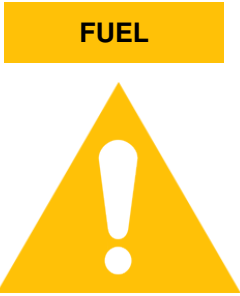
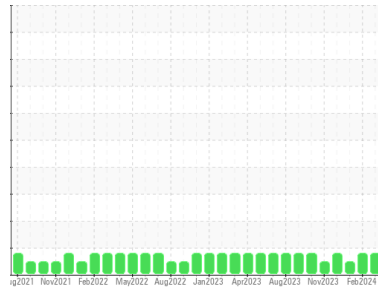


OIL ANALYSIS REPORT

Area
SIoux CITY
 Machine Id
[SIoux CITY] DB090102E Unit 02
 Component
Natural Gas Engine
 Fluid
PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)

Sample Rating Trend



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**
 Light fuel dilution occurring. No other contaminants were detected 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	PCA0096539	PCA0096538	PCA0096537
Sample Date	Client Info	29 Mar 2024	28 Feb 2024	31 Jan 2024
Machine Age	hrs	108057	107978	107895
Oil Age	hrs	9200	9121	9038
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		MARGINAL	MARGINAL	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	4	7	5
Chromium	ppm ASTM D5185m >4	0	0	<1
Nickel	ppm ASTM D5185m >2	<1	<1	0
Titanium	ppm ASTM D5185m	0	0	0
Silver	ppm ASTM D5185m >3	0	0	0
Aluminum	ppm ASTM D5185m >9	2	2	2
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	<1	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	0	1	<1
Barium	ppm ASTM D5185m	0	0	5
Molybdenum	ppm ASTM D5185m	0	2	<1
Manganese	ppm ASTM D5185m	<1	0	0
Magnesium	ppm ASTM D5185m	884	889	1011
Calcium	ppm ASTM D5185m	1003	982	1065
Phosphorus	ppm ASTM D5185m	1153	1135	1129
Zinc	ppm ASTM D5185m	1322	1245	1385
Sulfur	ppm ASTM D5185m	3667	2990	3236

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >+100	4	6	2
Sodium	ppm ASTM D5185m	3	2	0
Potassium	ppm ASTM D5185m >20	2	0	2
Fuel	% ASTM D3524 >4.0	▲ 2.0	▲ 2.0	1.8

INFRA-RED

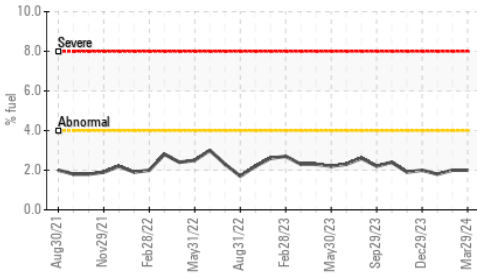
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	0.1	0	0
Nitration	Abs/cm *ASTM D7624 >20	4.0	4.0	3.9
Sulfation	Abs.:1mm *ASTM D7415 >30	12.9	12.8	13.0

FLUID DEGRADATION

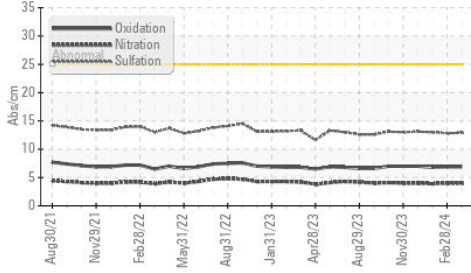
method	limit/base	current	history1	history2
Oxidation	Abs.:1mm *ASTM D7414 >25	6.9	6.9	6.8
Acid Number (AN)	mg KOH/g ASTM D8045	1.60	1.66	1.47
Base Number (BN)	mg KOH/g ASTM D2896 8.5	8.28	8.44	8.18

OIL ANALYSIS REPORT

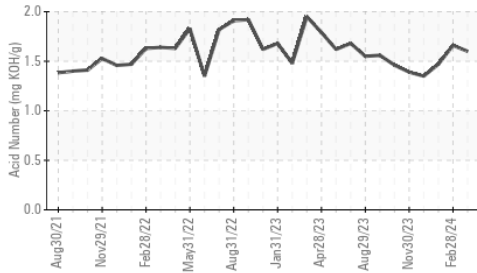
Fuel Dilution



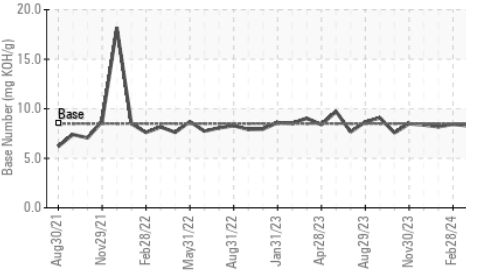
FT-IR (Direct Trend)



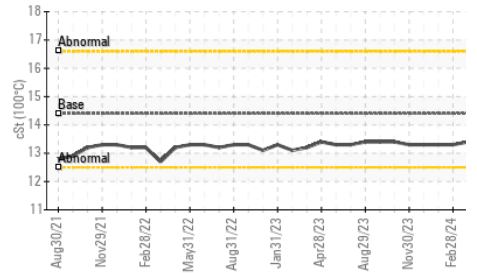
Acid Number



Base Number



Viscosity @ 100°C



VISUAL

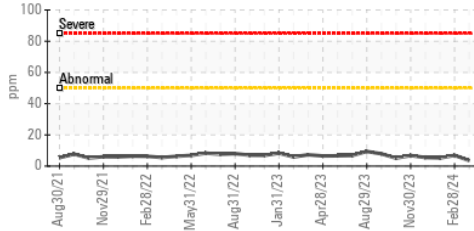
method	limit/base	current	history1	history2
White Metal	scalar *Visual	NONE	NONE	NONE
Yellow Metal	scalar *Visual	NONE	NONE	NONE
Precipitate	scalar *Visual	NONE	NONE	NONE
Silt	scalar *Visual	NONE	NONE	NONE
Debris	scalar *Visual	NONE	NONE	NONE
Sand/Dirt	scalar *Visual	NONE	NONE	NONE
Appearance	scalar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

FLUID PROPERTIES

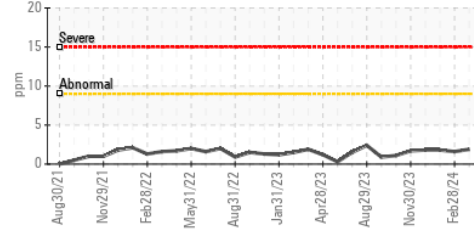
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445	14.4	13.4	13.3

GRAPHS

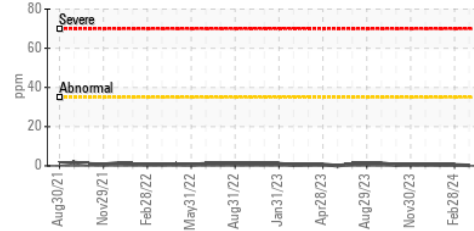
Iron (ppm)



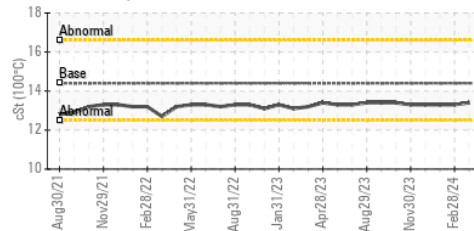
Aluminum (ppm)



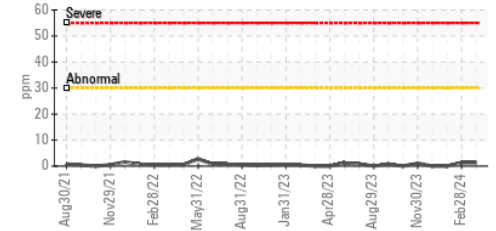
Copper (ppm)



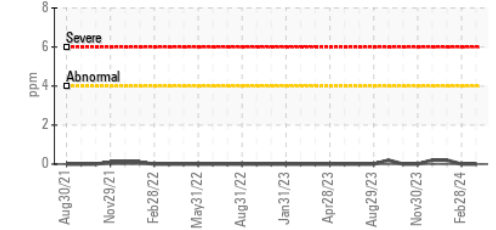
Viscosity @ 100°C



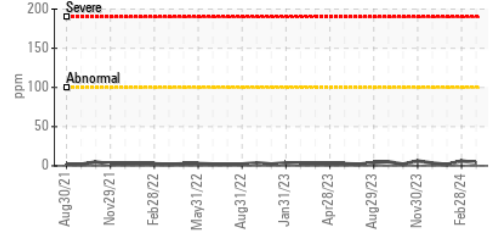
Lead (ppm)



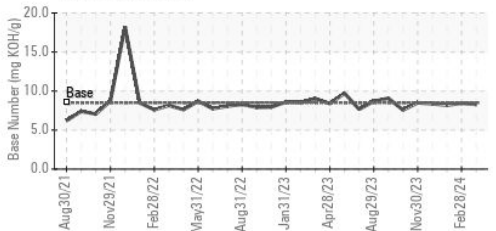
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

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

Sample No. : PCA0096539

Lab Number : 06139347

Unique Number : 10964155

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 : 04 Apr 2024

Tested : 08 Apr 2024

Diagnosed : 08 Apr 2024 - Don Baldrige

Magellan Midstream LP - Sioux City

4300 41st Street

Sioux Falls, IA

US 51108

Contact: Scott Guthmiller

scott.guthmiller@magellanlp.com

T: (721)251-8554

F: