

# **OIL ANALYSIS REPORT**

Sample Rating Trend

## NORMAL

Machine Id **Hurricane Creek 3** Component

**Natural Gas Engine** 

PETRO CANADA SENTRON LD 3000 (--- GAL)

### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

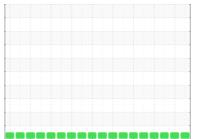
All component wear rates are normal.

#### Contamination

Fuel content negligible. 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.



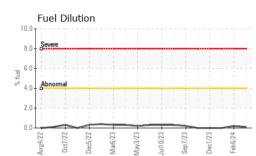


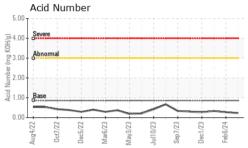
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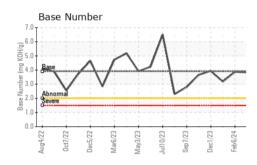
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0112006	PCA0091334	PCA0091328
Sample Date		Client Info		04 Mar 2024	06 Feb 2024	02 Jan 2024
Machine Age	hrs	Client Info		143866	143213	142385
Oil Age	hrs	Client Info		4481	3828	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
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	0	0	<1
Chromium	ppm	ASTM D5185m	>4	0	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	1	1	2
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>35	0	0	<1
Tin	ppm	ASTM D5185m	>4	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	5	0	0	0
Barium	ppm	ASTM D5185m	1	0	0	0
Molybdenum	ppm	ASTM D5185m	2	0	0	-
	ppin		-	0	0	<1
Manganese	ppm		1	<1	<1	0
Manganese Magnesium				-		
•	ppm	ASTM D5185m	1	<1	<1	0
Magnesium Calcium Phosphorus	ppm ppm	ASTM D5185m ASTM D5185m	1 5	<1 9	<1 10	0 10
Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220	<1 9 1206	<1 10 1215	0 10 1300
Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298	<1 9 1206 272	<1 10 1215 290	0 10 1300 312
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350	<1 9 1206 272 343	<1 10 1215 290 338	0 10 1300 312 338 2362 history2
Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995	<1 9 1206 272 343 2242	<1 10 1215 290 338 2297	0 10 1300 312 338 2362
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <i>limit/base</i> >+100	<1 9 1206 272 343 2242 current	<1 10 1215 290 338 2297 history1	0 10 1300 312 338 2362 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <i>limit/base</i> >+100	<1 9 1206 272 343 2242 current 1	<1 10 1215 290 338 2297 history1	0 10 1300 312 338 2362 history2 2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20	<1 9 1206 272 343 2242 current 1 1	<1 10 1215 290 338 2297 history1 1 1	0 10 1300 312 338 2362 history2 2 0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20	<1 9 1206 272 343 2242 current 1 1 1	<1 10 1215 290 338 2297 history1 1 1 1 1	0 10 1300 312 338 2362 history2 2 0 2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >20	<1 9 1206 272 343 2242 current 1 1 1 1 1 0.1	<1 10 1215 290 338 2297 history1 1 1 1 1 1 0.2	0 10 1300 312 338 2362 history2 2 0 2 0 2 0.0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >4.0	<1 9 1206 272 343 2242 current 1 1 1 1 0.1 current	<1 10 1215 290 338 2297 history1 1 1 1 1 0.2 history1	0 10 1300 312 338 2362 history2 2 0 2 0 2 0.0 2 0.0 bistory2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >4.0	<1 9 1206 272 343 2242 current 1 1 1 1 0.1 current 0	<1 10 1215 290 338 2297 history1 1 1 1 0.2 history1 0	0 10 1300 312 338 2362 history2 2 0 2 0 0 2 0.0 history2 0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844	1 5 1220 298 350 1995 <b>limit/base</b> >+100 >20 >20 >20 >20 >4.0	<1 9 1206 272 343 2242 current 1 1 1 0.1 current 0 3.4	<1 10 1215 290 338 2297 history1 1 1 1 1 1 0.2 history1 0 3.4	0 10 1300 312 338 2362 history2 2 0 2 0 2 0.0 2 0.0 history2 0 3.5
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7624	1 5 1220 298 350 1995 <b>imit/base</b> >20 >20 >20 >4.0 <b>imit/base</b> >15 >25	<1 9 1206 272 343 2242 current 1 1 1 0.1 current 0 3.4 13.9	<1 10 1215 290 338 2297 history1 1 1 1 1 1 0.2 history1 0 3.4 14.0	0 10 1300 312 338 2362 history2 2 0 2 0 2 0.0 history2 0 3.5 13.9
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 ASTM D3524 ASTM D7844 *ASTM D7624 *ASTM D7615	1 5 1220 298 350 1995 <b>imit/base</b> >20 >20 >20 >4.0 <b>imit/base</b> >15 >25 <b>imit/base</b>	<1 9 1206 272 343 2242 current 1 1 1 1 0.1 current 0 3.4 13.9 current	<1 10 1215 290 338 2297 history1 1 1 1 1 0.2 history1 0 3.4 14.0 history1	0 10 1300 312 338 2362 history2 2 0 2 0.0 2 0.0 history2 0 3.5 13.9 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm % % Abs/cm Abs/cm	ASTM D5185m ASTM D5185 ASTM D7844 *ASTM D7624 *ASTM D7614	1 5 1220 298 350 1995 <b>imit/base</b> >20 >20 >20 >4.0 <b>imit/base</b> >25 <b>imit/base</b>	<1 9 1206 272 343 2242 current 1 1 1 1 0.1 current 0 3.4 13.9 current 7.6	<1 10 1215 290 338 2297 history1 1 1 1 1 0.2 history1 0 3.4 14.0 history1 7.8	0 10 1300 312 338 2362 history2 2 0 2 0.0 2 0.0 history2 0 3.5 13.9 history2 7.8

