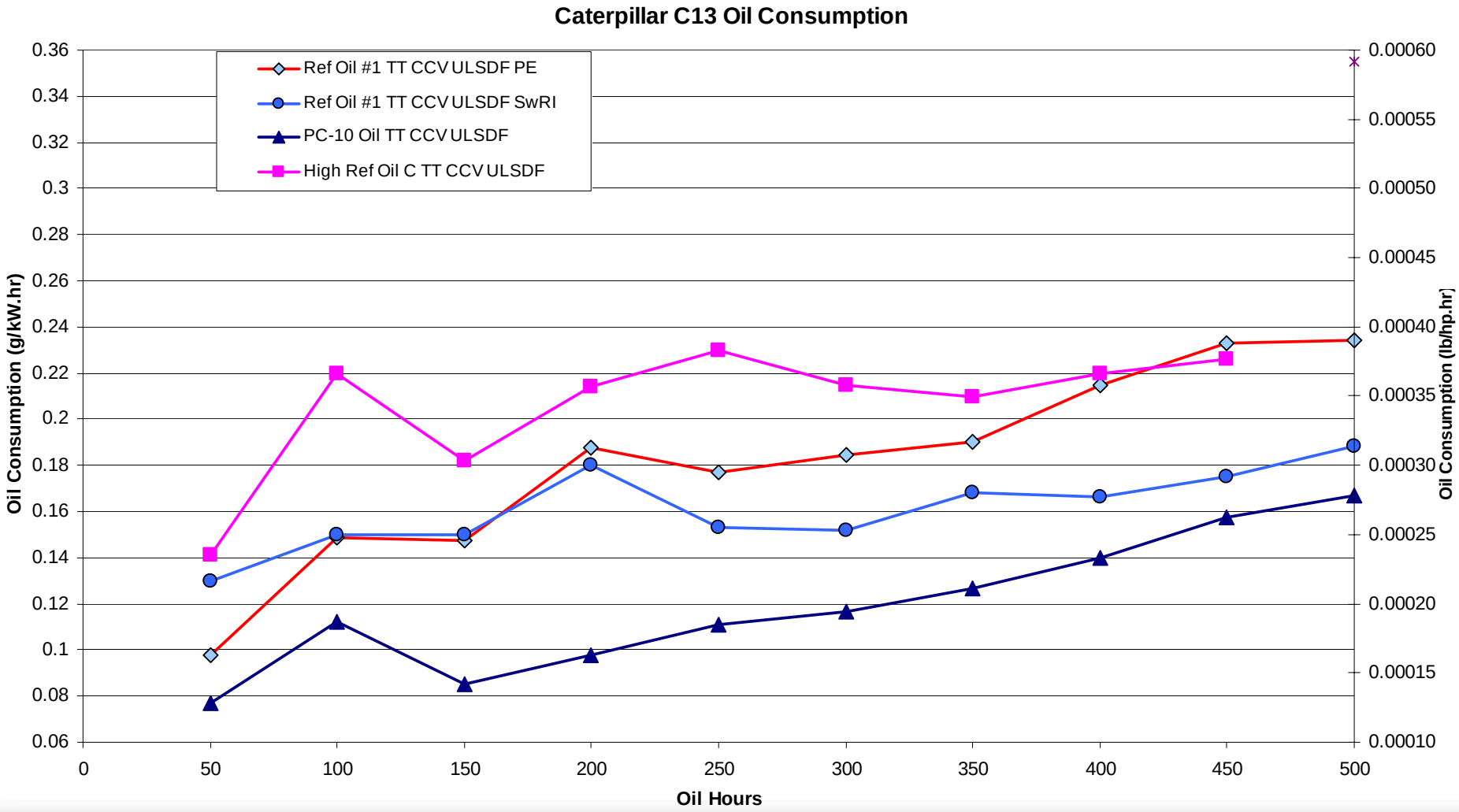
Two tests showed oil consumption control. (Hi & Lo)

CCV Pseudo system not affecting deposits

No noticeable effect of fuel sulfur on test




Caterpillar C13 Test Update



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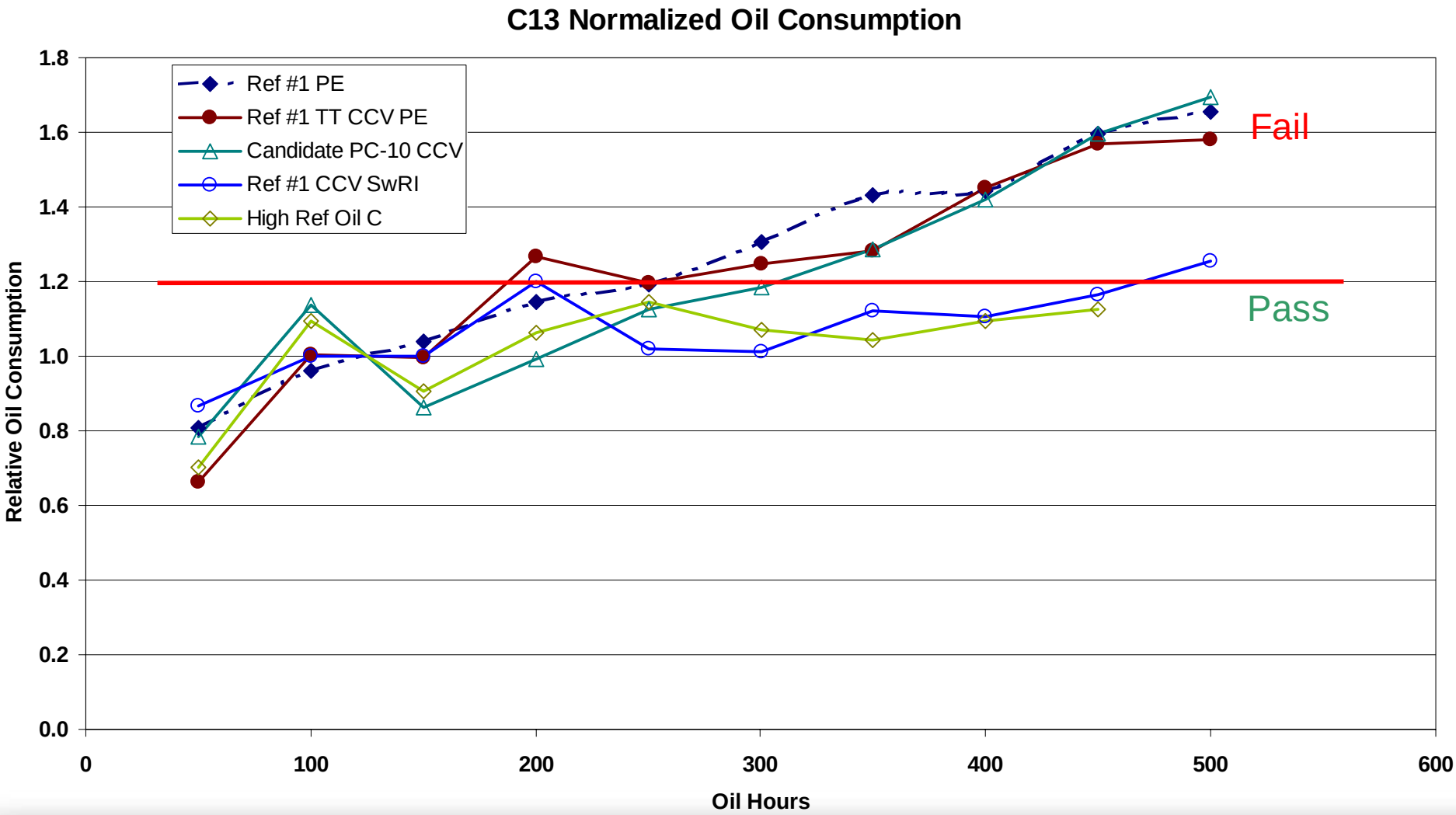
Caterpillar C13 Test Update



