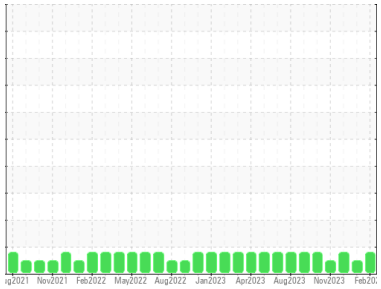
OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

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

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		**PCA0096538**	PCA0096537	PCA0096536
Sample Date		Client Info		**28 Feb 2024**	31 Jan 2024	29 Dec 2023
Machine Age	hrs	Client Info		**107978**	107895	107751
Oil Age	hrs	Client Info		**9121**	9038	8894
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**MARGINAL**	NORMAL	MARGINAL

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	**7**	5	6
Chromium	ppm	ASTM D5185m	>4	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	0	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**	0	0
Copper	ppm	ASTM D5185m	>35	**<1**	<1	<1
Tin	ppm	ASTM D5185m	>4	**<1**	0	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**1**	<1	1
Barium	ppm	ASTM D5185m		**0**	5	5
Molybdenum	ppm	ASTM D5185m		**2**	<1	<1
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m		**889**	1011	974
Calcium	ppm	ASTM D5185m		**982**	1065	1077
Phosphorus	ppm	ASTM D5185m		**1135**	1129	1141
Zinc	ppm	ASTM D5185m		**1245**	1385	1347
Sulfur	ppm	ASTM D5185m		**2990**	3236	3374

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+100	**6**	2	4
Sodium	ppm	ASTM D5185m		**2**	0	0
Potassium	ppm	ASTM D5185m	>20	**0**	2	1
Fuel	%	ASTM D3524	>4.0	▲ **2.0**	1.8	▲ 2.0

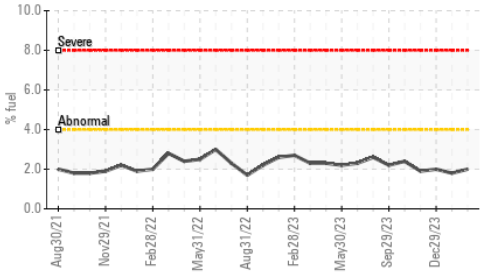
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0
Nitration	Abs/cm	*ASTM D7624	>20	**4.0**	3.9	4.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**12.8**	13.0	13.1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**6.9**	6.8	7.0
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.66**	1.47	1.35
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**8.44**	8.18	8.36

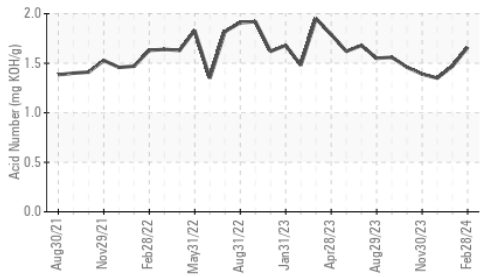
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

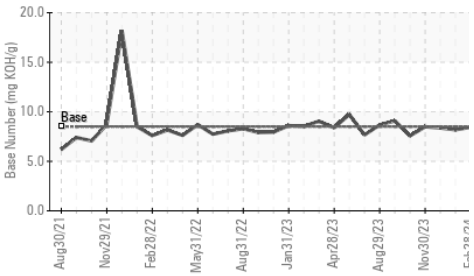
Fuel Dilution



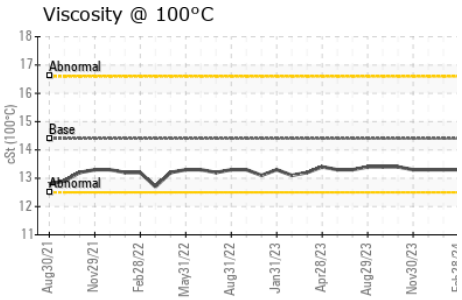
Acid Number



Base Number



Viscosity @ 100°C

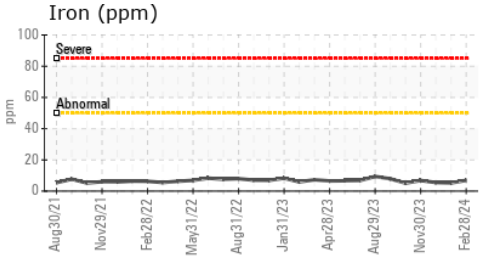


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

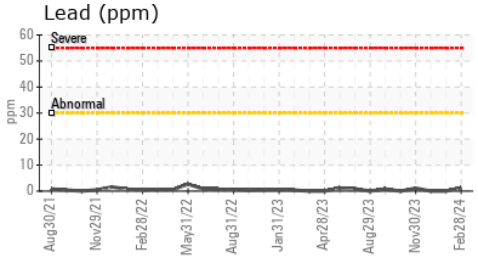
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**13.3**	13.3	13.3

GRAPHS

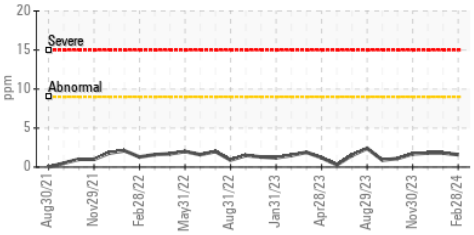
Iron (ppm)



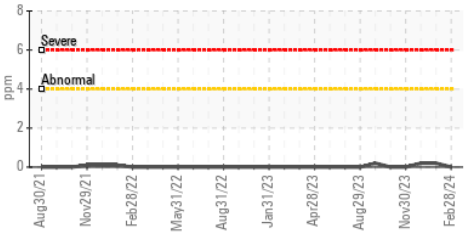
Lead (ppm)



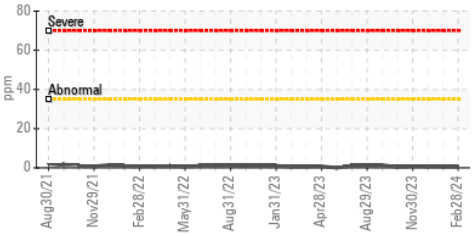
Aluminum (ppm)



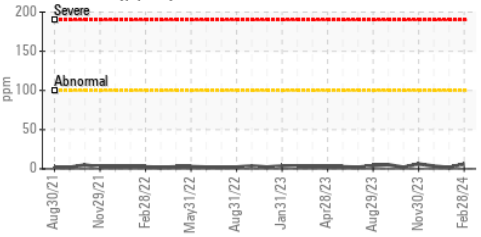
Chromium (ppm)



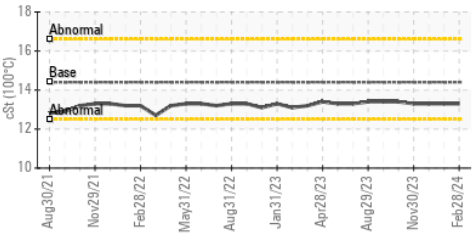
Copper (ppm)



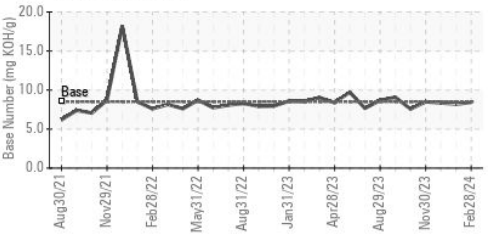
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0096538
Lab Number : 06108187
Unique Number : 10911684
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

Received : 04 Mar 2024
Tested : 06 Mar 2024
Diagnosed : 06 Mar 2024 - Sean Felton

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)

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: