

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# Wampler Ridge 4 Component Natural Gas Engine

Fluid PETRO CANADA SENTRON LD 3000 (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.

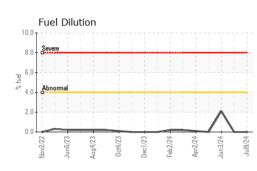
#### Fluid Condition

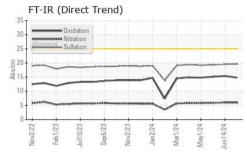
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

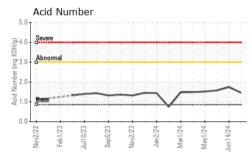
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0117254	PCA0117248	PCA0112021
Sample Date		Client Info		09 Jul 2024	14 Jun 2024	03 Jun 2024
Machine Age	hrs	Client Info		130215	129591	129344
Oil Age	hrs	Client Info		130215	24314	240677
Oil Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	NORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	6	7	9
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	1	2
Lead	ppm	ASTM D5185m	>30	16	17	20
Copper	ppm	ASTM D5185m	>35	2	2	7
Tin	ppm	ASTM D5185m	>4	- <1	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
5			_			
Boron	ppm	ASTM D5185m	5	<1	<1	<1
Boron Barium	ppm ppm		5	<1 0	<1	< 1
Barium						
	ppm	ASTM D5185m ASTM D5185m	1	0	0	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	1 2	0 2	0 <1	0 15
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1	0 2 0	0 <1 <1	0 15 2
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5	0 2 0 13	0 <1 <1 15	0 15 2 28
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220	0 2 0 13 1459	0 <1 <1 15 1545	0 15 2 28 ▲ 1626
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298	0 2 0 13 1459 309	0 <1 <1 15 1545 348	0 15 2 28 ▲ 1626 352
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350	0 2 0 13 1459 309 410	0 <1 <1 15 1545 348 434	0 15 2 28 ▲ 1626 352 ▲ 446
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100	0 2 0 13 1459 309 410 2337	0 <1 <1 15 1545 348 434 2968	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100	0 2 0 13 1459 309 410 2337 current	0 <1 <1 15 1545 348 434 2968 history1	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100	0 2 0 13 1459 309 410 2337 current 2	0 <1 <1 15 1545 348 434 2968 history1 2	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► history2 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <i>limit/base</i> >+100 >20	0 2 0 13 1459 309 410 2337 current 2 0	0 <1 <1 15 1545 348 434 2968 history1 2 3	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► history2 3 3 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20	0 2 0 13 1459 309 410 2337 <u>current</u> 2 0 3	0 <1 <1 15 1545 348 434 2968 history1 2 3 4	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► history2 3 3 3 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >20	0 2 0 13 1459 309 410 2337 current 2 0 3 0.0	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 <b>history2</b> 3 3 6 ▲ 2.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >4.0	0 2 0 13 1459 309 410 2337 <i>current</i> 2 0 3 0.0 3 0.0	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► history2 3 3 6 ▲ 2.1 ► history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >4.0	0 2 0 13 1459 309 410 2337 current 2 0 3 0.0 3 0.0 current 0	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1 0.1	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► 2976 ► 1000 ► 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5824 ASTM D3524	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >20 >20 >20 >20 >10 10 20 >20 >20 >20	0 2 0 13 1459 309 410 2337 <u>current</u> 2 0 3 0.0 3 0.0 <i>current</i> 0 6.0	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1 0.1 6.0	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► 1000 ► 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1 2 1 5 1220 298 350 1995 <b>imit/base</b> >+100 >20 >20 >20 >20 >4.0 <b>imit/base</b> >15 >25	0 2 0 13 1459 309 410 2337 current 2 0 3 0.0 3 0.0 current 0 6.0 19.6	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1 0.1 6.0 19.5	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 ► 1000 ► 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 ASTM D3524 ASTM D78444 *ASTM D7624 *ASTM D7615	1 2 1 1 2 1 1 5 1220 298 350 1995  Imit/base >+100 >20 >20 >20 >4.0 Imit/base >15 >25 Imit/base	0 2 0 13 1459 309 410 2337 <i>current</i> 2 0 3 0.0 3 0.0 <i>current</i> 0 6.0 19.6 <i>current</i>	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1 0.1 6.0 19.5 history1	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 <b>history2</b> 3 3 6 ▲ 2.1 <b>history2</b> 0.1 5.9 19.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	1 2 1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >4.0 <b>limit/base</b> >15 >25 <b>limit/base</b>	0 2 0 13 1459 309 410 2337 current 2 0 3 0.0 current 0 6.0 19.6 current 14.8	0 <1 <1 15 1545 348 434 2968 history1 2 3 4 0.0 history1 0.1 6.0 19.5 history1 15.4	0 15 2 28 ▲ 1626 352 ▲ 446 ▲ 2976 <b>history2</b> 3 3 3 6 ▲ 2.1 <b>history2</b> 0.1 5.9 19.3 <b>history2</b> 15.1

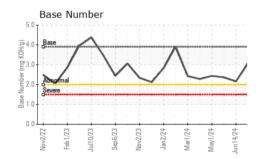


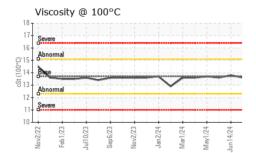
## **OIL ANALYSIS REPORT**

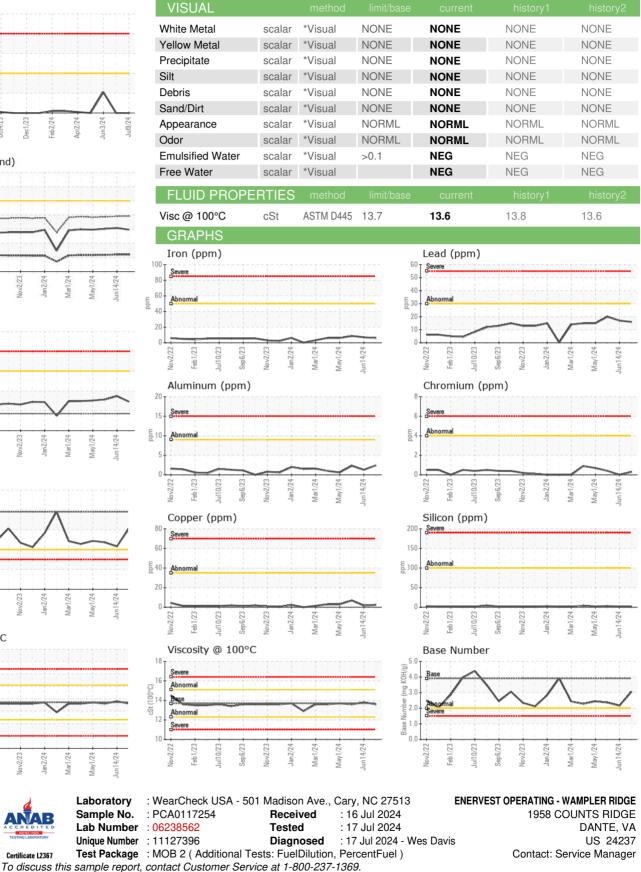












\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate 12367

Laboratory

Sample No.

Submitted By: Lee Hammons Page 2 of 2

T: F: