



## Chronology

- May 1999 - Datalogging & Duty Cycles
- October 1999 - RFPs to Trap Mfgs
- May 2000 - Installations of 4 DPF Systems
- May 2000 - Nov 2001 - Performance Evaluations
- February 2001 - Isolated Zone Study (Ambient Concentrations)
- February 2002 - DPFs de-commissioned
- September 2002 - Final Bench Testing in Lab at CANMET

A background image of a yellow Caterpillar excavator with the number 'L247' visible on its side. The text 'Chronology' is centered at the top in a large, black, sans-serif font. Below it is a bulleted list of seven items detailing the project's timeline from May 1999 to September 2002. The background image is faded and serves as a backdrop for the text.



## ECS CatTrap

- ST8-B Scooptram - VL244
- Detroit Diesel - Series 60 - 325 HP
- Twin ceramic monoliths with base metal catalyst
- Passive regeneration

Data From ECM @	Fuel Consumption	Operating Hrs	Idling Hrs
Trap Installation	8034 igals	1005	194.5
Nov 2 <sup>nd</sup> , 2001	35869 igals	4539	969
Jan 24 <sup>th</sup> , 2001	40073 igals	5058	1081
<b>TOTALS</b>	<b>32039 igals</b>	<b>4053 hrs</b>	<b>887 hrs</b>

Fuel Consumption Avg: 7.905 gals/hr  
 Percent @ Idle : 21.89%



**DCL**

- ST8-B Scooptram - VL247
- Detroit Diesel - Series 60 - 325 HP
- SiC monolith with precious metal catalyst
- Passive regeneration with Active - Electric assist

Data From ECM @	Fuel Consumption	Operating Hrs	Idling Hrs
Trap Installation	0.8 igals	0.3	0.2
Trap Removed	1885	293	60
Trap Re- Installed	3713	577	118
June 7, 2001	24141 igals	2999	716
Nov 5 <sup>th</sup> , 2001	32635 igals	4092	944
Jan 24 <sup>th</sup> , 2002	36152 igals	4545	1033
<b>TOTALS</b>	<b>34323 igals</b>	<b>4261 hrs</b>	<b>975 hrs</b>

Fuel Consumption Avg: 8.055 gals/hr  
 Percent @ Idle : 22.88%



## ECS - Octel

- MT436-B Truck - VH183
- Detroit Diesel - Series 60 - 375 HP
- SiC twin monolith with fuel borne catalyst (Octimax 4804)
- Passive regeneration with active fuel borne catalyst

Data From ECM @	Fuel Consumption	Operating Hrs	Idling Hrs
Trap Installation	1382 igals	293	128
Filter Replaced	17249 igals	2763	984
June 7, 2001	18187 igals	2923	1043
Oct 23, 2001	23939 igals	3785	
Jan 24, 2002	28448 igals	4382	1474
<b>1<sup>st</sup> Filter Totals</b>	<b>15867 igals</b>	<b>2470 hrs</b>	<b>856 hrs</b>
<b>New Filter Totals</b>	<b>11199 igals</b>	<b>1619 hrs</b>	<b>490 hrs</b>

