

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 20071 Component

Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

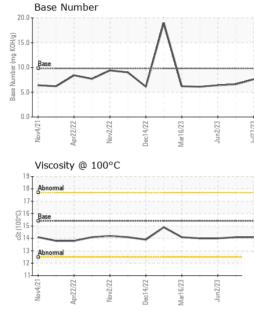
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0095294	PCA0098116	PCA0098119
Sample Date		Client Info		27 Jul 2023	08 Jun 2023	02 Jun 2023
Machine Age	hrs	Client Info		10678	10281	10223
Oil Age	hrs	Client Info		397	574	571
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	8	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	0	<1
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 2	history2 1
	ppm ppm					
Boron		ASTM D5185m	0	2	2	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 2	2 2	1 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 2 62	2 2 68	1 2 68
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 2 62 <1	2 2 68 <1	1 2 68 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 2 62 <1 928	2 2 68 <1 934	1 2 68 <1 938
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 2 62 <1 928 1051	2 2 68 <1 934 1082	1 2 68 <1 938 1091
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 2 62 <1 928 1051 942	2 2 68 <1 934 1082 1009	1 2 68 <1 938 1091 1007
Boron 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 2 62 <1 928 1051 942 1178	2 2 68 <1 934 1082 1009 1247	1 2 68 <1 938 1091 1007 1254
Boron 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	0 0 60 1010 1070 1150 1270 2060	2 2 62 <1 928 1051 942 1178 3063	2 2 68 <1 934 1082 1009 1247 3362	1 2 68 <1 938 1091 1007 1254 3415
Boron 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	0 0 60 1010 1070 1150 1270 2060	2 2 62 <1 928 1051 942 1178 3063 current	2 2 68 <1 934 1082 1009 1247 3362 history1	1 2 68 <1 938 1091 1007 1254 3415 history2
Boron 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	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 2 62 <1 928 1051 942 1178 3063 current 9	2 2 68 <1 934 1082 1009 1247 3362 history1 3	1 2 68 <1 938 1091 1007 1254 3415 history2 5
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	2 2 62 <1 928 1051 942 1178 3063 current 9 8	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9
Boron 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	0 0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	2 2 62 <1 928 1051 942 1178 3063 current 9 8 3	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 2 62 <1 928 1051 942 1178 3063 current 9 8 3 current	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2 2 history1	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	2 2 62 <1 928 1051 942 1178 3063 <i>current</i> 9 8 3 3 <i>current</i> 0.4	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2 history1 0.5	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2 2 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	2 2 62 <1 928 1051 942 1178 3063 current 9 8 3 current 0.4 7.3	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2 history1 0.5 7.8	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2 5 9 2 2 history2 0.5 7.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 1imit/base 23 20 20 330	2 2 62 <1 928 1051 942 1178 3063 <u>current</u> 9 8 3 <u>current</u> 0.4 7.3 19.1	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2 history1 0.5 7.8 20.0	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2 history2 0.5 7.9 20.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 1imit/base 23 20 20 330	2 2 62 <1 928 1051 942 1178 3063 current 9 8 3 current 0.4 7.3 19.1 current	2 2 68 <1 934 1082 1009 1247 3362 history1 3 8 2 history1 0.5 7.8 20.0 history1	1 2 68 <1 938 1091 1007 1254 3415 history2 5 9 2 history2 0.5 7.9 20.0 history2



OIL ANALYSIS REPORT

VISUAL



- A :		VIOUAL									
Λ		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE			
/ \		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE			
/ \		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE			
$\setminus \setminus$		Silt	scalar	*Visual	NONE	NONE	NONE	NONE			
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE			
		_ Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE			
722	723 -		scalar	*Visual	NORML	NORML	NORML	NORML			
Dec14/22 Mar16/23	Jun2/23 Jul27/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML			
u 2		Emulsified Water									
			scalar	*Visual	>0.2	NEG	NEG	NEG			
		Free Water	scalar	*Visual		NEG	NEG	NEG			
		FLUID PROPE	RTIES	method	limit/base	current	history1	history2			
~		Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.1	14.0			
\sim		GRAPHS									
		Ferrous Alloys									
2 2		400 350	A								
Dec14/22 Mar16/23	Jun2/23	300 - nickel									
Na De	-	250									
		Ē 200									
		150-									
		100									
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		Nov4/21 Apr22/22 Nov2/22	Dec14/22	Mar16/23 Jun2/23	Jul27/23						
		Non-ferrous Metal		⊻ ,	7						
		25 T									
		copper	A								
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		Nov4/21 Apr22/22 Nov2/22	Dec14/22	Mar16/23 Jun2/23	Jul27/23						
				Mar Ju	Jul						
		Viscosity @ 100°C	· ·			Base Number					
		18 - Abnormal			20.0	⁾					
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		13 Abnormal			(0,115.(),000 Base Number Base S.(]					
		12									
		11	22	23	0.0		22+	23			
		Nov4/21 Apr22/22 Nov2/22	Dec14/22	Mar16/23 Jun2/23	Jul27/23	Nov4/21 Apr22/22 Nov2/22	Dec14/22 Mar16/23	Jun2/23			
		A 1	ā	2 ,	-,	4 4	0 2				
		: WearCheck USA - 501 Madison Ave., Cary, NC 27513 LRS - BETHEL HEIGHTS (NWA									
4	Laboratory	: PCA0095294 Received : 10 Aug 2023 848 HW									
NAR	Laboratory Sample No.		Received	1 :107	: 05921283 Diagnosed : 11 Aug 2023						
	Sample No. Lab Number	: PCA0095294 : 05921283	Diagnos	ed :11,	Aug 2023			HEIGHTS, A			
	Sample No. Lab Number Unique Number	: PCA0095294 : 05921283 r : 10593197		ed :11,			BETHEL	HEIGHTS, AI US 7276			
	Sample No. Lab Number Unique Number Test Package	: PCA0095294 : 05921283 r : 10593197	Diagnose Diagnost	ed : 11 / tician : Sea	Aug 2023 In Felton		BETHEL Contact: RC	HEIGHTS, AI			

Submitted By: ALSO ORIVANAR ORIHAR ORITOP - JAMIE HAYWORTH