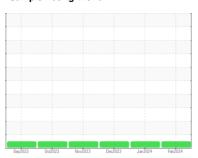


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id **48** 

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. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

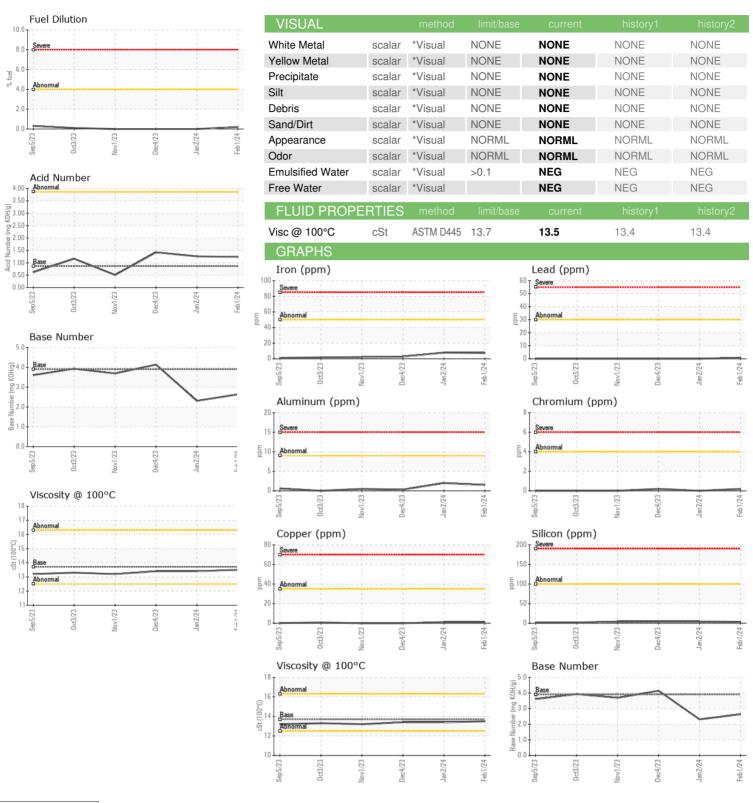
### **Fluid Condition**

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.

