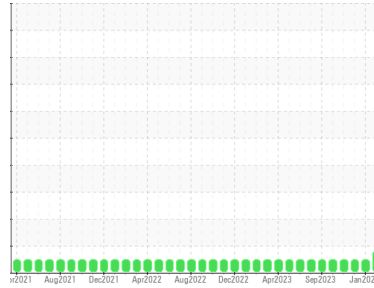


OIL ANALYSIS REPORT

Sample Rating Trend

FUEL

Area
FARIBAULT
 Machine Id
[FARIBAULT] Unit 03 DB020103E
 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: 91 gallons of lube oil added this month.)

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		PCA0098887	PCA0098886	PCA0098885
Sample Date	Client Info		29 Feb 2024	25 Jan 2024	28 Dec 2023
Machine Age	hrs	Client Info	1723	987	408
Oil Age	hrs	Client Info	1723	987	408
Oil Changed	Client Info		Not Chngd	Oil Added	Not Chngd
Sample Status			MARGINAL	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	3	5	5
Chromium	ppm	ASTM D5185m >4	<1	<1	0
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >9	2	2	<1
Lead	ppm	ASTM D5185m >30	<1	<1	<1
Copper	ppm	ASTM D5185m >35	5	4	3
Tin	ppm	ASTM D5185m >4	<1	0	<1
Vanadium	ppm	ASTM D5185m	0	0	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	2	2
Barium	ppm	ASTM D5185m	0	5	0
Molybdenum	ppm	ASTM D5185m	2	2	3
Manganese	ppm	ASTM D5185m	0	0	<1
Magnesium	ppm	ASTM D5185m	929	896	902
Calcium	ppm	ASTM D5185m	1019	1025	1024
Phosphorus	ppm	ASTM D5185m	1062	1114	1011
Zinc	ppm	ASTM D5185m	1327	1246	1268
Sulfur	ppm	ASTM D5185m	3079	3390	2991

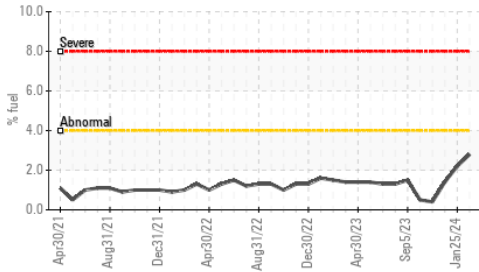
CONTAMINANTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >+100	5	5	6
Sodium	ppm	ASTM D5185m	1	0	1
Potassium	ppm	ASTM D5185m >20	1	1	0
Fuel	%	ASTM D3524 >4.0	▲ 2.8	2.2	1.4

INFRA-RED	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0	0
Nitration	Abs/cm	*ASTM D7624 >20	4.0	3.7	3.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	13.5	12.9	12.5

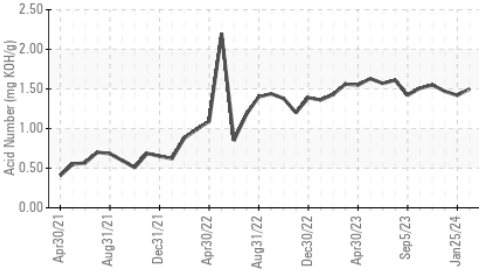
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	7.2	6.7	6.2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.50	1.42	1.47
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	8.10	8.15	8.15

