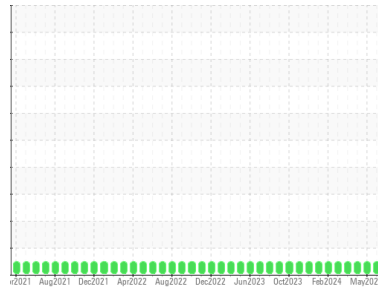


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
ALBERT LEA
 Machine Id
Unit 04 DB010104E
 Component
Natural Gas Engine
 Fluid
PETRO CANADA DURON MONOGRADE HD 40W (350 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: 12 gallons of lube oil added this month.)

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 INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PCA0124430	PCA0106496	PCA0106494
Sample Date	Client Info		30 Jun 2024	29 May 2024	29 Apr 2024
Machine Age	hrs	Client Info	15529	15518	15503
Oil Age	hrs	Client Info	15529	15518	15503
Oil Changed		Client Info	Not Chngd	Oil Added	Not Chngd
Sample Status			NORMAL	NORMAL	NORMAL

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	6	5	4
Chromium	ppm	ASTM D5185m >4	0	<1	0
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	0	<1	0
Aluminum	ppm	ASTM D5185m >9	1	2	<1
Lead	ppm	ASTM D5185m >30	<1	<1	0
Copper	ppm	ASTM D5185m >35	1	1	<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	2	<1	0
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	<1	1	<1
Manganese	ppm	ASTM D5185m	0	0	0
Magnesium	ppm	ASTM D5185m	884	867	982
Calcium	ppm	ASTM D5185m	1037	990	1098
Phosphorus	ppm	ASTM D5185m	1195	1110	1239
Zinc	ppm	ASTM D5185m	1341	1286	1413
Sulfur	ppm	ASTM D5185m	3686	3388	3947

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >+100	4	5	2
Sodium	ppm	ASTM D5185m	2	<1	<1
Potassium	ppm	ASTM D5185m >20	2	<1	<1
Fuel	%	ASTM D3524 >4.0	1.2	1.1	1.1

INFRA-RED

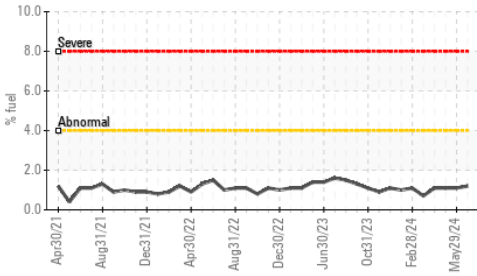
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	3.9	3.8	4.1
Sulfation	Abs/.1mm	*ASTM D7415 >30	13.2	13.0	13.5

FLUID DEGRADATION

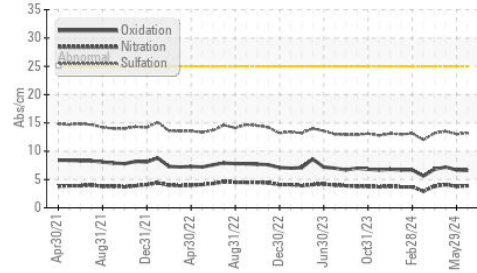
	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	6.6	6.7	7.2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.63	1.71	1.65
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	8.53	8.29	7.98

OIL ANALYSIS REPORT

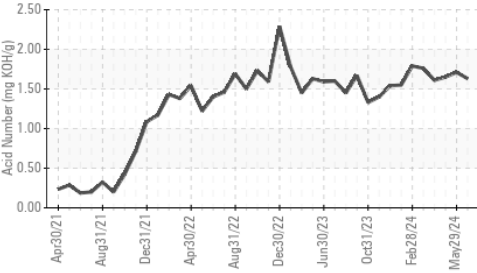
Fuel Dilution



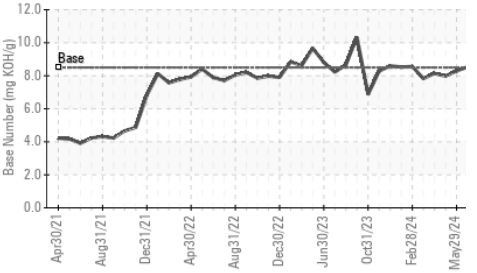
FT-IR (Direct Trend)



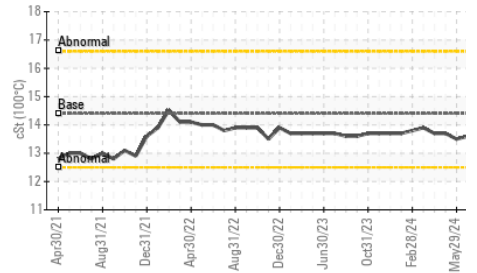
Acid Number



Base Number



Viscosity @ 100°C

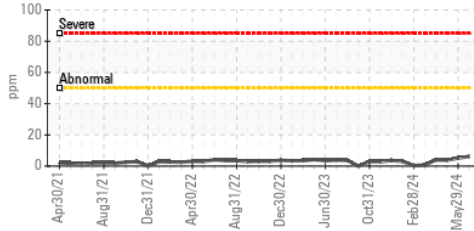


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

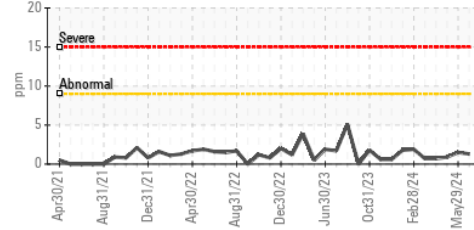
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.6	13.5

GRAPHS

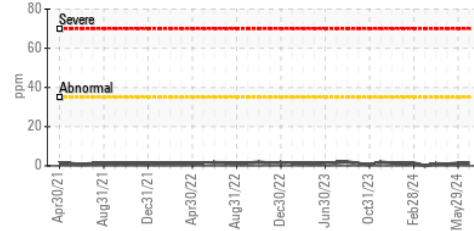
Iron (ppm)



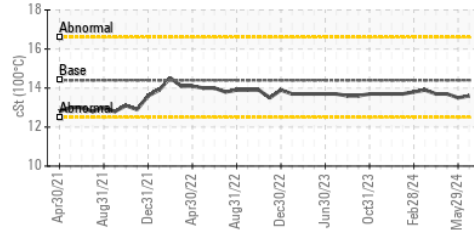
Aluminum (ppm)



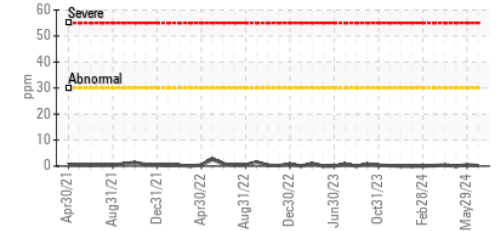
Copper (ppm)



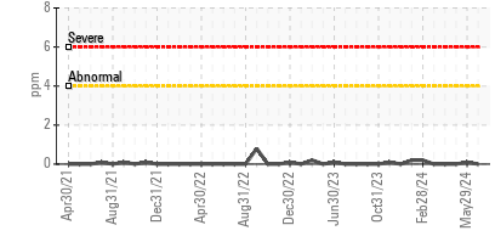
Viscosity @ 100°C



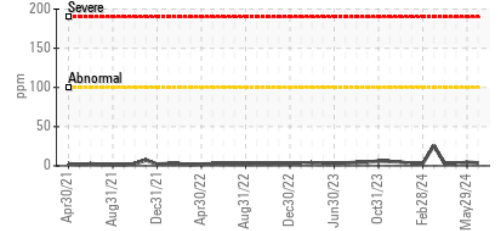
Lead (ppm)



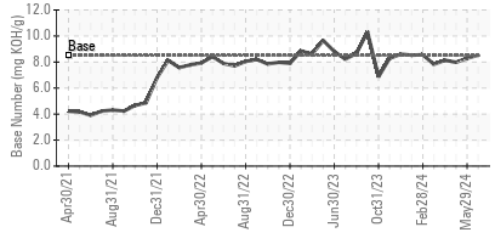
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : PCA0124430

Lab Number : 06231874

Unique Number : 11115367

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)

Received : 09 Jul 2024

Tested : 11 Jul 2024

Diagnosed : 11 Jul 2024 - Don Baldrige

Magellan Midstream LP - Albert Lea

11406 755th Avenue

Glenville, MN

US 56036

Contact: Shawn Duren

shawn.duren@magellanlp.com

T: (641)231-6666

F: