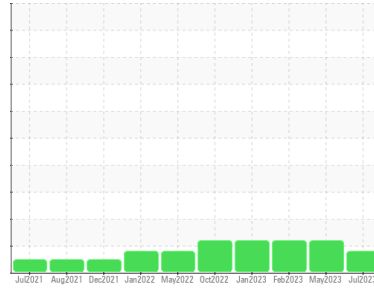


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area
RIDGEWAY
Machine Id
[RIDGEWAY] DB170105E Unit 05
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON MONOGRADE HD 40W (350 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present 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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PCA0094545	PCA0094544	PCA0053726
Sample Date	Client Info	31 Jul 2023	30 May 2023	27 Feb 2023
Machine Age	hrs	28954	28301	27526
Oil Age	hrs	4544	3891	3116
Oil Changed	Client Info	N/A	Not Changd	Not Changd
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >50	8	11	14
Chromium	ppm	ASTM D5185m >4	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	<1	<1	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	<1	0	0
Aluminum	ppm	ASTM D5185m >9	3	3	2
Lead	ppm	ASTM D5185m >30	3	2	2
Copper	ppm	ASTM D5185m >35	6	4	5
Tin	ppm	ASTM D5185m >4	1	1	<1
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	<1	0	0

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	14	14	16
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	20	18	21
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	845	832	687
Calcium	ppm	ASTM D5185m	1357	1239	1209
Phosphorus	ppm	ASTM D5185m	1125	1066	885
Zinc	ppm	ASTM D5185m	1360	1275	1085
Sulfur	ppm	ASTM D5185m	3570	3869	3081

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >+100	3	3	5
Sodium	ppm	ASTM D5185m	2	3	2
Potassium	ppm	ASTM D5185m >20	<1	<1	0
Fuel	%	ASTM D3524 >4.0	▲ 5.2	▲ 4.6	▲ 6.8

INFRA-RED

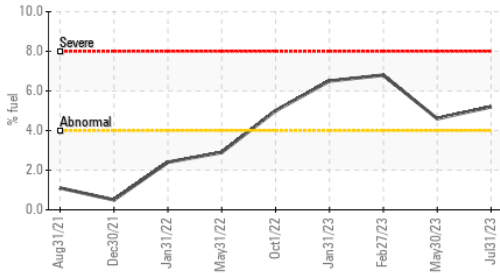
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	5.1	5.0	4.9
Sulfation	Abs/.1mm	*ASTM D7415 >30	14.6	14.1	13.9

FLUID DEGRADATION

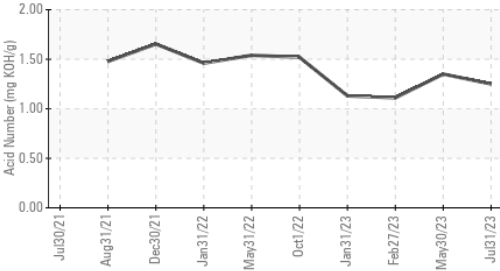
method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	8.8	7.2	7.1
Acid Number (AN)	mg KOH/g	ASTM D8045	1.25	1.35	1.11
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	7.50	10.09	6.96