OIL ANALYSIS REPORT

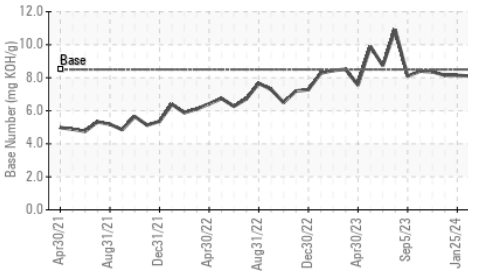
▲ Fuel Dilution



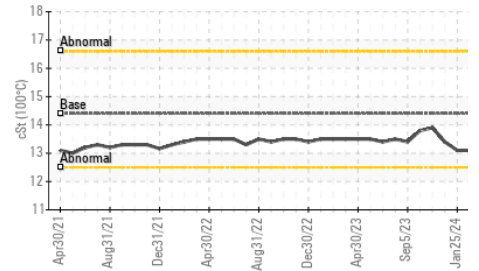
Acid Number



Base Number



Viscosity @ 100°C

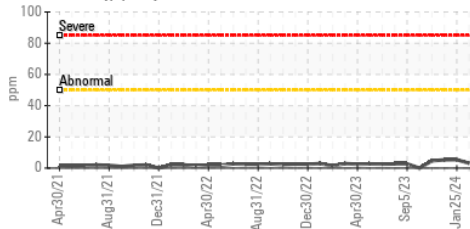


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

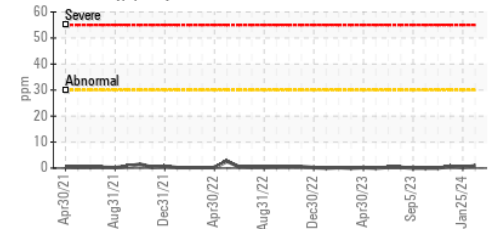
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.1	13.4

GRAPHS

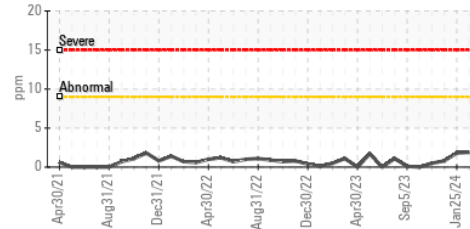
Iron (ppm)



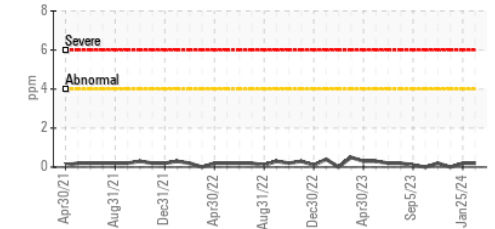
Lead (ppm)



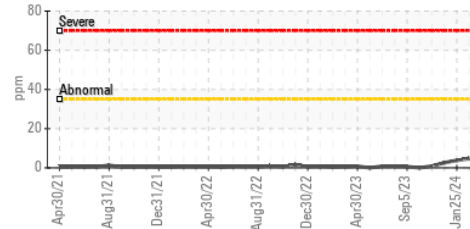
Aluminum (ppm)



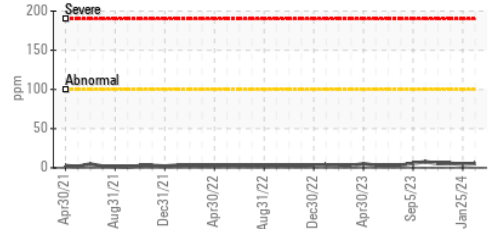
Chromium (ppm)



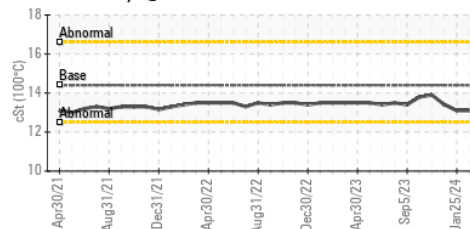
Copper (ppm)



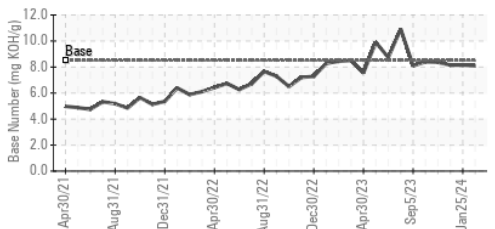
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : PCA0098887

Lab Number : 06108847

Unique Number : 10912344

Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Received : 05 Mar 2024

Tested : 07 Mar 2024

Diagnosed : 07 Mar 2024 - Sean Felton

Magellan Midstream LP - Faribault

22535 Bagley Avenue

Faribault, MN

US 55021

Contact: Jon Coulter

Jon.Coulter@magellanlp.com

T: (507)381-9649

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)