Sample Number   Client Info   PCA0117162   PCA0111964   PCA0111965   PCA0111964   PCA0111964   PCA0111965   PCA0111964   PCA0111965   PCA011965   PCA011965	AL)		Sep2023	0et2023 Nov2023	Dec2023 Jan2024	Feb 2024	
Sample Date   Client Info   96998   92 Jan 2024   04 Dec 202   08 Alachine Age   hrs   Client Info   96998   96333   95638	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   96998   96333   95638     Oil Age   hrs   Client Info   3991   3326   2631     Oil Changed   Not Changed   Not Changed   Not Changed   NORMAL   NORMAL   NORMAL     CONTAMINATION   method   Imitibase   current   history1   history2     Water   WC Method   >0.1   NEG   NEG   NEG   NEG     WEAR METALS   method   Imitibase   current   history1   history2     Iron   ppm   ASTM D5185m   >60   7   8   3     Chromium   ppm   ASTM D5185m   >4   <1   0   <1     Nickel   ppm   ASTM D5185m   >2   0   0   0     Oil Changed   NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL   NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL   NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL   NORMAL   NORMAL   NORMAL   NORMAL     NORMAL	Sample Number		Client Info		PCA0117162	PCA0111964	PCA0111952
Oil Age         hrs         Client Info         3991         3326         2631         Not Changd         Not Ch	Sample Date		Client Info		01 Feb 2024	02 Jan 2024	04 Dec 2023
Coli   Changed   Cilient Info   Not Changed   Nor Change	Machine Age	hrs	Client Info		96998	96333	95638
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2	Oil Age	hrs	Client Info		3991	3326	2631
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         7         8         3           Chromium         ppm         ASTM D5185m         >50         7         8         3           Chromium         ppm         ASTM D5185m         >4         <1         0         <1           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         2         2         2         <1           Lead         ppm         ASTM D5185m         >30         <1         0         0           Copper         ppm         ASTM D5185m         >355         1         1         0         0           Cadmium         ppm         ASTM D5185m         0         0	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         7         8         3           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >30         <1         0         0           Lead         ppm         ASTM D5185m         >30         <1         0         0           Copper         ppm         ASTM D5185m         >35         1         1         0           Cadadium         ppm         ASTM D5185m         >4         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2 </td <td>Sample Status</td> <td></td> <td></td> <td></td> <th>NORMAL</th> <td>NORMAL</td> <td>NORMAL</td>	Sample Status				NORMAL	NORMAL	NORMAL
VEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
Irron	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>50	7	8	3
Titanium	Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper         ppm         ASTM D5185m         >35         1         1         0           Tin         ppm         ASTM D5185m         >4         <1	Aluminum	ppm	ASTM D5185m	>9	2	2	<1
Tin	Lead	ppm	ASTM D5185m	>30	<1	0	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         1         0         0         0           Manganese         ppm         ASTM D5185m         1         <1         0         <1           Magnesium         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;35</td><th>1</th><td>1</td><td>0</td></th<>	Copper	ppm	ASTM D5185m	>35	1	1	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         3         5         3           Manganese         ppm         ASTM D5185m         1         <1	Tin	ppm	ASTM D5185m	>4	<1	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         1         <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         1         0         0         0           Molybdenum         ppm         ASTM D5185m         2         3         5         3           Manganese         ppm         ASTM D5185m         1         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         2         3         5         3           Manganese         ppm         ASTM D5185m         1         <1         0         <1           Magnesium         ppm         ASTM D5185m         5         11         10         12           Calcium         ppm         ASTM D5185m         5         11         10         12           Calcium         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         7         1         5           Potassium         ppm         ASTM D5185m         7         1	Boron	ppm	ASTM D5185m		0	0	
Manganese         ppm         ASTM D5185m         1         <1         0         <1           Magnesium         ppm         ASTM D5185m         5         11         10         12           Calcium         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         350         347         331         353           Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >0	Barium	ppm	ASTM D5185m	1	-		0
Magnesium         ppm         ASTM D5185m         5         11         10         12           Calcium         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         350         347         331         353           Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >	Molybdenum	ppm			3		3
Calcium         ppm         ASTM D5185m         1220         1283         1328         1305           Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         350         347         331         353           Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >7         1         5         0.0         0         0           Soot %	Manganese	ppm	ASTM D5185m	1	<1	0	
Phosphorus         ppm         ASTM D5185m         298         302         323         287           Zinc         ppm         ASTM D5185m         350         347         331         353           Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7624         >20         6.6	Magnesium	ppm		5			
Zinc         ppm         ASTM D5185m         350         347         331         353           Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >+100         4         4         4           Potassium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7414         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30 <th< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td>1220</td><th></th><td></td><td>1305</td></th<>	Calcium	ppm	ASTM D5185m	1220			1305
Sulfur         ppm         ASTM D5185m         1995         2301         2504         2375           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         7         1         5           Potassium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25 <t< td=""><td>Phosphorus</td><td>ppm</td><td>ASTM D5185m</td><td>298</td><th>302</th><td>323</td><td>287</td></t<>	Phosphorus	ppm	ASTM D5185m	298	302	323	287
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         4         4         4           Sodium         ppm         ASTM D5185m         >20         32         35         32           Potassium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045	Zinc	ppm	ASTM D5185m	350	347	331	353
Silicon         ppm         ASTM D5185m         >+100         4         4         4         4         4         Sodium         ppm         ASTM D5185m         7         1         5         7         1         5         5         7         1         5         32         32         35         32         32         35         32         32         35         32         32         35         32         32         35         32         32         4         0         1         2         3         1			ASTM D5185m	1995	2301	2504	2375
Sodium         ppm         ASTM D5185m         7         1         5           Potassium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         32         35         32           Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42	Silicon	ppm	ASTM D5185m	>+100	4	4	
Fuel         %         ASTM D3524         >4.0         0.2         0.0         0.0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42	Sodium	ppm	ASTM D5185m		7	1	5
INFRA-RED	Potassium		ASTM D5185m	>20	32	35	32
Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42		%	ASTM D3524	>4.0	0.2	0.0	0.0
Nitration         Abs/cm         *ASTM D7624         >20         6.6         6.2         5.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42	INFRA-RED			limit/base		history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         16.5         15.3         14.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42							
FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42		Abs/cm	*ASTM D7624	>20	6.6		5.3
Oxidation         Abs/.1mm         *ASTM D7414         >25         10.9         10.1         9.1           Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42				>30	16.5	15.3	14.5
Acid Number (AN)         mg KOH/g         ASTM D8045         0.86         1.23         1.26         1.42	FLUID DEGRAI	OITAC	method	limit/base	current	history1	history2
		Abs/.1mm	*ASTM D7414	>25	10.9	10.1	9.1
Base Number (BN)         mg KOH/g         ASTM D2896         3.9         2.64         2.31         4.14	Acid Number (AN)	mg KOH/g	ASTM D8045	0.86	1.23	1.26	1.42
	Base Number (BN)	mg KOH/g	ASTM D2896	3.9	2.64	2.31	4.14



## **OIL ANALYSIS REPORT**







Laboratory Sample No. Lab Number

: PCA0117162 : 06092451

Unique Number: 10885304

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 16 Feb 2024

: 20 Feb 2024 **Tested** Diagnosed

: 20 Feb 2024 - Wes Davis

**ENERVEST OPERATING - POPLAR GAP A** 1618 CRESCENT ROAD GRUNDY, VA

US 24614 Contact: Service Manager

Test Package: MOB 2 (Additional Tests: FuelDilution, PercentFuel) 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)

T: F: