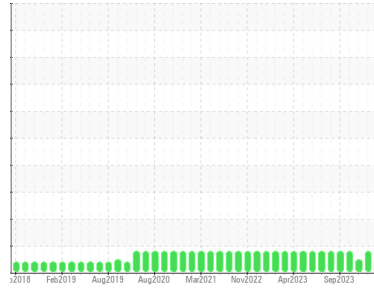


OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
MARSHALL
 Machine Id
[MARSHALL] DB100101E Unit 01
 Component
Natural Gas Engine
 Fluid
PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

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		PCA0073216	PCA0073215	PCA0073214
Sample Date	Client Info		30 Jan 2024	29 Dec 2023	29 Nov 2023
Machine Age	hrs	Client Info	15539	15175	14547
Oil Age	hrs	Client Info	15539	15175	14547
Oil Changed	Client Info		Filtered	Filtered	Filtered
Sample Status			NORMAL	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	3	3	2
Chromium	ppm	ASTM D5185m >4	0	0	0
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m	0	<1	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >9	2	1	1
Lead	ppm	ASTM D5185m >30	<1	1	1
Copper	ppm	ASTM D5185m >35	<1	1	2
Tin	ppm	ASTM D5185m >4	<1	<1	0
Vanadium	ppm	ASTM D5185m	0	<1	<1
Cadmium	ppm	ASTM D5185m	0	<1	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	2	2
Barium	ppm	ASTM D5185m	0	0	<1
Molybdenum	ppm	ASTM D5185m	2	2	2
Manganese	ppm	ASTM D5185m	0	<1	0
Magnesium	ppm	ASTM D5185m	871	905	916
Calcium	ppm	ASTM D5185m	998	1059	1064
Phosphorus	ppm	ASTM D5185m	1051	1055	1076
Zinc	ppm	ASTM D5185m	1239	1234	1288
Sulfur	ppm	ASTM D5185m	2947	2884	2751

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >+100	3	2	4
Sodium	ppm	ASTM D5185m	<1	2	2
Potassium	ppm	ASTM D5185m >20	1	0	0
Fuel	%	ASTM D3524 >4.0	1.8	▲ 2.2	0.0

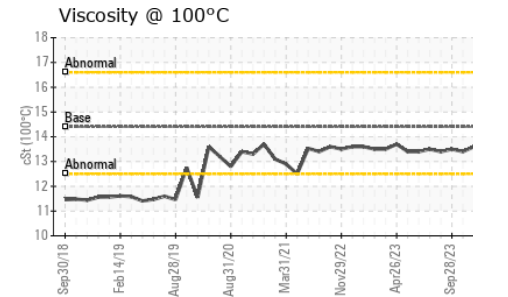
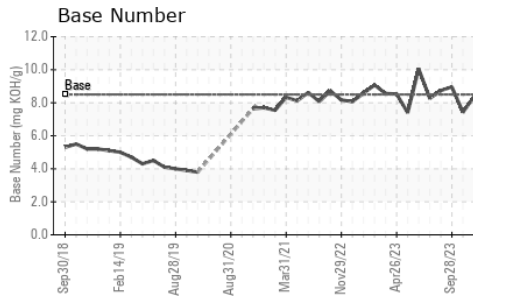
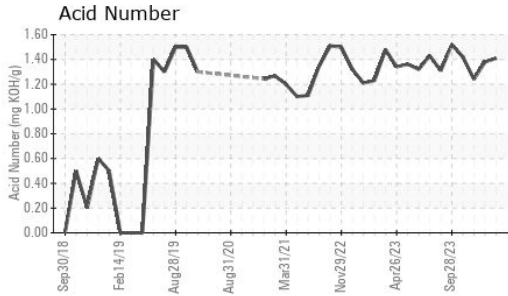
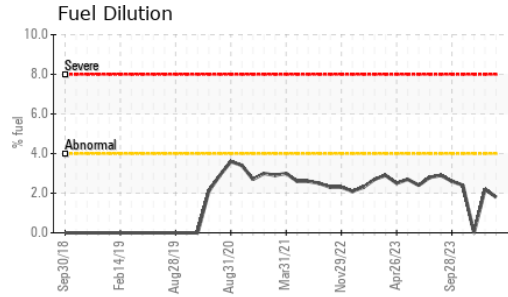
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0	0
Nitration	Abs/cm	*ASTM D7624 >20	4.3	4.4	4.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	13.7	13.6	13.7

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	7.5	7.6	7.6
Acid Number (AN)	mg KOH/g	ASTM D8045	1.41	1.38	1.24
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	8.21	8.18	8.35

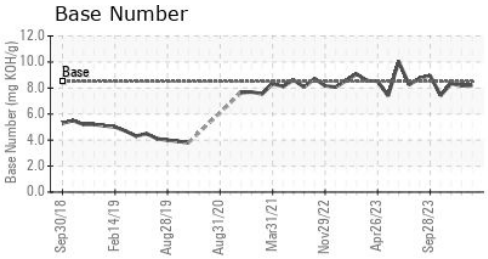
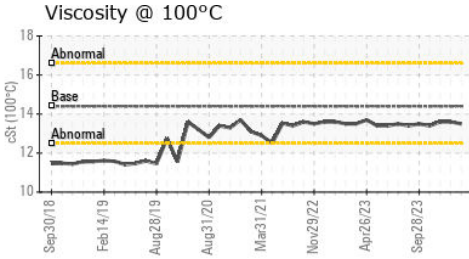
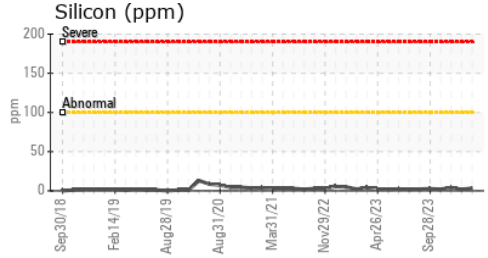
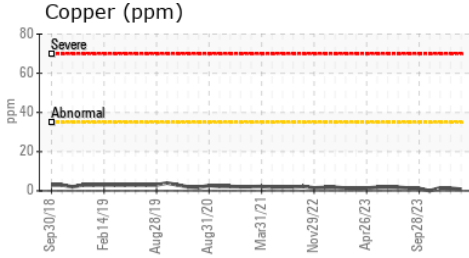
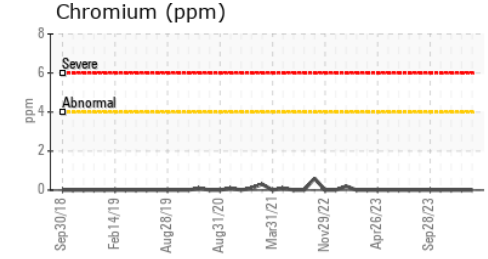
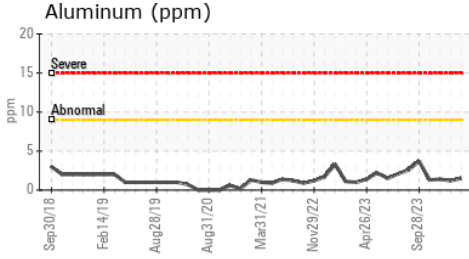
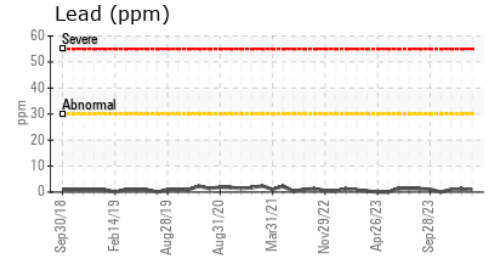
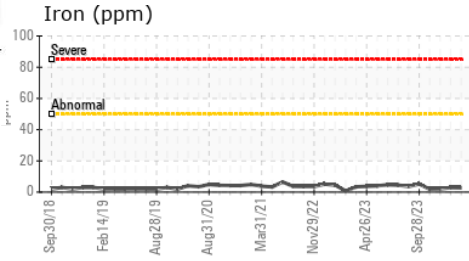
OIL ANALYSIS REPORT



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	13.5	13.6

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0073216 **Received** : 02 Feb 2024
Lab Number : 06079240 **Diagnosed** : 06 Feb 2024
Unique Number : 10861331 **Diagnostician** : Sean Felton
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Magellan Midstream LP - Marshall
 1601 West College Drive
 Marshall, MN
 US 56258
 Contact: Brett Erickson
 brett.erickson@magellanlp.com
 T: (519)822-1260
 F:

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)