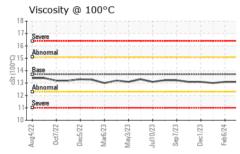


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	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Dec1/23 Feb6/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Fel	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPER	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	13.7	13.1	13.1	13.0
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	100 Severe				Severe		
Dec1/23 Feb6/24	80				10		
	40	1 1		Ed 3	80 - Abnormal		_
	20				20 -		
	0			_	0		
	Aug4/22 0ct7/22 Dec5/22 Mar6/23	May3/23 Jul10/23	Sep7/23 Dec1/23	Feb 6/24	Aug4/22 0ct7/22 Dec5/22	Mar6/23 May3/23 Jul10/23	Sep 7/23 Dec1/23 Feb6/24
	Au De Ma	Ma	Se	e E	Au Oc	Ma Ma Jul	Se De
	Aluminum (ppm)				Chromium (p	opm)	
	S				Smillero		
					° 4		
Dec1/23	E 10 - Abnormal				4 - Abnormal		
Feb	5	Λ			2		
		1	$\sim$	-			
	Aug4/22 0ct7/22 Dec5/22 Mar6/23	May3/23 Jul10/23	Sep7/23 Dec1/23	Feb 6/24	Aug4/22 0ct7/22 Dec5/22	Mar6/23 May3/23 Jul10/23	Sep7/23 Dec1/23 Feb6/24
	Copper (ppm)	2 7			Silicon (ppm)	,	
	80 Severe	- T - I - T - T - T		20	00 Severe		
	60			15	50		
	E 40 Abnormal			- 	0 - Abnormal		
	20-				50 -		
Dec1/23 -	0				0		
Feb	Aug4/22	May3/23 - Jul10/23 -	Sep7/23 . Dec1/23	Feb6/24	Aug4/22 1 0 0 ct7/22 0 Dec5/22 0	Mar6/23 - May3/23 - Jul10/23 -	Sep7/23 - Dec1/23 - Feb6/24 -
		Ma Jul	Se	Fe		_ /	Se De
	Viscosity @ 100°C Base Number						
	0			9,01,01 Base Mumber (mg KOH/(g) 7.			
	Abnormal			y Bu	.0		
	16 + Abnormal (2001) 14 - Base Abnormal Abnormal			and the second s	.0 Base	$/ \sim \langle$	
	12 - Severe	- + +		N 2.	.0 - Abnormal		-
	10			0.	.0		+ 3 3
	Aug4/22 0ct7/22 Dec5/22 Mar6/23	May3/23 Jul10/23	Sep7/23 Dec1/23	Feb6/24	Aug4/22 0ct7/22 Dec5/22	Mar6/23 May3/23 Jul10/23	Sep7/23 Dec1/23 Feb6/24
						- 2 7	
Sample No. Lab Number Unique Number	: WearCheck USA - 501 : PCA0112006 : 06113710 : 10917207 : MOB 2 ( Additional Tes	Receiv Testeo Diagno	ved : 08 d : 12 osed : 12	Mar 2024 Mar 2024 Mar 2024 - V		2830 LAUREL E	G - HURRICANE BRANCH ROAD VANSANT, VA US 24656 Gervice Manager

Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - 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)

Contact/Location: Service Manager - ENEVANH