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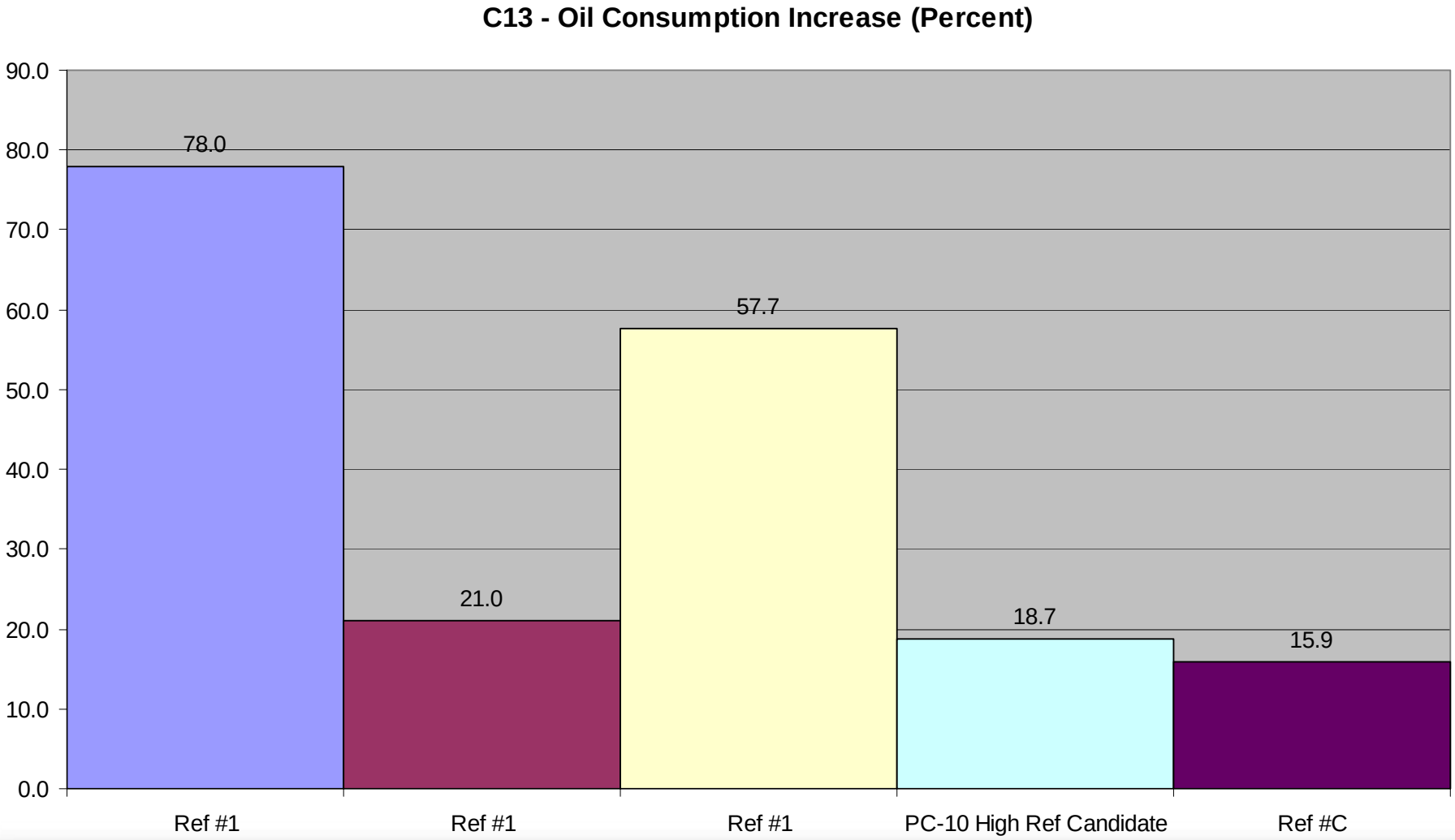
Caterpillar C13 Test Update



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Caterpillar C13 Test Update

Oil	Stuck Rings	Loss of 2nd Ring Side Clearance
Ref #1 SwRI	None	All
Ref #1 PE	None	2 Sluggish
High Ref Candidate	One	
High Ref C		




Assessment and agreement needed on:

1. Oil consumption Pass/fail criteria

2. Stuck Rings rating

3. Loss of Ring side clearance measurement method
   - Instruments (feeler thickness)
   - Location (four point vs all round)
   - Rating