

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (36 QTS)

Decommondation	
Recommendation	

Resample at the next service interval to monitor.

Machine Id

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

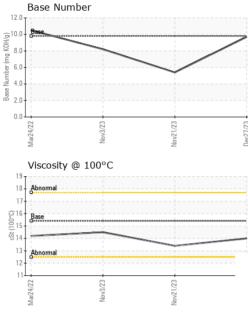
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0104319	GFL0059308	GFL0059172
Sample Date		Client Info		27 Dec 2023	21 Nov 2023	03 Nov 2023
Machine Age	hrs	Client Info		19966	3613	3528
Oil Age	hrs	Client Info		19966	0	0
Oil Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	20	70	26
Chromium	ppm	ASTM D5185m	>20	<1	2	1
Nickel	ppm	ASTM D5185m	>2	0	2	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	7
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	10	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2
	ppm ppm	method	limit/base		-	-
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 5	history1 1	history2 1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 5 0	history1 1 0	history2 1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 5 0 59	history1 1 0 57	history2 1 0 62
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 5 0 59 <1	history1 1 0 57 1	history2 1 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 5 0 59 <1 955	history1 1 0 57 1 843	history2 1 0 62 <1 1032
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 5 0 59 <1 955 1104	history1 1 0 57 1 843 1021	history2 1 0 62 <1 1032 1156
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 5 0 59 <1 955 1104 1058	history1 1 0 57 1 843 1021 872	history2 1 0 62 <1 1032 1156 1057
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 5 0 59 <1 955 1104 1058 1272	history1 1 0 57 1 843 1021 872 1081	history2 1 0 62 <1 1032 1156 1057 1405
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 5 0 59 <1 955 1104 1058 1272 3263	history1 1 0 57 1 843 1021 872 1081 1979	history2 1 0 62 <1 1032 1156 1057 1405 2974
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 00 00 1010 1070 1150 1270 2060	current 5 0 59 <1 955 1104 1058 1272 3263 current	history1 1 0 57 1 843 1021 872 1081 1979 history1	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 00 00 1010 1070 1150 1270 2060	current 5 0 59 <1 955 1104 1058 1272 3263 current 10	history1 1 0 57 1 843 1021 872 1081 1979 history1 4	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5 2	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7 0	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5 2 current	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7 0 history1	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1 1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5 2 current 0.2	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7 0 history1 1	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1 1 history2 1 1.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >6 >20	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5 2 current 0.2 5.2	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7 0 history1 1 9.9	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1 history2 1 history2 1 12.9
ADDITIVES 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 ppm TS ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >6 >20 >30	current 5 0 59 <1 955 1104 1058 1272 3263 current 10 5 2 current 0.2 5.2 17.5	history1 1 0 57 1 843 1021 872 1081 1979 history1 4 7 0 history1 1 9.9 22.4	history2 1 0 62 <1 1032 1156 1057 1405 2974 history2 6 1 history2 1.5 12.9 24.3



OIL ANALYSIS REPORT

VISUAL



	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
Nov21/23 Dec27/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov2 Dec2	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.4	14.5
	GRAPHS						
	Ferrous Alloys						
	iron		\wedge				
Nov21/23	60 - chromium	/					
Nc	50-	/					
	40 30	/					
	⁻ 30						
	20						
	10-						
				Lanaang			
	Mar24/22 Nov3/23		Nov21/23	Dec27/23			
	Nor		Novi	Dec			
	Non-ferrous Meta	als					
	10 copper 1		Λ				
	8 - neessaasse lead	/					
	un						
	6 - E	/					
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	Mar24/22 d		Nov21/23	Dec21723			
	4 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	c	Nov21/23	Dec21/23	Den Nuclea		
	4 2 0	C	Nov21/23	CZ/2220	Base Number		
	CZUPAZEW Viscosity @ 100°	C	Nov21/23	12.0	Base Number		
	Viscosity @ 100%	C	Nov21/23	12.0	Base Number		
	Viscosity @ 100°	C	Nov21/23	12.0	Base Number		
	Viscosity @ 100°	C	Nov21/23	12.0	Base Number		
	Viscosity @ 100%	С	Nov21/23	12.0	Base Number		
	Viscosity @ 100%	c	Nov21/23	12.0- 10.0- (\$)H(0) 8.0- 10,0 8.0- 10,0 8.0- 10,0 8.0- 10,0 8.0- 10,0 8.0- 10,0 8.0- 10,0 8.0- 10,0 - 10,0 - 10,0,	Base Number		
	Viscosity @ 100° Base 0,000115 14	C	Mov21/23	12.0	Base Number		
	Viscosity @ 100° Viscosity @ 100° Abnormal 10 3.001 15 4.13 Abnormal 12 11	C		12.0- 10.0- (\$)H(0) 8.0- 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Base		
	Viscosity @ 100° Viscosity @ 100° Abnormal 10 3.001 15 4.13 Abnormal 12 11	C		12.0- 10.0- (\$)H(0) 8.0- 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Base		
	Viscosity @ 100%	C	Nov21/23	12.0- 10.0- (0)HOX Bu0- bu0 to 6.0- to 4.0- 8 2.0-	Base Number	Minu 1.23	
	Viscosity @ 100%		Nov21/23	12.0- 10.0- (0)(N0) Buy (0)(N0) Base Mump as Base Mump as Base (0,0) (0,	Mar24/22	~	
Laboratory	Viscosity @ 100° Viscosity @ 100° Abnormal Abnormal CDFN2W CZCFN0W CZ	501 Madis	EEIIZOON Soon Ave., Ca	12.0- 10	Mar24/22	onmental - 410	- Michigan We
Laboratory Sample No.	Viscosity @ 100%	501 Madia Recieved	ECITION Soon Ave., Ca	12.0 10.0- 10.	Mar24/22	onmental - 410	- Michigan W e 10 Van Born F
Laboratory Sample No. Lab Number	Viscosity @ 100%	501 Madia Recieved Diagnose	E2112009 son Ave., Ca d : 29 l ed : 02 s	12.0 10.0	Mar24/22	onmental - 410	- Michigan We 10 Van Born F Wayne, I
Laboratory Sample No.	Viscosity @ 100° Viscosity @ 100° Annomal Annomal CCPCPU Service Servi	501 Madia Recieved	E2112009 son Ave., Ca d : 29 l ed : 02 s	12.0 10.0- 10.	Mar24/22	onmental - 410 3900	- Michigan W e 10 Van Born I

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