OIL ANALYSIS REPORT

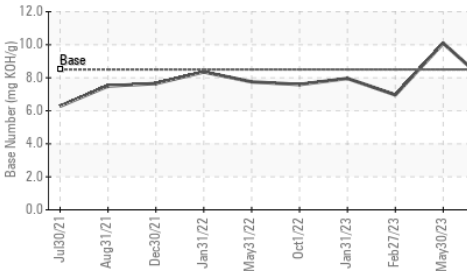
▲ Fuel Dilution



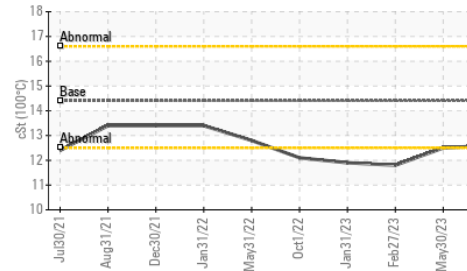
Acid Number



Base Number



Viscosity @ 100°C

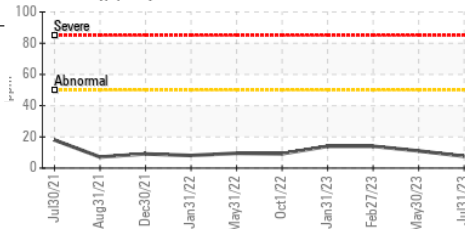


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

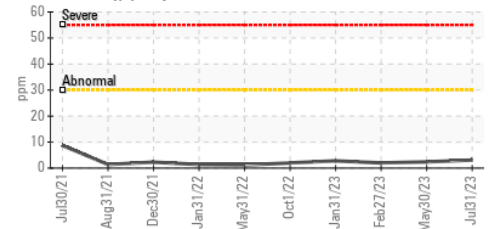
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.6	▲ 12.5 ▲ 11.8

GRAPHS

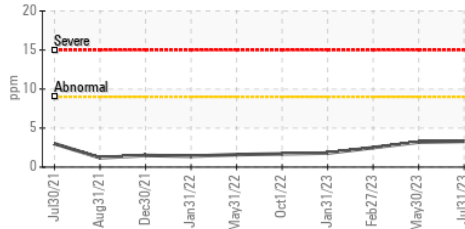
Iron (ppm)



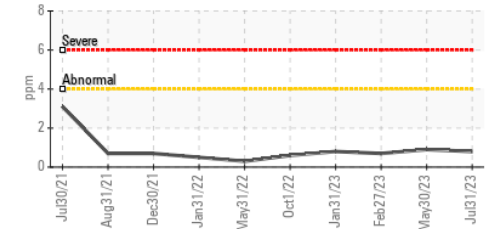
Lead (ppm)



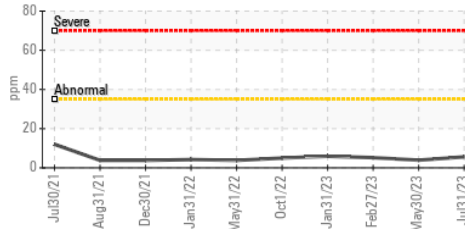
Aluminum (ppm)



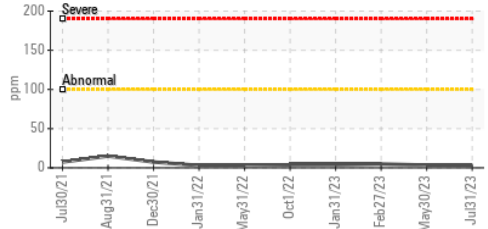
Chromium (ppm)



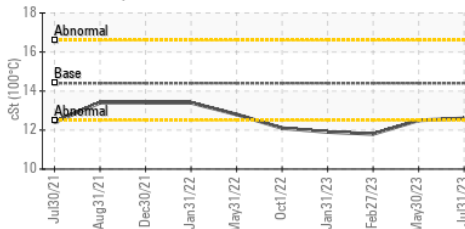
Copper (ppm)



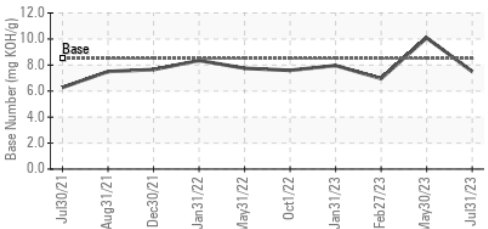
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0094545 **Received** : 07 Aug 2023
Lab Number : 05918212 **Diagnosed** : 09 Aug 2023
Unique Number : 10590126 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Magellan Midstream LP - Ridgeway
 20471 West 230 Place
 Ridgeway, MO
 US 64481
 Contact: Kevin Meister
 kevin.meister@magellanlp.com
 T: (660)872-6417
 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)