Fuel Consumption Avg: 6.917 gals/hr  
 Percent @ Idle : 32.5%

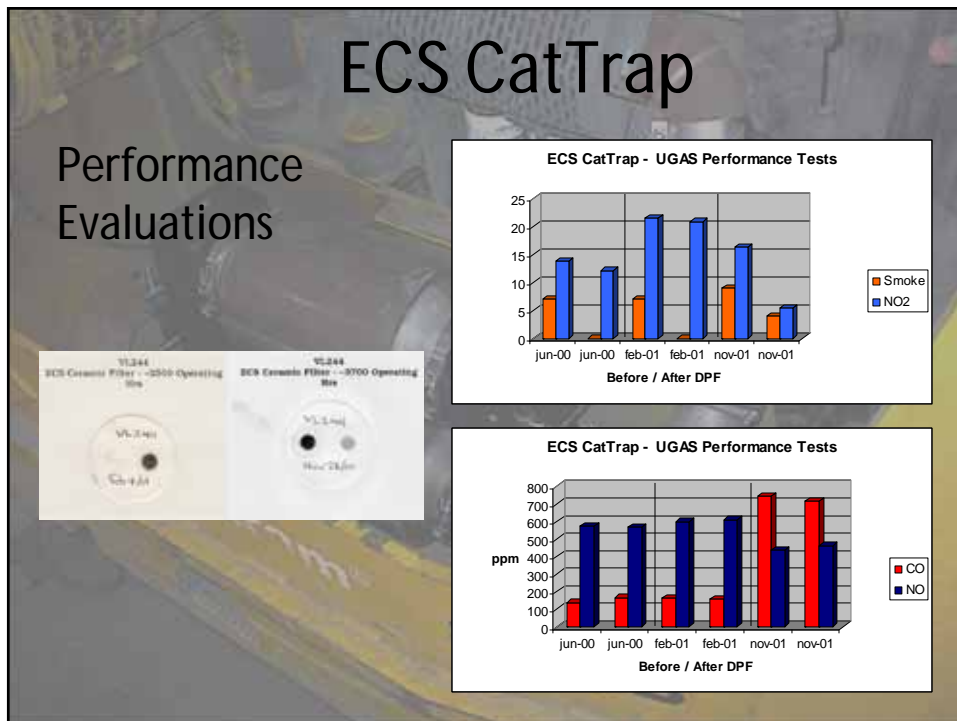
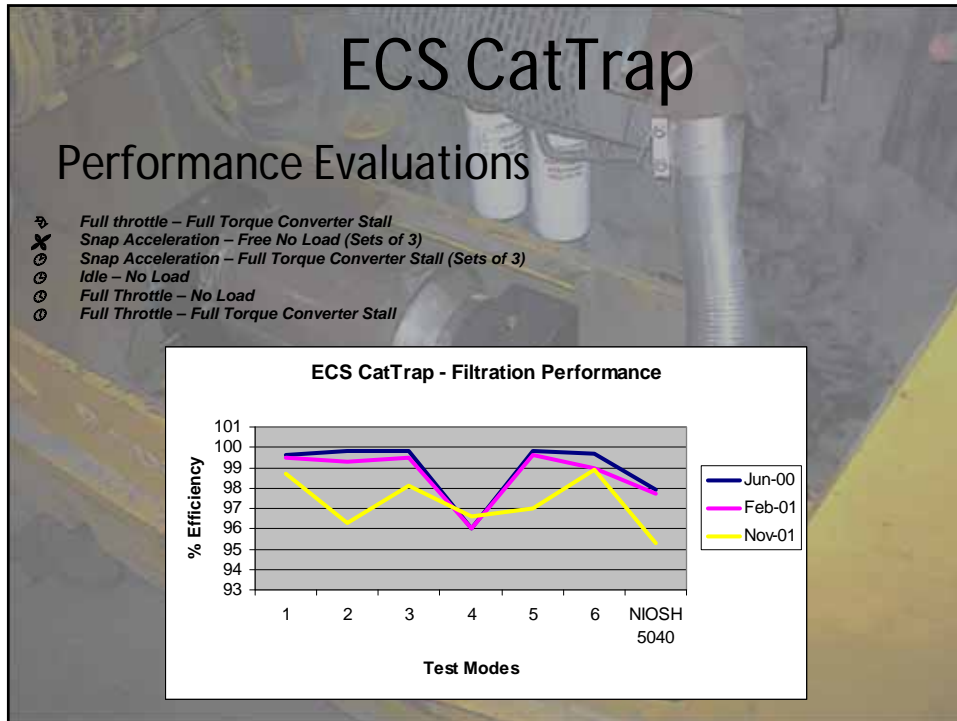


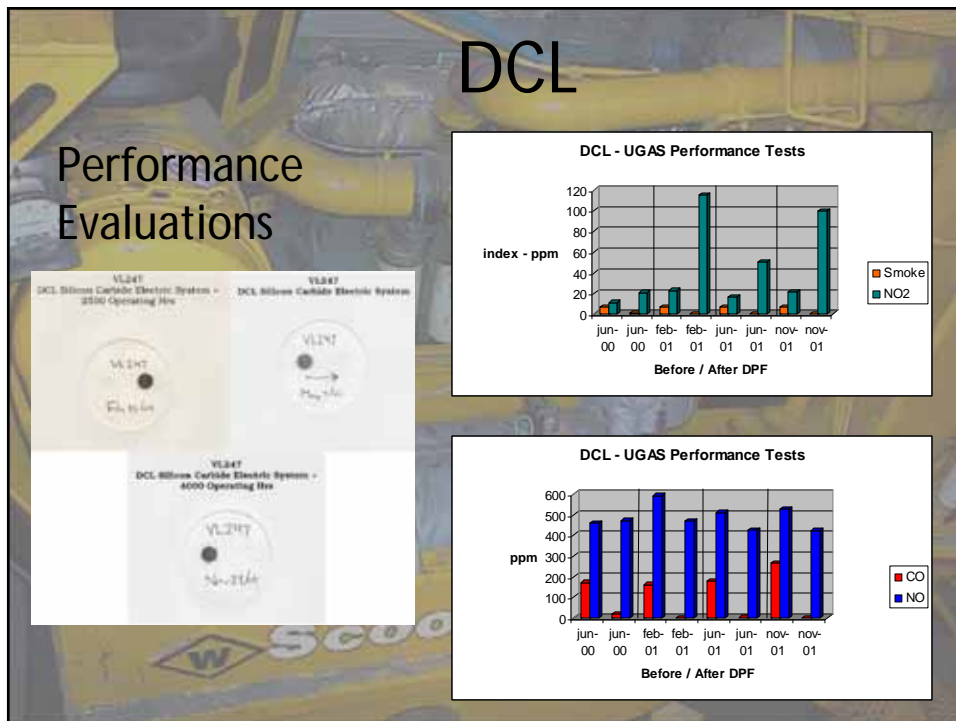
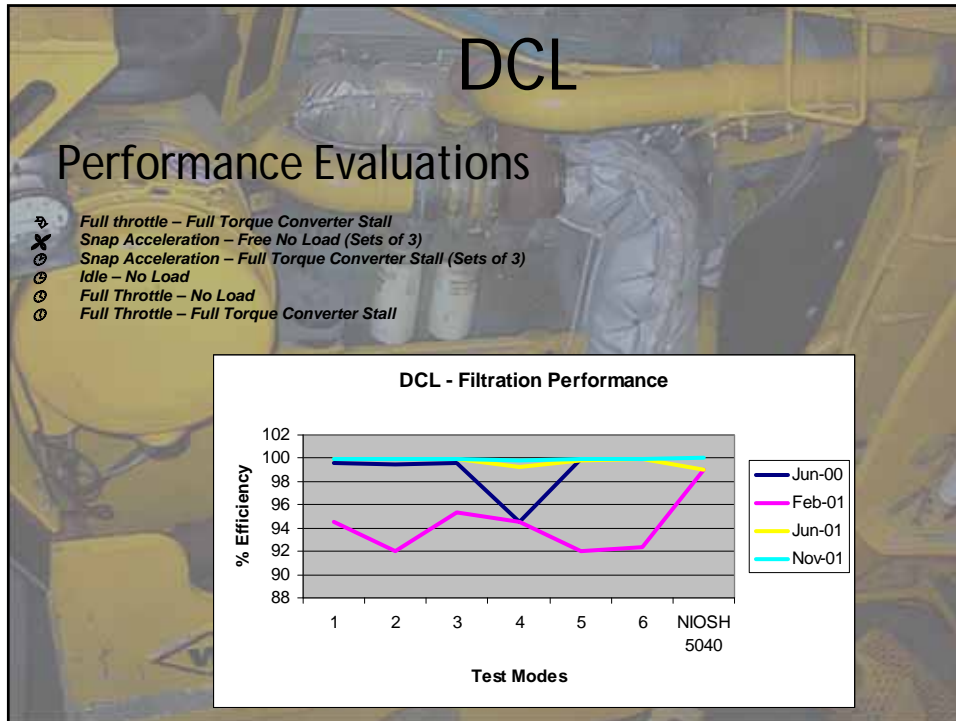
## Oberland Mangold - Octel

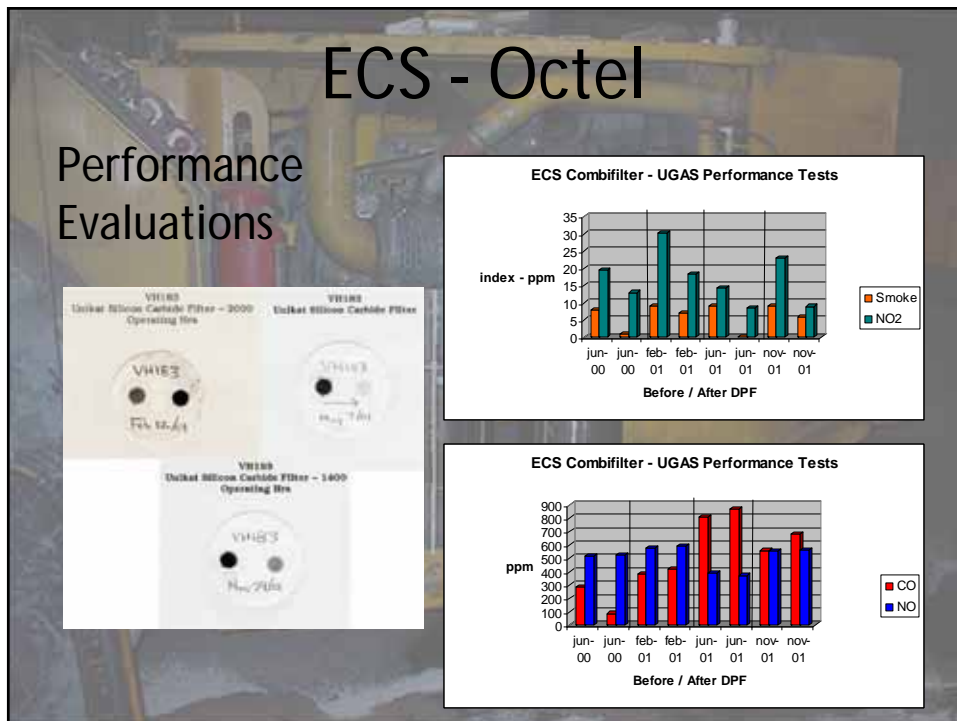
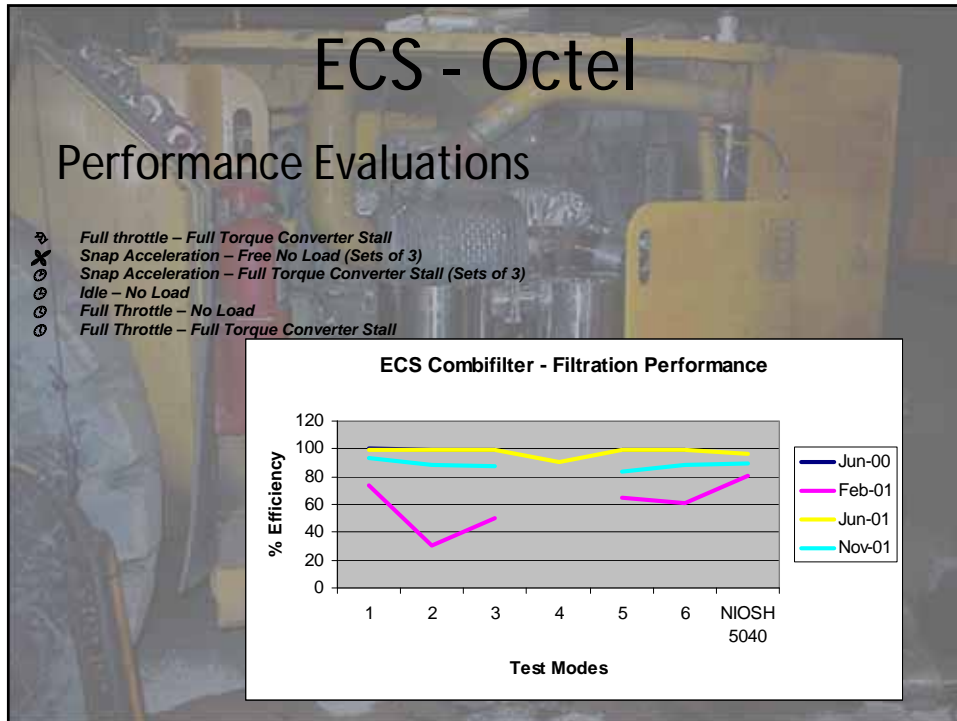
- MT436-B Truck - VH181
- Detroit Diesel - Series 60 - 375 HP
- Wound Fibre Cartridges with fuel borne catalyst (Octimax 4804)
- Passive regeneration with active fuel borne catalyst

Data From ECM @	Fuel Consumption	Operating Hrs	Idling Hrs
1 <sup>st</sup> Trap Installation	13185 igals	2265	653
2 <sup>nd</sup> Trap Installation	14958 igals	2593	737
June 8, 2001	27663 igals	4096	1207
Oct 23, 2001	33685 igals	5000	
Jan 24, 2002	36732 igals	5491	1658
<b>TOTALS</b>	<b>21774 igals</b>	<b>2898 hrs</b>	<b>921 hrs</b>

Fuel Consumption Avg: 7.513 gals/hr  
 Percent @ Idle : 31.8%





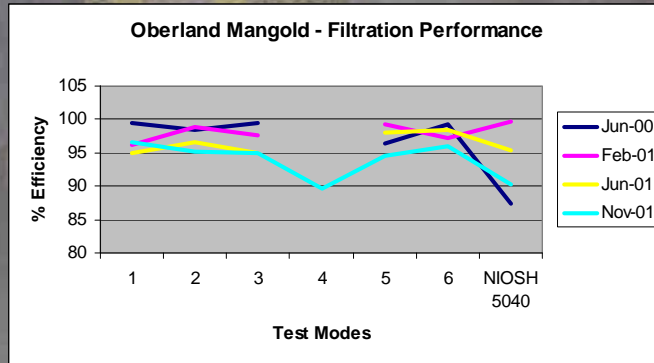




# Oberland Mangold - Octel

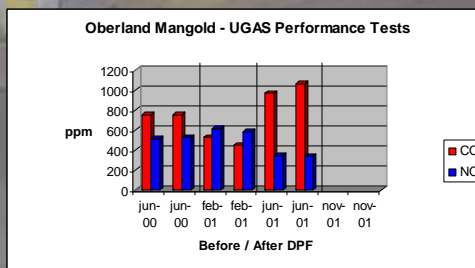
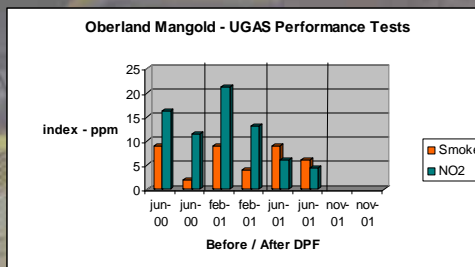
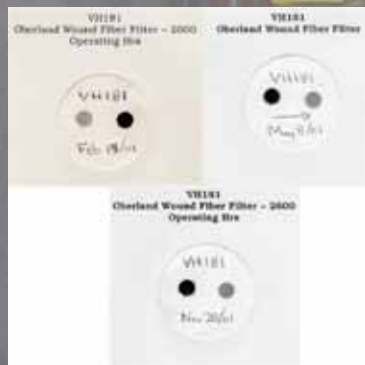
## Performance Evaluations

- ⌘ Full throttle - Full Torque Converter Stall
- ✕ Snap Acceleration - Free No Load (Sets of 3)
- ⊖ Snap Acceleration - Full Torque Converter Stall (Sets of 3)
- ⊖ Idle - No Load
- ⊖ Full Throttle - No Load
- ⊖ Full Throttle - Full Torque Converter Stall



# Oberland Mangold - Octel

## Performance Evaluations



## ECS CatTrap

UpSide - DownSide Matrix

UPS	DOWNS
Totally Passive – no auxiliaries	Not suitable for MT436-B trucks
Regenerates in ST8-B application	No integrated alarm & control
Very high filtration efficiency	No insulation package (that works)
Good application design	Leaks at gaskets and flanges
Favored by operators	
Favored by mechanics	
Very rugged and durable	
Easy retrofit – fits in frame well	
Easy to service – filter body R&R	
Base metal catalyst – No NO2 conversion	

## DCL

UpSide - DownSide Matrix

UPS	DOWNS
Can be suited to any application regardless of duty cycle	Hi maintenance system and difficult to service
Very high filtration efficiency	Poor acceptance by operators
	Poor acceptance by maintenance
	PGM catalyst – NO2 conversion
	No integrated alarms
	Excessive infrastructure requirement
	No insulation package (that works)
	Underdesigned for application
	Leaks at gaskets and flanges

## ECS - Octel

UpSide - DownSide Matrix

UPS	DOWNS
Very high filtration efficiency (before failure)	Poor design for application
	Fuel additive didn't work
	Infrastructure for additive
	Poor acceptance by mechanics - size
	Indifference from operators
	Backpressure problems - regeneration
	No integrated alarms
	Leaks at gaskets and flanges

## Oberland Mangold - Octel

UpSide - DownSide Matrix

UPS	DOWNS
No backpressure problems	Too big!
	Poor acceptance by mechanics
	Indifference by operators
	Fuel additive didn't work
	Infrastructure for fuel additive
	Very difficult to service
	No insulation package
	No integrated alarms
	Leaks at gaskets and flanges
	Difficult to retrofit

## The Future



ECS CatTrap  
for new ST8-Bs

Continued Testing  
Engelhard  
Atlas Copco and  
Detroit Diesel  
Kubota Tractors

